The 2015 (2009-2013) summer/fall Chinook Salmon Habitat Status and Trend Report is currently undergoing revisions.

The Population, Diagnostic Unit and Reach report cards can be found in the following document, however, it currently exists without the benefit of textual synthesis and interpretation.

Guidance for interpretation can be found in Chapters 1-3 of the 2013 Chinook Habitat Status and Trend Report found at the following link or one of the contacts listed below.

http://cctobmep.com/media/files/2013ChinookHabitatStatusandTrendReport_ElectronicOnly.pdf

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OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# SALMONID POPULATION REPORT CARD

## 2013 Habitat Status and Trend Cycle

**Subbasin** Okanogan (US)

**Species** Chinook

**Poulation** Okanogan Summer/Fall

**Stauts & Trend Year** 2013

**Trend Comparison** 2013 to 2009

## Summary of EDT Population Parameters

| Population Parameter | 2013 Scenario Result |
|---|---|
| Habitat Capacity | 17,411 |
| Habitat Productivity | 5.8 Adults/Spawner |
| Equilibrium Abundance | 14,408 |
| Juvenile Capacity | 1,728,775 |
| Juvenile Productivity | 428 Migrants/Spawner |
| Juvenile Abundance (Columbia River Mouth) | 238,304 |
| Smolt to Adult Ocean Survival (Columbia River Mouth to Columbia River Mouth) | 2.22% |
| Smolt to Spawner Survival (Columbia River Mouth to Spawning Grounds) | 0.98% |

## Management Milestones

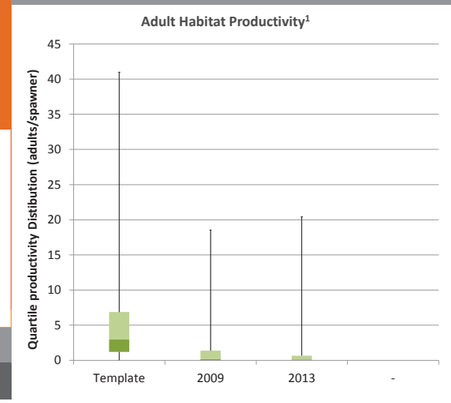
Actions - Revisions to template and 2009 baseline required due to substantial Okanogan EDT model revisions

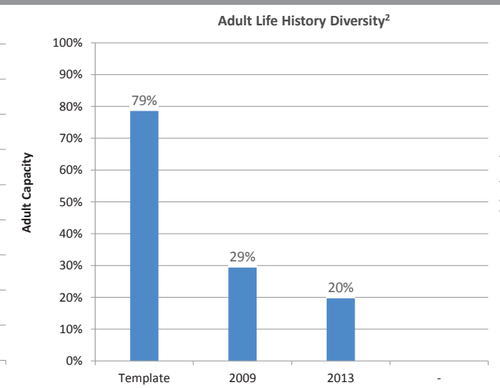
New EDT reporting - New results format customized for CCT reporting needs

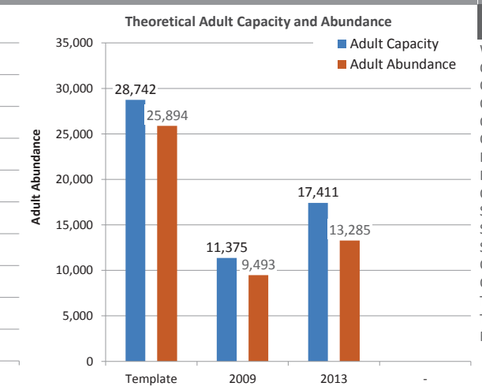
Data quality - 90% of EDT Level 2 inputs from quantitative data

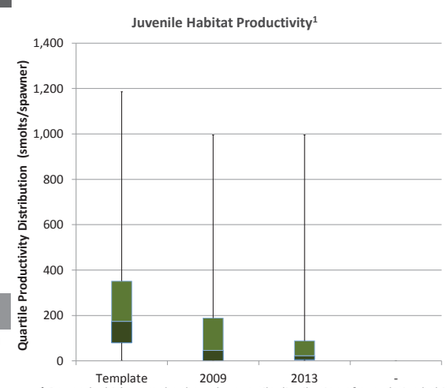
## What are the Trends in Habitat Potential for Okanogan (US) Chinook?

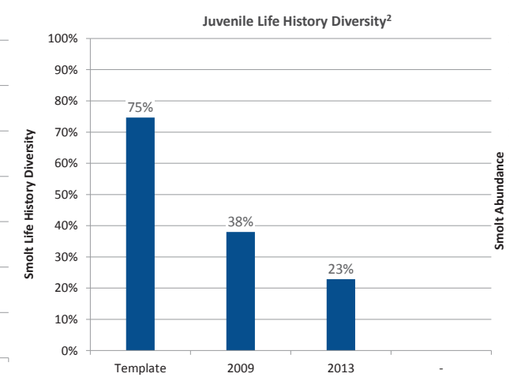
EDT used 4998 life history trajectories to model this population

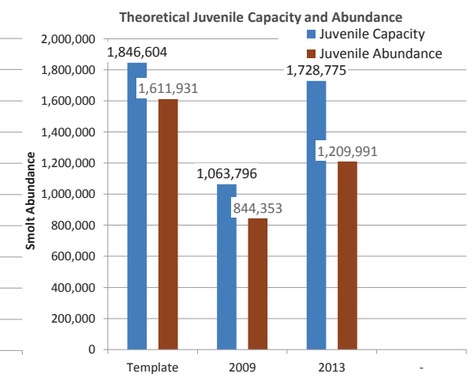


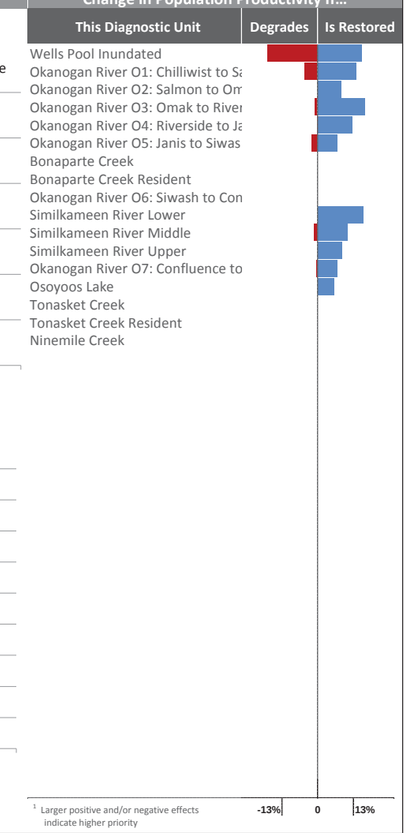

[1] Box and whisker graphs show the quartile distribution of cumulative habitat productivity for all 4998 EDT trajectories used to model this population.

[2] The percent of adult trajectories having a productivity >1.0 or juvenile productivity >100 juveniles/spawner represent the range of life history diversity each habitat scenario can support.

[3] Values are the sum of diagnostic unit equlibrium abundance. This total differs from the population equilibrium abundance in the Summary of EDT Population Parameters, which integrates habitat performance across all trajectories.

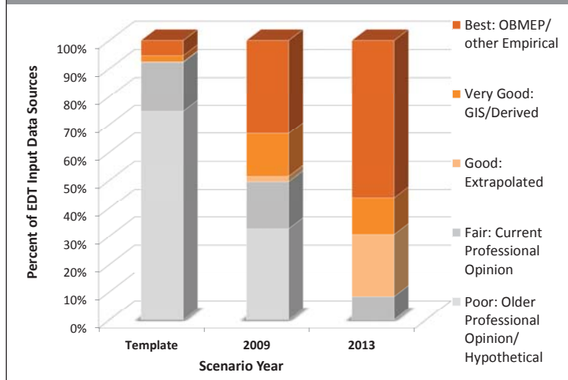
## Priority Habitats for Chinook

Change in Population Productivity If...




[1] Larger positive and/or negative effects indicate higher priority

## How Good Is Our Information in This Subbasin?




READ ME - The subbasin planning EDT model used different data quality rating criteria and had a different reach structure and shorter overall reach length compared to the current model. Therefore subbasin planning ratings are not directly comparable to current or template conditions.

## How Has Chinook Habitat Potential Changed Between 2009 and 2013?

DIAGNOSTIC UNIT

| Population Parameter and Trend Since Template | Wells Pool Inundated | Okanogan River O1: Chilliwist to Salmon | Okanogan River O2: Salmon to Omak | Okanogan River O3: Omak to Riverside | Okanogan River O4: Riverside to Janis | Okanogan River O5: Janis to Siwash | -- | -- | Okanogan River O6: Siwash to Confluence | Similkameen River Lower | Similkameen River Middle | Similkameen River Upper | Okanogan River O7: Confluence to Zosel Dam | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Productivity | 0.0 | 7.2 | 4.3 | 5.0 | 5.4 | 6.6 | -- | -- | 5.5 | 4.1 | 7.2 | 5.0 | 3.3 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Trend | ▬ | ▬ | ↓ | ↓ | ↓ | ↓ | -- | -- | ▬ | ▼ | ↑ | ▬ | ↓ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Abundance | 0 | 2967 | 1246 | 1828 | 2187 | 848 | -- | -- | 2257 | 821 | 538 | 314 | 279 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Trend | ▬ | ↑ | ↑ | ↑ | ↑ | ↑ | -- | -- | ↑ | ↑ | ↑ | ▬ | ▼ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Habitat Capacity | 0 | 3446 | 1619 | 2283 | 2686 | 999 | -- | -- | 2762 | 1087 | 625 | 393 | 398 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Trend | ▬ | ↑ | ↑ | ↑ | ↑ | ↑ | -- | -- | ↑ | ↑ | ↑ | ▬ | ▬ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Diversity | 0% | 22% | 18% | 13% | 22% | 25% | -- | -- | 8% | 32% | 42% | 35% | 8% | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Trend | ▬ | ▼ | ↓ | ↓ | ▼ | ↓ | -- | -- | ↓ | ↑ | ↑ | ↑ | ↓ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

### Symbol Key

| Parameter Trend | Negative | Positive |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

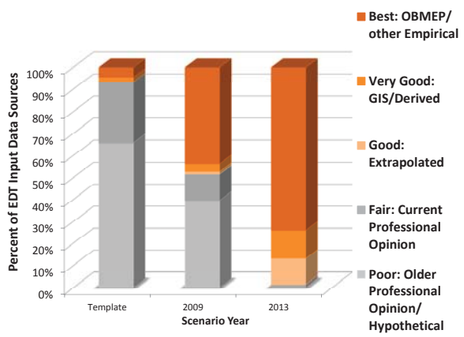
| | |
|---|---|
| Diagnostic Unit | Okanogan River O1: Chilliwist to S |
| Species | Chinook |
| Population | Okanogan (US) |
| Status and Trend Year | 2013 |
| Trend Comparison | 2013 to 2009 |

## How Important is Okanogan River O1: Chilliwist to Salmon for Conservation of Okanogan (US) Chinook?

| Effect on Population Potential if this Unit | Degrades | Is Restored |
|---|---|---|
| Adult Abundance | -3.3% | +3.1% |
| Adult Productivity | -3.7% | +6.0% |
| Life History Diversity | -2.1% | +2.2% |
| Diagnostic Unit Priority Rank[1] | 2 of 11 | 3 of 11 |

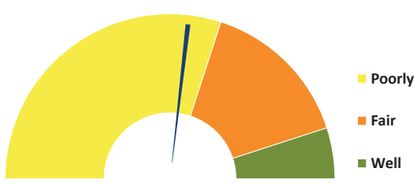
[1] Relative to all Okanogan (US) Diagnostic Units used by this Chinook population

## How Good is Our Information in Okanogan River O1: Chilliwist to Salmon?

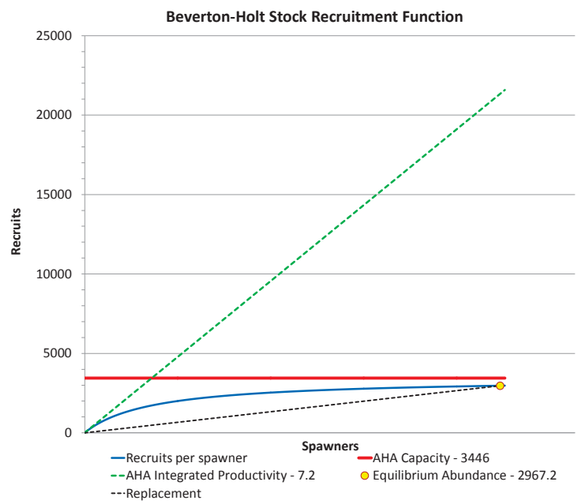


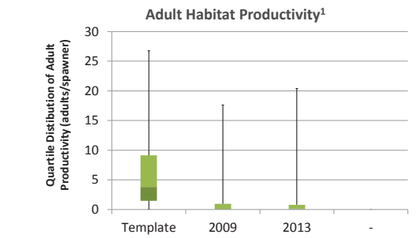

## How is Okanogan River O1: Chilliwist to Salmon Performing as Chinook Habitat?

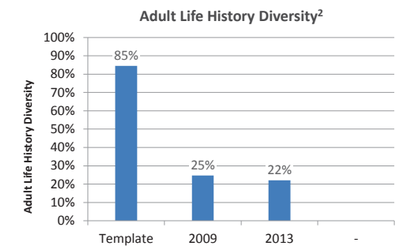
Currently Functioning at 54% of Template Habitat Potential

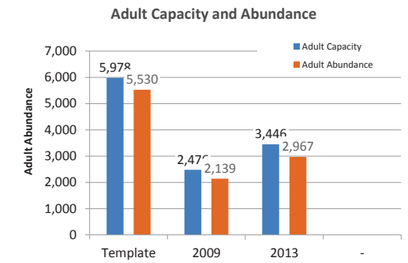


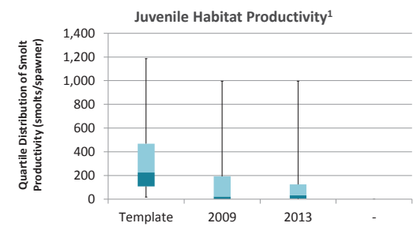

## What are the Trends in Chinook Habitat Potential in Okanogan River O1: Chilliwist to Salmon?

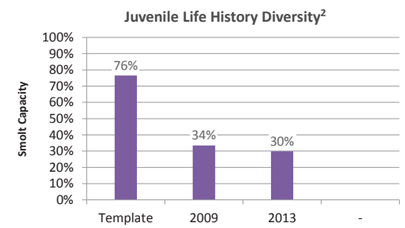


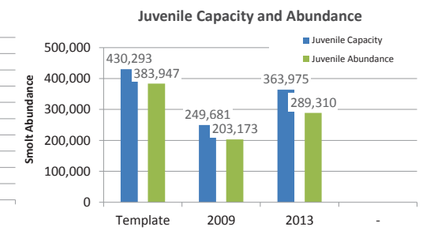



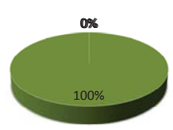




EDT used 4998 life history trajectories to model habitat potential in Okanogan River O1: Chilliwist to Salmon

[1] Box and whisker graphs show the quartile distribution of cumulative habitat productivity for all 4998 EDT trajectories used to model this Diagnostic Unit.
[2] The percent of adult trajectories having a productivity >1.0 or juvenile productivity >100 smolts/spawner represent the range of life history diversity each habitat scenario can theoretically support.

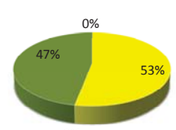
## Chinook Survival Factor Condition in Okanogan River O1: Chilliwist to and Trend Between 2009 and 2013

### Channel Stability



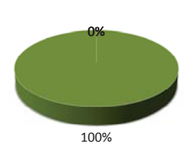

| | |
|---|---|
| % of Template | 99% |
| Factor Wt. | 3% |
| Factor Trend | |
| Level of Proof | 1.03 |

### Sediment Conditions



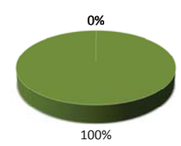

| | |
|---|---|
| % of Template | 98% |
| Factor Wt. | 19% |
| Factor Trend | |
| Level of Proof | 1.75 |

### Flow Conditions



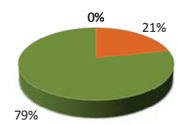

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 2% |
| Factor Trend | |
| Level of Proof | 1.10 |

### Withdrawals



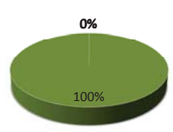

| | |
|---|---|
| % of Template | 99% |
| Factor Wt. | 3% |
| Factor Trend | |
| Level of Proof | 1.00 |

### Habitat Diversity



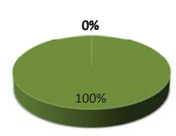

| | |
|---|---|
| % of Template | 97% |
| Factor Wt. | 15% |
| Factor Trend | |
| Level of Proof | 1.11 |

### Temperature



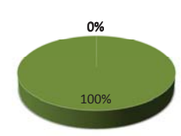

| | |
|---|---|
| % of Template | 93% |
| Factor Wt. | 36% |
| Factor Trend | |
| Level of Proof | 2.49 |

### Dissolved Oxygen



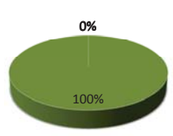

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 0% |
| Factor Trend | |
| Level of Proof | 3.08 |

### Competition-Hatchery



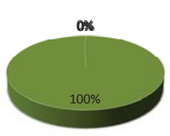

| | |
|---|---|
| % of Template | 99% |
| Factor Wt. | 5% |
| Factor Trend | |
| Level of Proof | 1.17 |

### Competition-Other



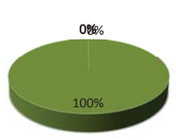

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 1% |
| Factor Trend | |
| Level of Proof | 1.88 |

### Food



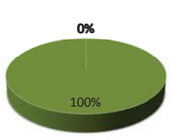

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 1% |
| Factor Trend | |
| Level of Proof | 1.15 |

### Predation




| | |
|---|---|
| % of Template | 97% |
| Factor Wt. | 15% |
| Factor Trend | |
| Level of Proof | 1.63 |

### Obstructions




| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 0% |
| Factor Trend | |
| Level of Proof | 2.00 |

READ ME - Pie charts describe how well each EDT Survival Factor is functioning based on its overall effect on Chinook productivity; % of Template describes current Survival Factor condition relative to template; Factor Weight rates relative importance of each Survival Factor based its proportional impact on Chinook productivity relative to other survival factors; Factor Trend describes change in Survival Factor % of Template between the 2009 and 2013 habitat scenarios.

### Change in Function Relative to Benchmark Key - Proportion of Habitat

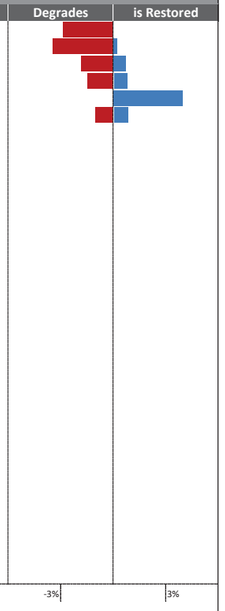
| Categorical Ranking | Productivity Impact |
|---|---|
| Not properly functioning | >5.1% reduction |
| Functioning at High Risk | 2.6% to 5% reduction |
| Functioning at Risk | 1.1% to 2.5% reduction |
| Properly Functioning | 0% to 1% reduction |

### Key - Survival Factor Trend

| Change | Neg. | Pos. |
|---|---|---|
| <1% | | |
| >1-5% | | |
| >5% | | |

## Habitat Priorities - Change in Population Abundance If (values normalized to %change/river mile)

| This Reach, Length (mi) | | Degrades | is Restored |
|---|---|---|---|
| Okanogan 4a | 0.67 | | |
| Okanogan 4b | 1.21 | | |
| Okanogan 5 | 2.54 | | |
| Okanogan 6 | 3.15 | | |
| Okanogan 7 | 0.87 | | |
| Okanogan 8 | 2.30 | | |



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

## OBSTRUCTIONS AND KEY HABITAT

**Subbasin:** Okanogan (US)
**Species:** Chinook
**Population:** Okanogan Summer/Fall
**Monitoring Cycle:** 2009-2013
**Diagnostic Unit:** Okanogan River O1: Chilliwist to Salmon

### Diagnostic Unit Habitat Statistics

**Stream Length (mi):** 10.74
**Template Adult Capacity:** 5,978

### Diagnostic Unit Obstruction Statistics

**# of Obstructions:** 1 **# Manmade:** 1
**Factor Weight:** 0% of DU productivity impairment

### There Was 1 Manmade Obstruction in Okanogan River O1: Chilliwist to Salmon in 2013 With the Following Effects on Chinook Productivity (NR = Obstruction not rated)

**Okanogan River Weir (culvert) - 94% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 5,644 | 5,221 |
| Juvenile | NR | NR | 406,962 | 362,989 |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

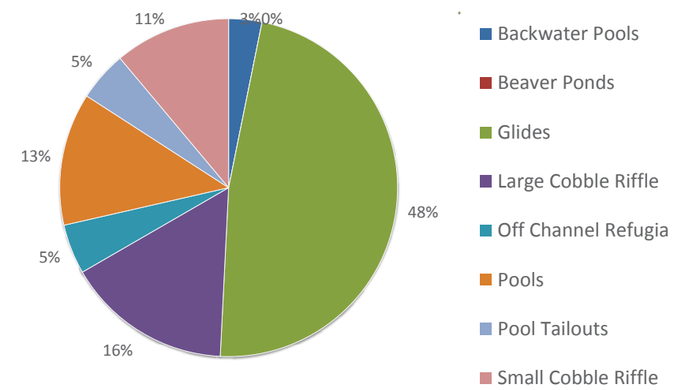
| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

### Okanogan River O1: Chilliwist to Salmon Habitat Composition and Key Habitat Area for Chinook Under Template Conditions

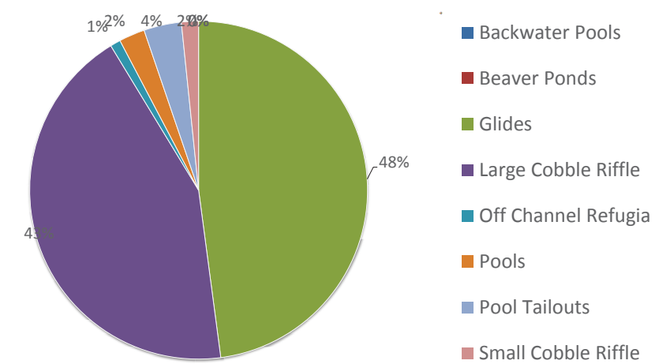



| Lifestage | Key Habitat Area* |
|---|---|
| Spawning | 27% |
| Fry colonization | 14% |
| 0-age active | 27% |
| 0-age inactive | 18% |
| 1-age active | 0% |
| 1-age inactive | 0% |
| 2+-age migrant | 0% |
| Prespawn holding | 13% |

**Template Habitat Capacity**

| Scenario | Adult | Juvenile |
|---|---|---|
| Template | 5,978 | 430,293 |

### Okanogan River O1: Chilliwist to Salmon Habitat Composition in 2009 and Trend in Chinook Key Habitat Area Since Template

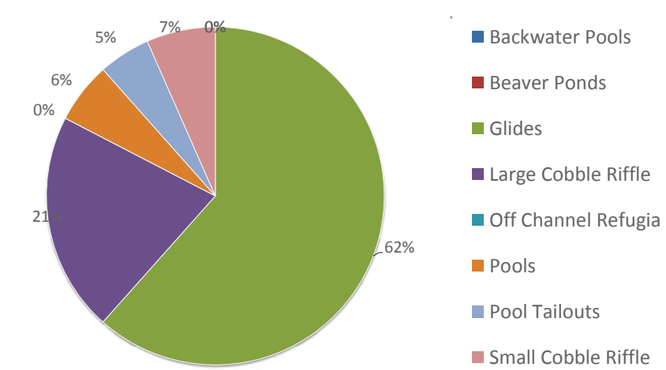



| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 34.0% | -13% |
| Fry colonization | 14.9% | -23% |
| 0-age active | 24.0% | -39% |
| 0-age inactive | 16.8% | -36% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 10.2% | -47% |

**Net Habitat Capacity and Change Since Template**

| Comparison | Adult | Juvenile |
|---|---|---|
| Template to 2009 | 2476 (-59%) | 249681 (-42%) |

### Okanogan River O1: Chilliwist to Salmon Habitat Composition in 2013 and Trend in Chinook Key Habitat Area Since 2009




| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 36.6% | 33% |
| Fry colonization | 14.2% | 17% |
| 0-age active | 24.7% | 27% |
| 0-age inactive | 13.9% | 2% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 10.6% | 27% |

**Net Habitat Capacity and Change Since 2009**

| Comparison | Adult | Juvenile |
|---|---|---|
| 2009 to 2013 | 3446 (39%) | 363975 (46%) |

* Percent of reach providing key habitat for this life stage in EDT in this habitat scenario

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O1: Chilliwist to Sal |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 4a |
| Reach Length (mi) | 0.67 |
| Average Gradient | 0.8% |
| Habitat Area (ac) | 26.3 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 104 |
|---|---|---|---|
| Productivity | 0% | Out of | 143 |
| Diversity | + 1% | Diagnostic Unit Priority | 3 |
| Abundance | 0% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 148 |
| Productivity | 7.5 |
| Diversity | 19% |
| Abundance | 128 |

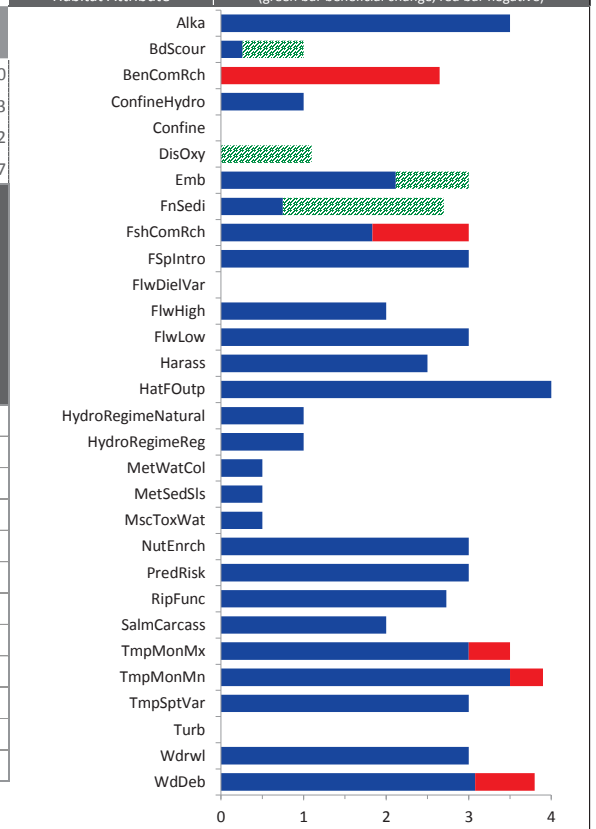
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 20 |
|---|---|---|---|
| Productivity | - 2% | Out of | 143 |
| Diversity | - 2% | Diagnostic Unit Priority | 2 |
| Abundance | - 2% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.0% | -28.9% | 6 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 7.2% | 0.1% | 1 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 5.9% | -6.1% | 7 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.2% | 3 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 99.4% | -4.0% | 9 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -1.2% | 4 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.8% | 2 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 97.7% | -2.0% | 8 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 5.0% | -2.7% | 5 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



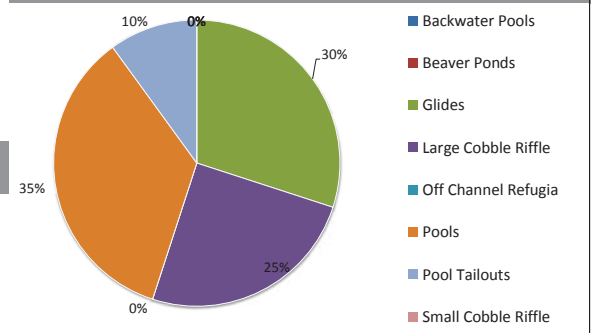

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

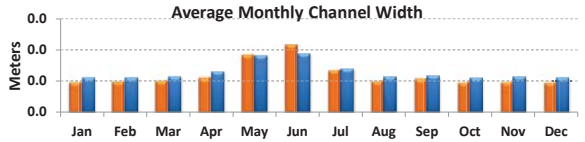
## EDT Habitat Composition Ratings

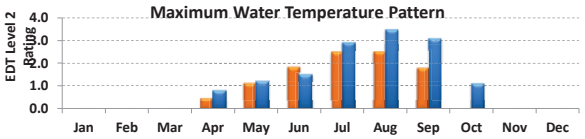


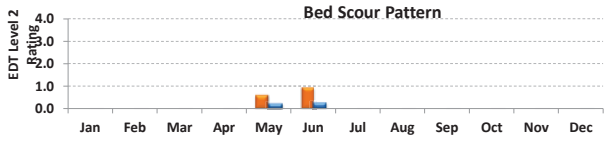

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 11.2% | ↑ |
| Fry Colonization | 11.1% | ↑ |
| Active Rearing | 27.2% | ↑ |
| Inactive Rearing | 30.4% | ↑ |
| Prespawn Holding | 20.1% | ↑ |

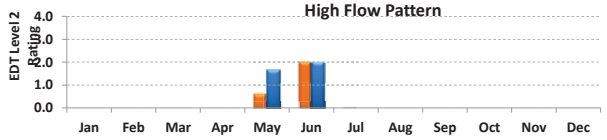
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O1: Chilliwist to Sal |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 4b |
| Reach Length (mi) | 1.21 |
| Average Gradient | 0.8% |
| Habitat Area (ac) | 53.2 |

**OBMEP Sites**

OBMEP-156

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 68 |
|---|---|---|---|
| Productivity | 0% | Out of | 143 |
| Diversity | + 1% | Diagnostic Unit Priority | 3 |
| Abundance | 0% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 503 |
| Productivity | 9.8 |
| Diversity | 19% |
| Abundance | 452 |

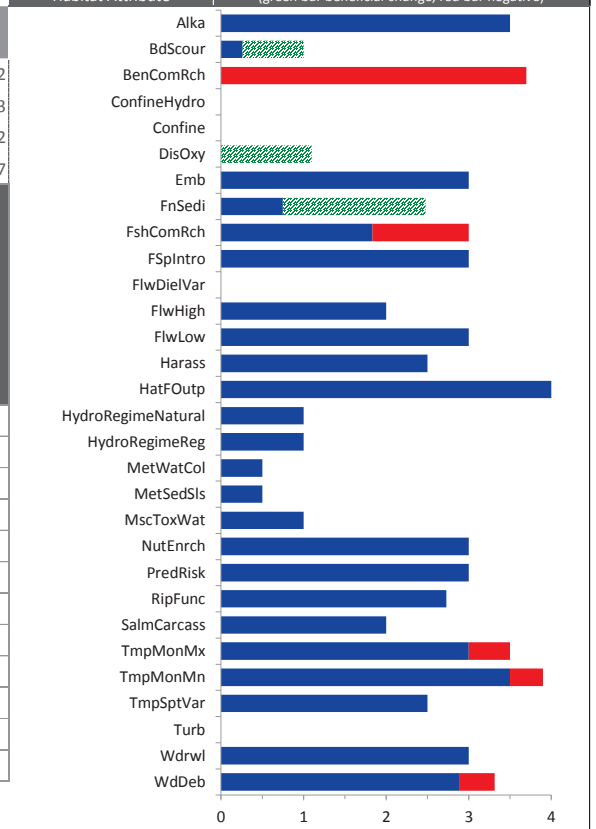
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 12 |
|---|---|---|---|
| Productivity | - 3% | Out of | 143 |
| Diversity | - 3% | Diagnostic Unit Priority | 2 |
| Abundance | - 5% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 4.0% | -33.8% | 7 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 28.5% | -0.1% | 4 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 8.5% | -4.9% | 6 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.1% | 2 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 100.7% | -3.5% | 9 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -2.0% | 3 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.2% | 1 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 99.3% | -1.8% | 8 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 4.7% | -2.5% | 5 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



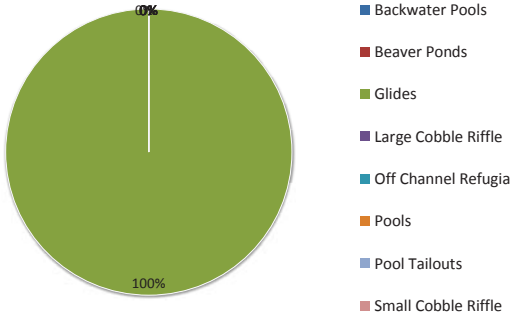

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

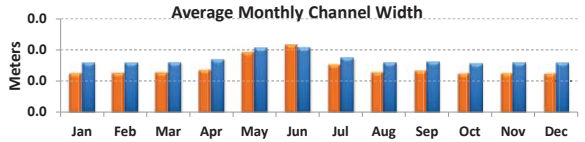
## EDT Habitat Composition Ratings

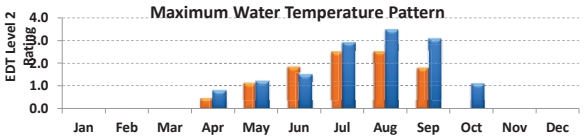


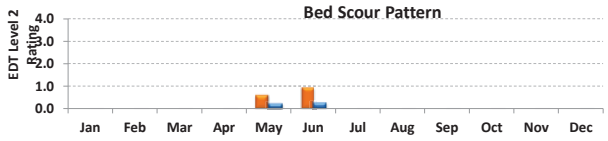

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 34.8% | ▬ |
| Fry Colonization | 17.4% | ▬ |
| Active Rearing | 26.1% | ▬ |
| Inactive Rearing | 13.0% | ▬ |
| Prespawn Holding | 8.7% | ▬ |

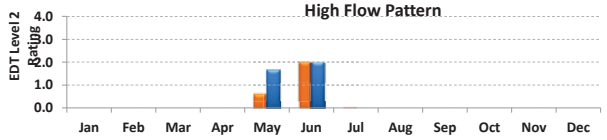
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O1: Chilliwist to Sal |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 5 |
| Reach Length (mi) | 2.54 |
| Average Gradient | 0.5% |
| Habitat Area (ac) | 92.3 |

**OBMEP Sites**

OBMEP-485

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 12 |
|---|---|---|---|
| Productivity | + 5% | Out of | 143 |
| Diversity | + 6% | Diagnostic Unit Priority | 3 |
| Abundance | + 2% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 1091 |
| Productivity | 2.5 |
| Diversity | 15% |
| Abundance | 654 |

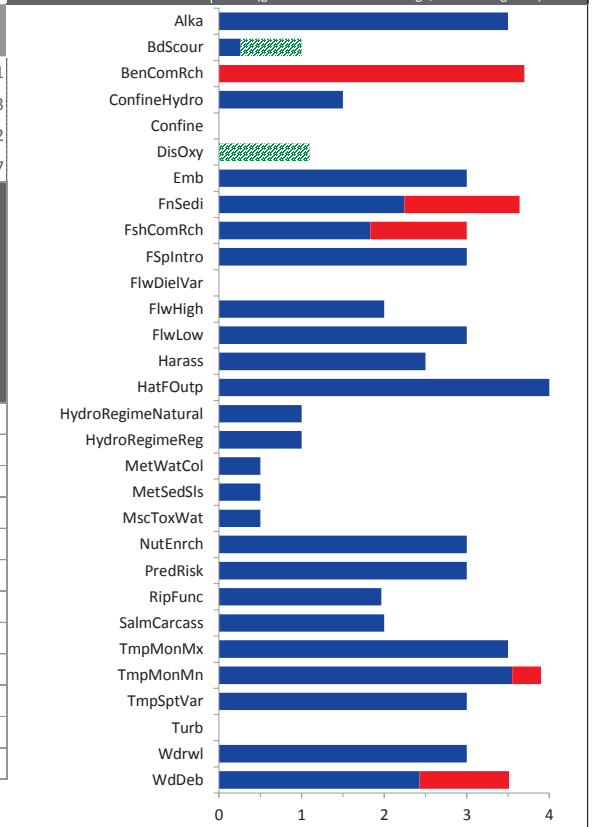
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 21 |
|---|---|---|---|
| Productivity | 0% | Out of | 143 |
| Diversity | - 4% | Diagnostic Unit Priority | 2 |
| Abundance | - 5% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 3.8% | -34.9% | 7 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 26.6% | -3.9% | 6 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 10.3% | -4.7% | 5 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.1% | 2 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 100.8% | -4.0% | 9 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -1.4% | 3 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.6% | 1 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 101.7% | -2.1% | 8 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 7.4% | -2.6% | 4 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



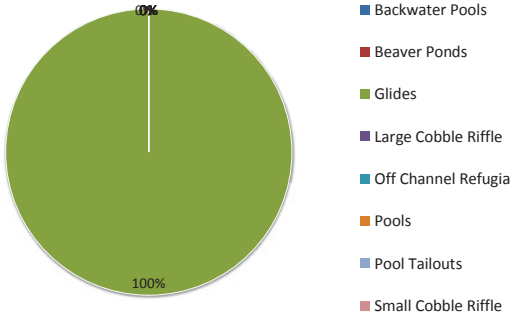

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

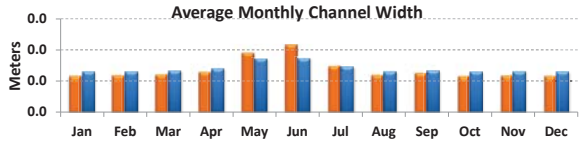
## EDT Habitat Composition Ratings

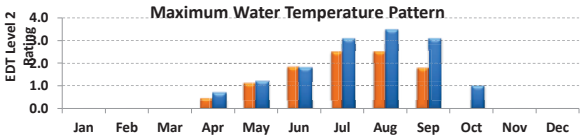


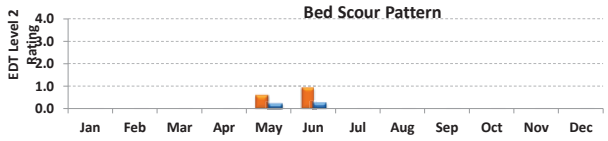

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 34.8% | ▬ |
| Fry Colonization | 17.4% | ▬ |
| Active Rearing | 26.1% | ▬ |
| Inactive Rearing | 13.0% | ▬ |
| Prespawn Holding | 8.7% | ▬ |

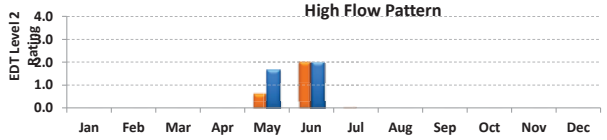
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O1: Chilliwist to Sal |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 6 |
| Reach Length (mi) | 3.15 |
| Average Gradient | 0.3% |
| Habitat Area (ac) | 99.1 |

**OBMEP Sites**

OBMEP-325

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 8 |
|---|---|---|---|
| Productivity | + 6% | Out of | 143 |
| Diversity | + 6% | Diagnostic Unit Priority | 3 |
| Abundance | + 3% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 1206 |
| Productivity | 7.9 |
| Diversity | 15% |
| Abundance | 1053 |

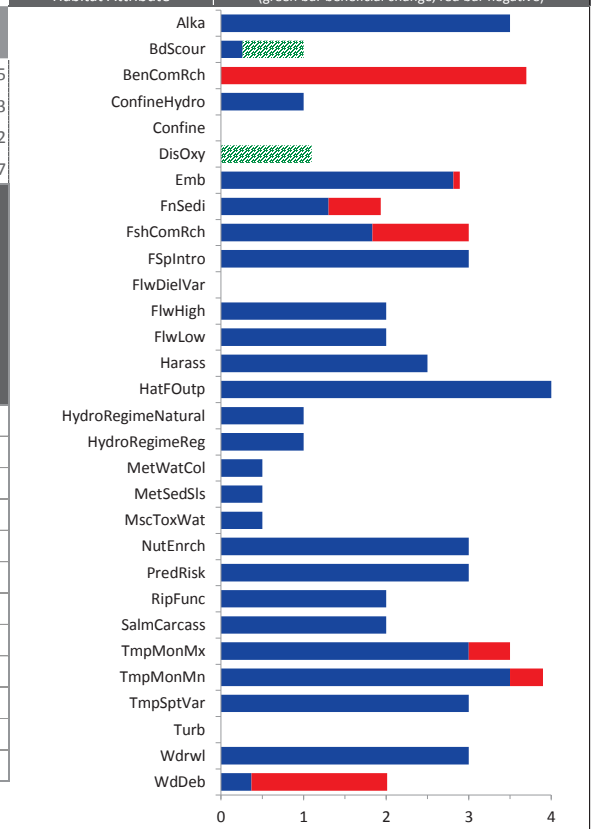
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 5 |
|---|---|---|---|
| Productivity | - 5% | Out of | 143 |
| Diversity | - 7% | Diagnostic Unit Priority | 2 |
| Abundance | - 5% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 8.1% | -41.1% | 9 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 57.2% | -1.9% | 6 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 11.8% | -3.2% | 5 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.1% | 2 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 91.9% | -3.0% | 8 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -1.5% | 3 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.3% | 1 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 107.5% | -1.7% | 7 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 7.9% | -1.6% | 4 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



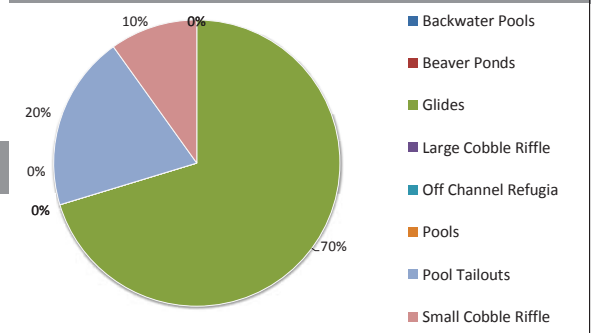

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

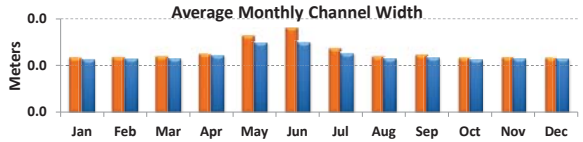
## EDT Habitat Composition Ratings

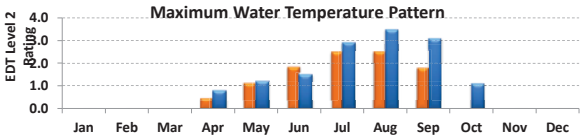


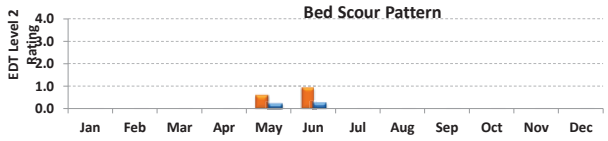

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 45.3% | ▬ |
| Fry Colonization | 14.1% | ▬ |
| Active Rearing | 24.6% | ▬ |
| Inactive Rearing | 9.6% | ▬ |
| Prespawn Holding | 6.4% | ▬ |

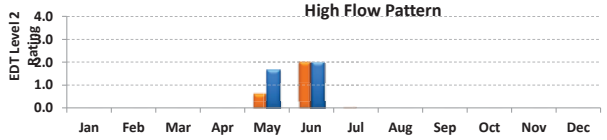
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O1: Chilliwist to Sal |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 7 |
| Reach Length (mi) | 0.87 |
| Average Gradient | 0.9% |
| Habitat Area (ac) | 26.5 |

**OBMEP Sites**

OBMEP-389

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 18 |
|---|---|---|---|
| Productivity | + 1% | Out of | 143 |
| Diversity | + 3% | Diagnostic Unit Priority | 3 |
| Abundance | + 4% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 0 |
| Productivity | 0.0 |
| Diversity | 17% |
| Abundance | 0 |

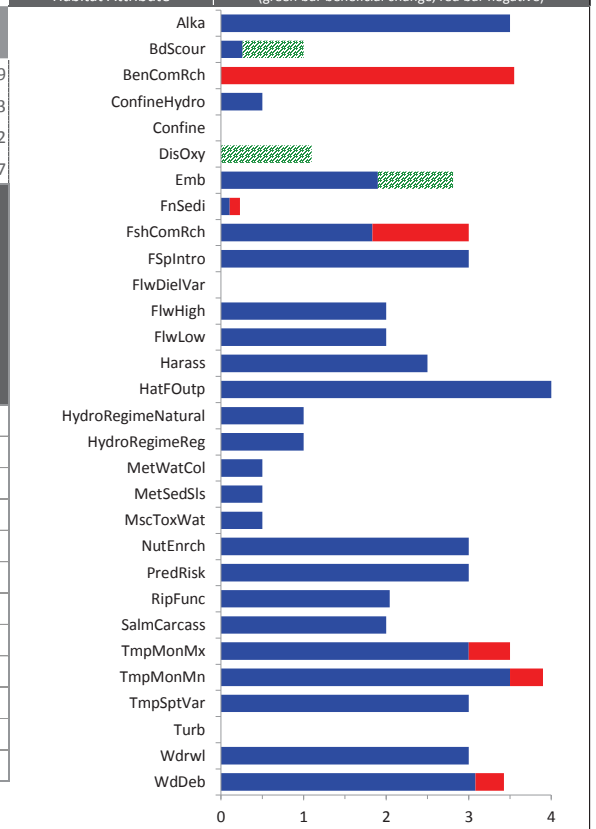
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 69 |
|---|---|---|---|
| Productivity | - 1% | Out of | 143 |
| Diversity | - 1% | Diagnostic Unit Priority | 2 |
| Abundance | 0% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.0% | -28.9% | 1 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 0.0% | -1.0% | 2 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 3.2% | -4.7% | 7 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.2% | 3 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 84.5% | -3.3% | 9 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -0.9% | 4 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.6% | 5 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 103.8% | -1.9% | 8 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 3.2% | -1.9% | 6 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



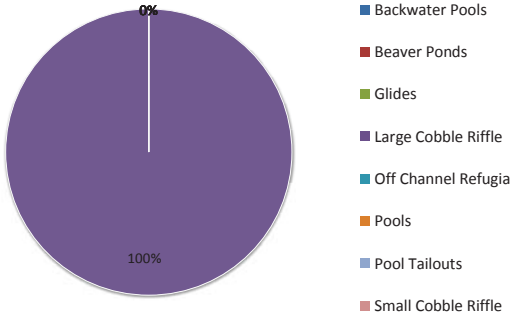

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

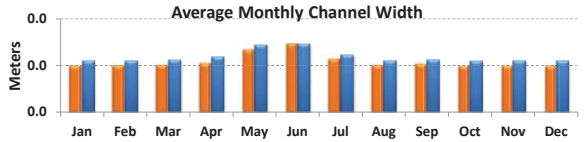
## EDT Habitat Composition Ratings

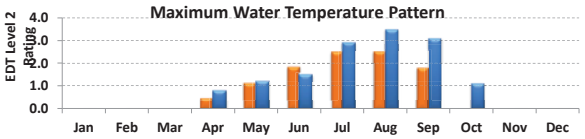


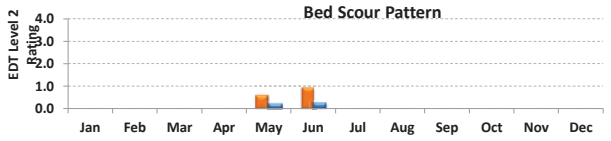

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 0.0% | ▬ |
| Fry Colonization | 16.7% | ▬ |
| Active Rearing | 16.7% | ▬ |
| Inactive Rearing | 50.0% | ▬ |
| Prespawn Holding | 16.7% | ▬ |

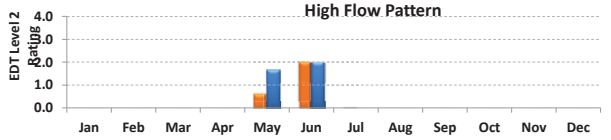
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O1: Chilliwist to Sal |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 8 |
| Reach Length (mi) | 2.30 |
| Average Gradient | 1.0% |
| Habitat Area (ac) | 95.8 |

**OBMEP Sites**

OBMEP-453

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 14 |
|---|---|---|---|
| Productivity | + 2% | Out of | 143 |
| Diversity | + 5% | Diagnostic Unit Priority | 3 |
| Abundance | + 2% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 498 |
| Productivity | 7.5 |
| Diversity | 16% |
| Abundance | 431 |

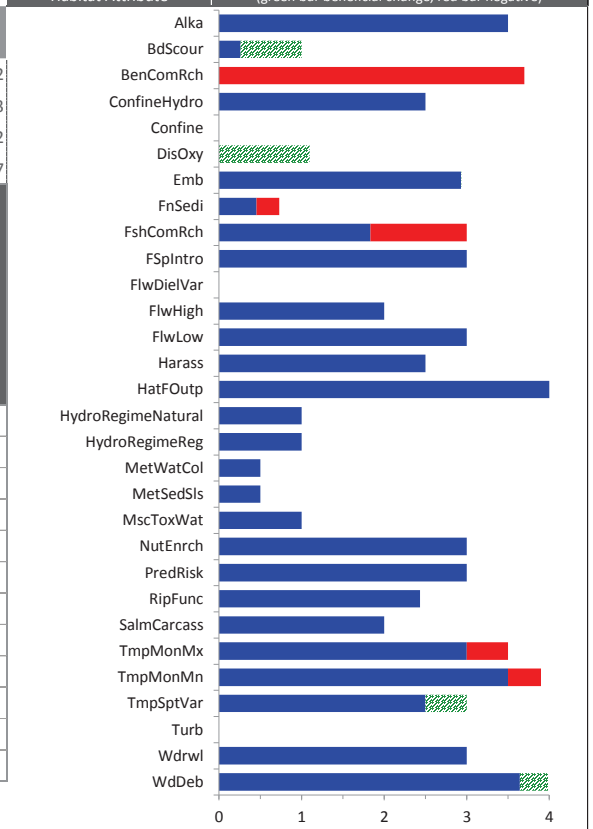
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 12 |
|---|---|---|---|
| Productivity | - 2% | Out of | 143 |
| Diversity | - 6% | Diagnostic Unit Priority | 2 |
| Abundance | - 2% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 4.2% | -32.1% | 7 | | | | | | | ● | | | ● | | | ● | | — |
| Egg Incubation | Oct-Apr | 29.3% | -1.1% | 5 | | | | | | | | | | | | | ● | | — |
| Fry colonization | Apr-May | 7.0% | -9.0% | 6 | | | | | ● | | ● | | | | ● | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.2% | 2 | | | | | | | | | | | | | ● | | ↓ |
| 0-age transient rearing | Jun-Oct | 87.5% | -3.9% | 9 | | | | | | | ● | | | ● | ● | | ● | | — |
| 0-age inactive | Apr-Oct | 0.0% | -2.0% | 3 | | | | | | | ● | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -3.2% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 106.5% | -2.1% | 8 | | | | | | | ● | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 5.0% | -3.9% | 4 | | | | | ● | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



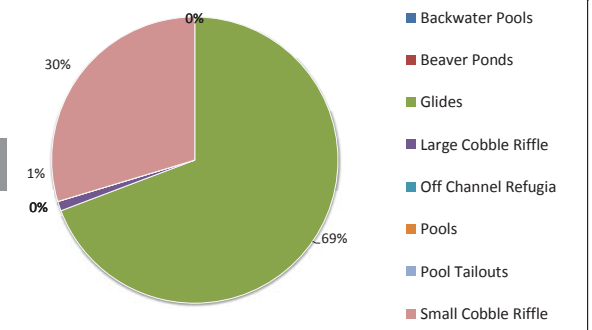

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

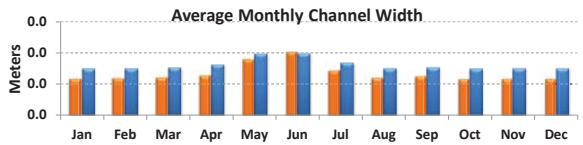
### EDT Habitat Composition Ratings

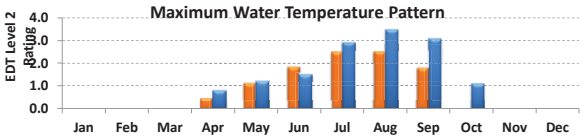


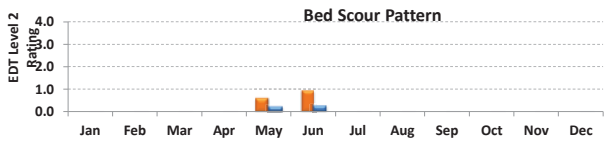

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 0.0% | — |
| Fry Colonization | 16.7% | ↑ |
| Active Rearing | 16.7% | ↑ |
| Inactive Rearing | 50.0% | ↓ |
| Prespawn Holding | 16.7% | ↑ |

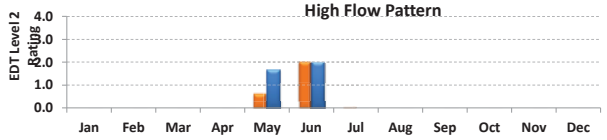
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

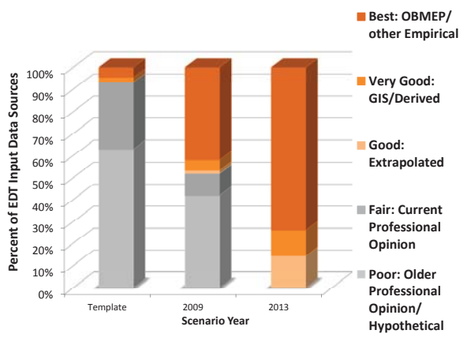
| | |
|---|---|
| Diagnostic Unit | Okanogan River O2: Salmon to On |
| Species | Chinook |
| Population | Okanogan (US) |
| Status and Trend Year | 2013 |
| Trend Comparison | 2013 to 2009 |

## How Important is Okanogan River O2: Salmon to Omak for Conservation of Okanogan (US) Chinook?

| Effect on Population Potential if this Unit | Degrades | Is Restored |
|---|---|---|
| Adult Abundance | -1.0% | +1.0% |
| Adult Productivity | 0.0% | +3.6% |
| Life History Diversity | -1.1% | +1.3% |
| Diagnostic Unit Priority Rank[1] | 9 of 11 | 7 of 11 |

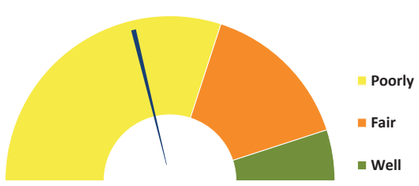
[1] Relative to all Okanogan (US) Diagnostic Units used by this Chinook population

## How Good is Our Information in Okanogan River O2: Salmon to Omak?

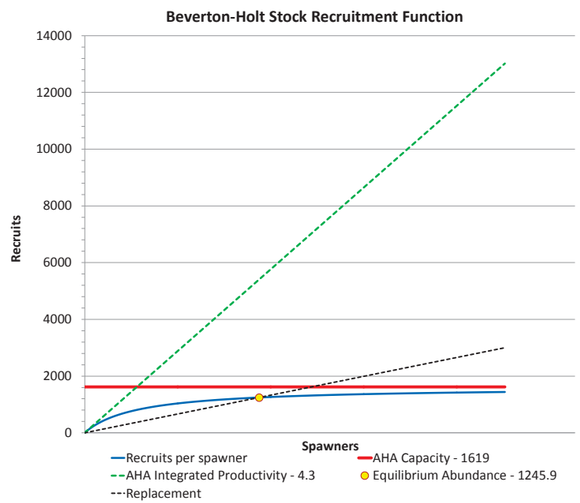


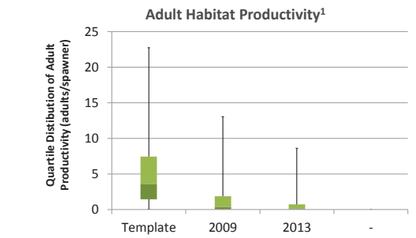

## How is Okanogan River O2: Salmon to Omak Performing as Chinook Habitat?

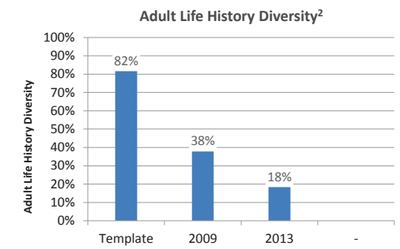
Currently Functioning at 42% of Template Habitat Potential

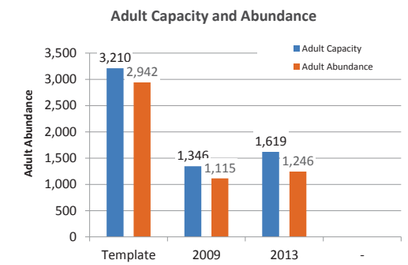


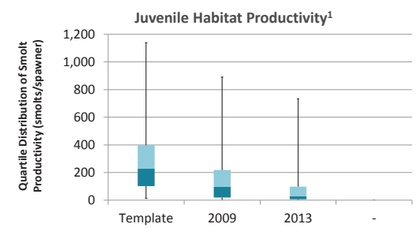

## What are the Trends in Chinook Habitat Potential in Okanogan River O2: Salmon to Omak?

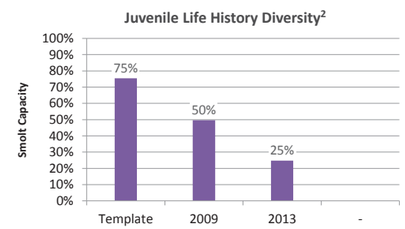


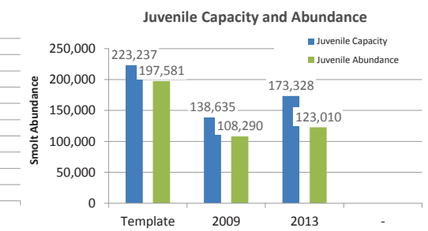



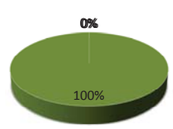




EDT used 4940 life history trajectories to model habitat potential in Okanogan River O2: Salmon to Omak

[1] Box and whisker graphs show the quartile distribution of cumulative habitat productivity for all 4940 EDT trajectories used to model this Diagnostic Unit.
[2] The percent of adult trajectories having a productivity >1.0 or juvenile productivity >100 smolts/spawner represent the range of life history diversity each habitat scenario can theoretically support.

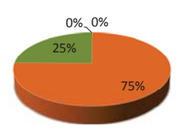
## Chinook Survival Factor Condition in Okanogan River O2: Salmon to Omak and Trend Between 2009 and 2013

### Channel Stability



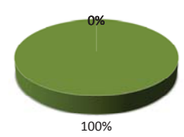

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 2% |
| Factor Trend | |
| Level of Proof | 1.04 |

### Sediment Conditions



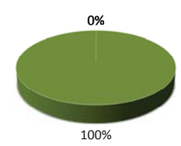

| | |
|---|---|
| % of Template | 97% |
| Factor Wt. | 27% |
| Factor Trend | |
| Level of Proof | 1.59 |

### Flow Conditions



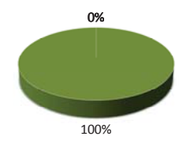

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 2% |
| Factor Trend | |
| Level of Proof | 1.07 |

### Withdrawals



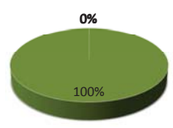

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 3% |
| Factor Trend | |
| Level of Proof | 1.00 |

### Habitat Diversity



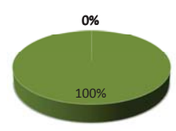

| | |
|---|---|
| % of Template | 98% |
| Factor Wt. | 15% |
| Factor Trend | |
| Level of Proof | 1.17 |

### Temperature



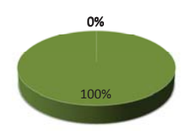

| | |
|---|---|
| % of Template | 96% |
| Factor Wt. | 32% |
| Factor Trend | |
| Level of Proof | 2.66 |

### Dissolved Oxygen



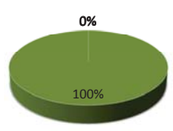

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 0% |
| Factor Trend | |
| Level of Proof | 3.00 |

### Competition-Hatchery



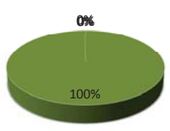

| | |
|---|---|
| % of Template | 99% |
| Factor Wt. | 4% |
| Factor Trend | |
| Level of Proof | 1.20 |

### Competition-Other



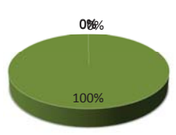

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 1% |
| Factor Trend | |
| Level of Proof | 1.93 |

### Food



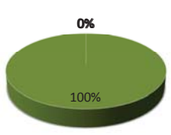

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 1% |
| Factor Trend | |
| Level of Proof | 1.18 |

### Predation




| | |
|---|---|
| % of Template | 98% |
| Factor Wt. | 13% |
| Factor Trend | |
| Level of Proof | 1.65 |

### Obstructions




| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 0% |
| Factor Trend | |
| Level of Proof | 1.00 |

READ ME - Pie charts describe how well each EDT Survival Factor is functioning based on its overall effect on Chinook productivity; % of Template describes current Survival Factor condition relative to template; Factor Weight rates relative importance of each Survival Factor based its proportional impact on Chinook productivity relative to other survival factors; Factor Trend describes change in Survival Factor % of Template between the 2009 and 2013 habitat scenarios.

### Change in Function Relative to Benchmark Key - Proportion of Habitat

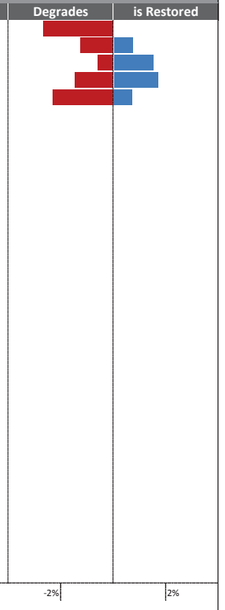
| Categorical Ranking | Productivity Impact |
|---|---|
| Not properly functioning | >5.1% reduction |
| Functioning at High Risk | 2.6% to 5% reduction |
| Functioning at Risk | 1.1% to 2.5% reduction |
| Properly Functioning | 0% to 1% reduction |

### Key - Survival Factor Trend

| Change | Neg. | Pos. |
|---|---|---|
| <1% | | |
| >1-5% | | |
| >5% | | |

## Habitat Priorities - Change in Population Abundance If (values normalized to %change/river mile)

| This Reach, Length (mi) | | Degrades | is Restored |
|---|---|---|---|
| Okanogan 9 | 0.32 | | |
| Okanogan 10a | 2.70 | | |
| Okanogan 10c | 0.34 | | |
| Okanogan 11 | 0.91 | | |
| Okanogan 12 | 2.06 | | |



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

## OBSTRUCTIONS AND KEY HABITAT

**Subbasin:** Okanogan (US)
**Species:** Chinook
**Population:** Okanogan Summer/Fall
**Monitoring Cycle:** 2009-2013
**Diagnostic Unit:** Okanogan River O2: Salmon to Omak

### Diagnostic Unit Habitat Statistics

**Stream Length (mi):** 6.33
**Template Adult Capacity:** 3,210

### Diagnostic Unit Obstruction Statistics

**# of Obstructions:** 0 **# Manmade:** 0
**Factor Weight:** 0% of DU productivity impairment

### There Were 0 Manmade Obstructions in Okanogan River O2: Salmon to Omak in 2013 With the Following Effects on Chinook Productivity (NR = Obstruction not rated)

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

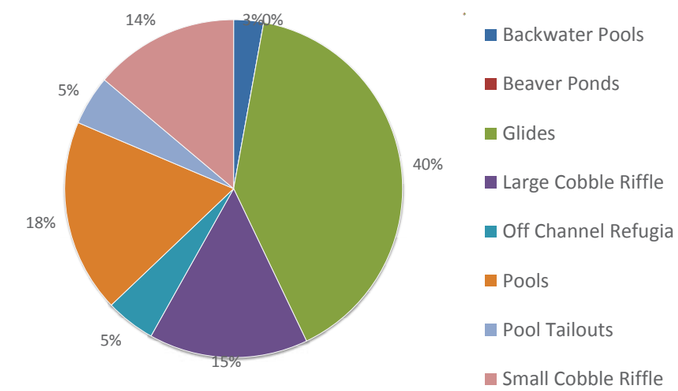
| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

### Okanogan River O2: Salmon to Omak Habitat Composition and Key Habitat Area for Chinook Under Template Conditions

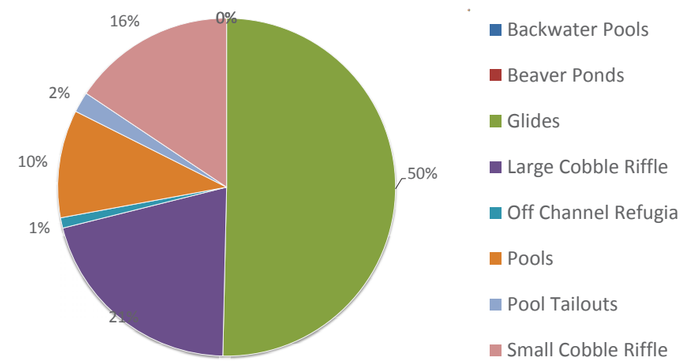



| Lifestage | Key Habitat Area* |
|---|---|
| Spawning | 21% |
| Fry colonization | 11% |
| 0-age active | 29% |
| 0-age inactive | 23% |
| 1-age active | 0% |
| 1-age inactive | 0% |
| 2+-age migrant | 0% |
| Prespawn holding | 16% |

**Template Habitat Capacity**

| Scenario | Adult | Juvenile |
|---|---|---|
| Template | 3,210 | 223,237 |

### Okanogan River O2: Salmon to Omak Habitat Composition in 2009 and Trend in Chinook Key Habitat Area Since Template

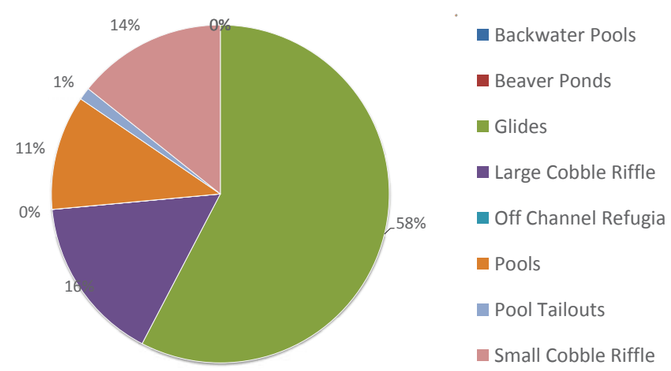



| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 26.2% | 8% |
| Fry colonization | 11.5% | -8% |
| 0-age active | 27.8% | -17% |
| 0-age inactive | 21.0% | -19% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 13.5% | -24% |

**Net Habitat Capacity and Change Since Template**

| Comparison | Adult | Juvenile |
|---|---|---|
| Template to 2009 | 1346 (-58%) | 138635 (-38%) |

### Okanogan River O2: Salmon to Omak Habitat Composition in 2013 and Trend in Chinook Key Habitat Area Since 2009




| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 34.6% | 15% |
| Fry colonization | 14.5% | 9% |
| 0-age active | 24.3% | -24% |
| 0-age inactive | 13.5% | -44% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 13.1% | -16% |

**Net Habitat Capacity and Change Since 2009**

| Comparison | Adult | Juvenile |
|---|---|---|
| 2009 to 2013 | 1619 (20%) | 173328 (25%) |

* Percent of reach providing key habitat for this life stage in EDT in this habitat scenario

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O2: Salmon to Oma |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 9 |
| Reach Length (mi) | 0.32 |
| Average Gradient | 0.8% |
| Habitat Area (ac) | 6.6 |

**OBMEP Sites**

OBMEP-455

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 75 |
| Diversity | + 1% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 7 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 66 |
| Productivity | 4.3 |
| Diversity | 19% |
| Abundance | 50 |

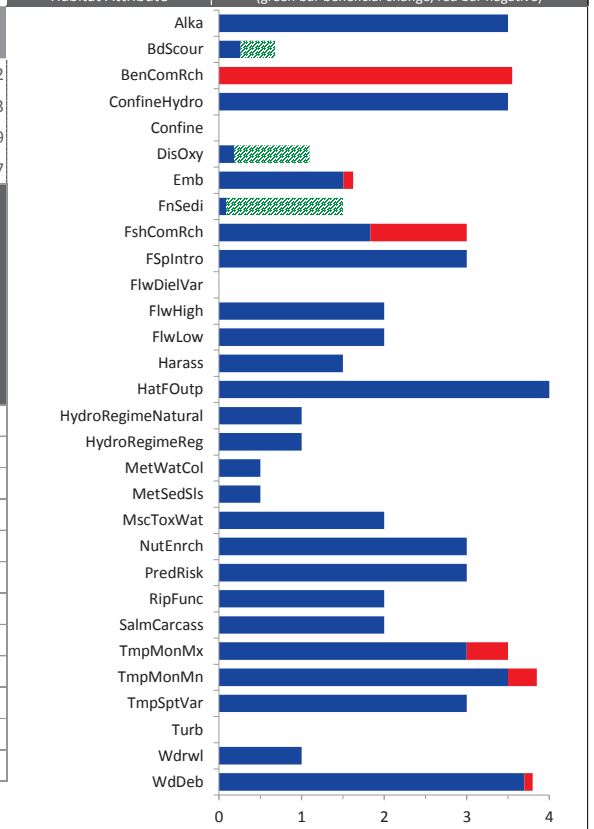
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 72 |
| Diversity | - 1% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 9 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.7% | -45.9% | 7 | | | | | | | | | | | | | | | ↓ |
| Egg Incubation | Oct-Apr | 4.9% | -1.6% | 4 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 2.6% | -8.5% | 6 | | | | | | | | | | | | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.2% | 2 | | | | | | | | | | | | | | | ↑ |
| 0-age transient rearing | Jun-Oct | 77.0% | -4.3% | 9 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | -1.3% | 3 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -3.2% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 104.2% | -2.7% | 8 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 3.2% | -4.6% | 5 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| | | | | Survival Factor Trend | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



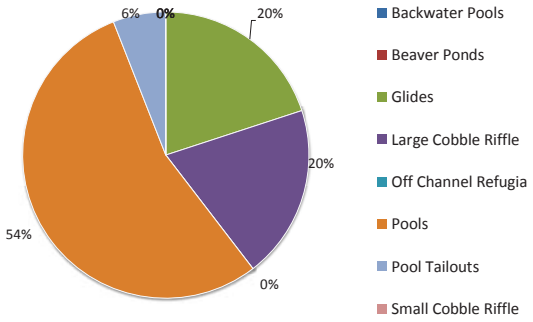

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

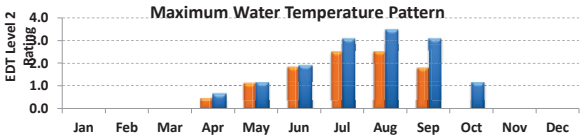
## EDT Habitat Composition Ratings

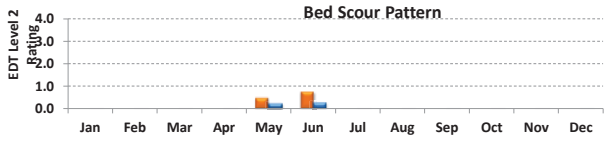


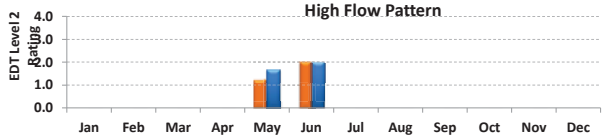

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 21.6% | ↓ |
| Fry Colonization | 12.9% | ↑ |
| Active Rearing | 26.7% | ↑ |
| Inactive Rearing | 23.5% | ↑ |
| Prespawn Holding | 15.4% | ↑ |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O2: Salmon to Oma |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 10a |
| Reach Length (mi) | 2.70 |
| Average Gradient | 0.6% |
| Habitat Area (ac) | 103.4 |

**OBMEP Sites**

OBMEP-084

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 4% | Reach Priority | 11 |
| Diversity | + 7% | Out of | 143 |
| Abundance | + 2% | Diagnostic Unit Priority | 7 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 659 |
| Productivity | 2.5 |
| Diversity | 14% |
| Abundance | 396 |

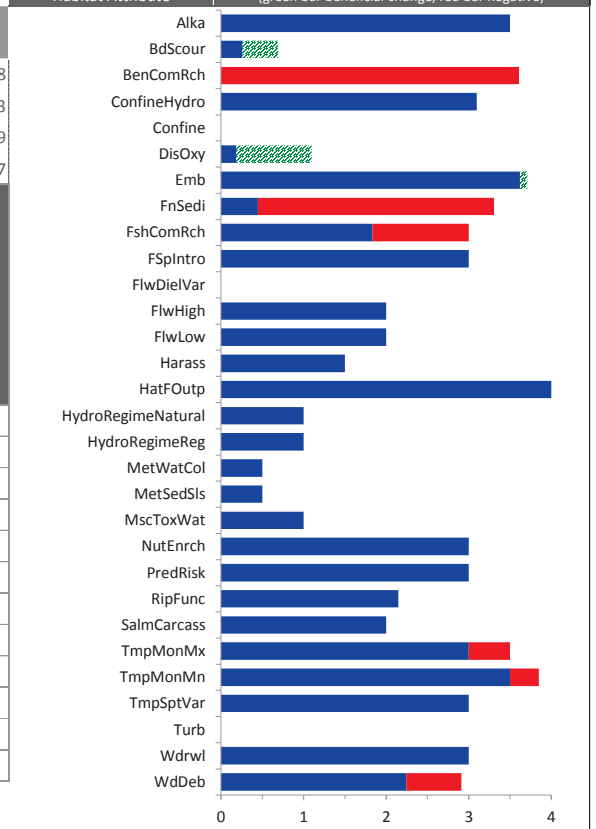
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 58 |
| Diversity | - 3% | Out of | 143 |
| Abundance | - 3% | Diagnostic Unit Priority | 9 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 2.0% | -40.4% | 7 | | | | | | | ● | | | ● | ● | | ● | | ↓ |
| Egg Incubation | Oct-Apr | 13.7% | -4.5% | 6 | | | | | | | | | | | | ● | ● | | ↑ |
| Fry colonization | Apr-May | 6.2% | -6.9% | 5 | | | | | ● | | ● | | | | ● | ● | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.3% | 2 | | | | | | | | | | | | | ● | | ↓ |
| 0-age transient rearing | Jun-Oct | 84.3% | -3.7% | 9 | | | | | | | ● | | | ● | ● | | ● | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | -4.5% | 3 | | | | | | | | | | | | ● | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.9% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 106.7% | -2.3% | 8 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 4.7% | -3.5% | 4 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| Survival Factor Trend | | | | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | |

## EDT Level 2 Attribute Ratings



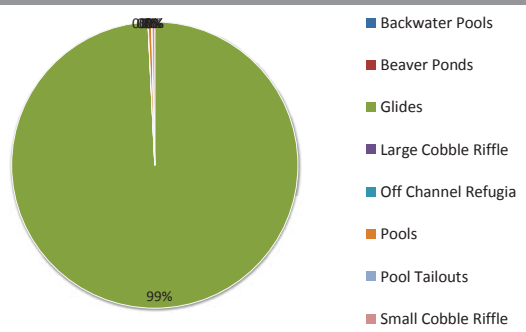

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | – | – |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

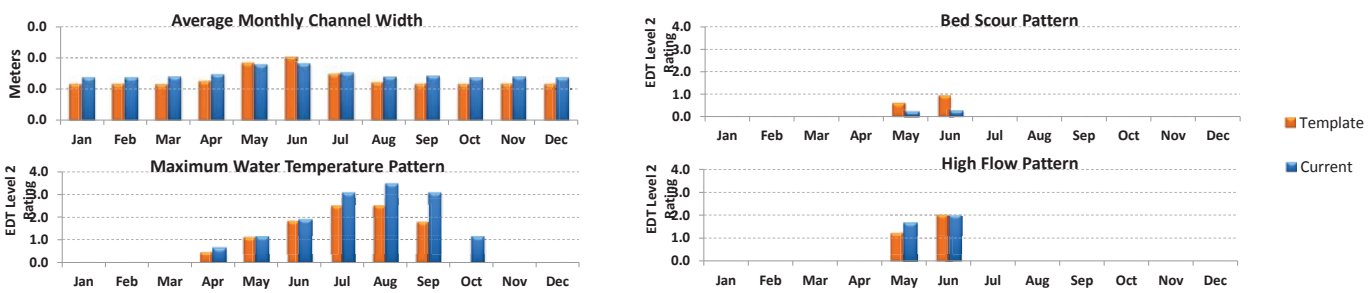
### EDT Habitat Composition Ratings




| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 15.0% | ↑ |
| Fry Colonization | 9.0% | ↑ |
| Active Rearing | 29.7% | ↓ |
| Inactive Rearing | 25.0% | ↓ |
| Prespawn Holding | 21.4% | ↓ |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O2: Salmon to Oma |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 10c |
| Reach Length (mi) | 0.34 |
| Average Gradient | 0.6% |
| Habitat Area (ac) | 10.5 |

**OBMEP Sites**

OBMEP-573

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 67 |
| Diversity | + 1% | Out of | 143 |
| Abundance | + 1% | Diagnostic Unit Priority | 7 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 62 |
| Productivity | 6.0 |
| Diversity | 19% |
| Abundance | 52 |

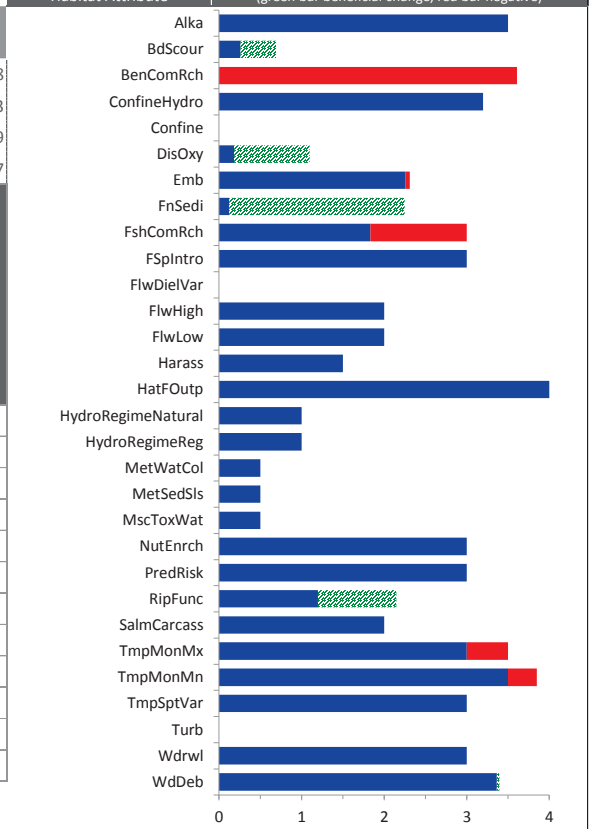
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 48 |
| Diversity | - 1% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 9 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.7% | -44.9% | 7 | | | | | | | | | | | | | | | ↓ |
| Egg Incubation | Oct-Apr | 4.8% | -0.3% | 4 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 4.2% | -5.7% | 6 | | | | | | | | | | | | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.0% | 2 | | | | | | | | | | | | | | | ↓ |
| 0-age transient rearing | Jun-Oct | 73.5% | -3.7% | 9 | | | | | | | | | | | | | | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | -1.1% | 3 | | | | | | | | | | | | | | | ↓ |
| 1-age migrant | Apr-Jun | 0.0% | -3.2% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 105.7% | -2.3% | 8 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 2.6% | -3.3% | 5 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



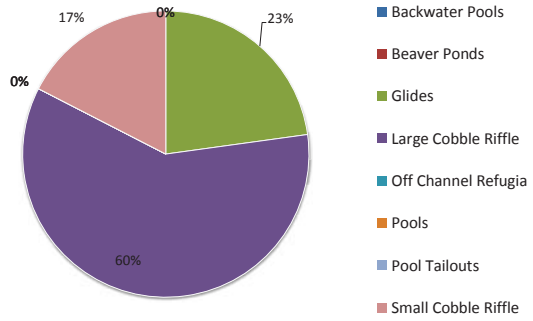

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

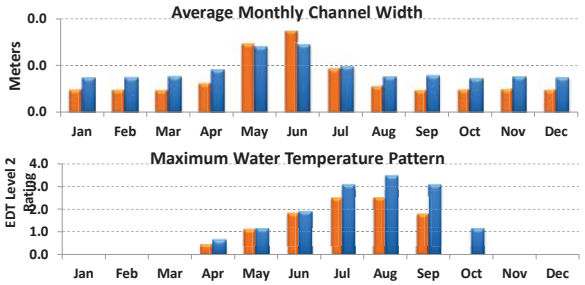
### EDT Habitat Composition Ratings

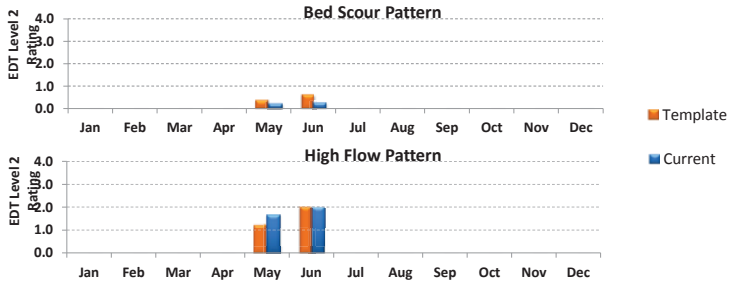



| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 35.3% | — |
| Fry Colonization | 15.2% | — |
| Active Rearing | 17.7% | — |
| Inactive Rearing | 22.3% | — |
| Prespawn Holding | 9.5% | — |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O2: Salmon to Oma |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 11 |
| Reach Length (mi) | 0.91 |
| Average Gradient | 0.5% |
| Habitat Area (ac) | 34.6 |

**OBMEP Sites**

OBMEP-481

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 22 |
|---|---|---|---|
| Productivity | + 1% | Out of | 143 |
| Diversity | + 1% | Diagnostic Unit Priority | 7 |
| Abundance | + 2% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 287 |
| Productivity | 5.5 |
| Diversity | 19% |
| Abundance | 235 |

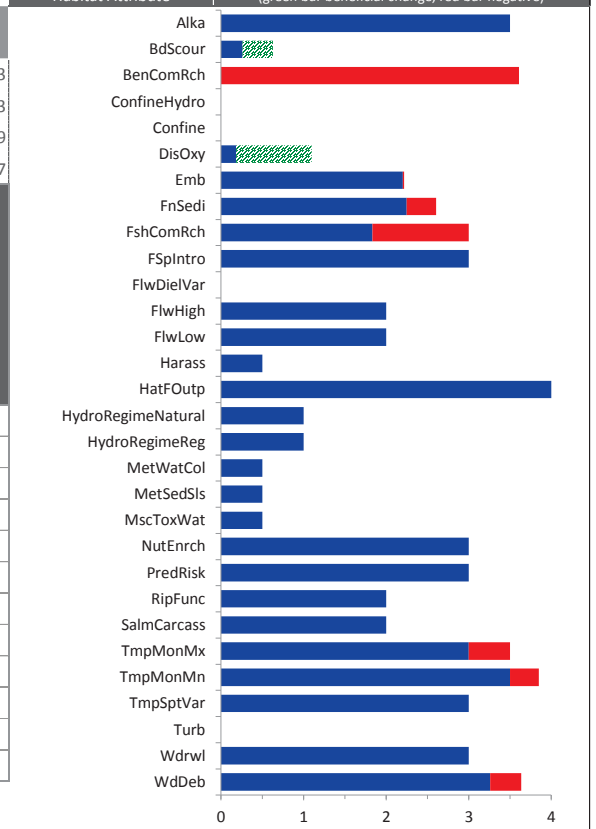
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 33 |
|---|---|---|---|
| Productivity | 0% | Out of | 143 |
| Diversity | - 2% | Diagnostic Unit Priority | 9 |
| Abundance | - 1% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.4% | -38.9% | 7 | | | | | | | ● | | | ● | | | ● | | ↓ |
| Egg Incubation | Oct-Apr | 9.9% | -2.4% | 6 | | | | | | | | | | | | ● | ● | | ↑ |
| Fry colonization | Apr-May | 5.4% | -3.9% | 5 | | | | | | | ● | | | | ● | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.2% | 1 | | | | | | | | | | | | | ● | | ↓ |
| 0-age transient rearing | Jun-Oct | 74.2% | -3.4% | 9 | | | | | | | | | | ● | ● | | ● | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | -1.1% | 2 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.5% | 3 | | | | | | | | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 106.9% | -2.1% | 8 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 3.0% | -1.9% | 4 | | | | | | | | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| Survival Factor Trend | | | | | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | |

## EDT Level 2 Attribute Ratings



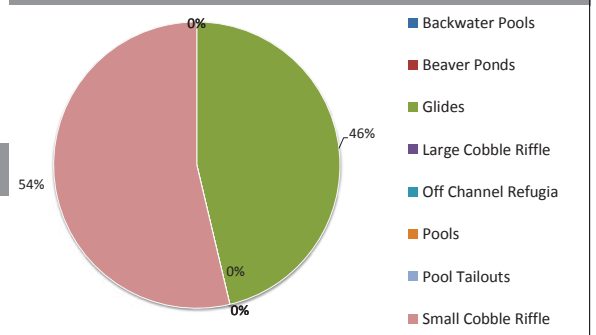

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

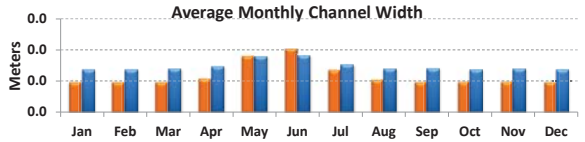
## EDT Habitat Composition Ratings

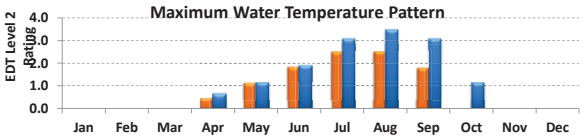


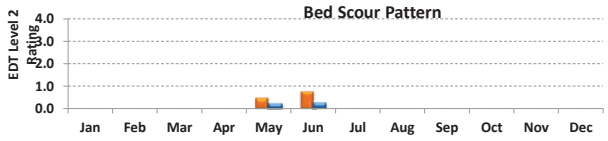

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 57.6% | ▬ |
| Fry Colonization | 13.6% | ▬ |
| Active Rearing | 15.8% | ▬ |
| Inactive Rearing | 7.9% | ▬ |
| Prespawn Holding | 5.3% | ▬ |

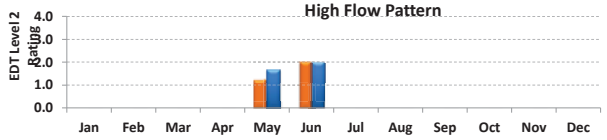
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O2: Salmon to Oma |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 12 |
| Reach Length (mi) | 2.06 |
| Average Gradient | 0.2% |
| Habitat Area (ac) | 61.1 |

**OBMEP Sites**

OBMEP-504

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 17 |
|---|---|---|---|
| Productivity | + 2% | Out of | 143 |
| Diversity | + 4% | Diagnostic Unit Priority | 7 |
| Abundance | + 1% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 545 |
| Productivity | 4.6 |
| Diversity | 17% |
| Abundance | 426 |

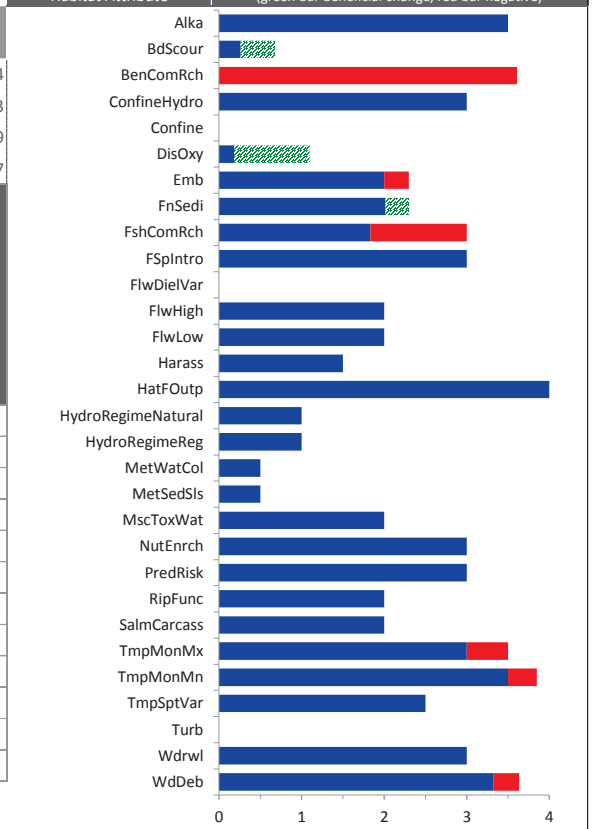
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 14 |
|---|---|---|---|
| Productivity | - 1% | Out of | 143 |
| Diversity | - 5% | Diagnostic Unit Priority | 9 |
| Abundance | - 5% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 3.5% | -36.9% | 7 | | Small | | | | | Small | | | Small | | | Large | | ↓ |
| Egg Incubation | Oct-Apr | 24.5% | -1.4% | 5 | | | | | | | | | | | | | Small | | ↑ |
| Fry colonization | Apr-May | 9.3% | -5.4% | 6 | | | | | | | Large | | | | Large | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.1% | 2 | | | | | | | | | | | | | Small | | ↓ |
| 0-age transient rearing | Jun-Oct | 75.4% | -3.4% | 9 | | | | | | | Small | | | Small | Small | | Small | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | -1.1% | 3 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -3.2% | 1 | | | | | | | Small | | | | Large | | | | ↓ |
| Migrant prespawner | Jul-Sep | 109.4% | -2.0% | 8 | | | | | | | | | | | | | Small | | ↓ |
| Holding prespawner | Jul-Oct | 5.2% | -3.4% | 4 | | | | | | | Large | | | | | | Small | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



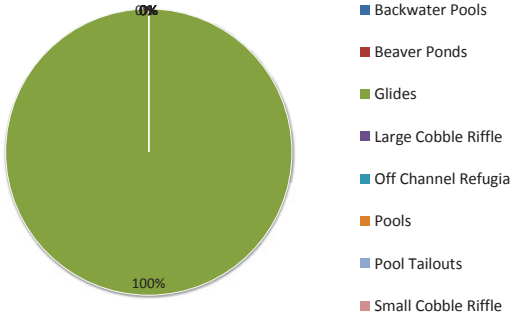

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | Large | Large | Large | Small | - |
| Gain | Large | Large | Large | Small | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

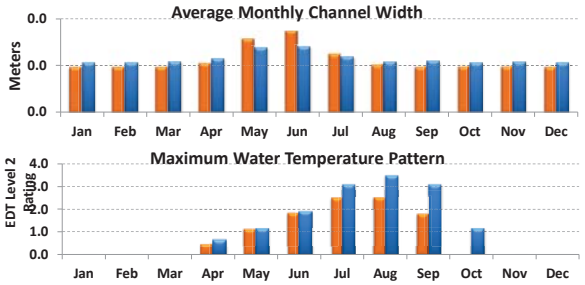
## EDT Habitat Composition Ratings

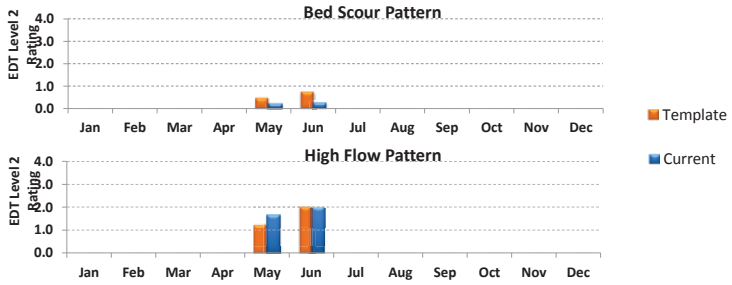



| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 34.8% | — |
| Fry Colonization | 17.4% | — |
| Active Rearing | 26.1% | — |
| Inactive Rearing | 13.0% | — |
| Prespawn Holding | 8.7% | — |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

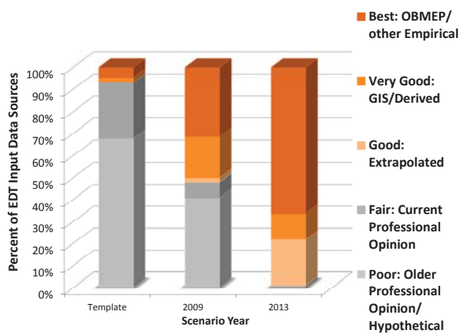
| | |
|---|---|
| Diagnostic Unit | Okanogan River O3: Omak to Rive |
| Species | Chinook |
| Population | Okanogan (US) |
| Status and Trend Year | 2013 |
| Trend Comparison | 2013 to 2009 |

## How Important is Okanogan River O3: Omak to Riverside for Conservation of Okanogan (US) Chinook?

| Effect on Population Potential if this Unit | Degrades | Is Restored |
|---|---|---|
| Adult Abundance | -1.5% | +2.7% |
| Adult Productivity | -0.7% | +7.4% |
| Life History Diversity | -1.2% | +2.3% |
| Diagnostic Unit Priority Rank[1] | 5 of 11 | 4 of 11 |

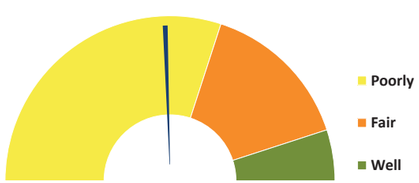
[1] Relative to all Okanogan (US) Diagnostic Units used by this Chinook population

## How Good is Our Information in Okanogan River O3: Omak to Riverside?

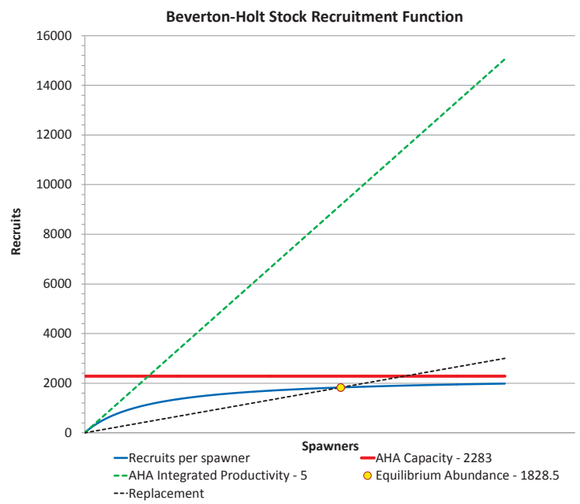


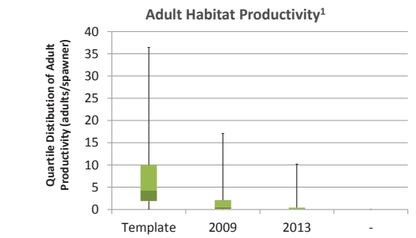

## How is Okanogan River O3: Omak to Riverside Performing as Chinook Habitat?

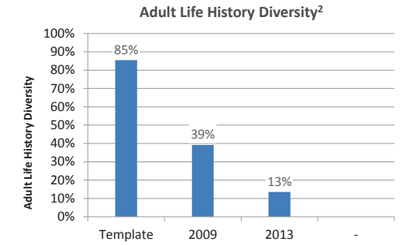
Currently Functioning at 49% of Template Habitat Potential

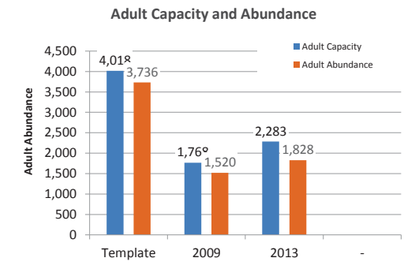


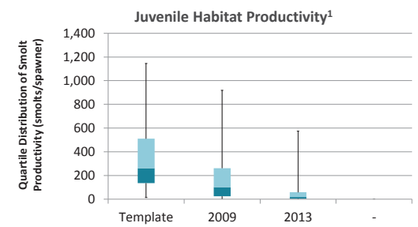

## What are the Trends in Chinook Habitat Potential in Okanogan River O3: Omak to Riverside?

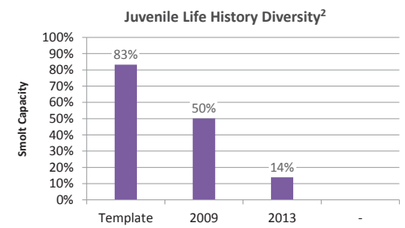


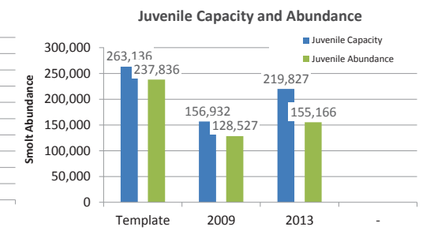



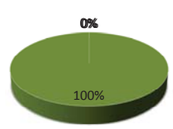




EDT used 4906 life history trajectories to model habitat potential in Okanogan River O3: Omak to Riverside

[1] Box and whisker graphs show the quartile distribution of cumulative habitat productivity for all 4906 EDT trajectories used to model this Diagnostic Unit.
[2] The percent of adult trajectories having a productivity >1.0 or juvenile productivity >100 smolts/spawner represent the range of life history diversity each habitat scenario can theoretically support.

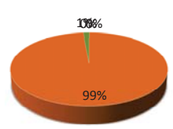
## Chinook Survival Factor Condition in Okanogan River O3: Omak to Rivers and Trend Between 2009 and 2013

### Channel Stability



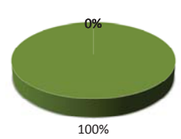

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 2% |
| Factor Trend | |
| Level of Proof | 1.03 |

### Sediment Conditions



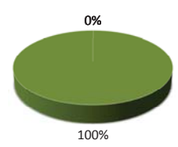

| | |
|---|---|
| % of Template | 93% |
| Factor Wt. | 35% |
| Factor Trend | |
| Level of Proof | 2.01 |

### Flow Conditions



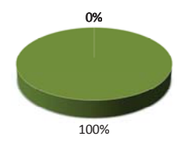

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 1% |
| Factor Trend | |
| Level of Proof | 1.15 |

### Withdrawals



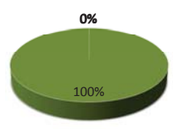

| | |
|---|---|
| % of Template | 99% |
| Factor Wt. | 2% |
| Factor Trend | |
| Level of Proof | 1.00 |

### Habitat Diversity



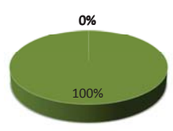

| | |
|---|---|
| % of Template | 97% |
| Factor Wt. | 14% |
| Factor Trend | |
| Level of Proof | 1.05 |

### Temperature



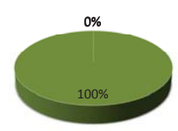

| | |
|---|---|
| % of Template | 95% |
| Factor Wt. | 29% |
| Factor Trend | |
| Level of Proof | 2.65 |

### Dissolved Oxygen



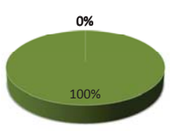

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 0% |
| Factor Trend | |
| Level of Proof | 3.33 |

### Competition-Hatchery



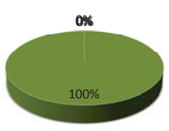

| | |
|---|---|
| % of Template | 99% |
| Factor Wt. | 3% |
| Factor Trend | |
| Level of Proof | 1.22 |

### Competition-Other



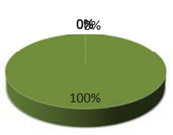

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 1% |
| Factor Trend | |
| Level of Proof | 1.98 |

### Food



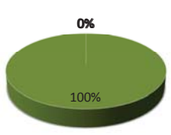

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 1% |
| Factor Trend | |
| Level of Proof | 1.19 |

### Predation




| | |
|---|---|
| % of Template | 98% |
| Factor Wt. | 11% |
| Factor Trend | |
| Level of Proof | 1.64 |

### Obstructions




| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 0% |
| Factor Trend | |
| Level of Proof | 1.00 |

READ ME - Pie charts describe how well each EDT Survival Factor is functioning based on its overall effect on Chinook productivity; % of Template describes current Survival Factor condition relative to template; Factor Weight rates relative importance of each Survival Factor based its proportional impact on Chinook productivity relative to other survival factors; Factor Trend describes change in Survival Factor % of Template between the 2009 and 2013 habitat scenarios.

### Change in Function Relative to Benchmark Key - Proportion of Habitat

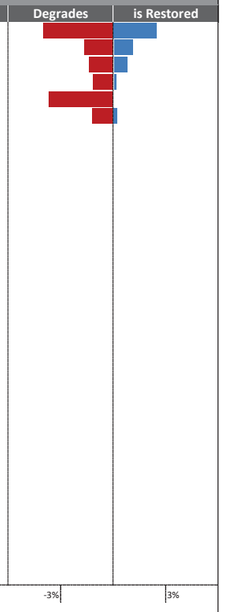
| Categorical Ranking | Productivity Impact |
|---|---|
| Not properly functioning | >5.1% reduction |
| Functioning at High Risk | 2.6% to 5% reduction |
| Functioning at Risk | 1.1% to 2.5% reduction |
| Properly Functioning | 0% to 1% reduction |

### Key - Survival Factor Trend

| Change | Neg. | Pos. |
|---|---|---|
| <1% | | |
| >1-5% | | |
| >5% | | |

### Habitat Priorities - Change in Population Abundance If (values normalized to %change/river mile)

| This Reach, Length (mi) | | Degrades | is Restored |
|---|---|---|---|
| Okanogan 12a | 0.08 | | |
| Okanogan 13h (hatchery | 0.02 | | |
| Okanogan 13 | 2.61 | | |
| Okanogan 14a | 4.86 | | |
| Okanogan 14h (hatchery | 0.02 | | |
| Okanogan 14b | 1.01 | | |



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

## OBSTRUCTIONS AND KEY HABITAT

**Subbasin:** Okanogan (US)
**Species:** Chinook
**Population:** Okanogan Summer/Fall
**Monitoring Cycle:** 2009-2013
**Diagnostic Unit:** Okanogan River O3: Omak to Riverside

**Diagnostic Unit Habitat Statistics**

**Stream Length (mi):** 8.60
**Template Adult Capacity:** 4,018

**Diagnostic Unit Obstruction Statistics**

**# of Obstructions:** 0 **# Manmade:** 0
**Factor Weight:** 0% of DU productivity impairment

**There Were 0 Manmade Obstructions in Okanogan River O3: Omak to Riverside in 2013 With the Following Effects on Chinook Productivity (NR = Obstruction not rated)**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

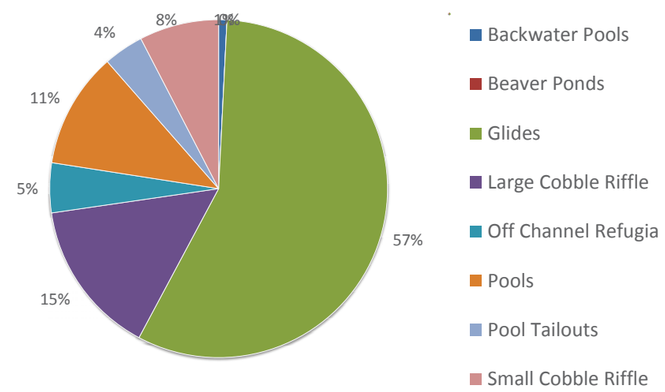
| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

**Okanogan River O3: Omak to Riverside Habitat Composition and Key Habitat Area for Chinook Under Template Conditions**

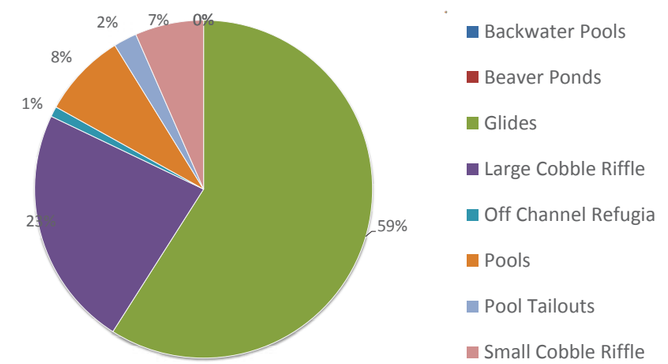



| Lifestage | Key Habitat Area* |
|---|---|
| Spawning | 27% |
| Fry colonization | 15% |
| 0-age active | 25% |
| 0-age inactive | 18% |
| 1-age active | 0% |
| 1-age inactive | 0% |
| 2+-age migrant | 0% |
| Prespawn holding | 14% |

**Template Habitat Capacity**

| Scenario | Adult | Juvenile |
|---|---|---|
| Template | 4,018 | 263,136 |

**Okanogan River O3: Omak to Riverside Habitat Composition in 2009 and Trend in Chinook Key Habitat Area Since Template**

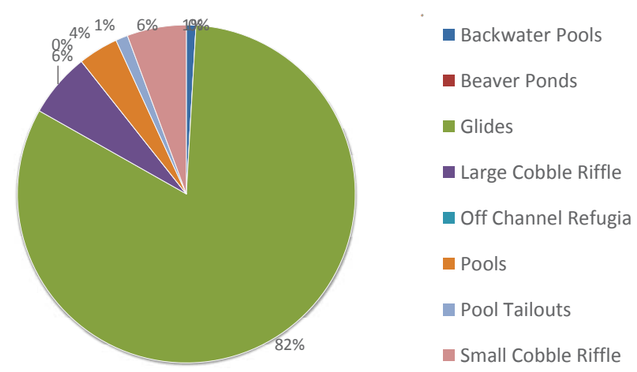



| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 22.9% | -29% |
| Fry colonization | 15.6% | -13% |
| 0-age active | 23.3% | -20% |
| 0-age inactive | 22.9% | 8% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 15.3% | -10% |

**Net Habitat Capacity and Change Since Template**

| Comparison | Adult | Juvenile |
|---|---|---|
| Template to 2009 | 1768 (-56%) | 156932 (-40%) |

**Okanogan River O3: Omak to Riverside Habitat Composition in 2013 and Trend in Chinook Key Habitat Area Since 2009**




| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 33.2% | 95% |
| Fry colonization | 16.1% | 39% |
| 0-age active | 25.6% | 48% |
| 0-age inactive | 14.8% | -12% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 10.2% | -10% |

**Net Habitat Capacity and Change Since 2009**

| Comparison | Adult | Juvenile |
|---|---|---|
| 2009 to 2013 | 2283 (29%) | 219827 (40%) |

* Percent of reach providing key habitat for this life stage in EDT in this habitat scenario

# Okanogan River 03: Omak to Riverside

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O3: Omak to Rivers |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 12a |
| Reach Length (mi) | 0.08 |
| Average Gradient | 0.7% |
| Habitat Area (ac) | 2.6 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 1% | Reach Priority | 45 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 4 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 51 |
| Productivity | 6.8 |
| Diversity | 19% |
| Abundance | 44 |

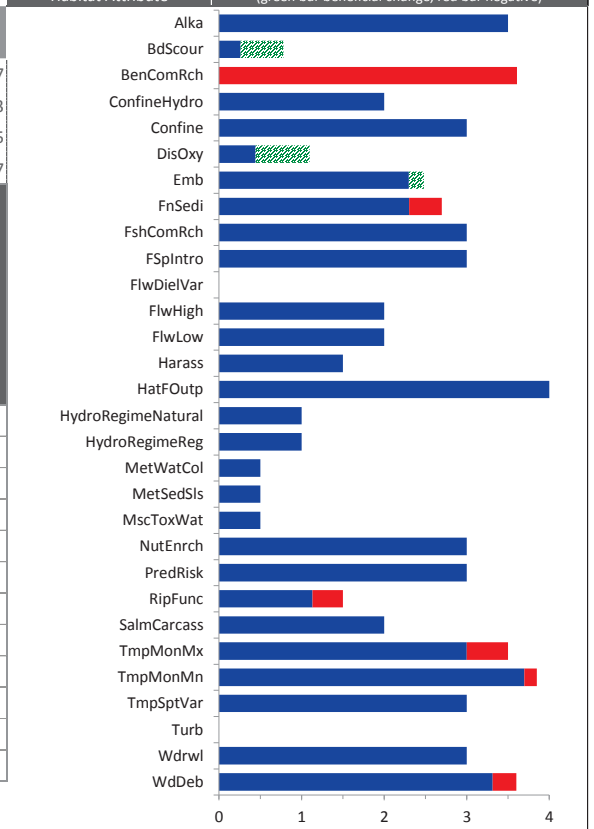
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 47 |
| Diversity | - 1% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.2% | -36.3% | 7 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 8.4% | -2.3% | 5 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 5.5% | -6.9% | 6 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.4% | 2 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 65.2% | -4.1% | 9 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -1.5% | 3 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -3.2% | 1 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 107.4% | -2.2% | 8 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 2.6% | -2.0% | 4 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



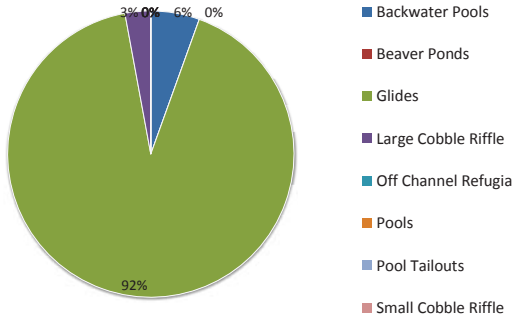

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

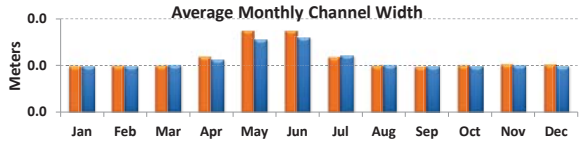
## EDT Habitat Composition Ratings

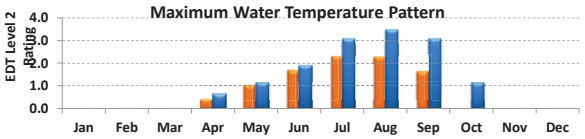


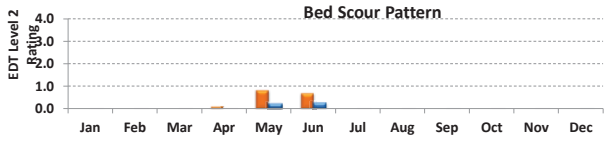

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 29.2% | ▲ |
| Fry Colonization | 13.8% | ↑ |
| Active Rearing | 26.2% | ▲ |
| Inactive Rearing | 17.8% | ↓ |
| Prespawn Holding | 13.0% | ↓ |

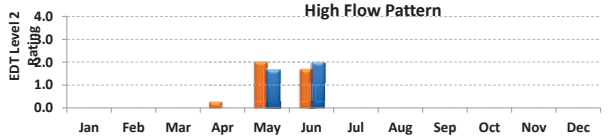
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O3: Omak to Rivers |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 13 |
| Reach Length (mi) | 2.61 |
| Average Gradient | 0.7% |
| Habitat Area (ac) | 105.7 |

**OBMEP Sites**

OBMEP-309

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 5% | Reach Priority | 12 |
| Diversity | + 5% | Out of | 143 |
| Abundance | + 2% | Diagnostic Unit Priority | 4 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 715 |
| Productivity | 6.4 |
| Diversity | 15% |
| Abundance | 604 |

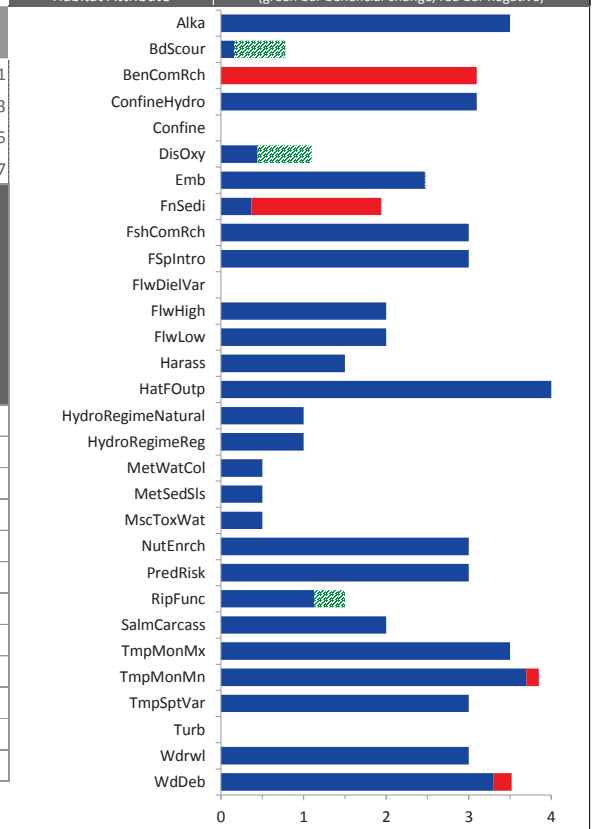
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 1% | Reach Priority | 11 |
| Diversity | - 6% | Out of | 143 |
| Abundance | - 4% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 4.2% | -37.0% | 7 | | | | | | | ● | | | ● | | | ● | | ↓ |
| Egg Incubation | Oct-Apr | 29.7% | -2.4% | 6 | | | | | | | | | | | | ● | ● | | ↑ |
| Fry colonization | Apr-May | 5.0% | -5.9% | 5 | | | | | ● | | ● | | | | ● | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.2% | 2 | | | | | | | | | | | | | ● | | ↓ |
| 0-age transient rearing | Jun-Oct | 70.8% | -3.5% | 8 | | | | | | | ● | | | ● | ● | | ● | | – |
| 0-age inactive | Apr-Oct | 0.0% | -1.1% | 3 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.9% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 109.4% | -2.4% | 9 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 4.2% | -3.2% | 4 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| Survival Factor Trend | | | | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | |

## EDT Level 2 Attribute Ratings



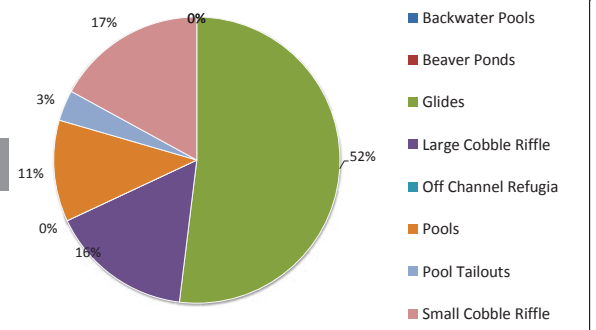

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | – | – |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

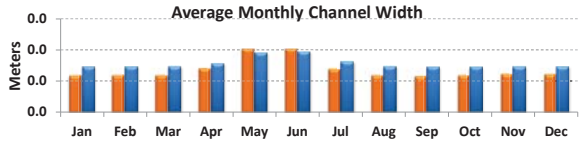
### EDT Habitat Composition Ratings

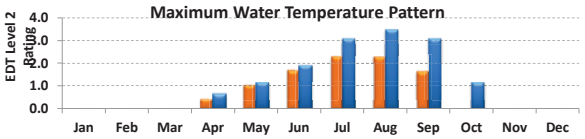


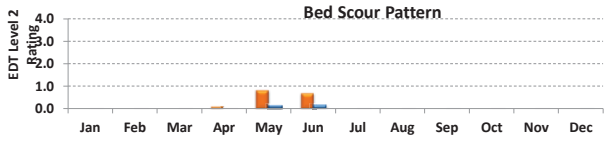

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 23.7% | ↑ |
| Fry Colonization | 10.4% | ↑ |
| Active Rearing | 26.3% | ↓ |
| Inactive Rearing | 22.4% | ↓ |
| Prespawn Holding | 17.2% | ↓ |

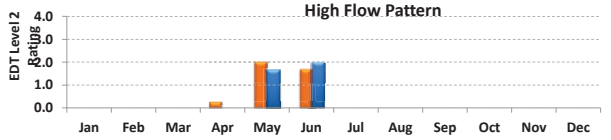
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O3: Omak to Rivers |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 13h (hatchery |
| Reach Length (mi) | 0.02 |
| Average Gradient | 0.7% |
| Habitat Area (ac) | 0.8 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 56 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 4 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 6 |
| Productivity | 3.6 |
| Diversity | 19% |
| Abundance | 4 |

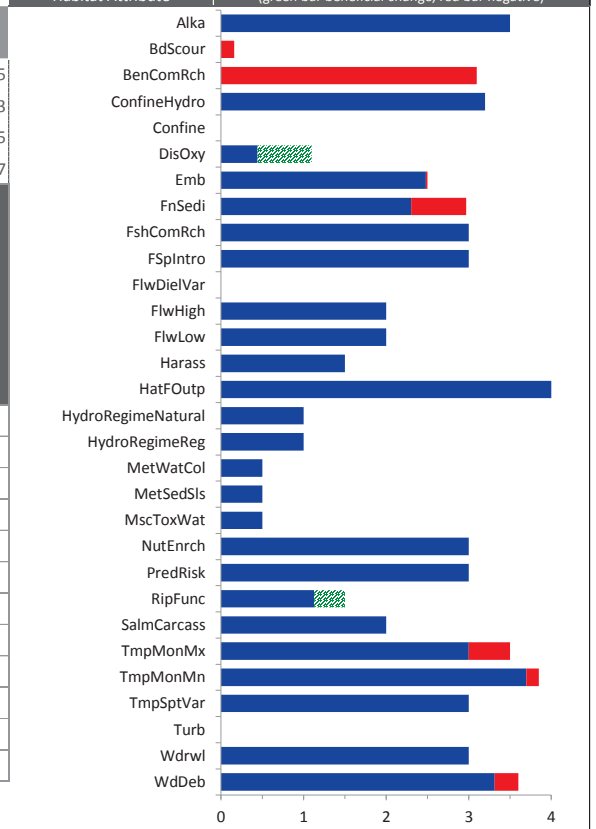
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 85 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.2% | -40.5% | 4 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 1.6% | -2.8% | 2 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 4.3% | -5.8% | 5 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 65.2% | -3.6% | 6 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.9% | 1 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 106.6% | -2.4% | 7 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 2.2% | -3.1% | 3 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| | | | | Survival Factor Trend | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



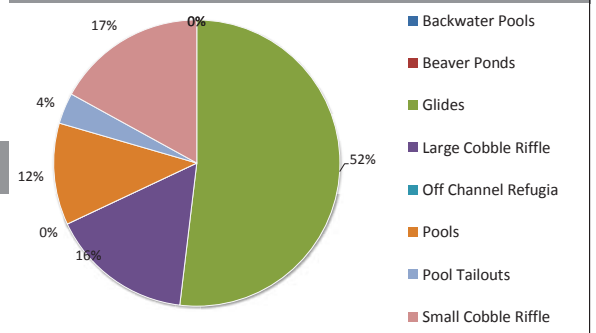

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

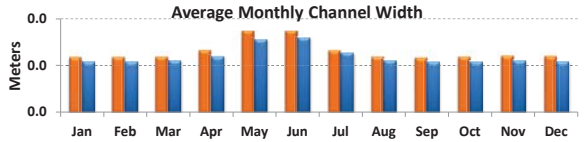
## EDT Habitat Composition Ratings

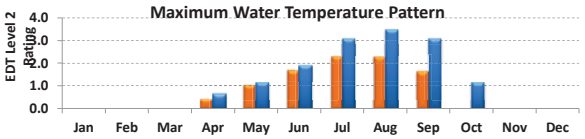


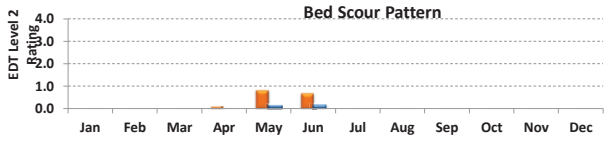

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 46.2% | ↑ |
| Fry Colonization | 20.2% | ↑ |
| Active Rearing | 0.0% | ▬ |
| Inactive Rearing | 0.0% | ▬ |
| Prespawn Holding | 33.6% | ↓ |

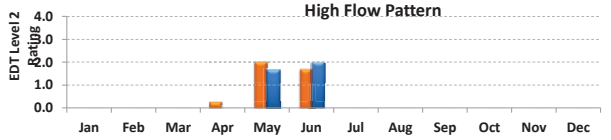
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O3: Omak to Rivers |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 14a |
| Reach Length (mi) | 4.86 |
| Average Gradient | 0.8% |
| Habitat Area (ac) | 198.4 |

**OBMEP Sites**

OBMEP-097

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 8% | Reach Priority | 48 |
| Diversity | + 14% | Out of | 143 |
| Abundance | + 1% | Diagnostic Unit Priority | 4 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 1174 |
| Productivity | 1.7 |
| Diversity | 8% |
| Abundance | 473 |

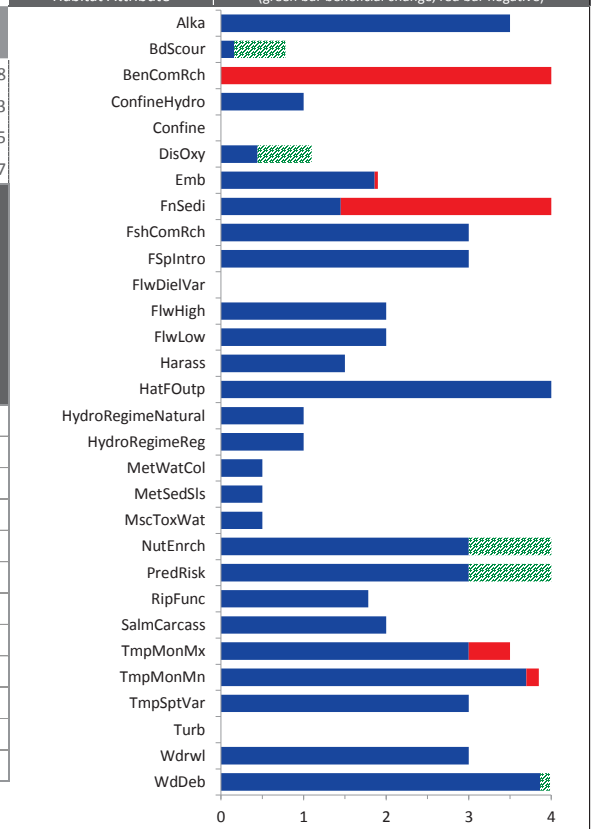
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 18 |
| Diversity | - 5% | Out of | 143 |
| Abundance | - 6% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.4% | -37.2% | 6 | | | | | | | | | | | | | | | ↓ |
| Egg Incubation | Oct-Apr | 10.0% | -5.8% | 7 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 6.7% | -5.1% | 5 | | | | | | | | | | | | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.3% | 2 | | | | | | | | | | | | | | | ↓ |
| 0-age transient rearing | Jun-Oct | 75.2% | -3.3% | 9 | | | | | | | | | | | | | | | — |
| 0-age inactive | Apr-Oct | 0.0% | -0.8% | 3 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.7% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 109.5% | -2.1% | 8 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 5.9% | -2.1% | 4 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | ↓ | — | — | |

## EDT Level 2 Attribute Ratings



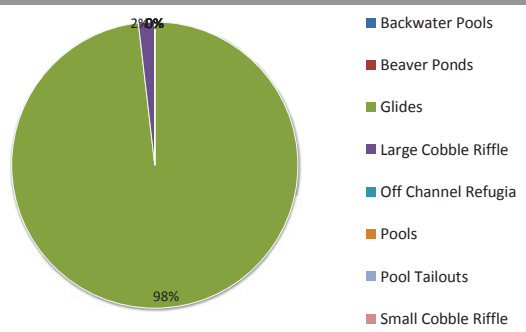

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

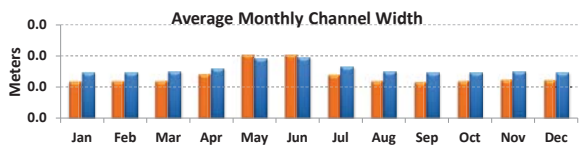
## EDT Habitat Composition Ratings

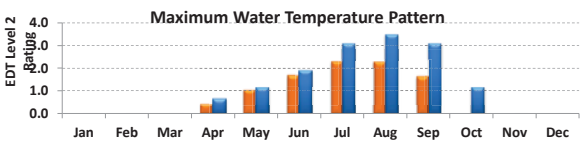


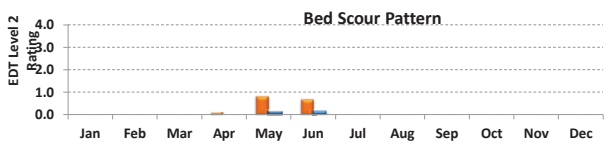

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 16.2% | ↑ |
| Fry Colonization | 17.0% | ↑ |
| Active Rearing | 21.0% | ↑ |
| Inactive Rearing | 32.8% | — |
| Prespawn Holding | 13.0% | ↑ |

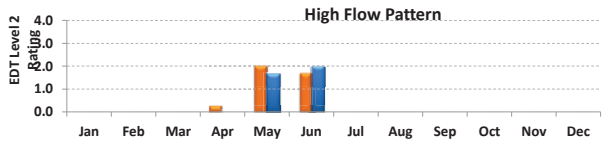
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O3: Omak to Rivers |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 14b |
| Reach Length (mi) | 1.01 |
| Average Gradient | 0.8% |
| Habitat Area (ac) | 47.7 |

**OBMEP Sites**

OBMEP-344

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 1% | Reach Priority | 56 |
| Diversity | + 2% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 4 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 338 |
| Productivity | 2.7 |
| Diversity | 18% |
| Abundance | 215 |

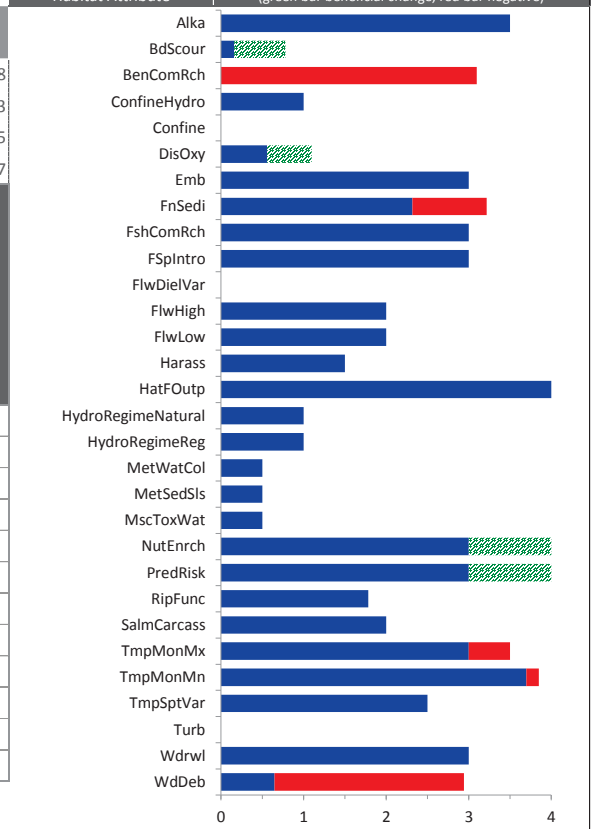
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 58 |
| Diversity | - 2% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.3% | -34.8% | 7 | | | | | | | ● | | | ● | | | ● | | ↓ |
| Egg Incubation | Oct-Apr | 9.2% | -3.2% | 5 | | | | | | | | | | | | ● | ● | | ↑ |
| Fry colonization | Apr-May | 7.3% | -4.2% | 6 | | | | | | | ● | | | | ● | ● | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -1.7% | 2 | | | | | | | | | | | | | ● | | ↓ |
| 0-age transient rearing | Jun-Oct | 59.7% | -2.6% | 8 | | | | | | | | | | ● | ● | | ● | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | -1.6% | 3 | | | | | | | | | | | | ● | | | — |
| 1-age migrant | Apr-Jun | 0.0% | -2.6% | 1 | | | | | | | | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 108.3% | -1.9% | 9 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 1.1% | -1.7% | 4 | | | | | | | | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| | | | | Survival Factor Trend | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

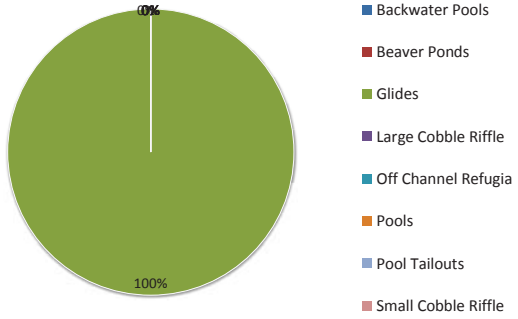
## EDT Level 2 Attribute Ratings




| Habitat Productivity Impact Key | | | | | |
|---|---|---|---|---|---|
| Impact | Extreme | High | Moderate | Small | None |
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

| Trend Key | | |
|---|---|---|
| Trend | Neg. | Pos. |
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

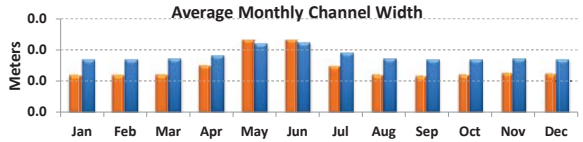
## EDT Habitat Composition Ratings

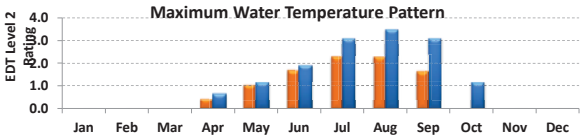


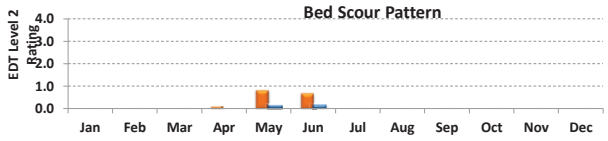

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 40.0% | — |
| Fry Colonization | 20.0% | — |
| Active Rearing | 30.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 10.0% | — |

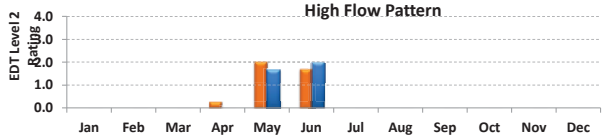
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

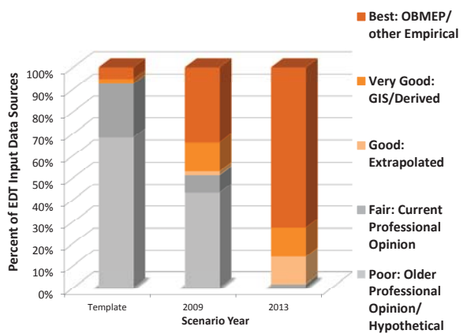
| | |
|---|---|
| Diagnostic Unit | Okanogan River O4: Riverside to J |
| Species | Chinook |
| Population | Okanogan (US) |
| Status and Trend Year | 2013 |
| Trend Comparison | 2013 to 2009 |

## How Important is Okanogan River O4: Riverside to Janis for Conservation of Okanogan (US) Chinook?

| Effect on Population Potential if this Unit | Degrades | Is Restored |
|---|---|---|
| Adult Abundance | -1.7% | +2.0% |
| Adult Productivity | 0.0% | +5.4% |
| Life History Diversity | -2.5% | +2.4% |
| Diagnostic Unit Priority Rank[1] | 3 of 11 | 4 of 11 |

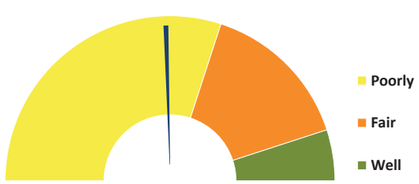
[1] Relative to all Okanogan (US) Diagnostic Units used by this Chinook population

## How Good is Our Information in Okanogan River O4: Riverside to Janis?

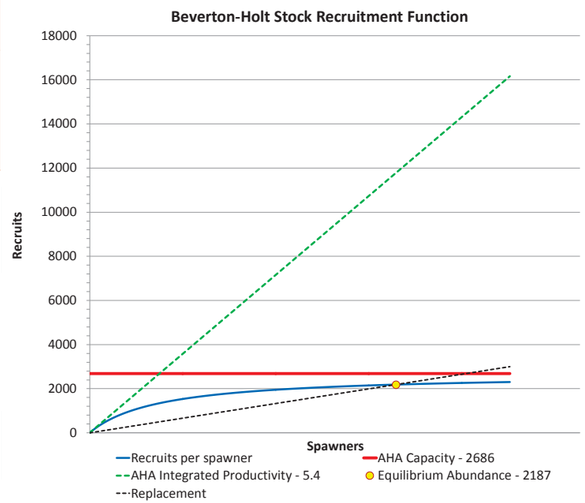


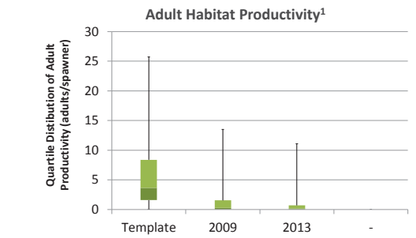

## How is Okanogan River O4: Riverside to Janis Performing as Chinook Habitat?

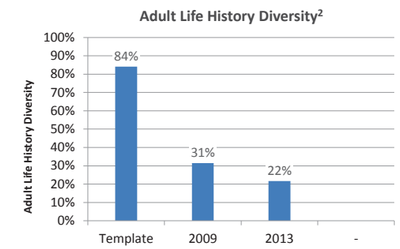
Currently Functioning at 49% of Template Habitat Potential

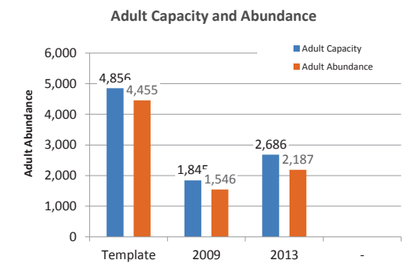


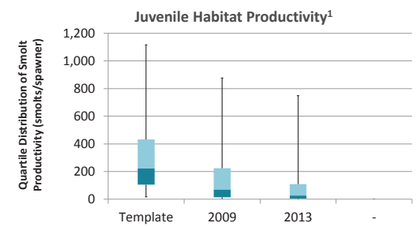

## What are the Trends in Chinook Habitat Potential in Okanogan River O4: Riverside to Janis?

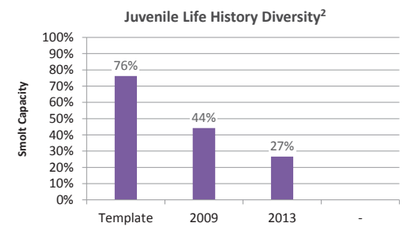


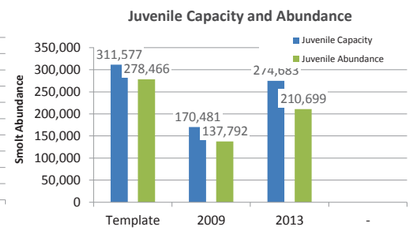



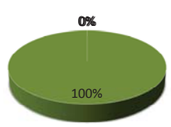

EDT used 4851 life history trajectories to model habitat potential in Okanogan River O4: Riverside to Janis

[1] Box and whisker graphs show the quartile distribution of cumulative habitat productivity for all 4851 EDT trajectories used to model this Diagnostic Unit.

[2] The percent of adult trajectories having a productivity >1.0 or juvenile productivity >100 smolts/spawner represent the range of life history diversity each habitat scenario can theoretically support.

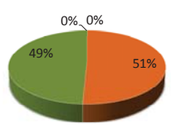
## Chinook Survival Factor Condition in Okanogan River O4: Riverside to J and Trend Between 2009 and 2013

### Channel Stability



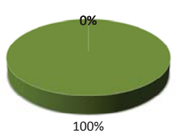

| | |
|---|---|
| % of Template | 99% |
| Factor Wt. | 3% |
| Factor Trend | – |
| Level of Proof | 1.03 |

### Sediment Conditions



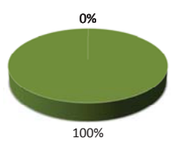

| | |
|---|---|
| % of Template | 98% |
| Factor Wt. | 19% |
| Factor Trend | – |
| Level of Proof | 1.72 |

### Flow Conditions



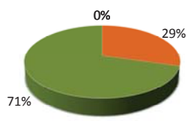

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 2% |
| Factor Trend | – |
| Level of Proof | 1.07 |

### Withdrawals



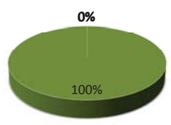

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 1% |
| Factor Trend | – |
| Level of Proof | 1.00 |

### Habitat Diversity



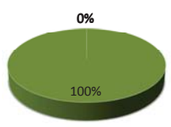

| | |
|---|---|
| % of Template | 95% |
| Factor Wt. | 25% |
| Factor Trend | – |
| Level of Proof | 1.01 |

### Temperature



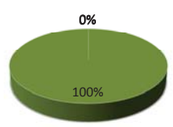

| | |
|---|---|
| % of Template | 93% |
| Factor Wt. | 32% |
| Factor Trend | ↓ |
| Level of Proof | 2.49 |

### Dissolved Oxygen



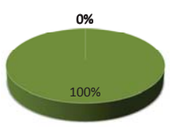

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 0% |
| Factor Trend | – |
| Level of Proof | 4.00 |

### Competition-Hatchery



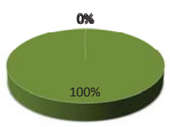

| | |
|---|---|
| % of Template | 99% |
| Factor Wt. | 4% |
| Factor Trend | – |
| Level of Proof | 1.16 |

### Competition-Other



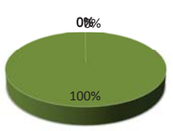

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 1% |
| Factor Trend | – |
| Level of Proof | 1.85 |

### Food



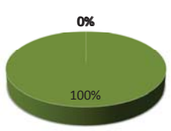

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 1% |
| Factor Trend | – |
| Level of Proof | 1.14 |

### Predation




| | |
|---|---|
| % of Template | 97% |
| Factor Wt. | 11% |
| Factor Trend | – |
| Level of Proof | 1.62 |

### Obstructions




| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 0% |
| Factor Trend | – |
| Level of Proof | 1.00 |

READ ME - Pie charts describe how well each EDT Survival Factor is functioning based on its overall effect on Chinook productivity; % of Template describes current Survival Factor condition relative to template; Factor Weight rates relative importance of each Survival Factor based its proportional impact on Chinook productivity relative to other survival factors; Factor Trend describes change in Survival Factor % of Template between the 2009 and 2013 habitat scenarios.

### Change in Function Relative to Benchmark Key - Proportion of Habitat

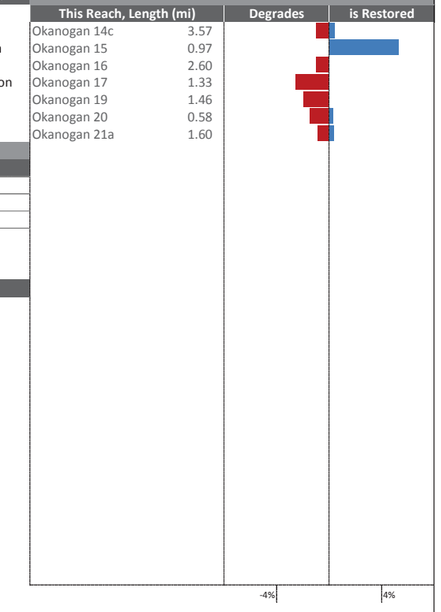
| Categorical Ranking | Productivity Impact |
|---|---|
| Not properly functioning | >5.1% reduction |
| Functioning at High Risk | 2.6% to 5% reduction |
| Functioning at Risk | 1.1% to 2.5% reduction |
| Properly Functioning | 0% to 1% reduction |

### Key - Survival Factor Trend

| Change | Neg. | Pos. |
|---|---|---|
| <1% | – | – |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

## Habitat Priorities - Change in Population Abundance If (values normalized to %change/river mile)

| This Reach, Length (mi) | | Degrades | is Restored |
|---|---|---|---|
| Okanogan 14c | 3.57 | | |
| Okanogan 15 | 0.97 | | |
| Okanogan 16 | 2.60 | | |
| Okanogan 17 | 1.33 | | |
| Okanogan 19 | 1.46 | | |
| Okanogan 20 | 0.58 | | |
| Okanogan 21a | 1.60 | | |



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

## OBSTRUCTIONS AND KEY HABITAT

**Subbasin:** Okanogan (US)
**Species:** Chinook
**Population:** Okanogan Summer/Fall
**Monitoring Cycle:** 2009-2013
**Diagnostic Unit:** Okanogan River O4: Riverside to Janis

**Diagnostic Unit Habitat Statistics**

**Stream Length (mi):** 12.16
**Template Adult Capacity:** 4,856

**Diagnostic Unit Obstruction Statistics**

**# of Obstructions:** 1 **# Manmade:** 0
**Factor Weight:** 0% of DU productivity impairment

**There Were 0 Manmade Obstructions in Okanogan River O4: Riverside to Janis in 2013 With the Following Effects on Chinook Productivity (NR = Obstruction not rated)**

**Okanogan 18 (falls) - 28% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 1,335 | 1,225 |
| Juvenile | NR | NR | 84,947 | 75,969 |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

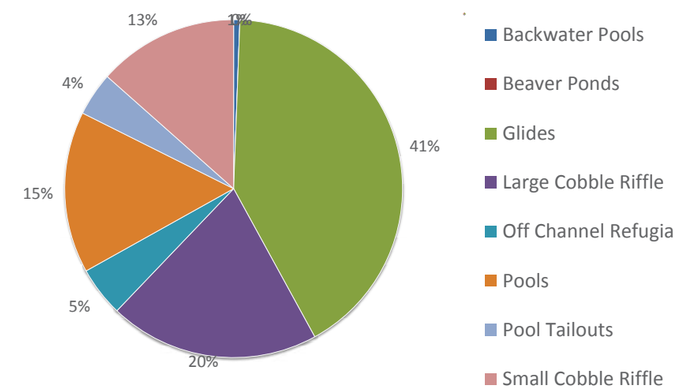
| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

**Okanogan River O4: Riverside to Janis Habitat Composition and Key Habitat Area for Chinook Under Template Conditions**

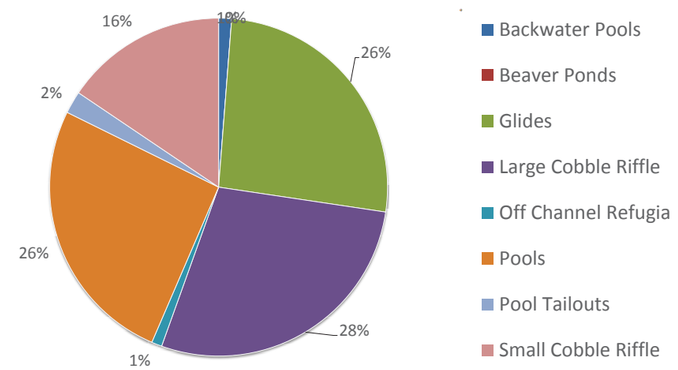



| Lifestage | Key Habitat Area* |
|---|---|
| Spawning | 30% |
| Fry colonization | 12% |
| 0-age active | 25% |
| 0-age inactive | 18% |
| 1-age active | 0% |
| 1-age inactive | 0% |
| 2+-age migrant | 0% |
| Prespawn holding | 15% |

**Template Habitat Capacity**

| Scenario | Adult | Juvenile |
|---|---|---|
| Template | 4,856 | 311,577 |

**Okanogan River O4: Riverside to Janis Habitat Composition in 2009 and Trend in Chinook Key Habitat Area Since Template**

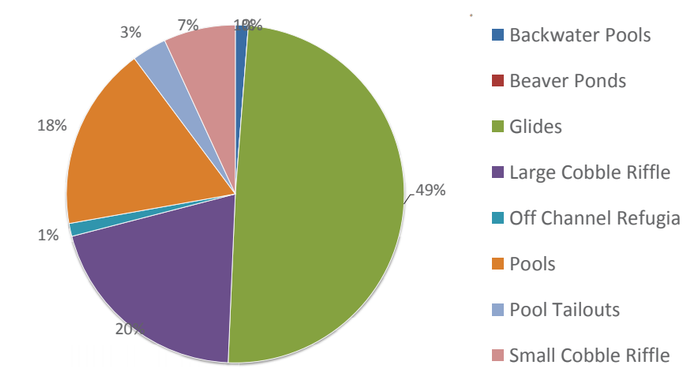



| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 23.6% | -14% |
| Fry colonization | 10.3% | -9% |
| 0-age active | 25.8% | 13% |
| 0-age inactive | 23.0% | 36% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 17.2% | 21% |

**Net Habitat Capacity and Change Since Template**

| Comparison | Adult | Juvenile |
|---|---|---|
| Template to 2009 | 1845 (-62%) | 170481 (-45%) |

**Okanogan River O4: Riverside to Janis Habitat Composition in 2013 and Trend in Chinook Key Habitat Area Since 2009**




| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 25.9% | 13% |
| Fry colonization | 12.4% | 25% |
| 0-age active | 27.6% | 11% |
| 0-age inactive | 19.2% | -13% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 14.9% | -10% |

**Net Habitat Capacity and Change Since 2009**

| Comparison | Adult | Juvenile |
|---|---|---|
| 2009 to 2013 | 2686 (46%) | 274683 (61%) |

* Percent of reach providing key habitat for this life stage in EDT in this habitat scenario

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O4: Riverside to Jar |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 14c |
| Reach Length (mi) | 3.57 |
| Average Gradient | 0.8% |
| Habitat Area (ac) | 118.2 |

**OBMEP Sites**

OBMEP-432

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 6% | Reach Priority | 16 |
| Diversity | + 6% | Out of | 143 |
| Abundance | + 1% | Diagnostic Unit Priority | 4 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 979 |
| Productivity | 5.7 |
| Diversity | 15% |
| Abundance | 806 |

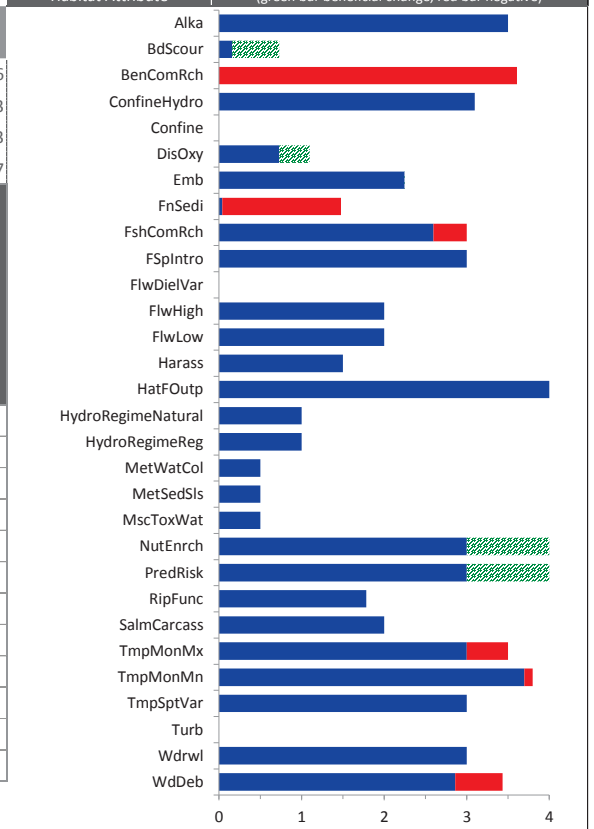
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 46 |
| Diversity | - 9% | Out of | 143 |
| Abundance | - 4% | Diagnostic Unit Priority | 3 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 7.7% | -31.9% | 8 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 54.2% | -1.5% | 6 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 10.3% | -6.8% | 5 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.2% | 2 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 62.6% | -3.6% | 7 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -1.1% | 3 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -3.0% | 1 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 113.9% | -2.7% | 9 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 3.1% | -3.8% | 4 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



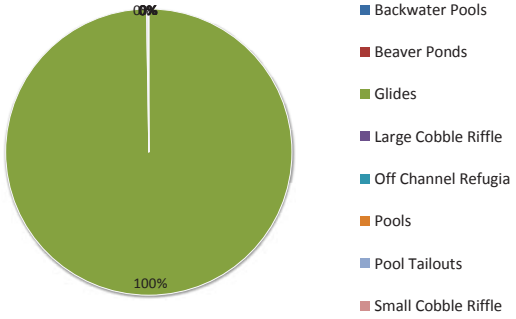

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

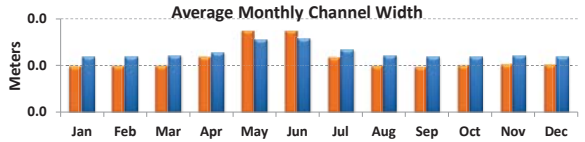
## EDT Habitat Composition Ratings

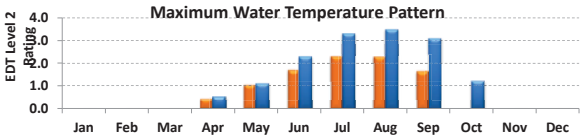


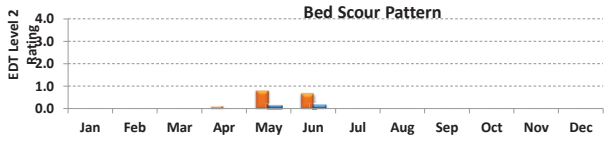

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 36.6% | ▲ |
| Fry Colonization | 16.0% | ↑ |
| Active Rearing | 25.6% | ↑ |
| Inactive Rearing | 13.6% | ▲ |
| Prespawn Holding | 8.2% | ↑ |

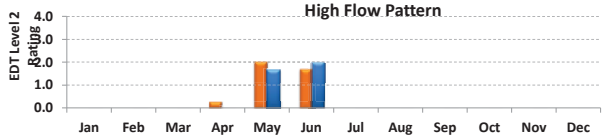
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O3: Omak to Rivers |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 14h (hatchery |
| Reach Length (mi) | 0.02 |
| Average Gradient | 0.8% |
| Habitat Area (ac) | 0.8 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 76 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 4 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 0 |
| Productivity | 0.0 |
| Diversity | 19% |
| Abundance | 0 |

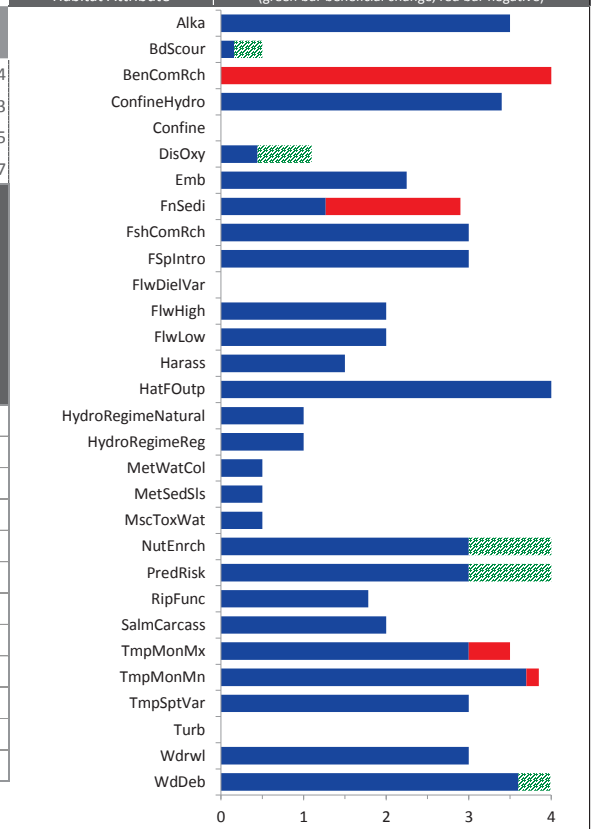
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 84 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.0% | -26.6% | 1 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 0.0% | -3.4% | 2 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 4.6% | -7.6% | 5 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 59.0% | -3.5% | 6 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -3.2% | 3 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 107.5% | -2.5% | 7 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.9% | -4.1% | 4 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



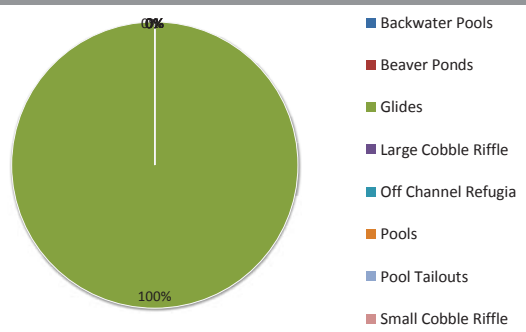

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

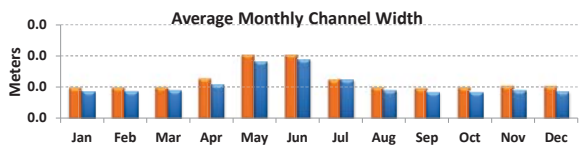
## EDT Habitat Composition Ratings

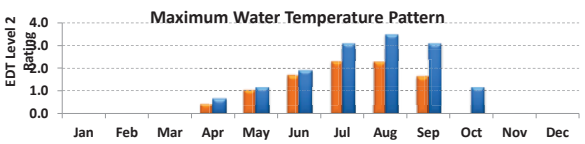


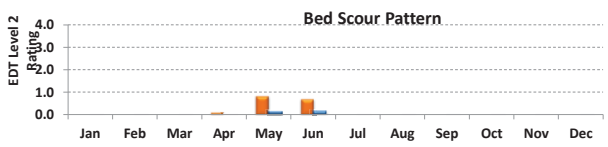

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 57.1% | ▬ |
| Fry Colonization | 28.6% | ▬ |
| Active Rearing | 0.0% | ▬ |
| Inactive Rearing | 0.0% | ▬ |
| Prespawn Holding | 14.3% | ▬ |

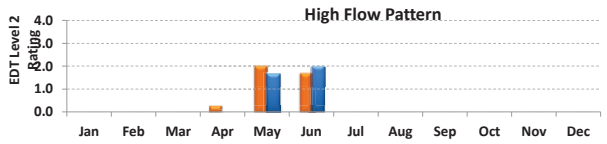
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O4: Riverside to Jar |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 15 |
| Reach Length (mi) | 0.97 |
| Average Gradient | 0.3% |
| Habitat Area (ac) | 41.7 |

**OBMEP Sites**

OBMEP-021

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 1% | Reach Priority | 15 |
| Diversity | + 4% | Out of | 143 |
| Abundance | + 6% | Diagnostic Unit Priority | 4 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 0 |
| Productivity | 0.0 |
| Diversity | 17% |
| Abundance | 0 |

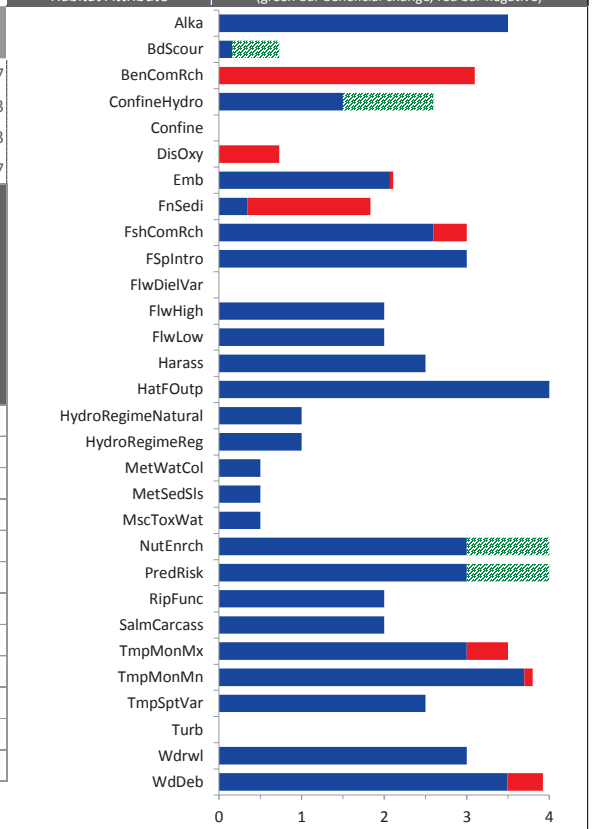
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 77 |
| Diversity | - 1% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 3 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.0% | -32.8% | 1 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 0.0% | -2.1% | 2 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 1.9% | -4.0% | 7 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.1% | 4 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 54.1% | -2.9% | 8 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -0.7% | 5 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.2% | 3 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 110.9% | -2.2% | 9 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 1.5% | -2.3% | 6 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



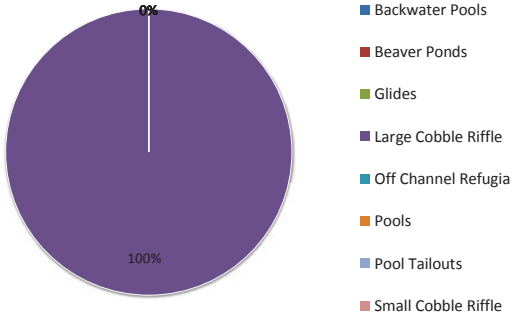

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

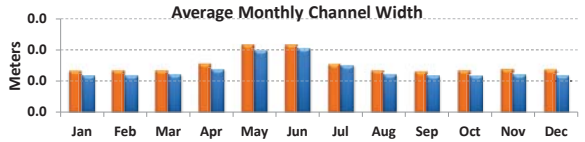
## EDT Habitat Composition Ratings

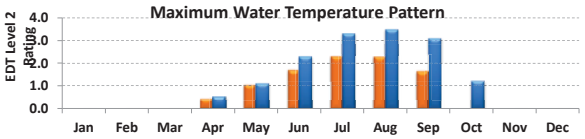


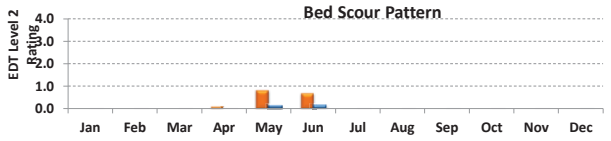

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 0.0% | ▬ |
| Fry Colonization | 16.7% | ▬ |
| Active Rearing | 16.7% | ▬ |
| Inactive Rearing | 50.0% | ▬ |
| Prespawn Holding | 16.7% | ▬ |

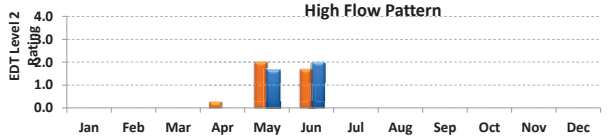
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O4: Riverside to Jar |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 16 |
| Reach Length (mi) | 2.60 |
| Average Gradient | 1.4% |
| Habitat Area (ac) | 102.7 |

**OBMEP Sites**

OBMEP-331

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 55 |
|---|---|---|---|
| Productivity | + 2% | Out of | 143 |
| Diversity | + 6% | Diagnostic Unit Priority | 4 |
| Abundance | 0% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 633 |
| Productivity | 2.3 |
| Diversity | 15% |
| Abundance | 362 |

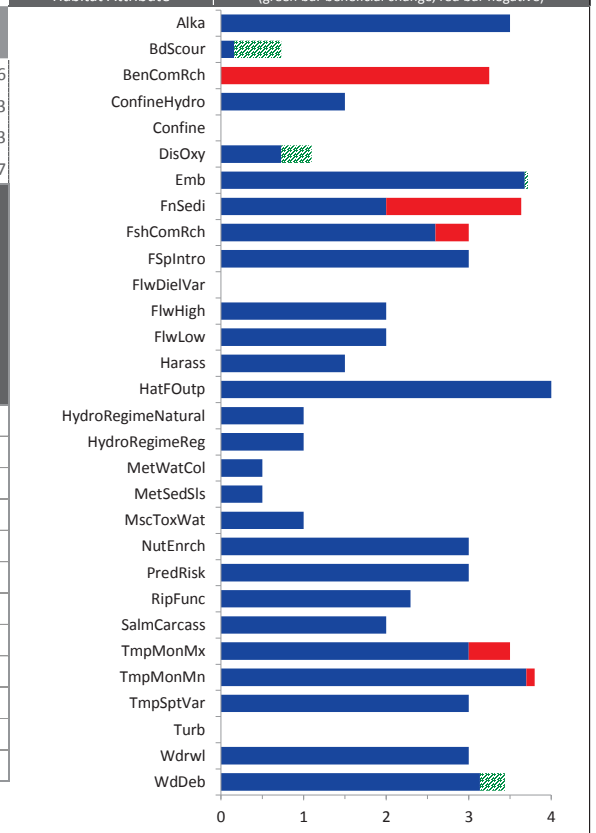
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 56 |
|---|---|---|---|
| Productivity | 0% | Out of | 143 |
| Diversity | - 4% | Diagnostic Unit Priority | 3 |
| Abundance | - 3% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 2.0% | -33.7% | 7 | | | | | | | ● | | | ● | | | ● | | ↑ |
| Egg Incubation | Oct-Apr | 14.0% | -3.9% | 6 | | | | | | | | | | | | ● | ● | | ↓ |
| Fry colonization | Apr-May | 5.7% | -7.6% | 5 | | | | | | | ● | | | | ● | ● | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.1% | 2 | | | | | | | | | | | | | ● | | ↓ |
| 0-age transient rearing | Jun-Oct | 59.1% | -3.2% | 8 | | | | | | | ● | | | ● | ● | | ● | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | -6.1% | 3 | | | | | | | | | | | | ● | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.8% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 112.5% | -2.5% | 9 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 1.5% | -2.0% | 4 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| Survival Factor Trend | | | | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | |

## EDT Level 2 Attribute Ratings



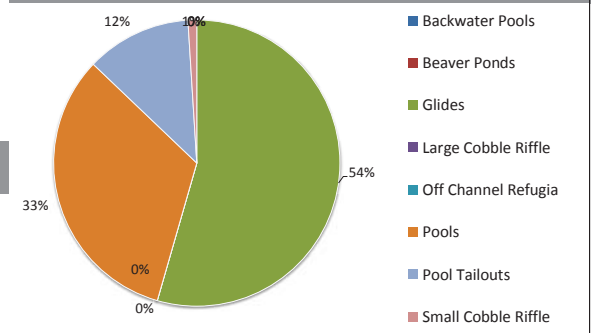

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | – | – |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

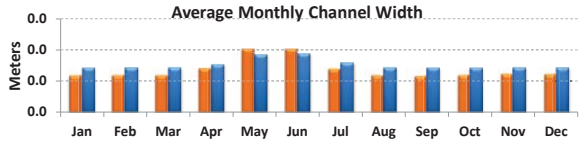
## EDT Habitat Composition Ratings

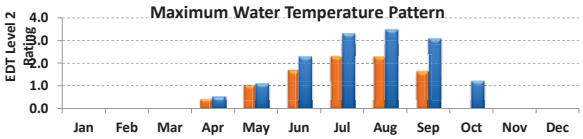


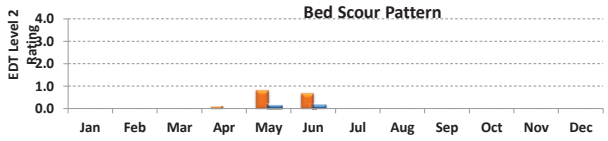

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 58.1% | ↓ |
| Fry Colonization | 13.2% | ↑ |
| Active Rearing | 14.7% | ↑ |
| Inactive Rearing | 8.7% | ↑ |
| Prespawn Holding | 5.3% | ↑ |

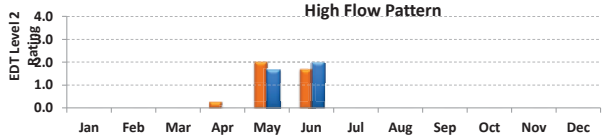
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O4: Riverside to Jar |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 17 |
| Reach Length (mi) | 1.33 |
| Average Gradient | 0.5% |
| Habitat Area (ac) | 36.6 |

**OBMEP Sites**

OBMEP-411

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 68 |
|---|---|---|---|
| Productivity | 0% | Out of | 143 |
| Diversity | + 2% | Diagnostic Unit Priority | 4 |
| Abundance | 0% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 260 |
| Productivity | 5.7 |
| Diversity | 18% |
| Abundance | 214 |

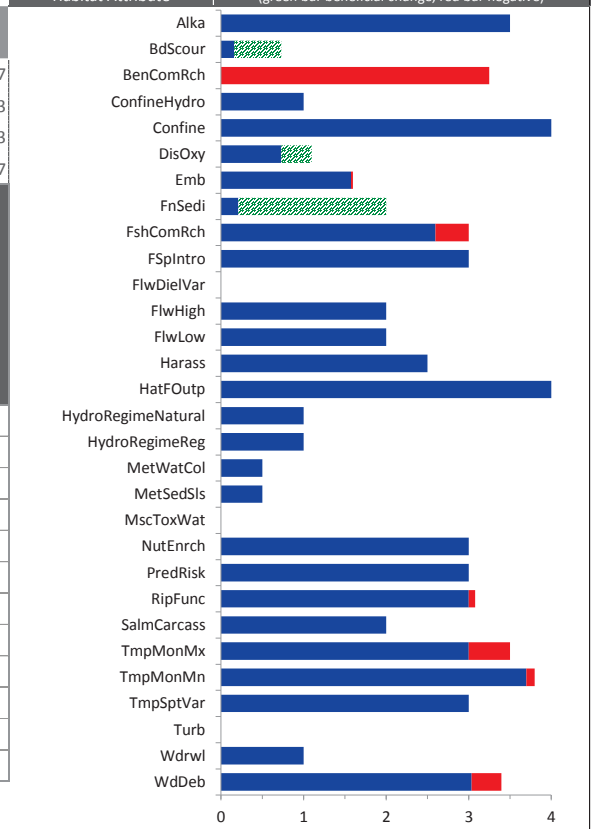
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 17 |
|---|---|---|---|
| Productivity | - 1% | Out of | 143 |
| Diversity | - 4% | Diagnostic Unit Priority | 3 |
| Abundance | - 4% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.4% | -43.9% | 7 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 9.7% | -0.4% | 5 | | | | | | | | | | | | | | | ↓ |
| Fry colonization | Apr-May | 6.0% | -8.4% | 6 | | | | | | | | | | | | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.7% | 2 | | | | | | | | | | | | | | | ↓ |
| 0-age transient rearing | Jun-Oct | 52.6% | -4.3% | 8 | | | | | | | | | | | | | | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | -2.2% | 3 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -3.0% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 111.9% | -2.4% | 9 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 1.1% | -2.0% | 4 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| | | | | Survival Factor Trend | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



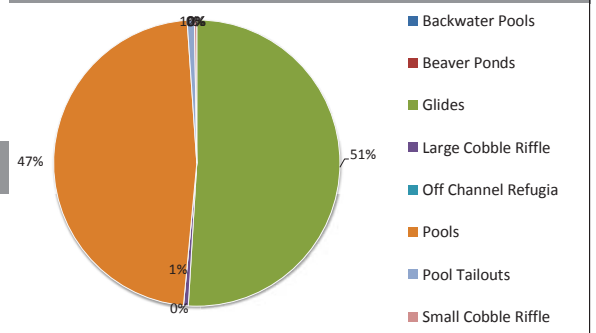

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

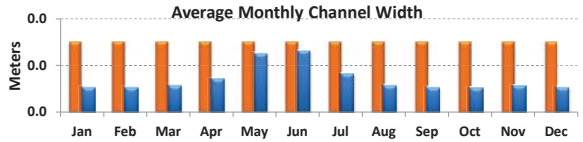
## EDT Habitat Composition Ratings

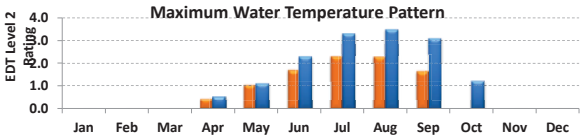


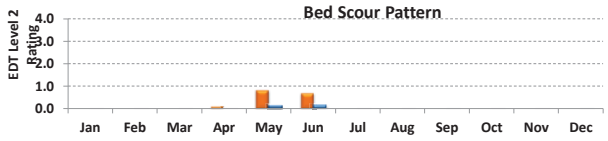

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 0.8% | ↑ |
| Fry Colonization | 5.5% | ↑ |
| Active Rearing | 32.6% | ↓ |
| Inactive Rearing | 32.4% | ↓ |
| Prespawn Holding | 28.8% | ↓ |

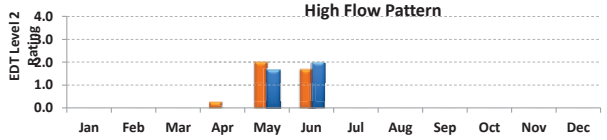
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O4: Riverside to Jar |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 19 |
| Reach Length (mi) | 1.46 |
| Average Gradient | 0.1% |
| Habitat Area (ac) | 44.7 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 101 |
| Diversity | + 1% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 4 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 376 |
| Productivity | 6.8 |
| Diversity | 19% |
| Abundance | 321 |

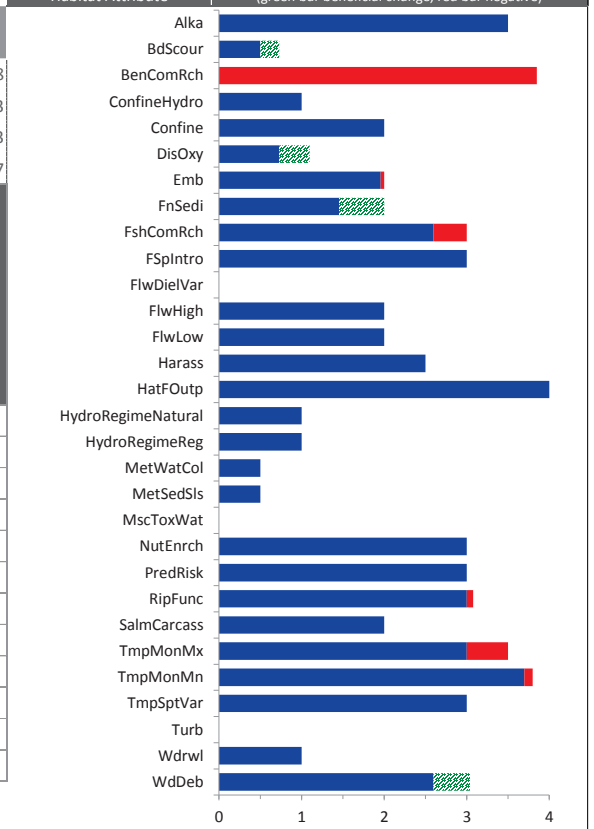
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 1% | Reach Priority | 18 |
| Diversity | - 4% | Out of | 143 |
| Abundance | - 3% | Diagnostic Unit Priority | 3 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 2.5% | -34.4% | 7 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 17.8% | -0.5% | 5 | | | | | | | | | | | | | | | ↓ |
| Fry colonization | Apr-May | 6.2% | -3.7% | 6 | | | | | | | | | | | | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.3% | 2 | | | | | | | | | | | | | | | ↓ |
| 0-age transient rearing | Jun-Oct | 50.2% | -2.8% | 8 | | | | | | | | | | | | | | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | -0.7% | 3 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.1% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 112.8% | -2.3% | 9 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.8% | -1.9% | 4 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



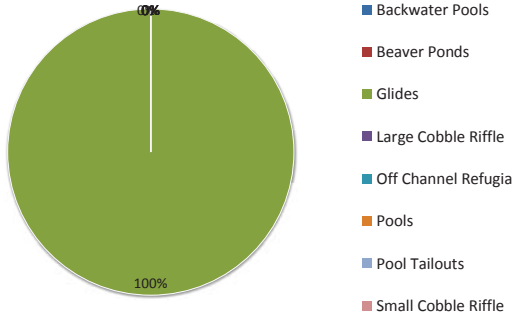

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

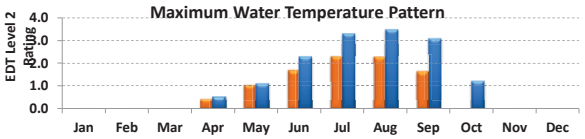
## EDT Habitat Composition Ratings

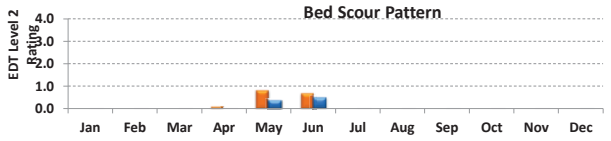


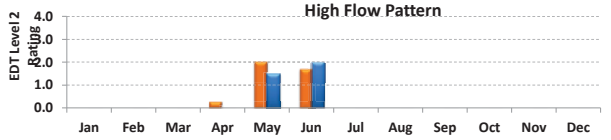

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 7.3% | ↑ |
| Fry Colonization | 6.4% | ↑ |
| Active Rearing | 30.3% | ↓ |
| Inactive Rearing | 30.1% | ↓ |
| Prespawn Holding | 25.9% | ↓ |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O4: Riverside to Jar |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 20 |
| Reach Length (mi) | 0.58 |
| Average Gradient | 8.8% |
| Habitat Area (ac) | 22.6 |

**OBMEP Sites**

OBMEP-092

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 36 |
|---|---|---|---|
| Productivity | + 1% | Out of | 143 |
| Diversity | + 1% | Diagnostic Unit Priority | 4 |
| Abundance | 0% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 136 |
| Productivity | 3.7 |
| Diversity | 19% |
| Abundance | 99 |

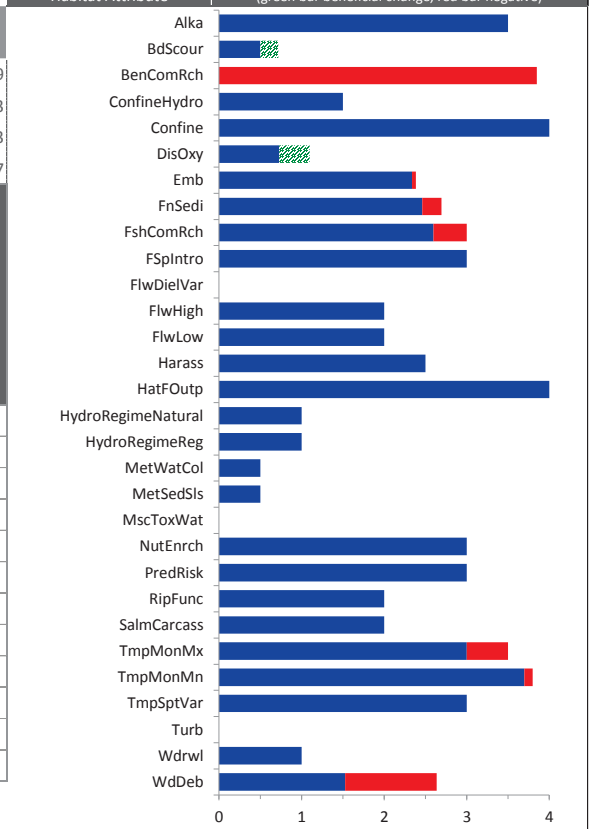
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 29 |
|---|---|---|---|
| Productivity | - 1% | Out of | 143 |
| Diversity | - 2% | Diagnostic Unit Priority | 3 |
| Abundance | - 1% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.7% | -37.1% | 6 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 4.7% | -2.3% | 5 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 4.3% | -13.6% | 7 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.5% | 2 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 46.4% | -4.4% | 8 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -6.2% | 3 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.9% | 1 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 111.9% | -2.6% | 9 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.5% | -1.9% | 4 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



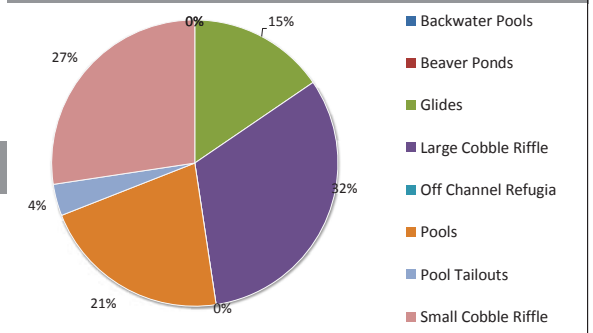

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

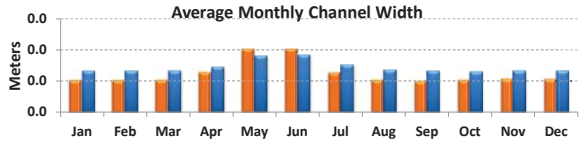
## EDT Habitat Composition Ratings

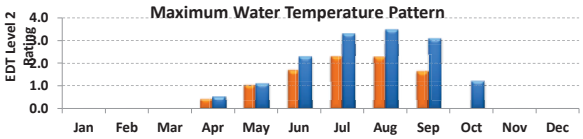


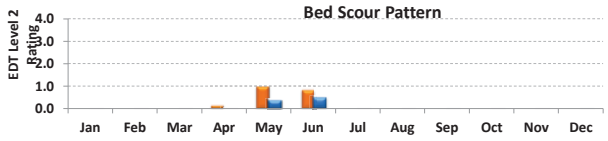

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 23.5% | ▬ |
| Fry Colonization | 8.7% | ▬ |
| Active Rearing | 24.6% | ▬ |
| Inactive Rearing | 24.4% | ▬ |
| Prespawn Holding | 18.7% | ▬ |

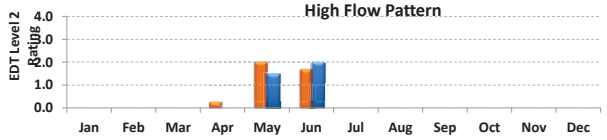
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O4: Riverside to Jar |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 21a |
| Reach Length (mi) | 1.60 |
| Average Gradient | 0.9% |
| Habitat Area (ac) | 59.9 |

**OBMEP Sites**

OBMEP-159

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 1% | Reach Priority | 24 |
| Diversity | + 2% | Out of | 143 |
| Abundance | + 1% | Diagnostic Unit Priority | 4 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 301 |
| Productivity | 6.0 |
| Diversity | 18% |
| Abundance | 251 |

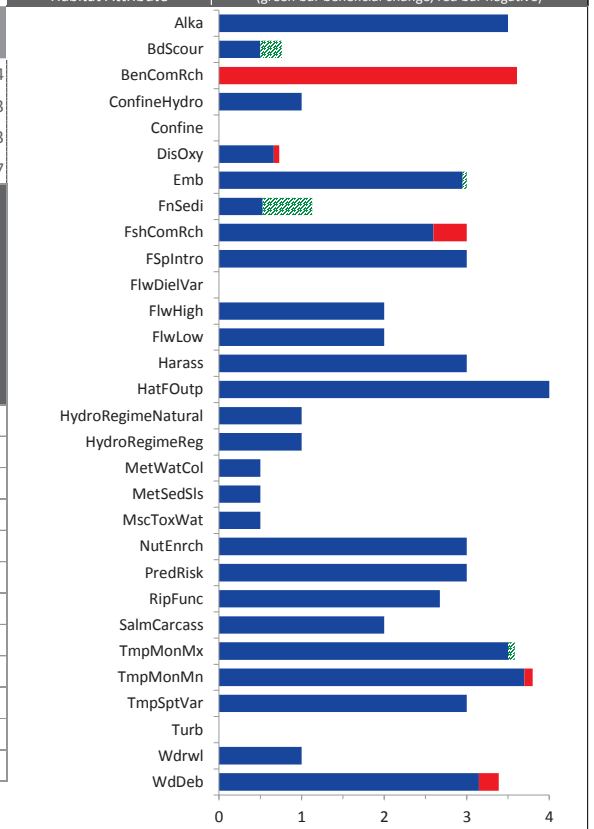
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 1% | Reach Priority | 24 |
| Diversity | - 4% | Out of | 143 |
| Abundance | - 2% | Diagnostic Unit Priority | 3 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.8% | -36.1% | 5 | | | | | | | ● | | | ● | | | ● | | ↑ |
| Egg Incubation | Oct-Apr | 12.7% | -1.2% | 3 | | | | | | | | | | | | | ● | | ↓ |
| Fry colonization | Apr-May | 6.3% | -5.6% | 4 | | | | | | | ● | | | | ● | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age transient rearing | Jun-Oct | 46.5% | -2.5% | 6 | | | | | | | ● | | | | ● | | | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 1-age migrant | Apr-Jun | 0.0% | -2.2% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 112.8% | -2.1% | 7 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 0.7% | -2.2% | 2 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| Survival Factor Trend | | | | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | |

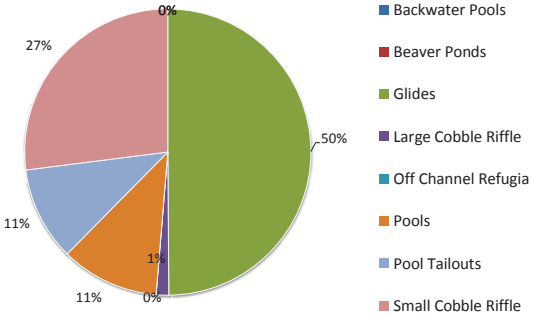
## EDT Level 2 Attribute Ratings




| Habitat Productivity Impact Key | | | | | |
|---|---|---|---|---|---|
| Impact | Extreme | High | Moderate | Small | None |
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

| Trend Key | | |
|---|---|---|
| Trend | Neg. | Pos. |
| <1% | – | – |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

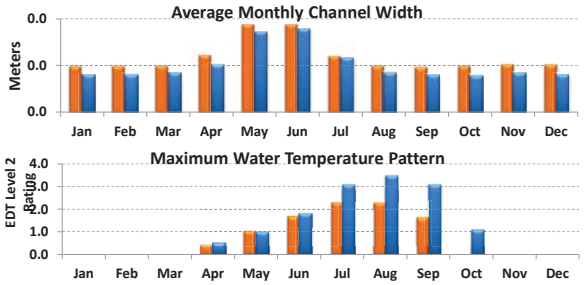
## EDT Habitat Composition Ratings

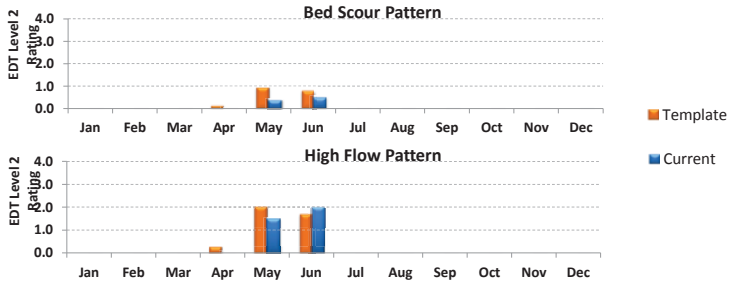



| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 66.3% | ↑ |
| Fry Colonization | 21.4% | ↑ |
| Active Rearing | 0.0% | – |
| Inactive Rearing | 0.0% | – |
| Prespawn Holding | 12.3% | ↑ |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

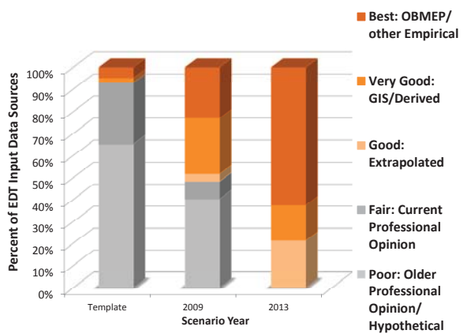
| | |
|---|---|
| Diagnostic Unit | Okanogan River O5: Janis to Siwas |
| Species | Chinook |
| Population | Okanogan (US) |
| Status and Trend Year | 2013 |
| Trend Comparison | 2013 to 2009 |

## How Important is Okanogan River O5: Janis to Siwash for Conservation of Okanogan (US) Chinook?

| Effect on Population Potential if this Unit | Degrades | Is Restored |
|---|---|---|
| Adult Abundance | 0.0% | 0.0% |
| Adult Productivity | -1.7% | +3.1% |
| Life History Diversity | -1.4% | +0.5% |
| Diagnostic Unit Priority Rank[1] | 5 of 11 | 11 of 11 |

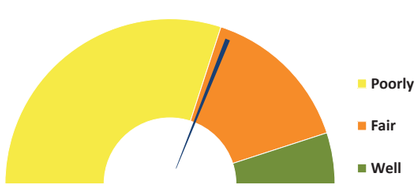
[1] Relative to all Okanogan (US) Diagnostic Units used by this Chinook population

## How Good is Our Information in Okanogan River O5: Janis to Siwash?

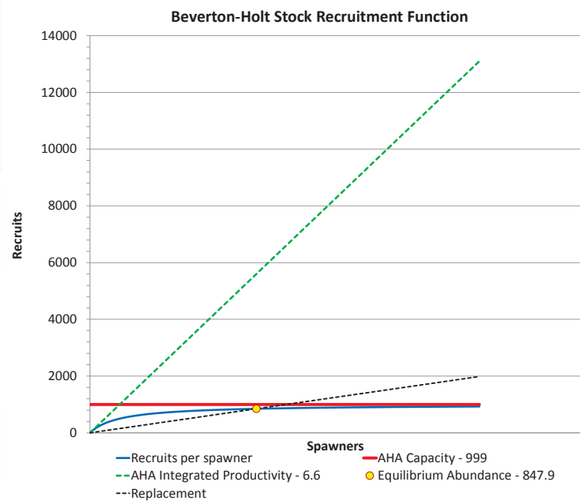


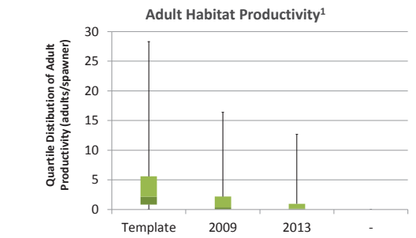

## How is Okanogan River O5: Janis to Siwash Performing as Chinook Habitat?

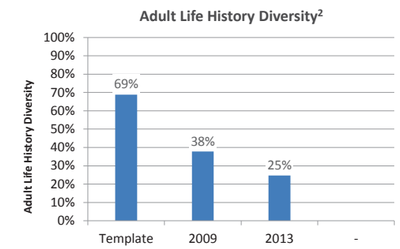
Currently Functioning at 62% of Template Habitat Potential

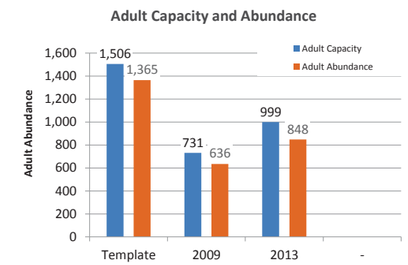


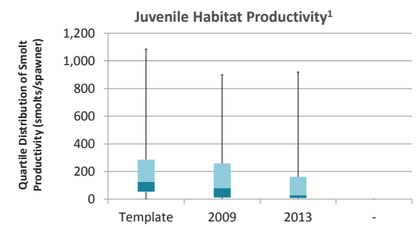

## What are the Trends in Chinook Habitat Potential in Okanogan River O5: Janis to Siwash?

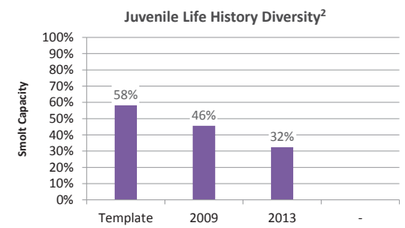


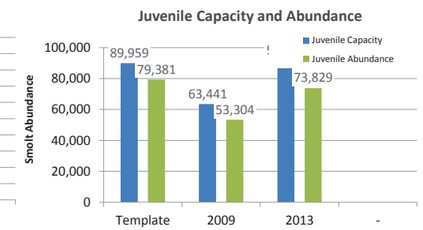



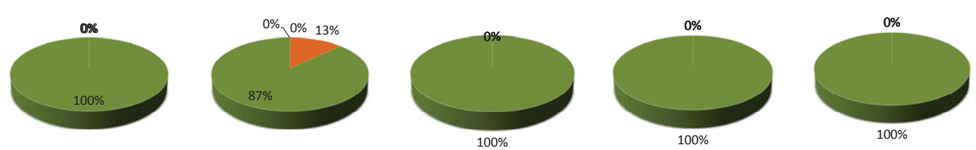




EDT used 4779 life history trajectories to model habitat potential in Okanogan River O5: Janis to Siwash

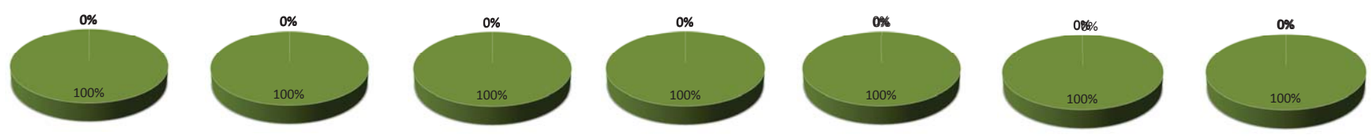
[1] Box and whisker graphs show the quartile distribution of cumulative habitat productivity for all 4779 EDT trajectories used to model this Diagnostic Unit.

[2] The percent of adult trajectories having a productivity >1.0 or juvenile productivity >100 smolts/spawner represent the range of life history diversity each habitat scenario can theoretically support.

## Chinook Survival Factor Condition in Okanogan River O5: Janis to Siwas and Trend Between 2009 and 2013




| | Channel Stability | Sediment Conditions | Flow Conditions | Withdrawals | Habitat Diversity |
|---|---|---|---|---|---|
| % of Template | 100% | 102% | 100% | 100% | 98% |
| Factor Wt. | 3% | 12% | 2% | 0% | 21% |
| Factor Trend | | | | | |
| Level of Proof | 1.35 | 2.03 | 1.29 | 1.00 | 1.40 |




| | Temperature | Dissolved Oxygen | Competition-Hatchery | Competition-Other | Food | Predation | Obstructions |
|---|---|---|---|---|---|---|---|
| % of Template | 96% | 100% | 100% | 100% | 100% | 99% | 100% |
| Factor Wt. | 44% | 0% | 3% | 1% | 1% | 12% | 0% |
| Factor Trend | | | | | | | |
| Level of Proof | 2.65 | 3.00 | 1.32 | 2.07 | 1.28 | 1.64 | 1.00 |

READ ME - Pie charts describe how well each EDT Survival Factor is functioning based on its overall effect on Chinook productivity; % of Template describes current Survival Factor condition relative to template; Factor Weight rates relative importance of each Survival Factor based its proportional impact on Chinook productivity relative to other survival factors; Factor Trend describes change in Survival Factor % of Template between the 2009 and 2013 habitat scenarios.

### Change in Function Relative to Benchmark
### Key - Proportion of Habitat

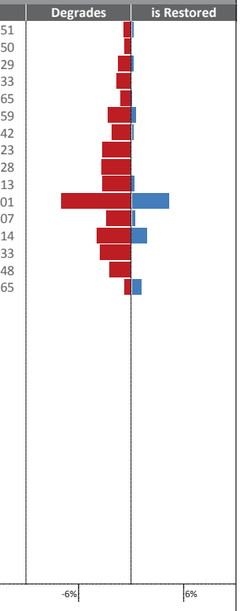
| Categorical Ranking | Productivity Impact |
|---|---|
| Not properly functioning | >5.1% reduction |
| Functioning at High Risk | 2.6% to 5% reduction |
| Functioning at Risk | 1.1% to 2.5% reduction |
| Properly Functioning | 0% to 1% reduction |

### Key - Survival Factor Trend

| Change | Neg. | Pos. |
|---|---|---|
| <1% | | |
| >1-5% | | |
| >5% | | |

## Habitat Priorities - Change in Population Abundance If (values normalized to %change/river mile)

| This Reach, Length (mi) | | Degrades | is Restored |
|---|---|---|---|
| Okanogan 21b | 0.51 | | |
| Okanogan 21c | 0.50 | | |
| Okanogan 21d | 0.29 | | |
| Okanogan 22a | 0.33 | | |
| Okanogan 22c | 0.65 | | |
| Okanogan 22g | 0.59 | | |
| Okanogan 22i | 0.42 | | |
| Okanogan 22j | 0.23 | | |
| Okanogan 22k | 0.28 | | |
| Okanogan 22n | 0.13 | | |
| Okanogan 22o (hatchery | 0.01 | | |
| Okanogan 22p | 0.07 | | |
| Okanogan 22m | 0.14 | | |
| Okanogan 22u | 0.33 | | |
| Okanogan 22v | 0.48 | | |
| Okanogan 23 | 0.65 | | |



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

## OBSTRUCTIONS AND KEY HABITAT

**Subbasin:** Okanogan (US)
**Species:** Chinook
**Population:** Okanogan Summer/Fall
**Monitoring Cycle:** 2009-2013
**Diagnostic Unit:** Okanogan River O5: Janis to Siwash

**Diagnostic Unit Habitat Statistics**

**Stream Length (mi):** 5.63
**Template Adult Capacity:** 1,506

**Diagnostic Unit Obstruction Statistics**

**# of Obstructions:** 0 **# Manmade:** 0
**Factor Weight:** 0% of DU productivity impairment

**There Were 0 Manmade Obstructions in Okanogan River O5: Janis to Siwash in 2013 With the Following Effects on Chinook Productivity (NR = Obstruction not rated)**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

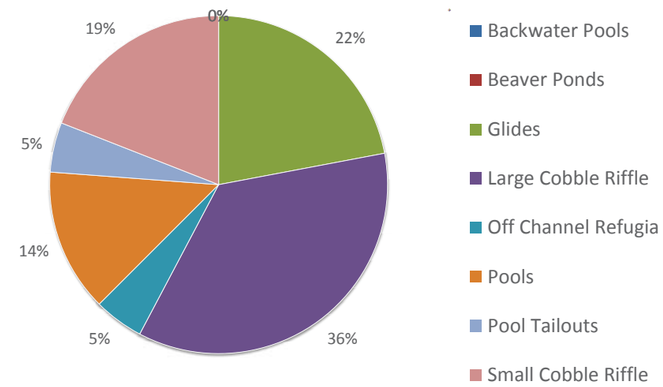
| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

**Okanogan River O5: Janis to Siwash Habitat Composition and Key Habitat Area for Chinook Under Template Conditions**

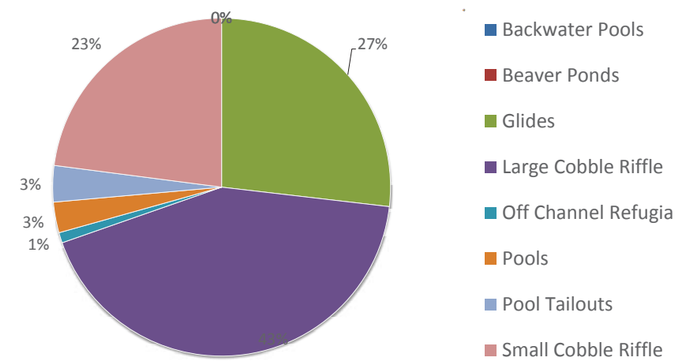



| Lifestage | Key Habitat Area* |
|---|---|
| Spawning | 25% |
| Fry colonization | 10% |
| 0-age active | 28% |
| 0-age inactive | 22% |
| 1-age active | 0% |
| 1-age inactive | 0% |
| 2+-age migrant | 0% |
| Prespawn holding | 15% |

**Template Habitat Capacity**

| Scenario | Adult | Juvenile |
|---|---|---|
| Template | 1,506 | 89,959 |

**Okanogan River O5: Janis to Siwash Habitat Composition in 2009 and Trend in Chinook Key Habitat Area Since Template**

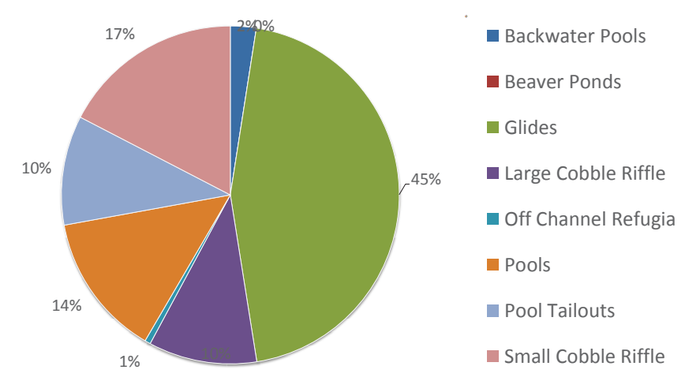



| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 38.2% | ▲ 9% |
| Fry colonization | 12.9% | ▼ -7% |
| 0-age active | 23.5% | ↓ -41% |
| 0-age inactive | 16.0% | ↓ -49% |
| 1-age active | 0.0% | ▬ 0% |
| 1-age inactive | 0.0% | ▬ 0% |
| 2+-age migrant | 0.0% | ▬ 0% |
| Prespawn holding | 9.4% | ↓ -56% |

**Net Habitat Capacity and Change Since Template**

| Comparison | Adult | Juvenile |
|---|---|---|
| Template to 2009 | 731 (-51%) | 63441 (-29%) |

**Okanogan River O5: Janis to Siwash Habitat Composition in 2013 and Trend in Chinook Key Habitat Area Since 2009**




| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 31.1% | ↑ 28% |
| Fry colonization | 13.3% | ↑ 61% |
| 0-age active | 26.4% | ↑ 76% |
| 0-age inactive | 16.0% | ↑ 57% |
| 1-age active | 0.0% | ▬ 0% |
| 1-age inactive | 0.0% | ▬ 0% |
| 2+-age migrant | 0.0% | ▬ 0% |
| Prespawn holding | 13.2% | ↑ 120% |

**Net Habitat Capacity and Change Since 2009**

| Comparison | Adult | Juvenile |
|---|---|---|
| 2009 to 2013 | 999 (37%) | 91664 (44%) |

* Percent of reach providing key habitat for this life stage in EDT in this habitat scenario

# Okanogan River 05: Janis to Siwash

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O5: Janis to Siwash |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 21b |
| Reach Length (mi) | 0.51 |
| Average Gradient | 0.9% |
| Habitat Area (ac) | 19.1 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 77 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 93 |
| Productivity | 7.4 |
| Diversity | 20% |
| Abundance | 81 |

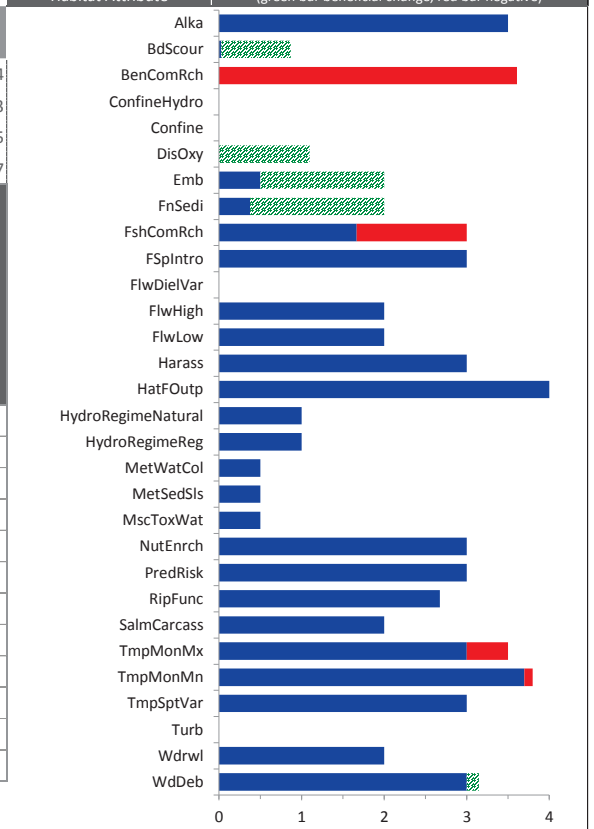
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 54 |
| Diversity | 0% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.2% | -1.7% | 2 | | | | | | | ● | | | | | | ● | | ▬ |
| Egg Incubation | Oct-Apr | 1.4% | 0.9% | 1 | | | | | | | | | | | | ● | | | ↑ |
| Fry colonization | Apr-May | 0.2% | -4.1% | 5 | | | | | | | ● | | | | ● | | | | ▬ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age transient rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| Migrant prespawner | Jul-Sep | 0.4% | -1.0% | 3 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 0.5% | -1.6% | 4 | | | | | | | | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| Survival Factor Trend | | | | | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ↑ | ↓ | ▬ | |

## EDT Level 2 Attribute Ratings



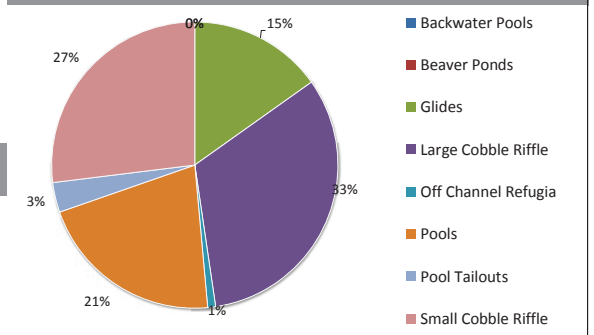

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

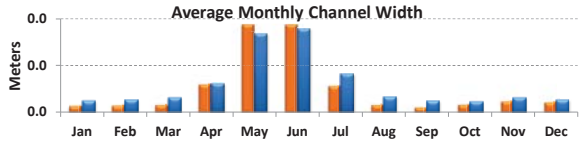
## EDT Habitat Composition Ratings

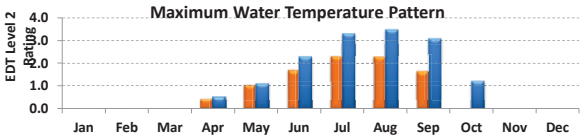


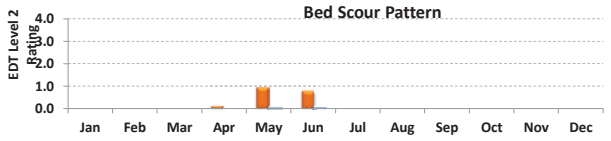

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 46.1% | ▬ |
| Fry Colonization | 17.1% | ▬ |
| Active Rearing | 0.0% | ▬ |
| Inactive Rearing | 0.0% | ▬ |
| Prespawn Holding | 36.7% | ▬ |

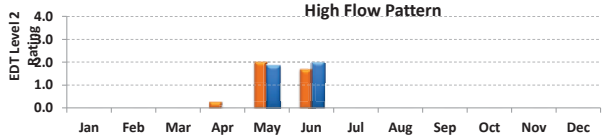
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O5: Janis to Siwash |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 21c |
| Reach Length (mi) | 0.50 |
| Average Gradient | 0.9% |
| Habitat Area (ac) | 18.6 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 55 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 50 |
| Productivity | 4.1 |
| Diversity | 19% |
| Abundance | 38 |

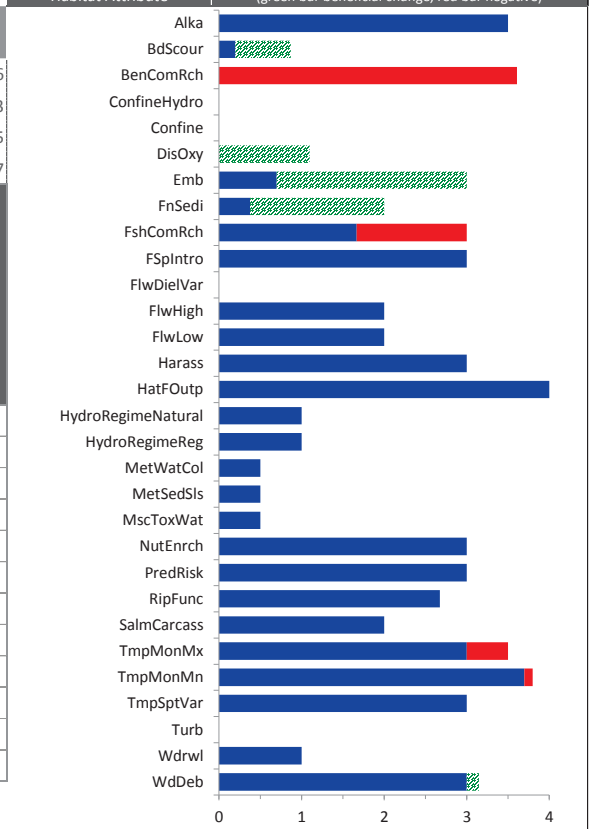
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 46 |
| Diversity | - 1% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.5% | -36.8% | 5 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 3.4% | -0.2% | 3 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 4.8% | -3.6% | 4 | | | | | | | | | | | | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 42.9% | -2.5% | 6 | | | | | | | | | | | | | | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | -2.0% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 112.1% | -2.3% | 7 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.5% | -1.2% | 2 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



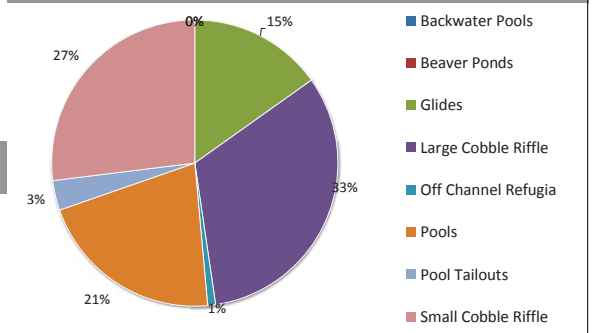

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

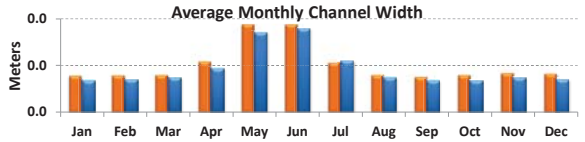
## EDT Habitat Composition Ratings

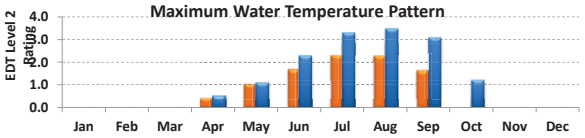


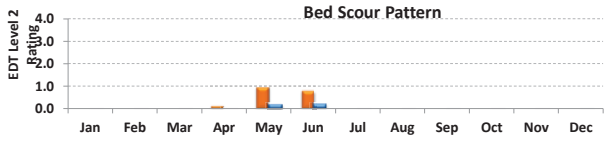

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 46.1% | — |
| Fry Colonization | 17.1% | — |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 36.7% | — |

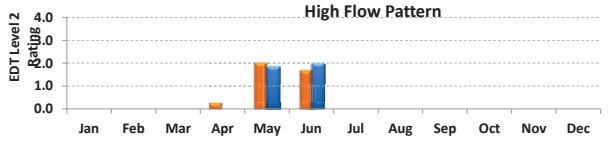
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O5: Janis to Siwash |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 21d |
| Reach Length (mi) | 0.29 |
| Average Gradient | 0.9% |
| Habitat Area (ac) | 7.6 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 78 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 26 |
| Productivity | 5.8 |
| Diversity | 20% |
| Abundance | 21 |

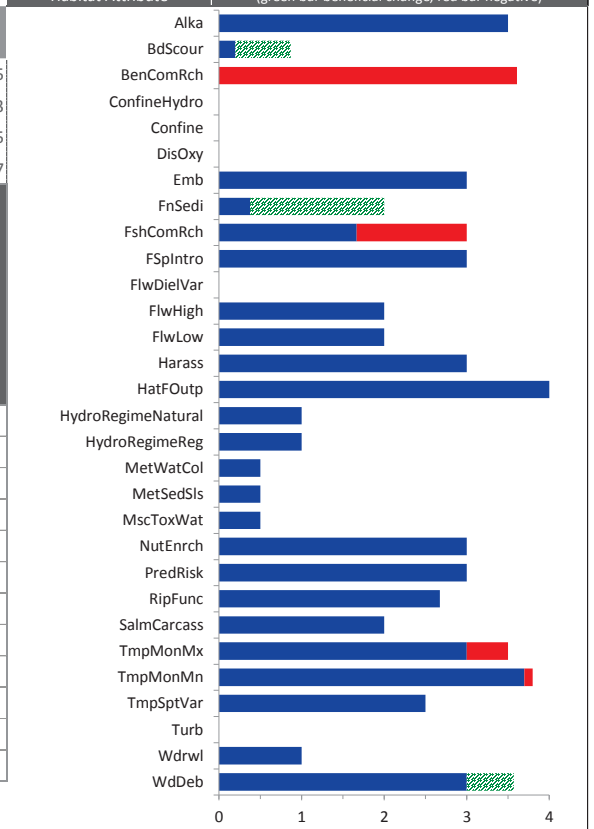
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 45 |
| Diversity | - 1% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.3% | -39.0% | 4 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 1.8% | 1.1% | 1 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 6.3% | -3.8% | 5 | | | | | | | | | | | | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 41.5% | -2.3% | 6 | | | | | | | | | | | | | | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | -1.9% | 2 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 112.4% | -2.1% | 7 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.4% | -1.1% | 3 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



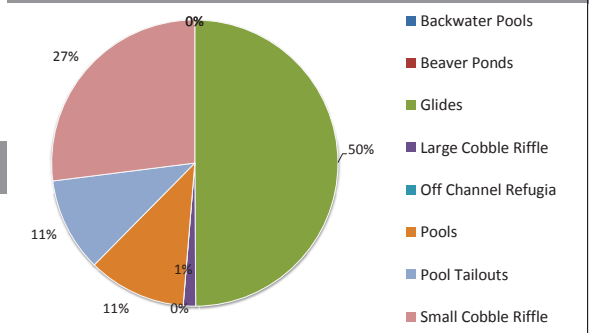

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

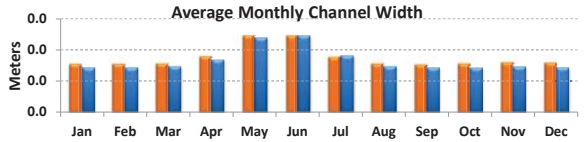
## EDT Habitat Composition Ratings

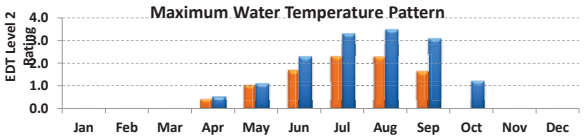


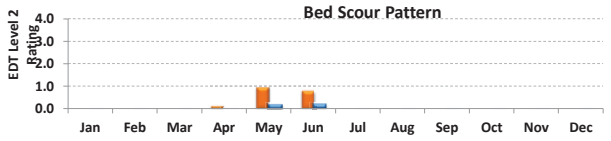

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 66.3% | ↑ |
| Fry Colonization | 21.4% | ↑ |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 12.3% | ↑ |

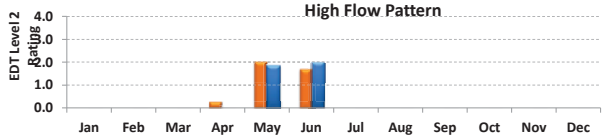
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O5: Janis to Siwash |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 22a |
| Reach Length (mi) | 0.33 |
| Average Gradient | 1.3% |
| Habitat Area (ac) | 8.9 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 83 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 55 |
| Productivity | 7.0 |
| Diversity | 20% |
| Abundance | 47 |

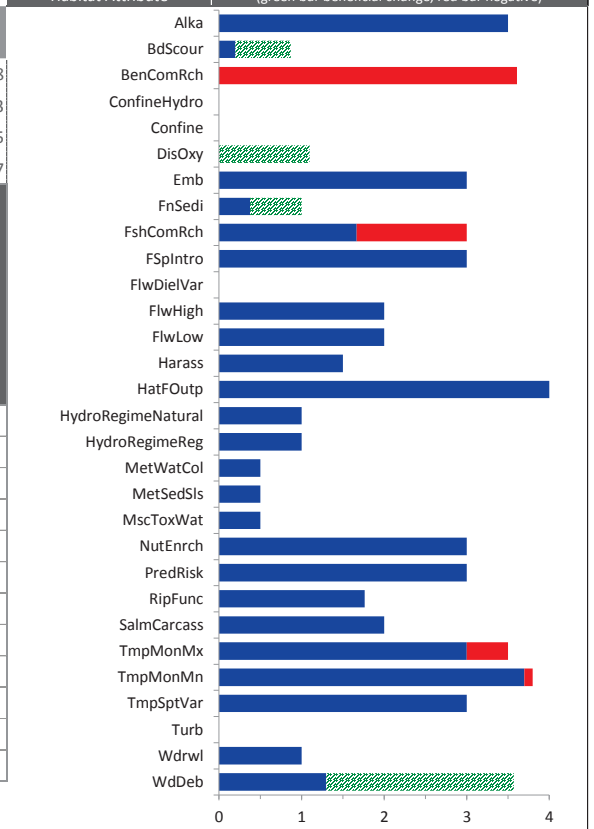
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 1% | Reach Priority | 38 |
| Diversity | - 1% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.1% | -36.8% | 7 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 7.8% | 1.2% | 1 | | | | | | | | | | | | | | | ↓ |
| Fry colonization | Apr-May | 6.6% | -1.6% | 6 | | | | | | | | | | | | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.2% | 3 | | | | | | | | | | | | | | | ↓ |
| 0-age transient rearing | Jun-Oct | 39.7% | -1.8% | 8 | | | | | | | | | | | | | | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | -1.3% | 4 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -1.6% | 2 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 113.1% | -2.1% | 9 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.5% | -1.0% | 5 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



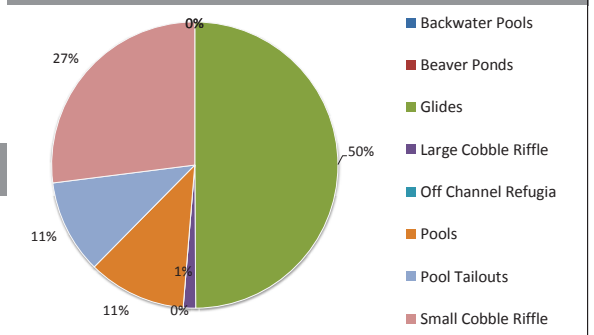

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

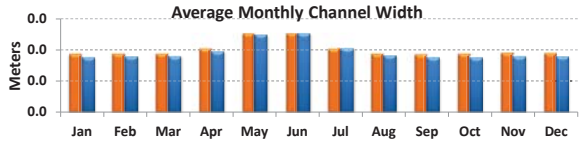
### EDT Habitat Composition Ratings

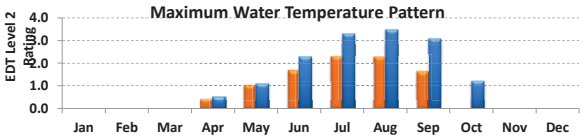


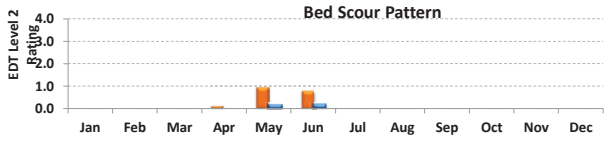

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 44.3% | ↑ |
| Fry Colonization | 14.3% | ↑ |
| Active Rearing | 19.3% | ↑ |
| Inactive Rearing | 13.9% | ↑ |
| Prespawn Holding | 8.2% | ↑ |

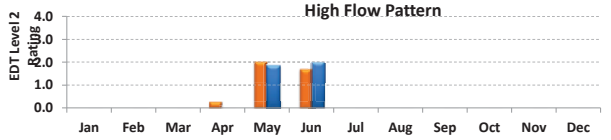
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O5: Janis to Siwash |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 22c |
| Reach Length (mi) | 0.65 |
| Average Gradient | 1.3% |
| Habitat Area (ac) | 21.7 |

**OBMEP Sites**

OBMEP-427

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| | | Reach Priority | 75 |
| Productivity | 0% | Out of | 143 |
| Diversity | 0% | Diagnostic Unit Priority | 11 |
| Abundance | 0% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 64 |
| Productivity | 4.8 |
| Diversity | 19% |
| Abundance | 51 |

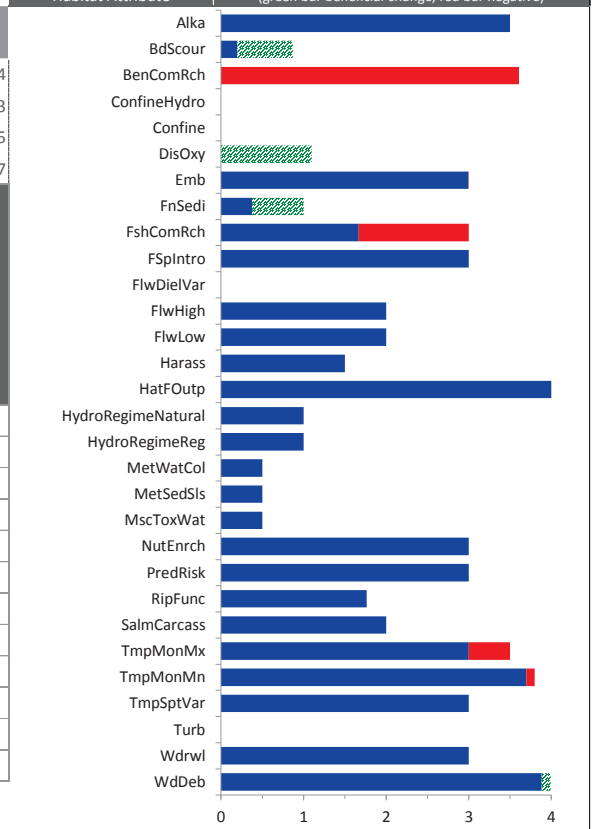
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| | | Reach Priority | 34 |
| Productivity | - 1% | Out of | 143 |
| Diversity | - 2% | Diagnostic Unit Priority | 5 |
| Abundance | - 1% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.6% | -37.9% | 6 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 4.4% | 1.2% | 1 | | | | | | | | | | | | | | | ↓ |
| Fry colonization | Apr-May | 6.8% | -4.8% | 7 | | | | | | | | | | | | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.3% | 3 | | | | | | | | | | | | | | | ↓ |
| 0-age transient rearing | Jun-Oct | 39.9% | -2.6% | 8 | | | | | | | | | | | | | | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | -1.6% | 4 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.4% | 2 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 112.7% | -2.3% | 9 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.5% | -1.7% | 5 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



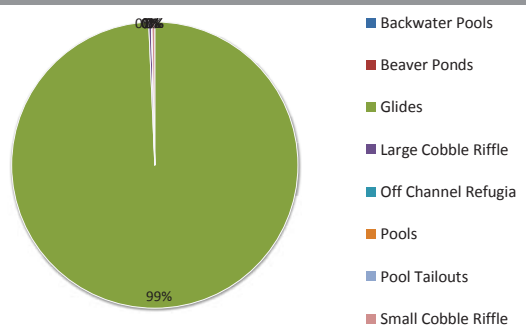

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

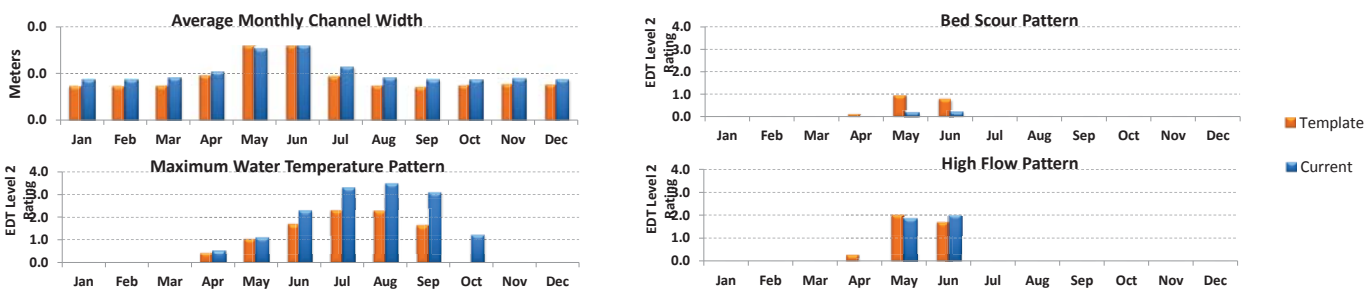
## EDT Habitat Composition Ratings




| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 40.1% | ↑ |
| Fry Colonization | 16.0% | ↑ |
| Active Rearing | 22.8% | ↑ |
| Inactive Rearing | 13.2% | ↑ |
| Prespawn Holding | 7.9% | ↑ |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O5: Janis to Siwash |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 22g |
| Reach Length (mi) | 0.59 |
| Average Gradient | 1.3% |
| Habitat Area (ac) | 15.8 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 76 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 89 |
| Productivity | 5.6 |
| Diversity | 19% |
| Abundance | 73 |

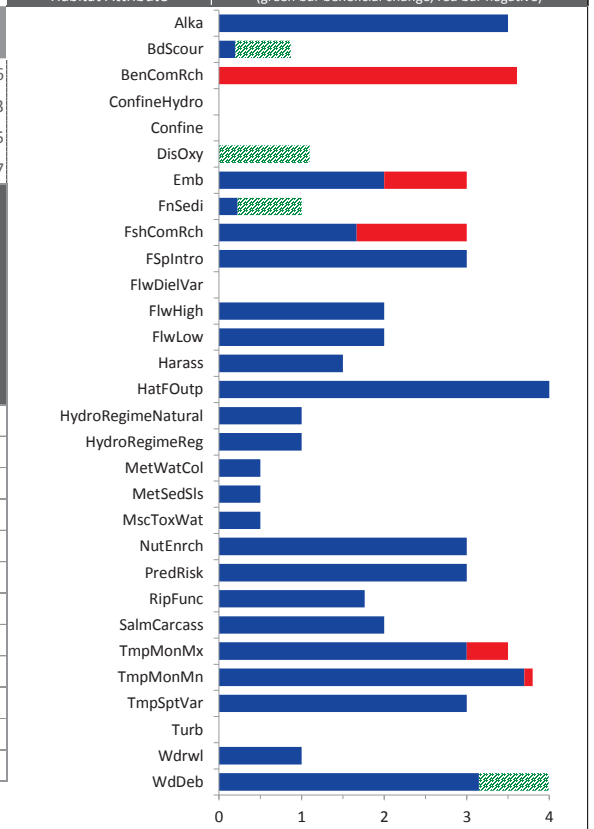
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 1% | Reach Priority | 26 |
| Diversity | - 2% | Out of | 143 |
| Abundance | - 2% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.6% | -36.7% | 6 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 4.4% | 1.2% | 1 | | | | | | | | | | | | | | | ↓ |
| Fry colonization | Apr-May | 7.5% | -3.4% | 7 | | | | | | | | | | | | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -1.8% | 3 | | | | | | | | | | | | | | | ↓ |
| 0-age transient rearing | Jun-Oct | 38.4% | -2.2% | 8 | | | | | | | | | | | | | | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | -1.6% | 4 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -1.8% | 2 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 113.4% | -2.2% | 9 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 1.4% | -1.6% | 5 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



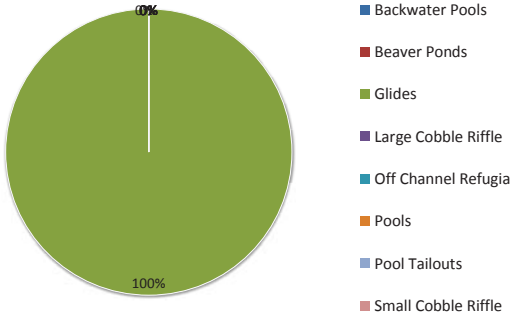

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

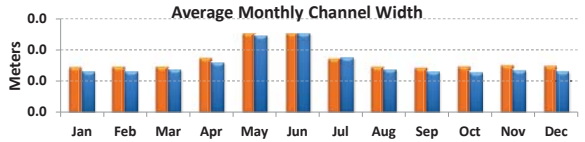
### EDT Habitat Composition Ratings

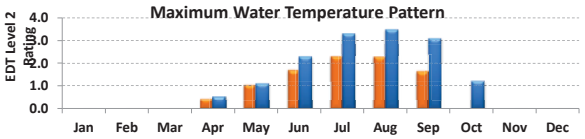


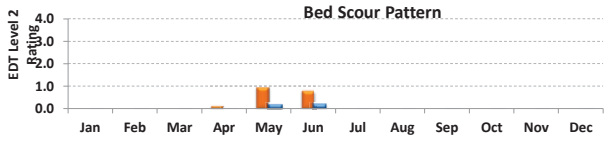

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 44.3% | ↑ |
| Fry Colonization | 14.3% | ↑ |
| Active Rearing | 19.3% | ↑ |
| Inactive Rearing | 13.9% | ↑ |
| Prespawn Holding | 8.2% | ↑ |

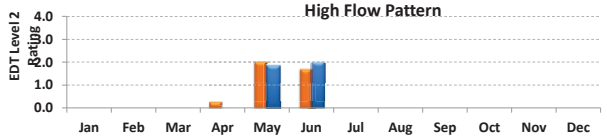
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O5: Janis to Siwash |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 22i |
| Reach Length (mi) | 0.42 |
| Average Gradient | 1.3% |
| Habitat Area (ac) | 11.1 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 72 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 95 |
| Productivity | 7.3 |
| Diversity | 19% |
| Abundance | 82 |

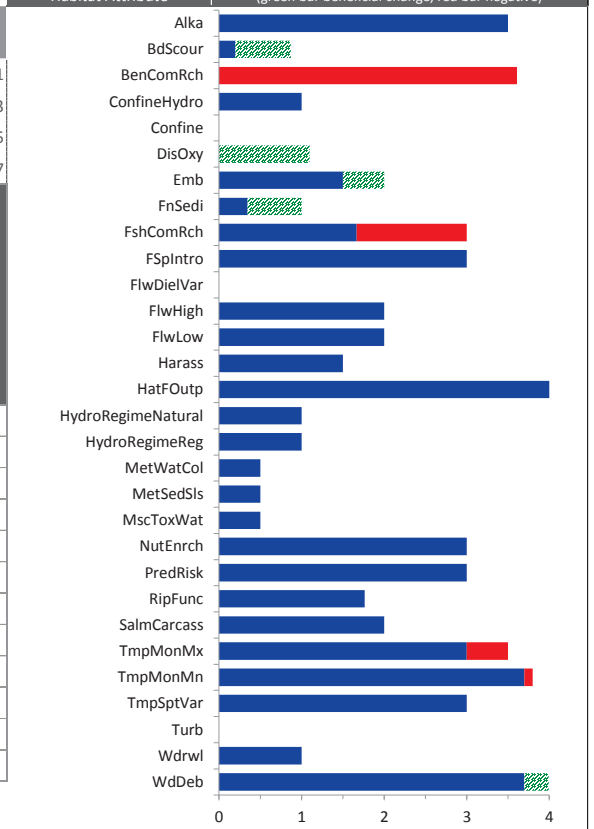
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 2% | Reach Priority | 31 |
| Diversity | - 1% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.9% | -32.5% | 4 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 6.4% | 0.0% | 1 | | | | | | | | | | | | | | | ↓ |
| Fry colonization | Apr-May | 7.9% | -5.0% | 5 | | | | | | | | | | | | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 36.1% | -2.6% | 6 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | -2.2% | 2 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 113.2% | -2.4% | 7 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 1.6% | -1.7% | 3 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| | | | | Survival Factor Trend | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



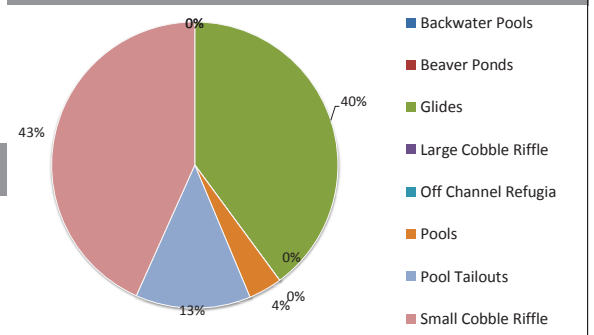

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

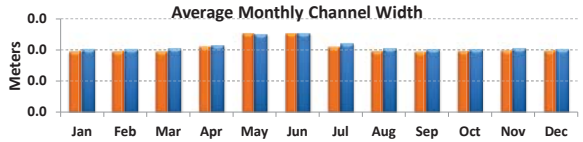
## EDT Habitat Composition Ratings

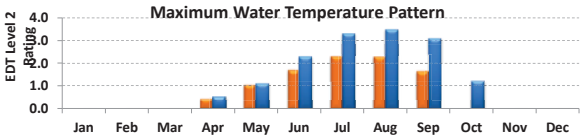


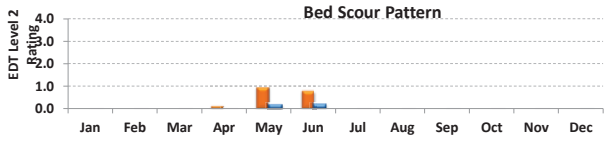

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 66.9% | ↑ |
| Fry Colonization | 20.9% | ↑ |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 12.2% | ↑ |

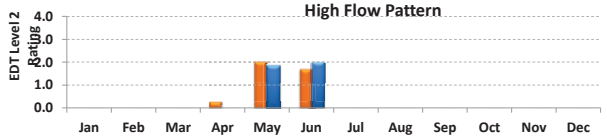
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O5: Janis to Siwash |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 22j |
| Reach Length (mi) | 0.23 |
| Average Gradient | 1.3% |
| Habitat Area (ac) | 6.1 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 109 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 31 |
| Productivity | 7.4 |
| Diversity | 20% |
| Abundance | 27 |

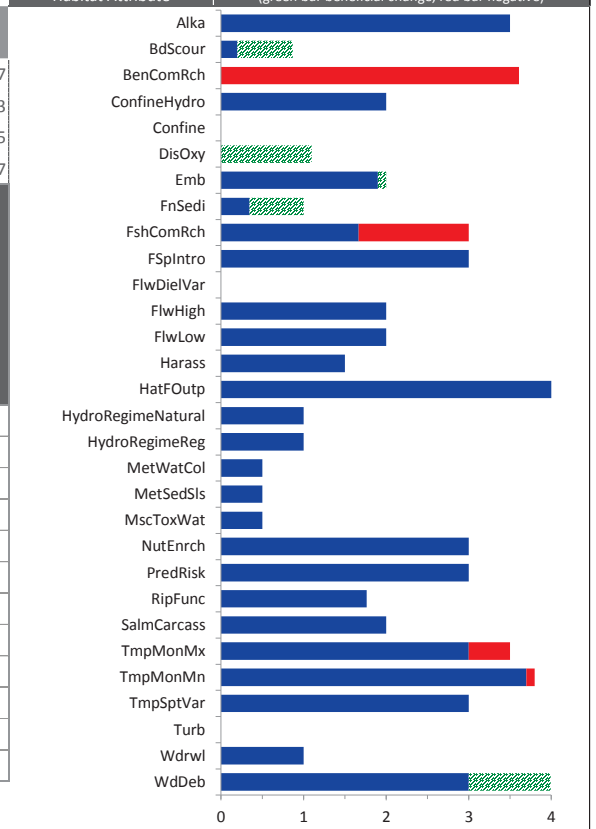
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 1% | Reach Priority | 37 |
| Diversity | - 1% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.4% | -35.5% | 4 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 3.0% | 1.3% | 1 | | | | | | | | | | | | | | | ↓ |
| Fry colonization | Apr-May | 7.9% | -4.3% | 5 | | | | | | | | | | | | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 34.9% | -2.3% | 6 | | | | | | | | | | | | | | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | -2.1% | 2 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 113.4% | -2.4% | 7 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 1.3% | -1.4% | 3 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



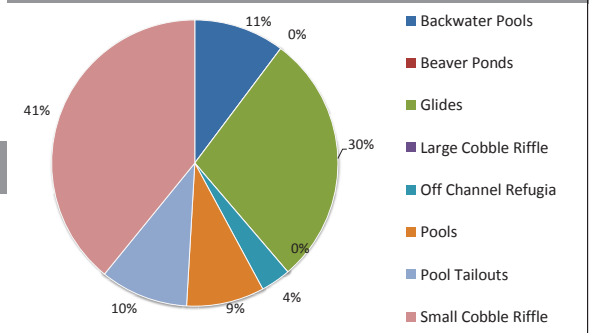

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

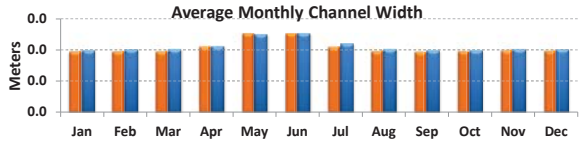
## EDT Habitat Composition Ratings

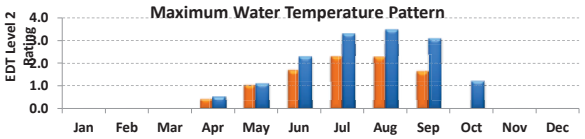


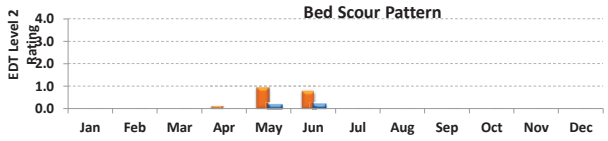

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 66.9% | ↑ |
| Fry Colonization | 20.9% | ↑ |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 12.2% | ↑ |

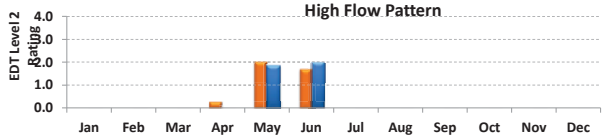
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O5: Janis to Siwash |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 22k |
| Reach Length (mi) | 0.28 |
| Average Gradient | 1.3% |
| Habitat Area (ac) | 7.5 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 1% | Reach Priority | 68 |
| Diversity | + 1% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 43 |
| Productivity | 3.1 |
| Diversity | 19% |
| Abundance | 29 |

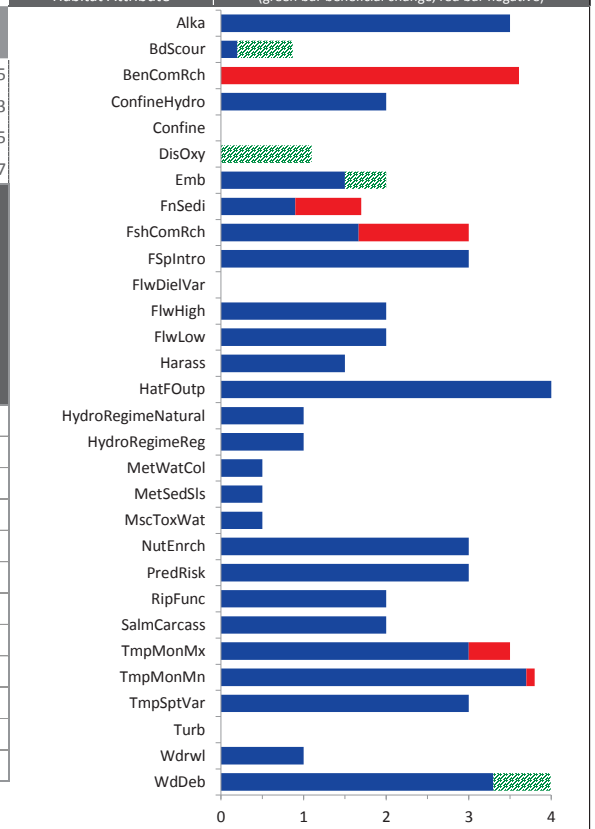
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 1% | Reach Priority | 35 |
| Diversity | - 1% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.3% | -34.6% | 4 | | | | | | | ● | | | ● | | | ● | | ↑ |
| Egg Incubation | Oct-Apr | 2.2% | -1.9% | 3 | | | | | | | | | | | | ● | ● | | ↓ |
| Fry colonization | Apr-May | 7.7% | -6.3% | 5 | | | | | ● | | ● | | | | ● | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age transient rearing | Jun-Oct | 34.5% | -2.8% | 6 | | | | | | | ● | | | | ● | | ● | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 1-age migrant | Apr-Jun | 0.0% | -2.4% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 113.3% | -2.5% | 7 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 1.6% | -1.7% | 2 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| Survival Factor Trend | | | | | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | |

## EDT Level 2 Attribute Ratings



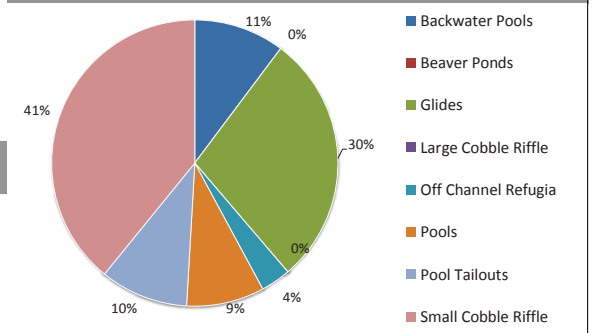

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

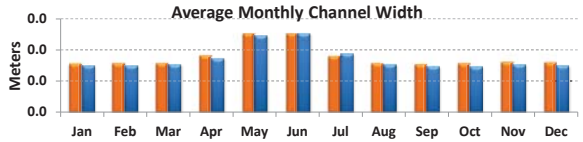
## EDT Habitat Composition Ratings

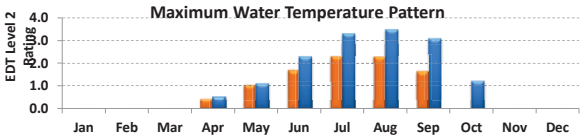


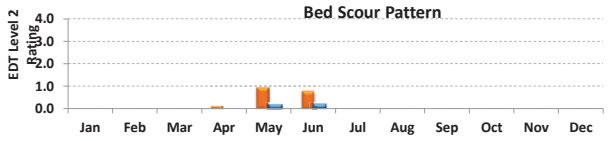

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 66.9% | ↑ |
| Fry Colonization | 20.9% | ↑ |
| Active Rearing | 0.0% | ▬ |
| Inactive Rearing | 0.0% | ▬ |
| Prespawn Holding | 12.2% | ↑ |

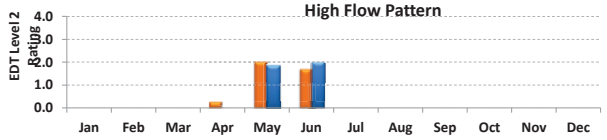
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O5: Janis to Siwash |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 22m |
| Reach Length (mi) | 0.14 |
| Average Gradient | 1.3% |
| Habitat Area (ac) | 3.7 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 2% | Reach Priority | 65 |
| Diversity | + 1% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 49 |
| Productivity | 7.2 |
| Diversity | 19% |
| Abundance | 42 |

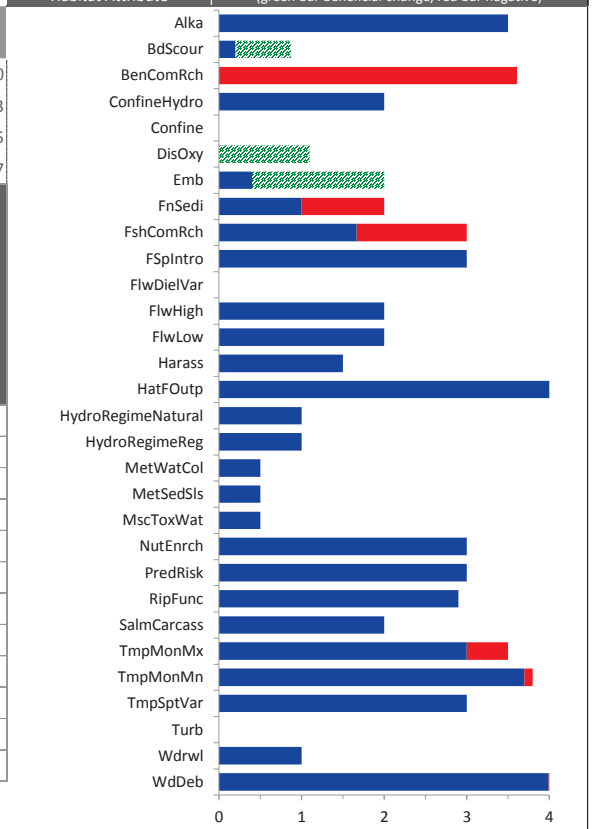
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 1% | Reach Priority | 40 |
| Diversity | - 1% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.3% | -30.9% | 6 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 9.1% | -2.1% | 5 | | | | | | | | | | | | | | | ↓ |
| Fry colonization | Apr-May | 6.7% | -9.6% | 7 | | | | | | | | | | | | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.7% | 2 | | | | | | | | | | | | | | | ↓ |
| 0-age transient rearing | Jun-Oct | 33.6% | -3.5% | 8 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | -1.3% | 3 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.8% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 113.9% | -2.8% | 9 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.7% | -3.2% | 4 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| | | | | Survival Factor Trend | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



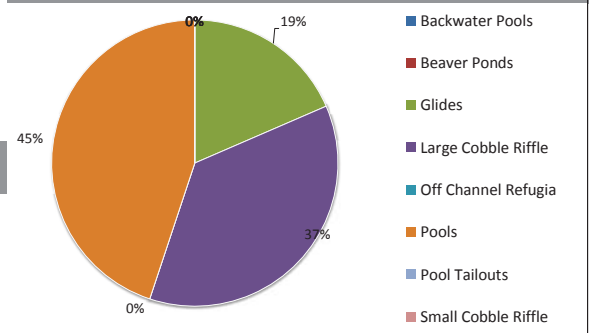

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

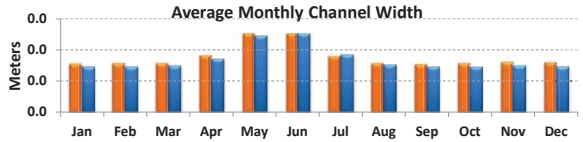
## EDT Habitat Composition Ratings

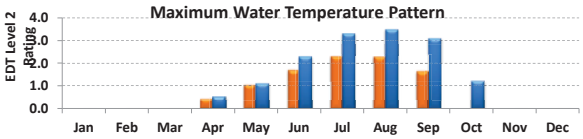


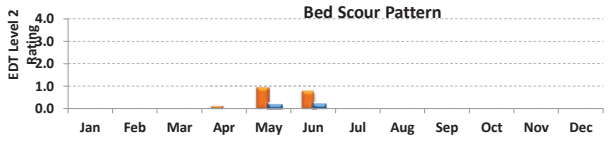

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 43.2% | ↓ |
| Fry Colonization | 13.5% | ↑ |
| Active Rearing | 16.7% | ↑ |
| Inactive Rearing | 18.8% | ↑ |
| Prespawn Holding | 7.9% | ↑ |

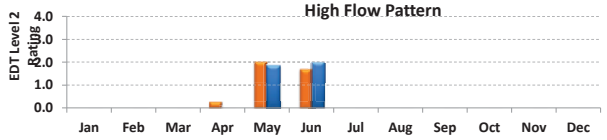
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O5: Janis to Siwash |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 22n |
| Reach Length (mi) | 0.13 |
| Average Gradient | 1.3% |
| Habitat Area (ac) | 3.7 |

**OBMEP Sites**

OBMEP-324

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 71 |
|---|---|---|---|
| Productivity | + 1% | Out of | 143 |
| Diversity | + 1% | Diagnostic Unit Priority | 11 |
| Abundance | 0% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 20 |
| Productivity | 4.8 |
| Diversity | 19% |
| Abundance | 16 |

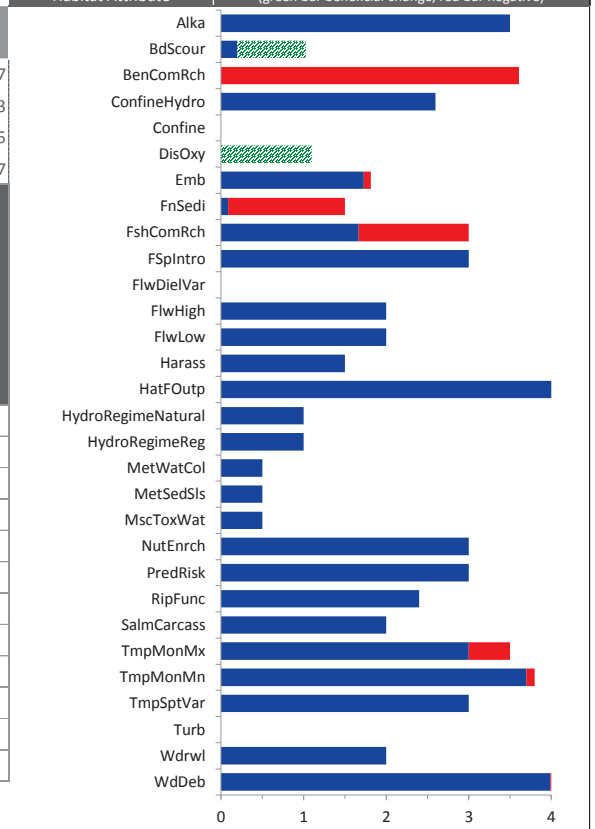
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 47 |
|---|---|---|---|
| Productivity | - 1% | Out of | 143 |
| Diversity | - 1% | Diagnostic Unit Priority | 5 |
| Abundance | - 1% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.4% | -38.1% | 4 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 2.5% | -1.5% | 2 | | | | | | | | | | | | | | | ↓ |
| Fry colonization | Apr-May | 7.5% | -9.8% | 5 | | | | | | | | | | | | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 33.9% | -3.5% | 6 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | -3.0% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 113.8% | -2.9% | 7 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 1.2% | -3.5% | 3 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| | | | | Survival Factor Trend | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



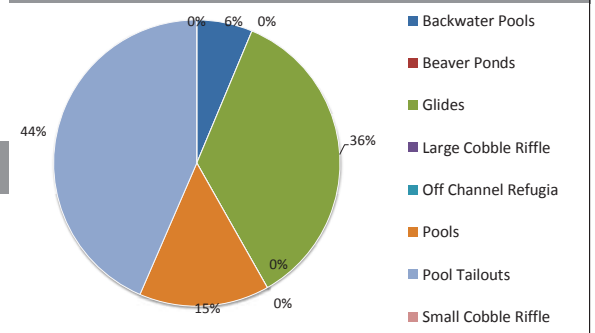

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

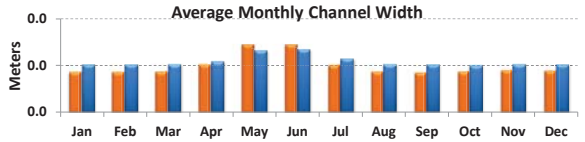
## EDT Habitat Composition Ratings

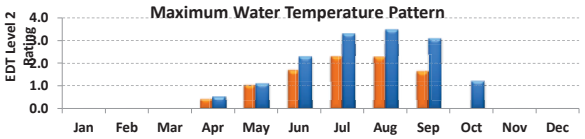


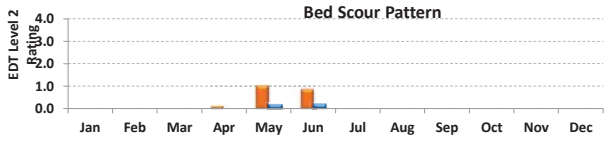

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 66.9% | ↑ |
| Fry Colonization | 20.9% | ↑ |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 12.2% | ↑ |

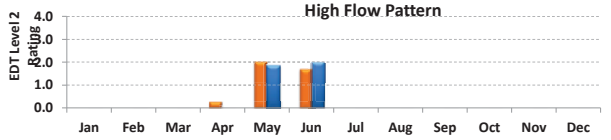
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O5: Janis to Siwash |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 22o (hatchery |
| Reach Length (mi) | 0.01 |
| Average Gradient | 1.3% |
| Habitat Area (ac) | 0.4 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 76 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 5 |
| Productivity | 8.6 |
| Diversity | 20% |
| Abundance | 5 |

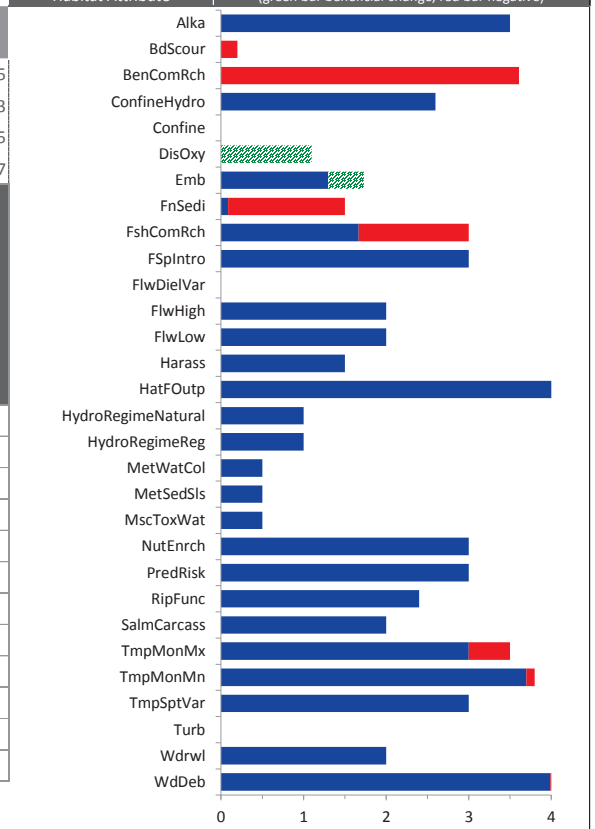
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 55 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.7% | -13.2% | 4 | | | | | | | ● | | | | | | ● | | ↑ |
| Egg Incubation | Oct-Apr | 5.1% | -0.9% | 3 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 7.1% | -9.8% | 5 | | | | | ● | | ● | | | | ● | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 33.6% | -3.5% | 6 | | | | | | | ● | | | | ● | | ● | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | -3.0% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 114.0% | -2.9% | 7 | | | | | | | ● | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 0.7% | -3.5% | 2 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



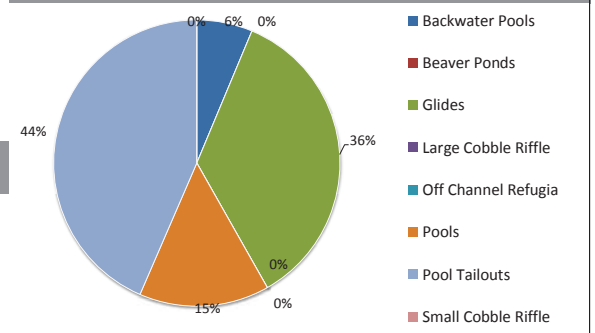

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

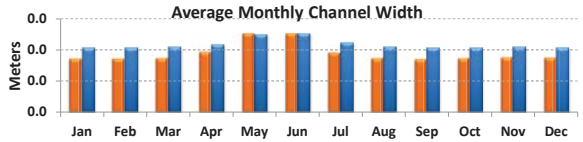
## EDT Habitat Composition Ratings

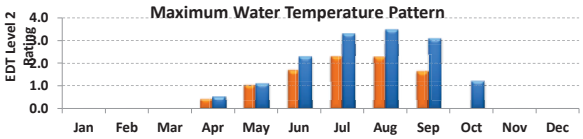


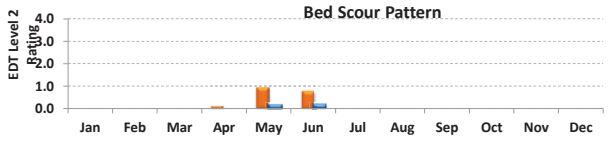

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 66.9% | ↑ |
| Fry Colonization | 20.9% | ↑ |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 12.2% | ↑ |

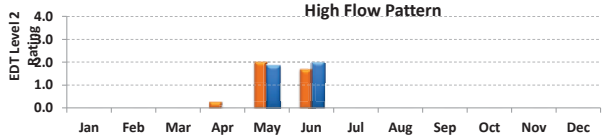
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O5: Janis to Siwash |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 22p |
| Reach Length (mi) | 0.07 |
| Average Gradient | 1.3% |
| Habitat Area (ac) | 1.8 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 77 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 12 |
| Productivity | 6.7 |
| Diversity | 19% |
| Abundance | 10 |

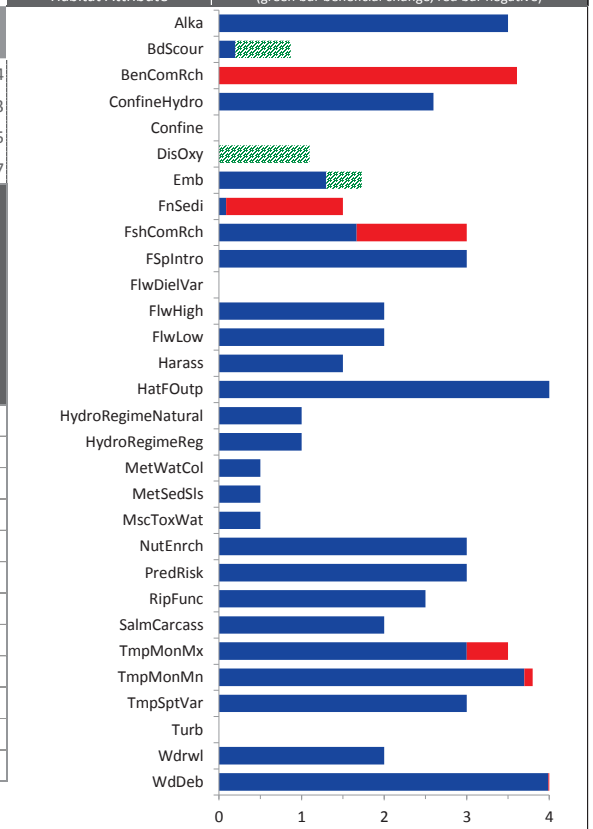
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 54 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.3% | -23.2% | 6 | | | | | | | ● | | | | | | ● | | ↑ |
| Egg Incubation | Oct-Apr | 2.3% | -1.0% | 4 | | | | | | | | | | | | | | | ↓ |
| Fry colonization | Apr-May | 6.7% | -10.0% | 7 | | | | | ● | | ● | | | | ● | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.3% | 2 | | | | | | | | | | | | | ● | | ↓ |
| 0-age transient rearing | Jun-Oct | 33.6% | -3.6% | 8 | | | | | | | ● | | | | ● | | ● | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | -1.4% | 3 | | | | | | | ● | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -3.0% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 113.5% | -2.9% | 9 | | | | | | | ● | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 0.7% | -3.8% | 5 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



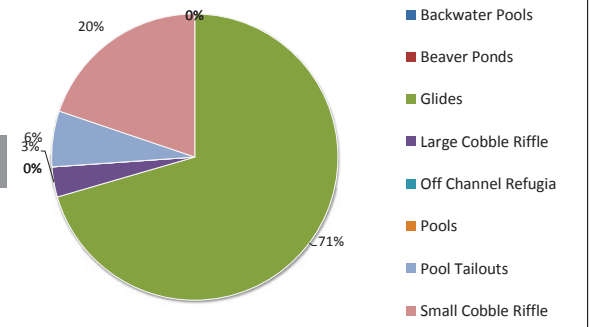

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

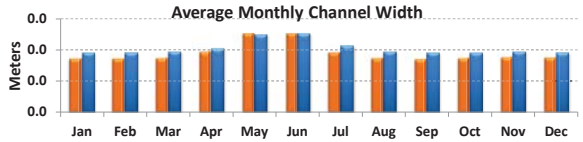
## EDT Habitat Composition Ratings

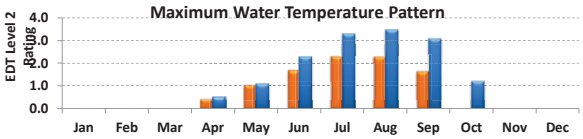


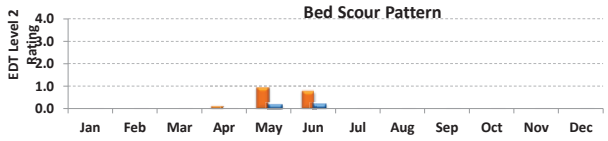

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 43.2% | ↑ |
| Fry Colonization | 13.5% | ↑ |
| Active Rearing | 16.7% | ↑ |
| Inactive Rearing | 18.8% | — |
| Prespawn Holding | 7.9% | ↑ |

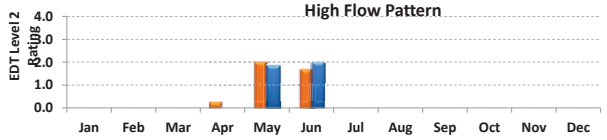
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O5: Janis to Siwash |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 22u |
| Reach Length (mi) | 0.33 |
| Average Gradient | 1.3% |
| Habitat Area (ac) | 8.9 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 77 |
| Diversity | + 1% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 94 |
| Productivity | 9.3 |
| Diversity | 19% |
| Abundance | 84 |

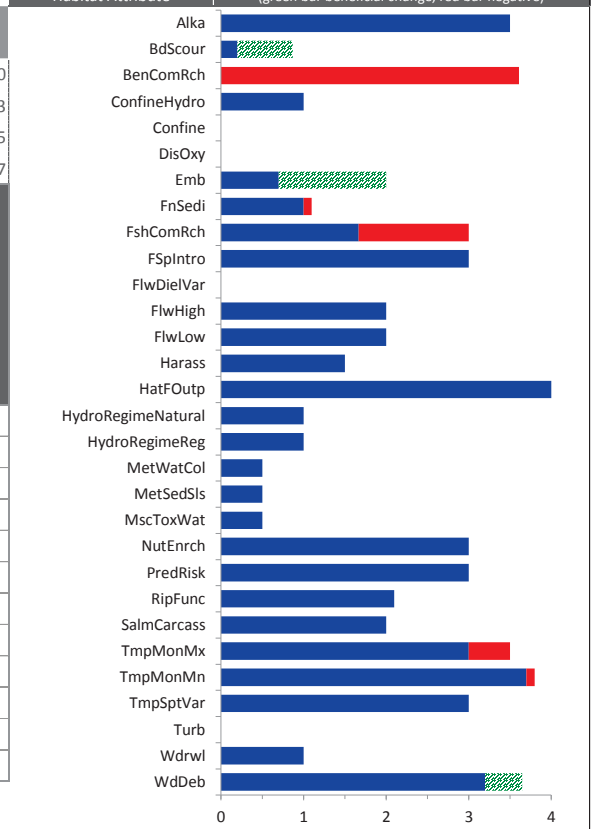
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 2% | Reach Priority | 30 |
| Diversity | - 1% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.0% | -41.9% | 5 | | | | | | | ● | | | ● | ● | | ● | | ↑ |
| Egg Incubation | Oct-Apr | 7.1% | -1.4% | 3 | | | | | | | | | | | | | ● | | ↓ |
| Fry colonization | Apr-May | 5.6% | -4.9% | 4 | | | | | | | ● | | | | ● | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age transient rearing | Jun-Oct | 33.5% | -2.5% | 6 | | | | | | | ● | | | | ● | | ● | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 1-age migrant | Apr-Jun | 0.0% | -2.2% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 113.6% | -2.4% | 7 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 1.3% | -1.6% | 2 | | | | | | | | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| Survival Factor Trend | | | | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | |

## EDT Level 2 Attribute Ratings



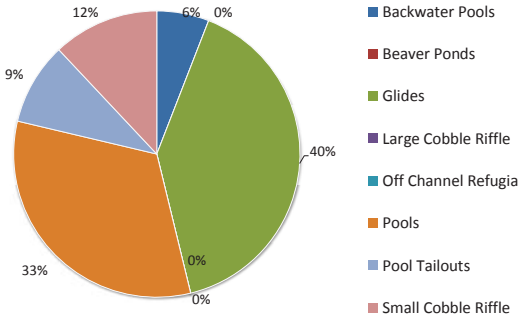

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | – | – |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

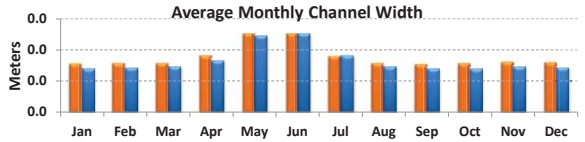
## EDT Habitat Composition Ratings

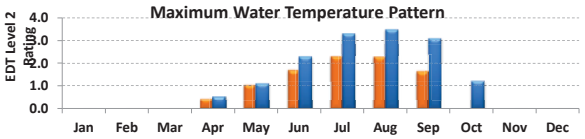


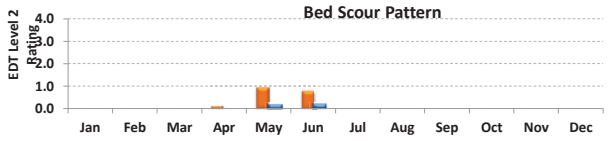

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 66.9% | ↑ |
| Fry Colonization | 20.9% | ↑ |
| Active Rearing | 0.0% | – |
| Inactive Rearing | 0.0% | – |
| Prespawn Holding | 12.2% | ↑ |

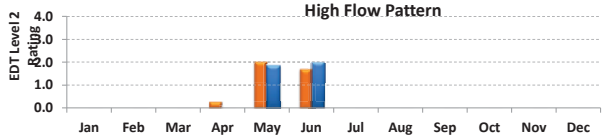
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O5: Janis to Siwash |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 22v |
| Reach Length (mi) | 0.48 |
| Average Gradient | 1.3% |
| Habitat Area (ac) | 12.8 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 71 |
| Diversity | + 1% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 59 |
| Productivity | 6.0 |
| Diversity | 19% |
| Abundance | 49 |

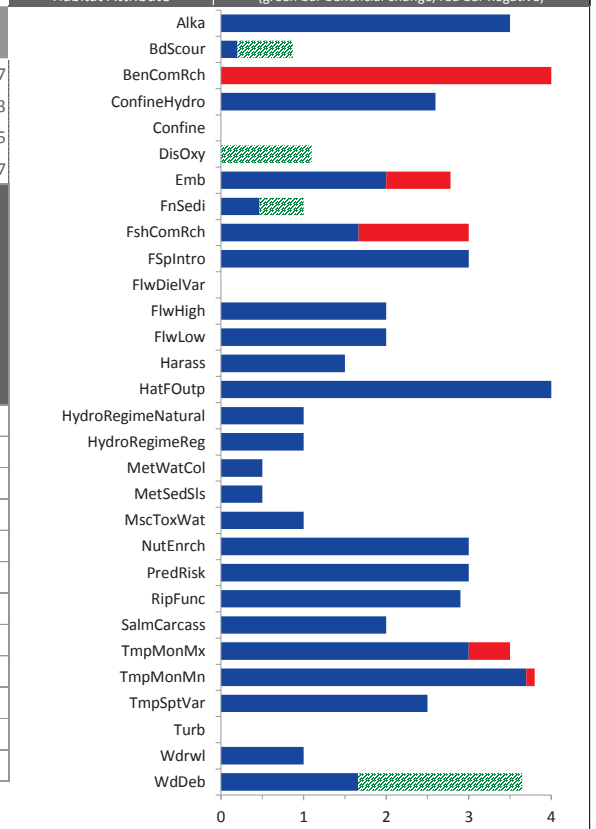
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 1% | Reach Priority | 27 |
| Diversity | - 2% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.6% | -39.2% | 4 | | | | | | | ● | | | ● | | | ● | | ↑ |
| Egg Incubation | Oct-Apr | 4.3% | -1.2% | 3 | | | | | | | | | | | | | ● | | ↓ |
| Fry colonization | Apr-May | 4.9% | -6.5% | 5 | | | | | ● | | ● | | | | ● | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age transient rearing | Jun-Oct | 34.0% | -2.5% | 6 | | | | | | | ● | | | | ● | | ● | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 1-age migrant | Apr-Jun | 0.0% | -2.4% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 114.1% | -2.3% | 7 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 0.7% | -2.2% | 2 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| Survival Factor Trend | | | | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | |

## EDT Level 2 Attribute Ratings



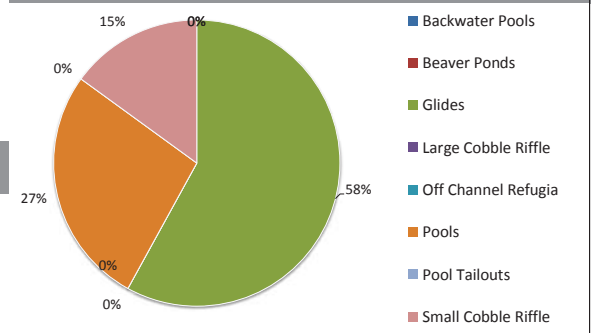

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | – | – |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

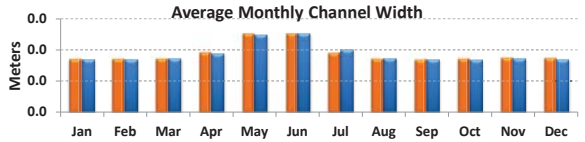
### EDT Habitat Composition Ratings

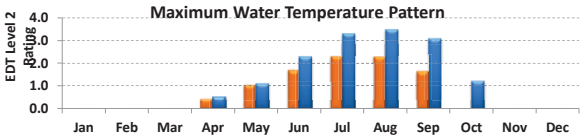


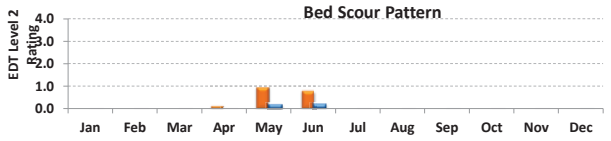

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 66.9% | ↑ |
| Fry Colonization | 20.9% | ↑ |
| Active Rearing | 0.0% | – |
| Inactive Rearing | 0.0% | – |
| Prespawn Holding | 12.2% | ↑ |

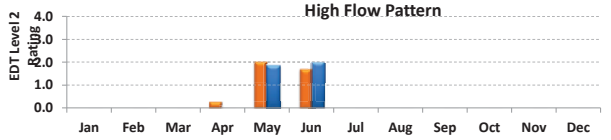
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O5: Janis to Siwash |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 23 |
| Reach Length (mi) | 0.65 |
| Average Gradient | 0.9% |
| Habitat Area (ac) | 18.3 |

**OBMEP Sites**

OBMEP-299

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 3% | Reach Priority | 25 |
| Diversity | + 1% | Out of | 143 |
| Abundance | + 1% | Diagnostic Unit Priority | 11 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 216 |
| Productivity | 5.8 |
| Diversity | 18% |
| Abundance | 178 |

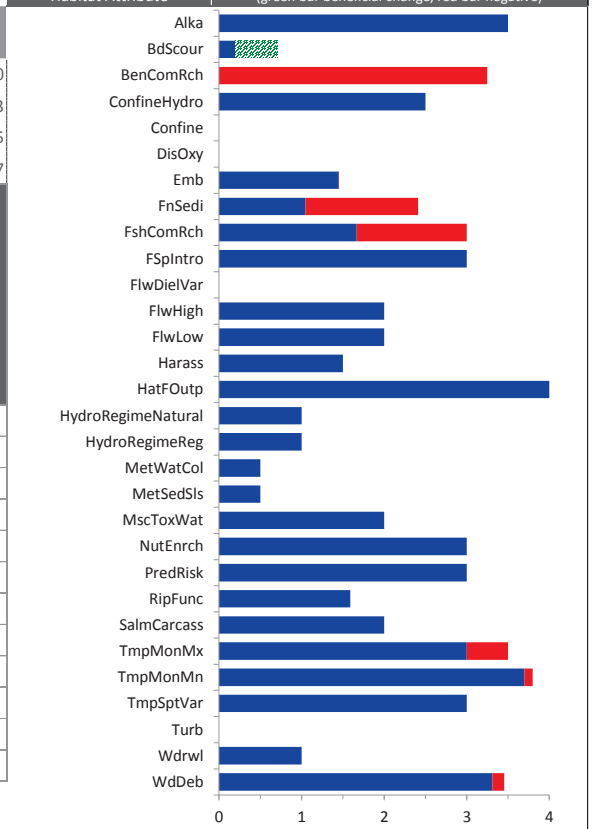
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 1% | Reach Priority | 40 |
| Diversity | - 2% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.6% | -35.6% | 5 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 11.3% | -2.9% | 4 | | | | | | | | | | | | | | | ↓ |
| Fry colonization | Apr-May | 4.6% | -5.9% | 3 | | | | | | | | | | | | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 33.1% | -2.7% | 6 | | | | | | | | | | | | | | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | -2.8% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 115.6% | -2.6% | 7 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.1% | -2.7% | 2 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



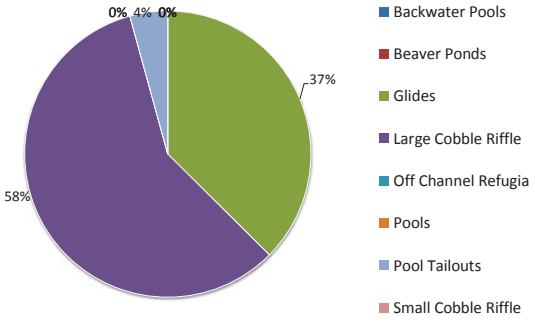

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

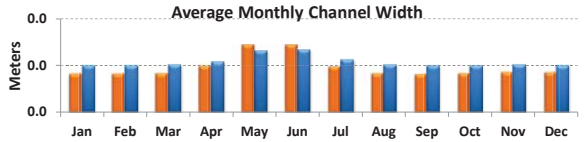
## EDT Habitat Composition Ratings

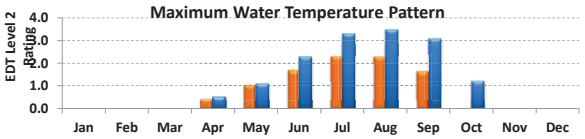


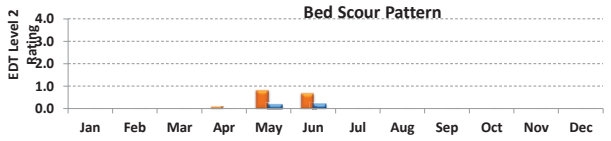

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 51.6% | — |
| Fry Colonization | 29.8% | — |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 18.7% | — |

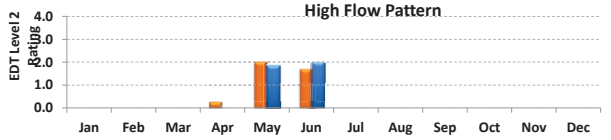
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

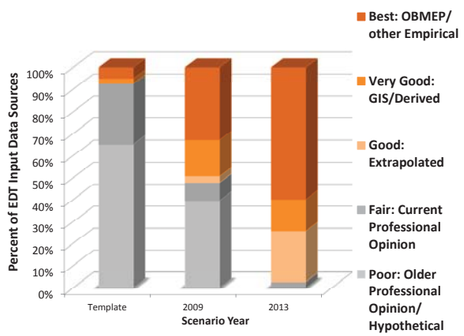
| | |
|---|---|
| Diagnostic Unit | Okanogan River O6: Siwash to Co |
| Species | Chinook |
| Population | Okanogan (US) |
| Status and Trend Year | 2013 |
| Trend Comparison | 2013 to 2009 |

## How Important is Okanogan River O6: Siwash to Confluence for Conservation of Okanogan (US) Chinook?

| Effect on Population Potential if this Unit | Degrades | Is Restored |
|---|---|---|
| Adult Abundance | -2.3% | 0.0% |
| Adult Productivity | 0.0% | 0.0% |
| Life History Diversity | -1.3% | +3.0% |
| Diagnostic Unit Priority Rank[1] | 8 of 11 | 8 of 11 |

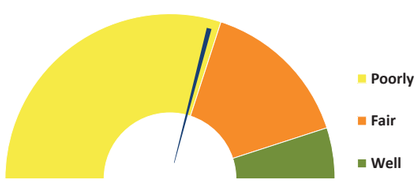
[1] Relative to all Okanogan (US) Diagnostic Units used by this Chinook population

## How Good is Our Information in Okanogan River O6: Siwash to Confluence?

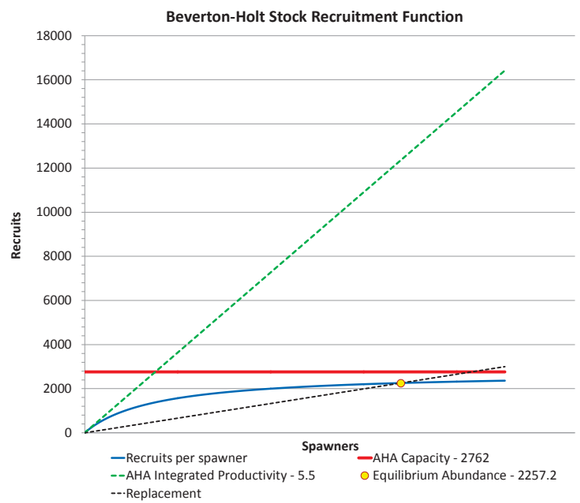


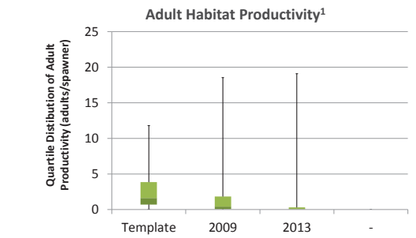

## How is Okanogan River O6: Siwash to Confluence Performing as Chinook Habitat?

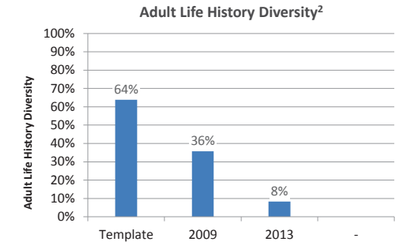
Currently Functioning at 58% of Template Habitat Potential

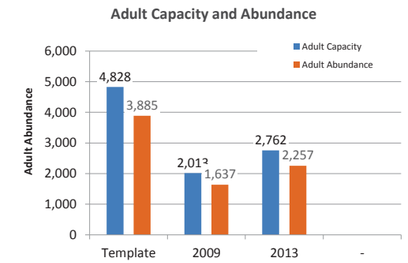


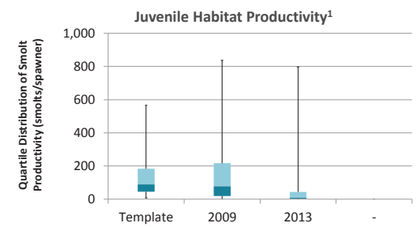

## What are the Trends in Chinook Habitat Potential in Okanogan River O6: Siwash to Confluence?

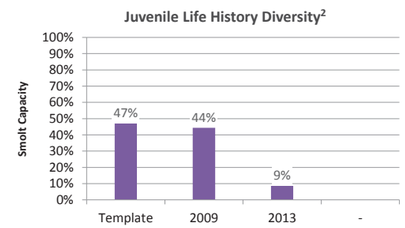


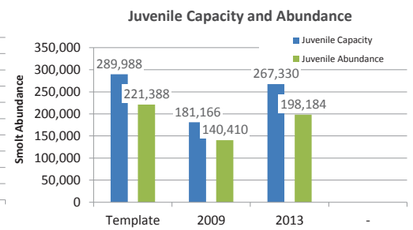



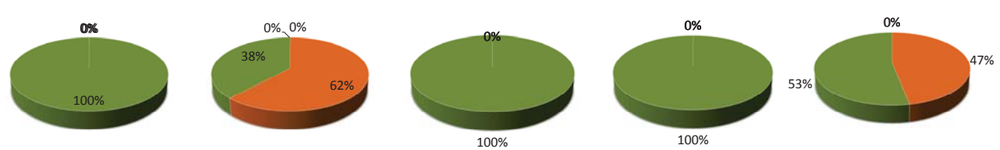




EDT used 4614 life history trajectories to model habitat potential in Okanogan River O6: Siwash to Confluence

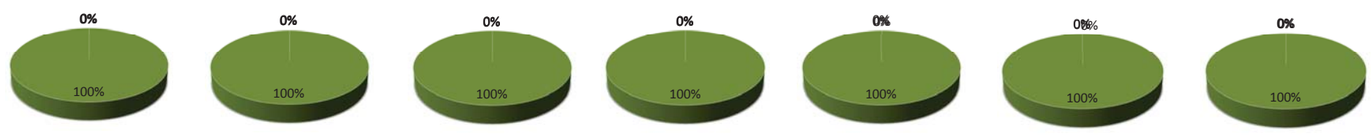
[1] Box and whisker graphs show the quartile distribution of cumulative habitat productivity for all 4614 EDT trajectories used to model this Diagnostic Unit.

[2] The percent of adult trajectories having a productivity >1.0 or juvenile productivity >100 smolts/spawner represent the range of life history diversity each habitat scenario can theoretically support.

## Chinook Survival Factor Condition in Okanogan River O6: Siwash to Conf and Trend Between 2009 and 2013




| | Channel Stability | Sediment Conditions | Flow Conditions | Withdrawals | Habitat Diversity |
|---|---|---|---|---|---|
| % of Template | 98% | 99% | 99% | 100% | 94% |
| Factor Wt. | 5% | 39% | 2% | 0% | 17% |
| Factor Trend | ▬ | ▼ | ▬ | ▬ | ▬ |
| Level of Proof | 1.67 | 1.90 | 1.45 | 1.00 | 1.66 |




| | Temperature | Dissolved Oxygen | Competition-Hatchery | Competition-Other | Food | Predation | Obstructions |
|---|---|---|---|---|---|---|---|
| % of Template | 91% | 100% | 99% | 100% | 100% | 97% | 100% |
| Factor Wt. | 25% | 0% | 3% | 1% | 1% | 8% | 0% |
| Factor Trend | ▼ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ |
| Level of Proof | 2.66 | 3.10 | 1.27 | 1.97 | 1.23 | 1.64 | 1.00 |

READ ME - Pie charts describe how well each EDT Survival Factor is functioning based on its overall effect on Chinook productivity; % of Template describes current Survival Factor condition relative to template; Factor Weight rates relative importance of each Survival Factor based its proportional impact on Chinook productivity relative to other survival factors; Factor Trend describes change in Survival Factor % of Template between the 2009 and 2013 habitat scenarios.

### Change in Function Relative to Benchmark
### Key - Proportion of Habitat

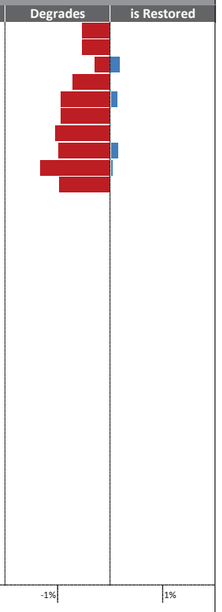
| Categorical Ranking | Productivity Impact |
|---|---|
| Not properly functioning | >5.1% reduction |
| Functioning at High Risk | 2.6% to 5% reduction |
| Functioning at Risk | 1.1% to 2.5% reduction |
| Properly Functioning | 0% to 1% reduction |

### Key - Survival Factor Trend

| Change | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ⇩ | ⇧ |

## Habitat Priorities - Change in Population Abundance If (values normalized to %change/river mile)

| This Reach, Length (mi) | | Degrades | is Restored |
|---|---|---|---|
| Okanogan 24a | 1.09 | | |
| Okanogan 24b (hatchery | 0.01 | | |
| Okanogan 24c | 2.76 | | |
| Okanogan 25 | 7.74 | | |
| Okanogan 26 | 1.06 | | |
| Okanogan 27a | 0.53 | | |
| Okanogan 27c | 0.36 | | |
| Okanogan 27d | 0.45 | | |
| Okanogan 27e | 0.78 | | |
| Okanogan 27f | 1.70 | | |



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

## OBSTRUCTIONS AND KEY HABITAT

**Subbasin:** Okanogan (US)
**Species:** Chinook
**Population:** Okanogan Summer/Fall
**Monitoring Cycle:** 2009-2013
**Diagnostic Unit:** Okanogan River O6: Siwash to Confluence

**Diagnostic Unit Habitat Statistics**

**Stream Length (mi):** 13.73
**Template Adult Capacity:** 4,828

**Diagnostic Unit Obstruction Statistics**

**# of Obstructions:** 0 **# Manmade:** 0
**Factor Weight:** 0% of DU productivity impairment

**There Were 0 Manmade Obstructions in Okanogan River O6: Siwash to Confluence in 2013 With the Following Effects on Chinook Productivity (NR = Obstruction not rated)**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

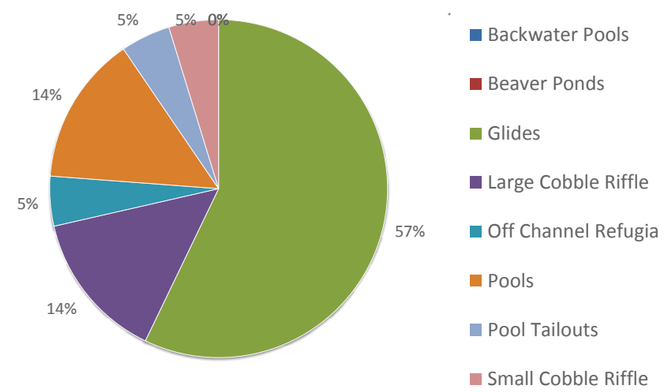
| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

**Okanogan River O6: Siwash to Confluence Habitat Composition and Key Habitat Area for Chinook Under Template Conditions**

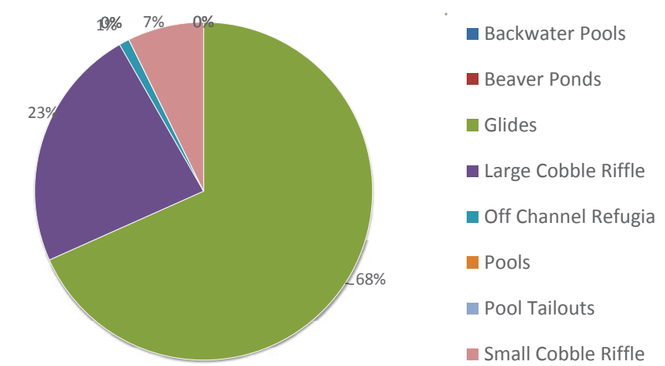



| Lifestage | Key Habitat Area* |
|---|---|
| Spawning | 25% |
| Fry colonization | 13% |
| 0-age active | 27% |
| 0-age inactive | 20% |
| 1-age active | 0% |
| 1-age inactive | 0% |
| 2+-age migrant | 0% |
| Prespawn holding | 15% |

**Template Habitat Capacity**

| Scenario | Adult | Juvenile |
|---|---|---|
| Template | 4,828 | 289,988 |

**Okanogan River O6: Siwash to Confluence Habitat Composition in 2009 and Trend in Chinook Key Habitat Area Since Template**

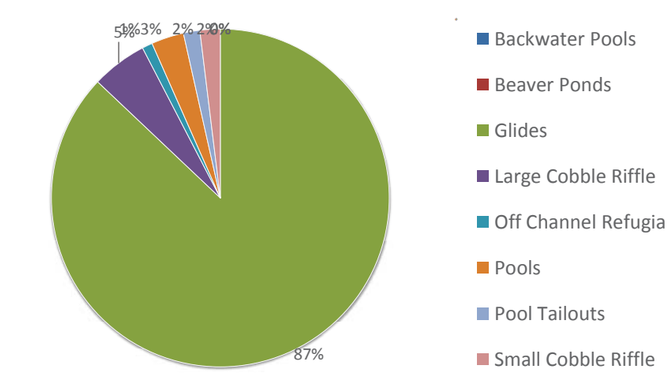



| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 44.4% | 31% |
| Fry colonization | 17.4% | 3% |
| 0-age active | 18.3% | -50% |
| 0-age inactive | 12.7% | -53% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 7.2% | -65% |

**Net Habitat Capacity and Change Since Template**

| Comparison | Adult | Juvenile |
|---|---|---|
| Template to 2009 | 2013 (-58%) | 181166 (-38%) |

**Okanogan River O6: Siwash to Confluence Habitat Composition in 2013 and Trend in Chinook Key Habitat Area Since 2009**




| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 30.0% | -9% |
| Fry colonization | 15.2% | 17% |
| 0-age active | 26.0% | 90% |
| 0-age inactive | 17.4% | 84% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 11.3% | 111% |

**Net Habitat Capacity and Change Since 2009**

| Comparison | Adult | Juvenile |
|---|---|---|
| 2009 to 2013 | 2762 (37%) | 267330 (48%) |

* Percent of reach providing key habitat for this life stage in EDT in this habitat scenario

# Okanogan River 06: Siwash to Confluence

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O6: Siwash to Confl |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 24a |
| Reach Length (mi) | 1.09 |
| Average Gradient | 0.7% |
| Habitat Area (ac) | 40.1 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 109 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 271 |
| Productivity | 9.6 |
| Diversity | 20% |
| Abundance | 243 |

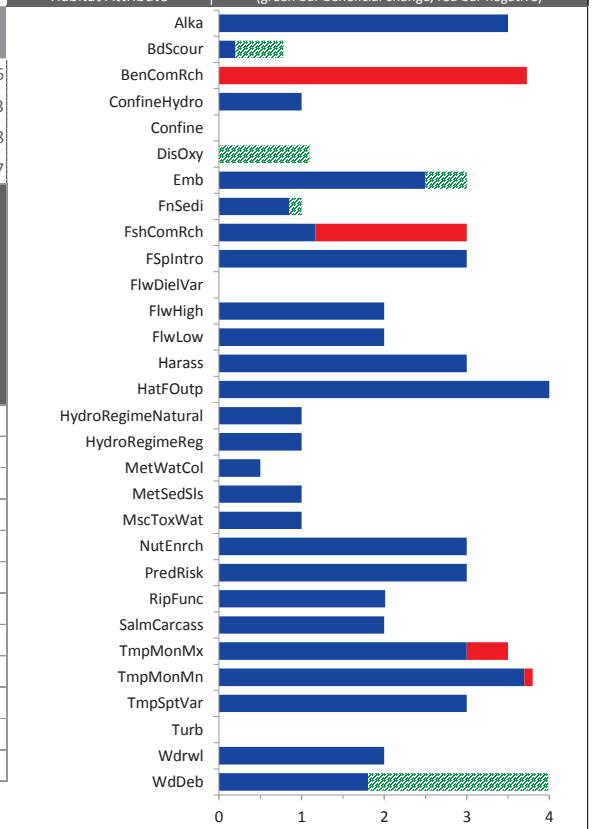
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 2% | Reach Priority | 26 |
| Diversity | - 4% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 3.0% | -38.2% | 6 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 20.8% | 1.1% | 1 | | | | | | | | | | | | | | | ↓ |
| Fry colonization | Apr-May | 3.4% | -1.9% | 4 | | | | | | | | | | | | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 33.0% | -1.8% | 5 | | | | | | | | | | | | | | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | -1.9% | 2 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 117.0% | -2.1% | 7 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.2% | -1.3% | 3 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



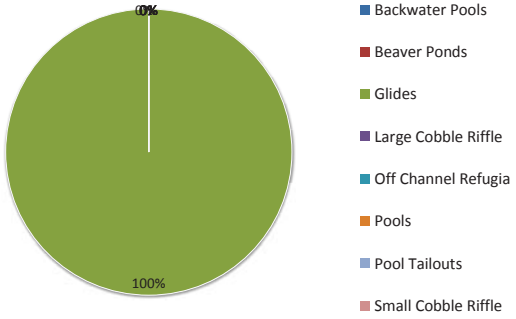

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

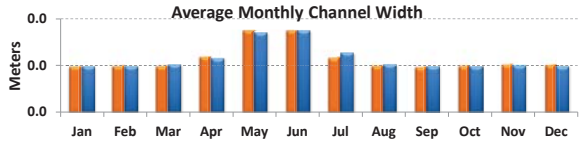
## EDT Habitat Composition Ratings

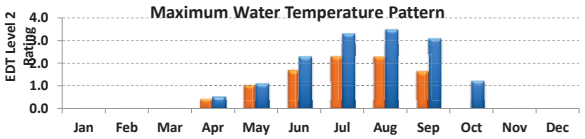


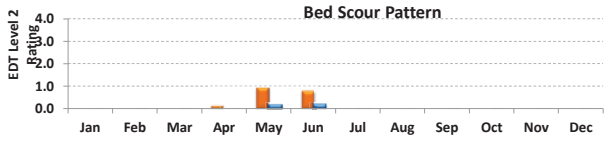

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 40.2% | ↑ |
| Fry Colonization | 34.9% | ↑ |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 24.9% | ↑ |

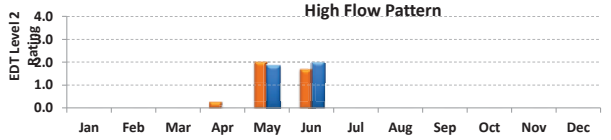
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O6: Siwash to Confl |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 24b (hatchery |
| Reach Length (mi) | 0.01 |
| Average Gradient | 0.7% |
| Habitat Area (ac) | 0.5 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 106 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 3 |
| Productivity | 6.3 |
| Diversity | 20% |
| Abundance | 2 |

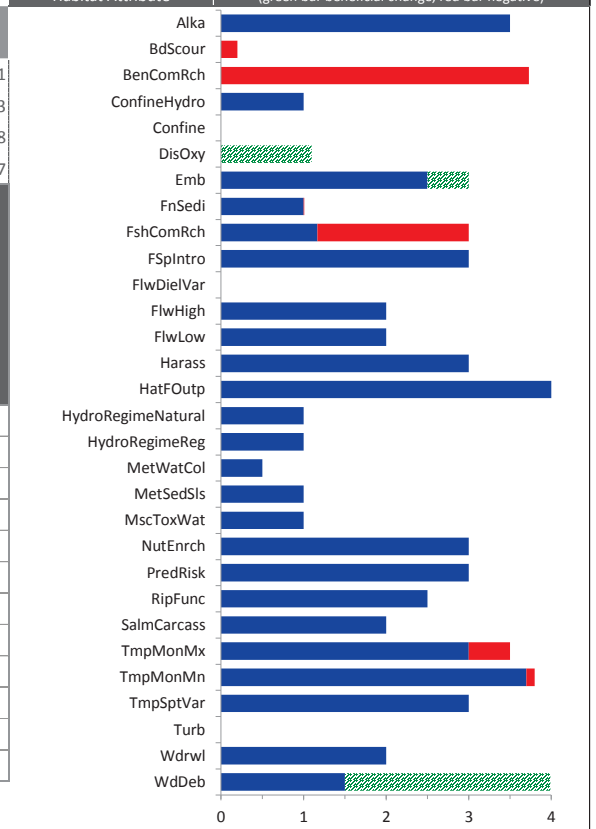
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 61 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.3% | -37.6% | 5 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 1.8% | 1.3% | 1 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 0.3% | -2.2% | 4 | | | | | | | | | | | | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 31.9% | -1.8% | 6 | | | | | | | | | | | | | | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | -1.9% | 2 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 116.0% | -2.1% | 7 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.2% | -1.3% | 3 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



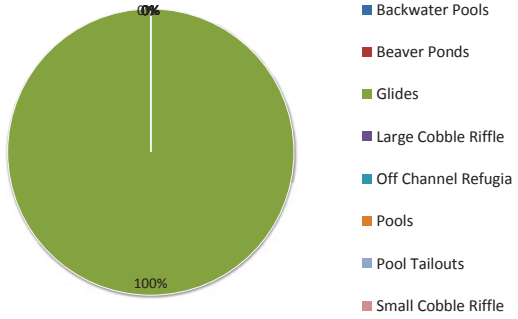

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

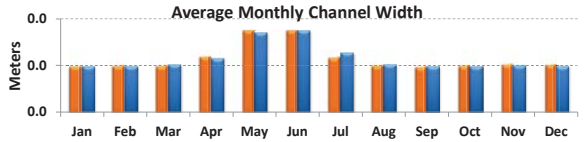
## EDT Habitat Composition Ratings

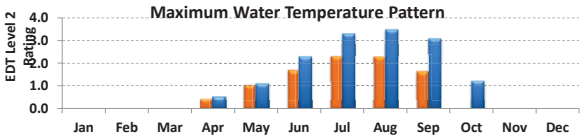


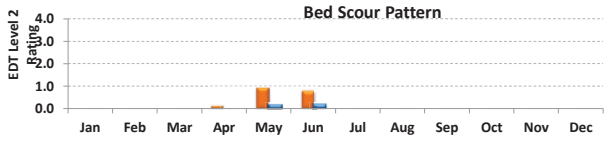

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 40.2% | ↑ |
| Fry Colonization | 34.9% | ↑ |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 24.9% | ↑ |

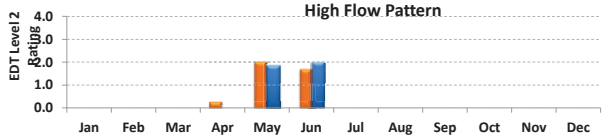
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O6: Siwash to Confl |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 24c |
| Reach Length (mi) | 2.76 |
| Average Gradient | 0.7% |
| Habitat Area (ac) | 91.8 |

**OBMEP Sites**

OBMEP-436

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 68 |
| Diversity | + 1% | Out of | 143 |
| Abundance | + 1% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 0 |
| Productivity | 0.0 |
| Diversity | 0% |
| Abundance | 0 |

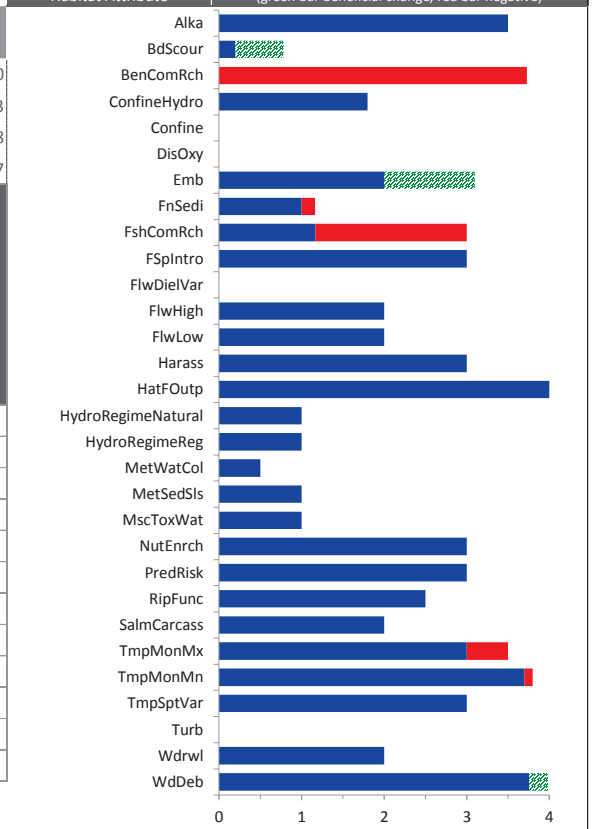
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 70 |
| Diversity | - 1% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

### Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 0.5% | -5.1% | 4 | | | | | | | ● | | | | ● | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.2% | 1 | | | | | | | | | | | | | ● | | ▲ |
| 0-age transient rearing | Jun-Oct | 35.8% | -2.5% | 6 | | | | | | | ● | | | | ● | | | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | -0.4% | 2 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.4% | 3 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 116.4% | -2.4% | 7 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 0.9% | -2.7% | 5 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



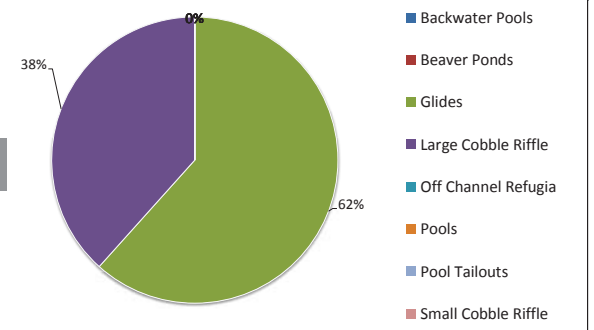

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

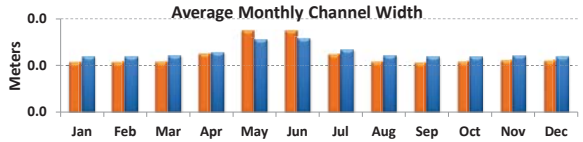
### EDT Habitat Composition Ratings

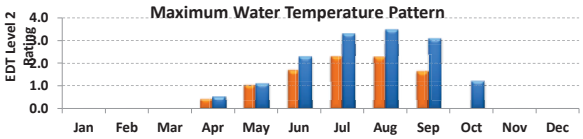


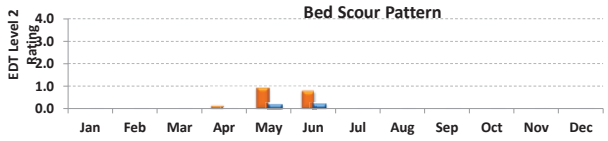

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 0.0% | — |
| Fry Colonization | 21.2% | ↑ |
| Active Rearing | 27.4% | ↑ |
| Inactive Rearing | 36.3% | — |
| Prespawn Holding | 15.1% | ↑ |

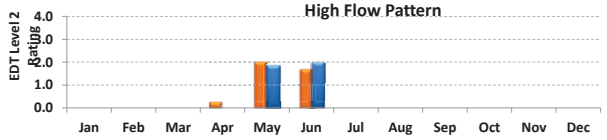
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O6: Siwash to Confl |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 25 |
| Reach Length (mi) | 7.74 |
| Average Gradient | 0.7% |
| Habitat Area (ac) | 276.7 |

**OBMEP Sites**

OBMEP-025

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 55 |
| Diversity | + 19% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 1450 |
| Productivity | 1.5 |
| Diversity | 5% |
| Abundance | 458 |

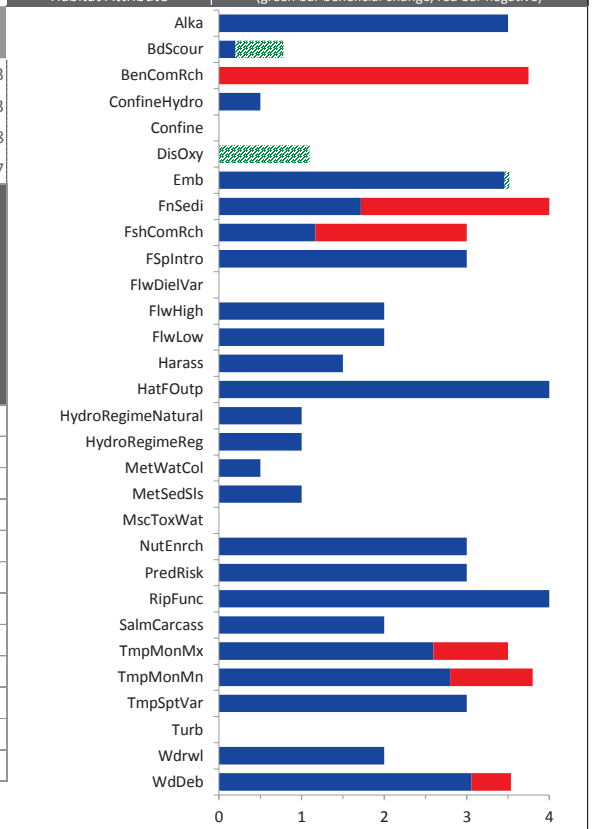
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 53 |
| Diversity | - 5% | Out of | 143 |
| Abundance | - 7% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.1% | -35.1% | 7 | | | | | | | ● | | | ● | | | ● | | ↓ |
| Egg Incubation | Oct-Apr | 7.4% | -3.6% | 6 | | | | | | | | | | | | ● | ● | | — |
| Fry colonization | Apr-May | 2.7% | -7.4% | 5 | ● | | | | | | ● | | | | ● | ● | | | — |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.4% | 1 | | | | | | | | | | | | | ● | | ↓ |
| 0-age transient rearing | Jun-Oct | 44.5% | -2.5% | 8 | | | | | | | ● | | | | | | | | — |
| 0-age inactive | Apr-Oct | 0.0% | -4.0% | 2 | | | | | | | | | | | | ● | ● | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.4% | 3 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 118.8% | -2.3% | 9 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 3.2% | -2.4% | 4 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | ↓ | ↓ | — | |

## EDT Level 2 Attribute Ratings



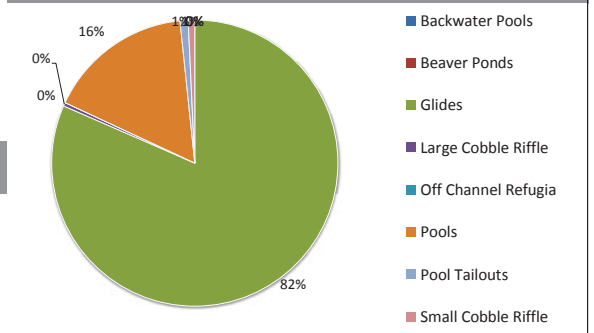

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

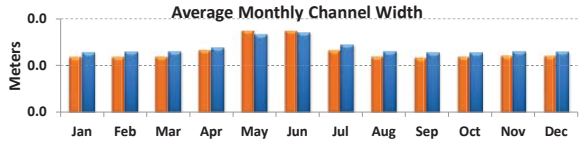
## EDT Habitat Composition Ratings

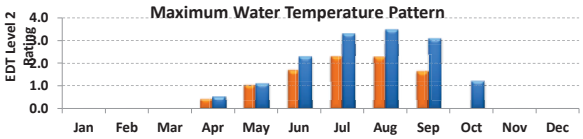


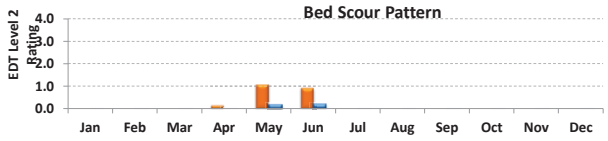

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 54.6% | ↓ |
| Fry Colonization | 13.9% | ↑ |
| Active Rearing | 16.5% | ↑ |
| Inactive Rearing | 9.3% | ↑ |
| Prespawn Holding | 5.8% | ↑ |

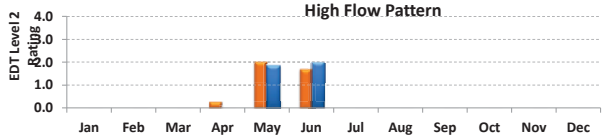
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O6: Siwash to Confl |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 26 |
| Reach Length (mi) | 1.06 |
| Average Gradient | 2.1% |
| Habitat Area (ac) | 31.0 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 64 |
| Diversity | + 2% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 173 |
| Productivity | 2.2 |
| Diversity | 18% |
| Abundance | 95 |

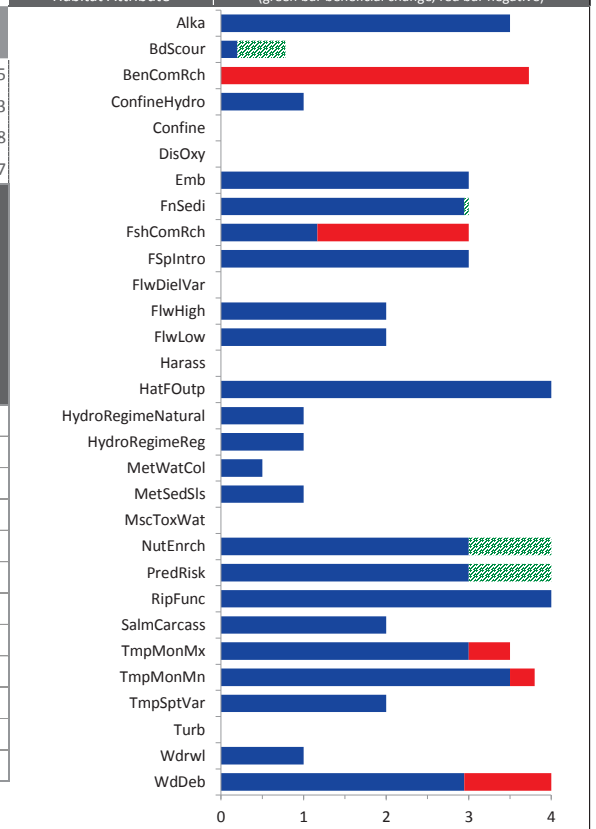
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 65 |
| Diversity | - 2% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.7% | -40.4% | 6 | | | | | | | ● | | | ● | | | ● | | ↑ |
| Egg Incubation | Oct-Apr | 4.6% | -1.7% | 5 | | | | | | | | | | | | | ● | | ↑ |
| Fry colonization | Apr-May | 2.9% | -14.5% | 7 | ● | | | | ● | | ● | | | | ● | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.6% | 2 | | | | | | | ● | | | | | | ● | | ↓ |
| 0-age transient rearing | Jun-Oct | 32.4% | -3.4% | 8 | | | | | | | ● | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | -2.9% | 3 | | | | | | | ● | | | | | ● | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.9% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 117.1% | -2.5% | 9 | | | | | | | ● | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 1.0% | -3.0% | 4 | | | | | ● | | ● | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| Survival Factor Trend | | | | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | |

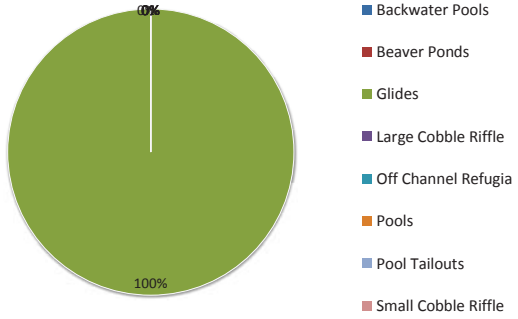
## EDT Level 2 Attribute Ratings




| Habitat Productivity Impact Key | | | | | |
|---|---|---|---|---|---|
| Impact | Extreme | High | Moderate | Small | None |
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

| Trend Key | | |
|---|---|---|
| Trend | Neg. | Pos. |
| <1% | – | – |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

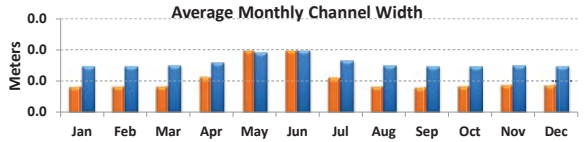
## EDT Habitat Composition Ratings

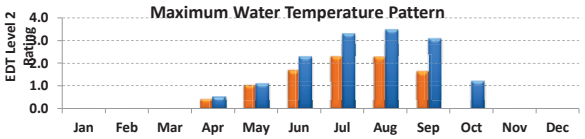


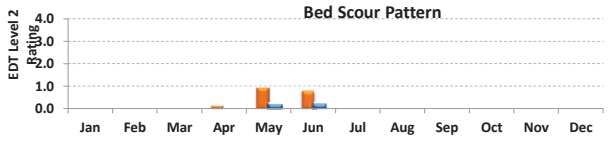

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 35.8% | ▲ |
| Fry Colonization | 17.1% | ▲ |
| Active Rearing | 25.3% | ▲ |
| Inactive Rearing | 13.2% | ▲ |
| Prespawn Holding | 8.6% | ▲ |

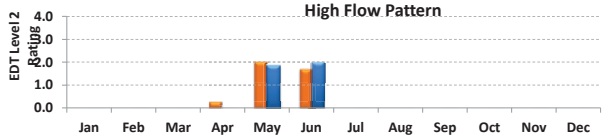
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O6: Siwash to Confl |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 27a |
| Reach Length (mi) | 0.53 |
| Average Gradient | 0.6% |
| Habitat Area (ac) | 19.6 |

**OBMEP Sites**

OBMEP-336

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 73 |
|---|---|---|---|
| Productivity | 0% | Out of | 143 |
| Diversity | + 1% | Diagnostic Unit Priority | 8 |
| Abundance | 0% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 121 |
| Productivity | 1.1 |
| Diversity | 19% |
| Abundance | 15 |

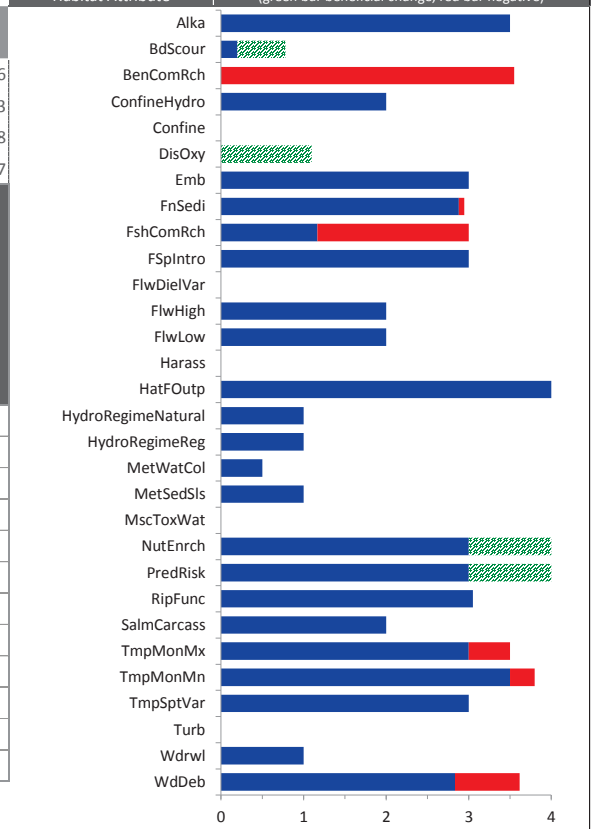
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 76 |
|---|---|---|---|
| Productivity | 0% | Out of | 143 |
| Diversity | 0% | Diagnostic Unit Priority | 8 |
| Abundance | - 1% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.0% | -34.5% | 3 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 0.1% | -1.5% | 2 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 3.5% | -5.9% | 5 | | | | | | | | | | | | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 28.9% | -2.1% | 6 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | -2.3% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 115.5% | -2.4% | 7 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.7% | -2.7% | 4 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



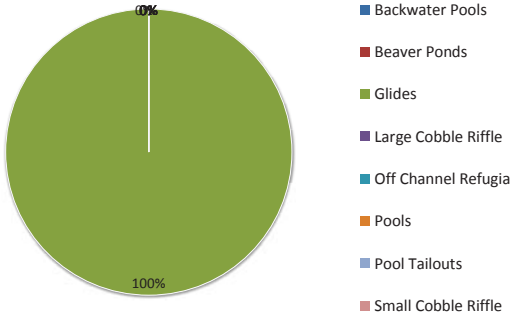

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

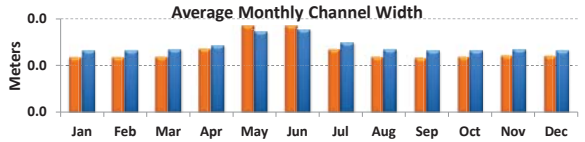
### EDT Habitat Composition Ratings

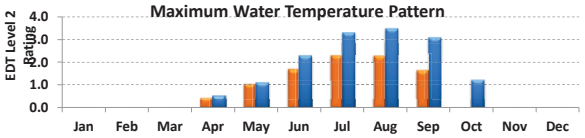


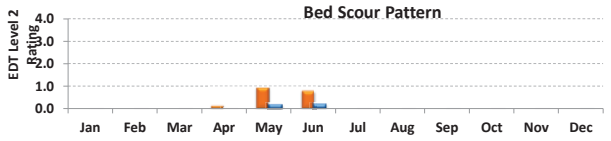

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 57.5% | — |
| Fry Colonization | 28.4% | — |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 14.2% | — |

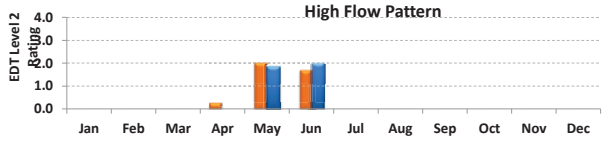
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O6: Siwash to Confl |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 27c |
| Reach Length (mi) | 0.36 |
| Average Gradient | 0.6% |
| Habitat Area (ac) | 18.9 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 78 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 59 |
| Productivity | 1.6 |
| Diversity | 19% |
| Abundance | 22 |

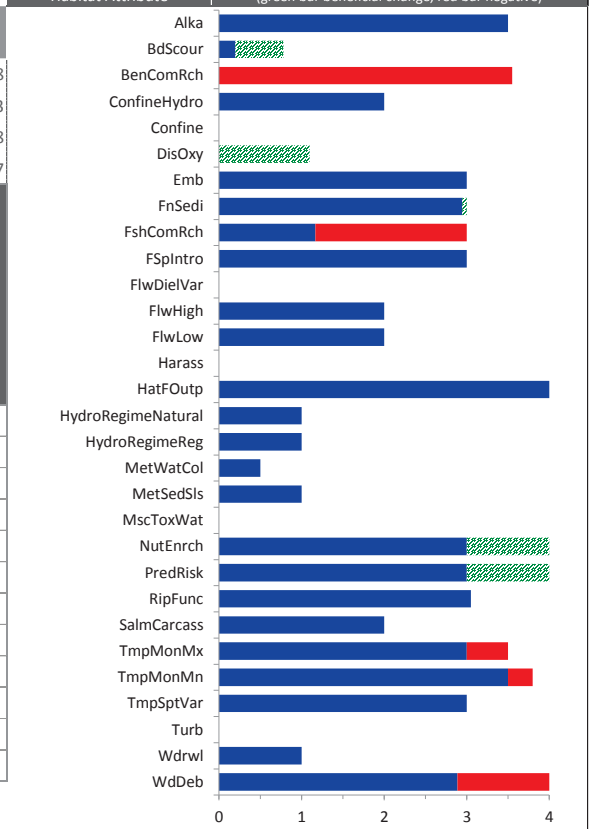
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 78 |
| Diversity | - 1% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.2% | -38.9% | 4 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 1.4% | -1.7% | 3 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 4.4% | -6.6% | 5 | | | | | | | | | | | | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 27.3% | -2.3% | 6 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | -2.4% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 115.7% | -2.4% | 7 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.4% | -2.5% | 2 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



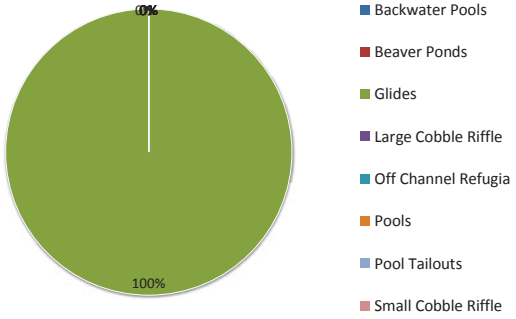

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

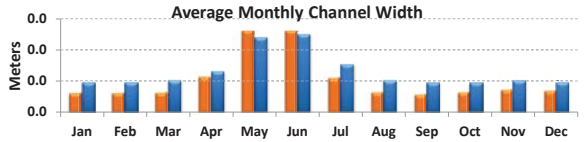
### EDT Habitat Composition Ratings

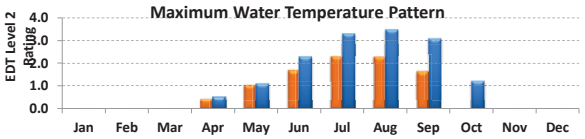


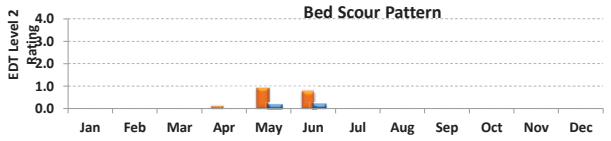

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 57.5% | — |
| Fry Colonization | 28.4% | — |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 14.2% | — |

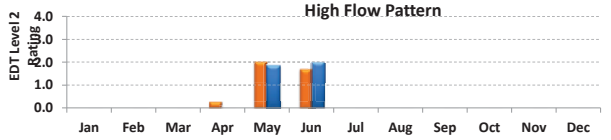
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O6: Siwash to Confl |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 27d |
| Reach Length (mi) | 0.45 |
| Average Gradient | 0.6% |
| Habitat Area (ac) | 15.2 |

**OBMEP Sites**

OBMEP-572

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 71 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 53 |
| Productivity | 3.6 |
| Diversity | 19% |
| Abundance | 38 |

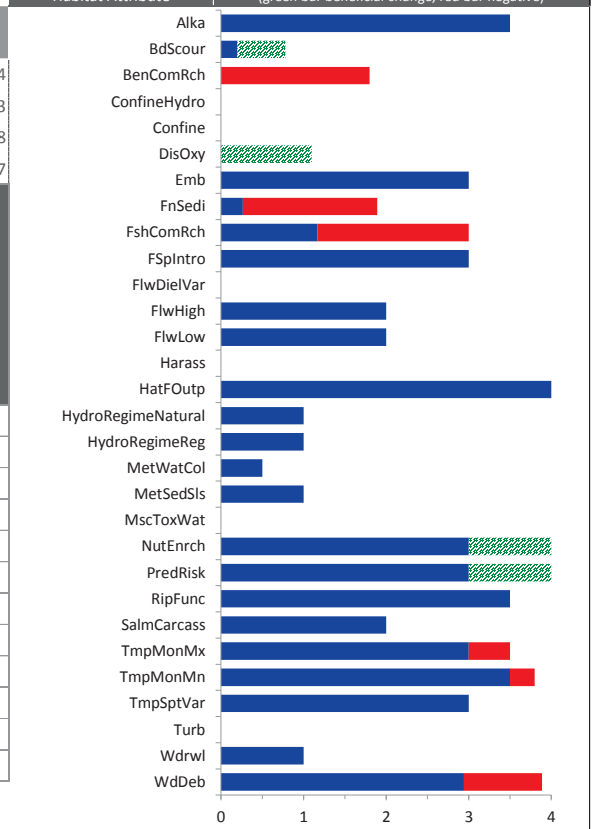
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 74 |
| Diversity | - 1% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.3% | -33.1% | 6 | | | | | | | ● | | | ● | | | ● | | ↑ |
| Egg Incubation | Oct-Apr | 2.1% | -1.2% | 5 | | | | | | | | | | | | | ● | | ↓ |
| Fry colonization | Apr-May | 5.8% | -5.6% | 7 | ● | | | | | | ● | | | | ● | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.5% | 2 | | | | | | | | | | | | | ● | | ↓ |
| 0-age transient rearing | Jun-Oct | 27.5% | -2.0% | 8 | | | | | | | ● | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | -1.7% | 3 | | | | | | | | | | | | ● | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.2% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 116.0% | -2.3% | 9 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 0.4% | -1.5% | 4 | | | | | | | ● | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| | | | | Survival Factor Trend | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | |

## EDT Level 2 Attribute Ratings



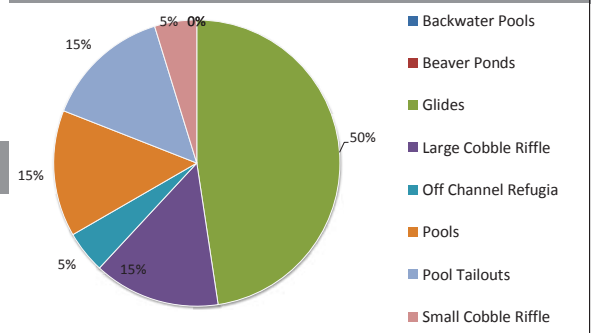

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

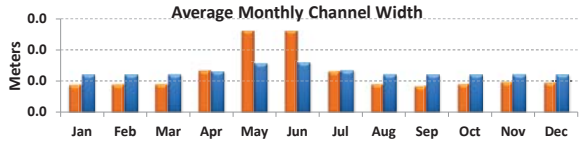
### EDT Habitat Composition Ratings

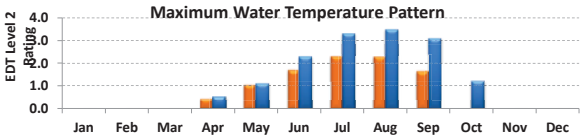


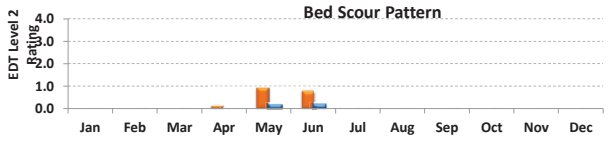

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 34.8% | ↓ |
| Fry Colonization | 17.4% | ↓ |
| Active Rearing | 26.1% | ↑ |
| Inactive Rearing | 13.0% | ↑ |
| Prespawn Holding | 8.7% | ↑ |

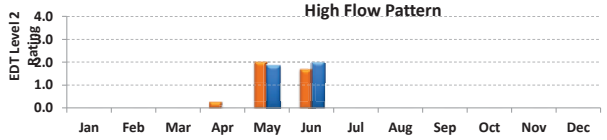
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O6: Siwash to Confl |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 27e |
| Reach Length (mi) | 0.78 |
| Average Gradient | 0.6% |
| Habitat Area (ac) | 33.5 |

**OBMEP Sites**

OBMEP-448

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 68 |
|---|---|---|---|
| Productivity | 0% | Out of | 143 |
| Diversity | + 1% | Diagnostic Unit Priority | 8 |
| Abundance | 0% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 233 |
| Productivity | 4.4 |
| Diversity | 19% |
| Abundance | 180 |

## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 67 |
|---|---|---|---|
| Productivity | 0% | Out of | 143 |
| Diversity | - 1% | Diagnostic Unit Priority | 8 |
| Abundance | - 1% | Out of | 17 |

### Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.4% | -35.5% | 5 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 9.8% | -0.8% | 3 | | | | | | | | | | | | | | | ↓ |
| Fry colonization | Apr-May | 6.7% | -5.8% | 4 | | | | | | | | | | | | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 25.4% | -2.0% | 6 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | -2.1% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 117.6% | -2.2% | 7 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.4% | -1.3% | 2 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

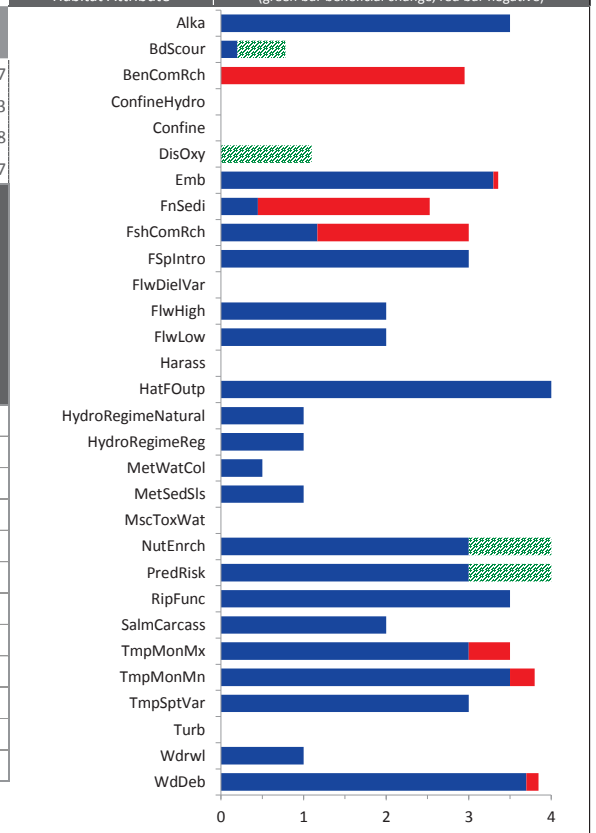
### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

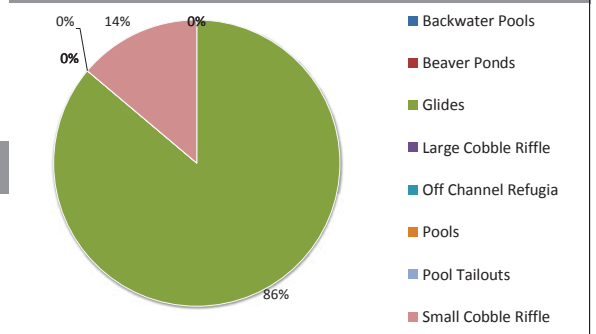
### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

## EDT Level 2 Attribute Ratings



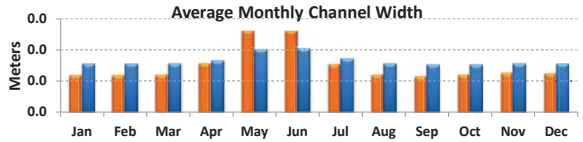

### EDT Habitat Composition Ratings

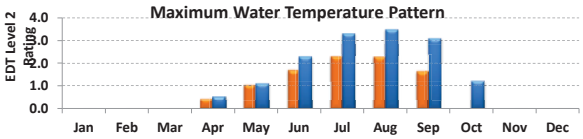


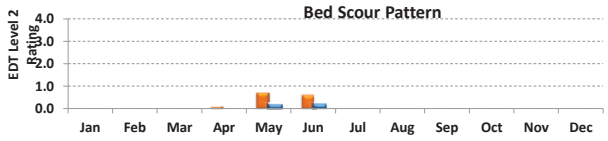

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 61.7% | — |
| Fry Colonization | 25.9% | — |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 12.4% | — |

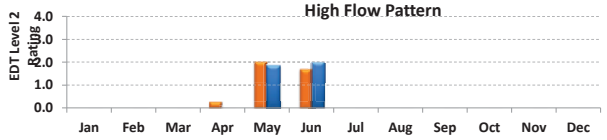
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O6: Siwash to Confl |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 27f |
| Reach Length (mi) | 1.70 |
| Average Gradient | 0.6% |
| Habitat Area (ac) | 77.1 |

**OBMEP Sites**

OBMEP-384

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 67 |
| Diversity | + 4% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 399 |
| Productivity | 2.0 |
| Diversity | 17% |
| Abundance | 202 |

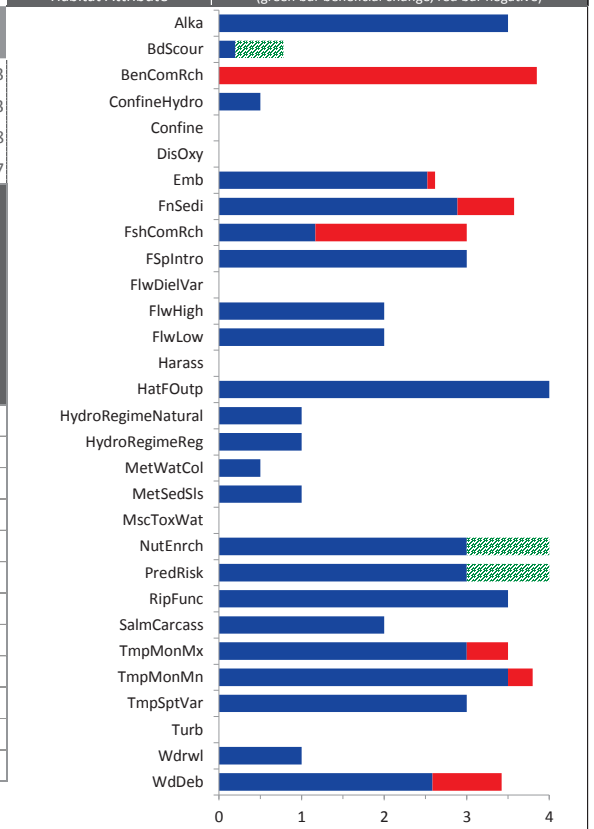
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 63 |
| Diversity | - 2% | Out of | 143 |
| Abundance | - 2% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.9% | -40.5% | 6 | | | | | | | ● | | | ● | | | ● | | ↑ |
| Egg Incubation | Oct-Apr | 6.3% | -2.8% | 5 | | | | | | | | | | | | ● | ● | | — |
| Fry colonization | Apr-May | 10.0% | -4.9% | 7 | | | | | | | ● | | | | ● | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.4% | 2 | | | | | | | | | | | | | ● | | ↓ |
| 0-age transient rearing | Jun-Oct | 26.7% | -1.8% | 8 | | | | | | | | | | | | | | | — |
| 0-age inactive | Apr-Oct | 0.0% | -1.3% | 3 | | | | | | | | | | | | | | | ▼ |
| 1-age migrant | Apr-Jun | 0.0% | -2.1% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 118.3% | -2.2% | 9 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 0.8% | -1.8% | 4 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



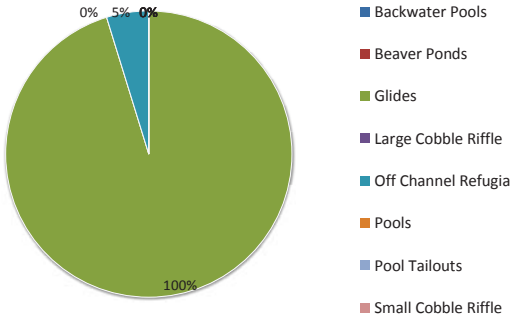

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

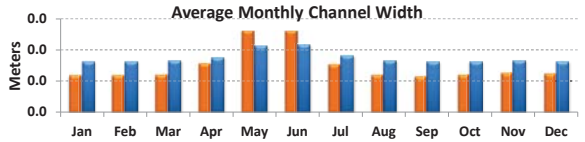
## EDT Habitat Composition Ratings

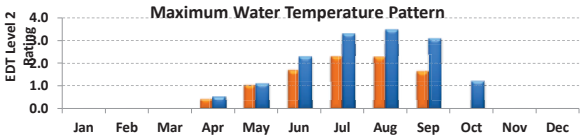


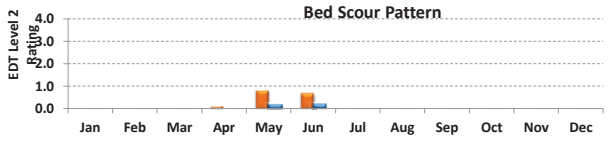

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 36.9% | ▼ |
| Fry Colonization | 17.0% | ▲ |
| Active Rearing | 25.1% | ▲ |
| Inactive Rearing | 12.6% | ▲ |
| Prespawn Holding | 8.4% | ▲ |

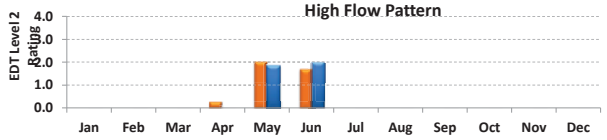
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

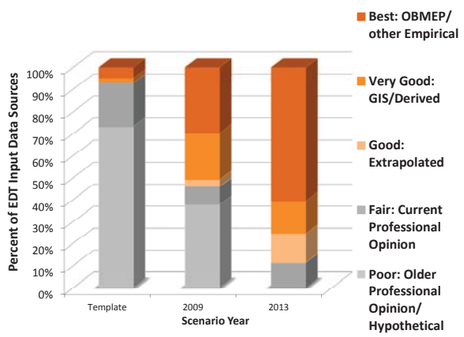
| | |
|---|---|
| Diagnostic Unit | Okanogan River O7: Confluence to |
| Species | Chinook |
| Population | Okanogan (US) |
| Status and Trend Year | 2013 |
| Trend Comparison | 2013 to 2009 |

## How Important is Okanogan River O7: Confluence to Zosel Dam for Conservation of Okanogan (US) Chinook?

| Effect on Population Potential if this Unit | Degrades | Is Restored |
|---|---|---|
| Adult Abundance | 0.0% | 0.0% |
| Adult Productivity | 0.0% | +3.1% |
| Life History Diversity | -0.8% | +3.9% |
| Diagnostic Unit Priority Rank[1] | 8 of 11 | 4 of 11 |

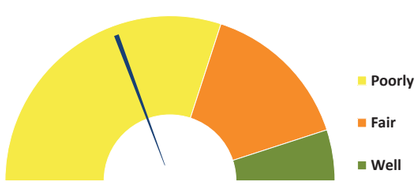
[1] Relative to all Okanogan (US) Diagnostic Units used by this Chinook population

## How Good is Our Information in Okanogan River O7: Confluence to Zosel Dam?

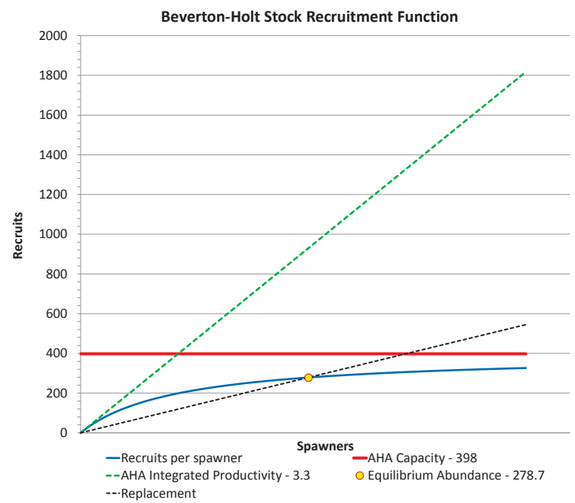


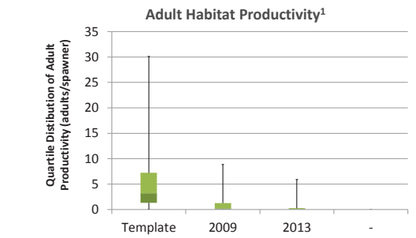

## How is Okanogan River O7: Confluence to Zosel Dam Performing as Chinook Habitat?

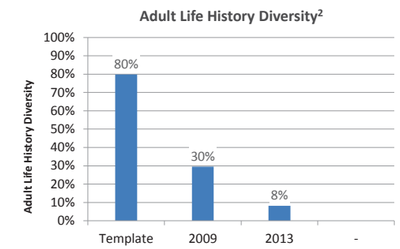
Currently Functioning at 39% of Template Habitat Potential

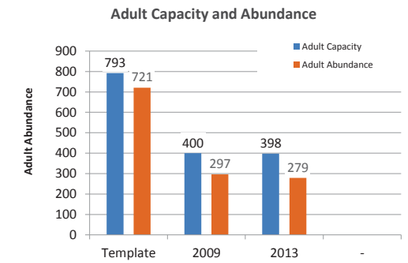


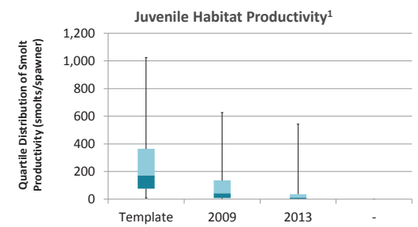

## What are the Trends in Chinook Habitat Potential in Okanogan River O7: Confluence to Zosel Dam?

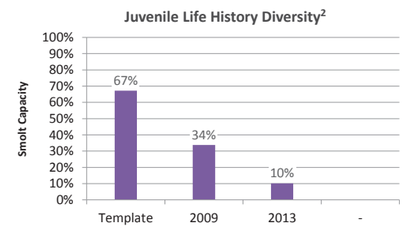


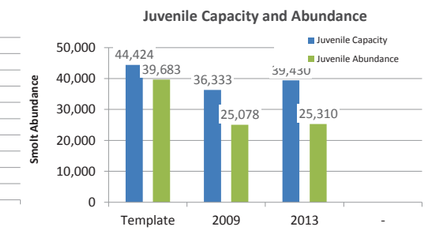



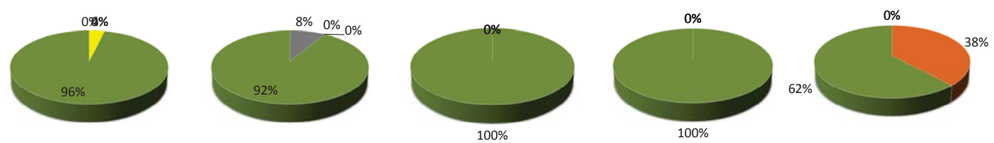



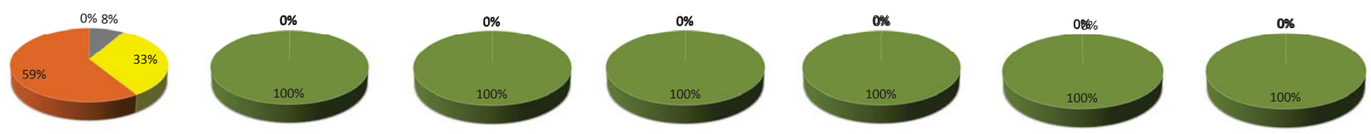

EDT used 3399 life history trajectories to model habitat potential in Okanogan River O7: Confluence to Zosel Dam

[1] Box and whisker graphs show the quartile distribution of cumulative habitat productivity for all 3399 EDT trajectories used to model this Diagnostic Unit.
[2] The percent of adult trajectories having a productivity >1.0 or juvenile productivity >100 smolts/spawner represent the range of life history diversity each habitat scenario can theoretically support.

## Chinook Survival Factor Condition in Okanogan River O7: Confluence to and Trend Between 2009 and 2013




| | Channel Stability | Sediment Conditions | Flow Conditions | Withdrawals | Habitat Diversity |
|---|---|---|---|---|---|
| % of Template | 100% | 96% | 99% | 100% | 93% |
| Factor Wt. | 1% | 12% | 2% | 0% | 15% |
| Factor Trend | | | | | |
| Level of Proof | 1.73 | 1.77 | 1.50 | 1.00 | 1.69 |




| | Temperature | Dissolved Oxygen | Competition-Hatchery | Competition-Other | Food | Predation | Obstructions |
|---|---|---|---|---|---|---|---|
| % of Template | 72% | 100% | 100% | 100% | 100% | 97% | 100% |
| Factor Wt. | 64% | 0% | 0% | 0% | 0% | 6% | 0% |
| Factor Trend | | | | | | | |
| Level of Proof | 2.34 | 4.00 | 1.17 | 1.92 | 1.16 | 1.56 | 1.00 |

READ ME - Pie charts describe how well each EDT Survival Factor is functioning based on its overall effect on Chinook productivity; % of Template describes current Survival Factor condition relative to template; Factor Weight rates relative importance of each Survival Factor based its proportional impact on Chinook productivity relative to other survival factors; Factor Trend describes change in Survival Factor % of Template between the 2009 and 2013 habitat scenarios.

### Change in Function Relative to Benchmark
### Key - Proportion of Habitat

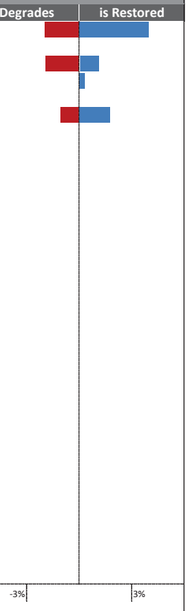
| Categorical Ranking | Productivity Impact |
|---|---|
| Not properly functioning | >5.1% reduction |
| Functioning at High Risk | 2.6% to 5% reduction |
| Functioning at Risk | 1.1% to 2.5% reduction |
| Properly Functioning | 0% to 1% reduction |

### Key - Survival Factor Trend

| Change | Neg. | Pos. |
|---|---|---|
| <1% | | |
| >1-5% | | |
| >5% | | |

## Habitat Priorities - Change in Population Abundance If (values normalized to %change/river mile)

| This Reach, Length (mi) | | Degrades | is Restored |
|---|---|---|---|
| Okanogan 28a | 0.90 | | |
| Okanogan 28b | 0.17 | | |
| Okanogan 28c | 1.18 | | |
| Okanogan 28d | 0.13 | | |
| Okanogan 28e | 0.00 | | |
| Okanogan 28f | 1.17 | | |



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

## OBSTRUCTIONS AND KEY HABITAT

**Subbasin:** Okanogan (US)
**Species:** Chinook
**Population:** Okanogan Summer/Fall
**Monitoring Cycle:** 2009-2013
**Diagnostic Unit:** Okanogan River O7: Confluence to Zosel Dam

**Diagnostic Unit Habitat Statistics**

**Stream Length (mi):** 3.55
**Template Adult Capacity:** 793

**Diagnostic Unit Obstruction Statistics**

**# of Obstructions:** 0 **# Manmade:** 0
**Factor Weight:** 0% of DU productivity impairment

**There Were 0 Manmade Obstructions in Okanogan River O7: Confluence to Zosel Dam in 2013 With the Following Effects on Chinook Productivity (NR = Obstruction not rated)**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

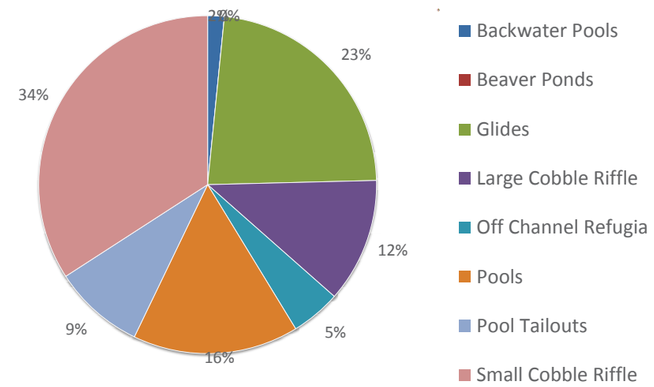
| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

**Okanogan River O7: Confluence to Zosel Dam Habitat Composition and Key Habitat Area for Chinook Under Template Conditions**

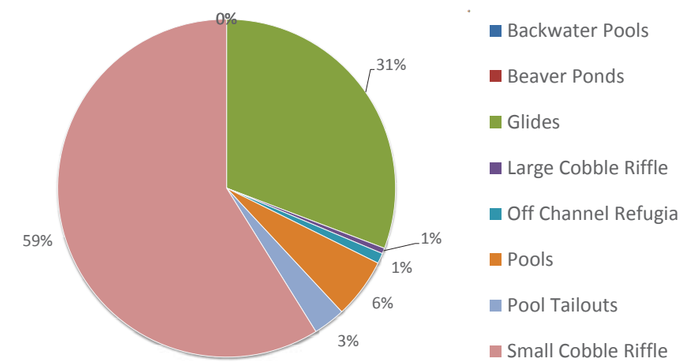



| Lifestage | Key Habitat Area* |
|---|---|
| Spawning | 63% |
| Fry colonization | 18% |
| 0-age active | 0% |
| 0-age inactive | 0% |
| 1-age active | 0% |
| 1-age inactive | 0% |
| 2+-age migrant | 0% |
| Prespawn holding | 20% |

**Template Habitat Capacity**

| Scenario | Adult | Juvenile |
|---|---|---|
| Template | 793 | 44,424 |

**Okanogan River O7: Confluence to Zosel Dam Habitat Composition in 2009 and Trend in Chinook Key Habitat Area Since Template**

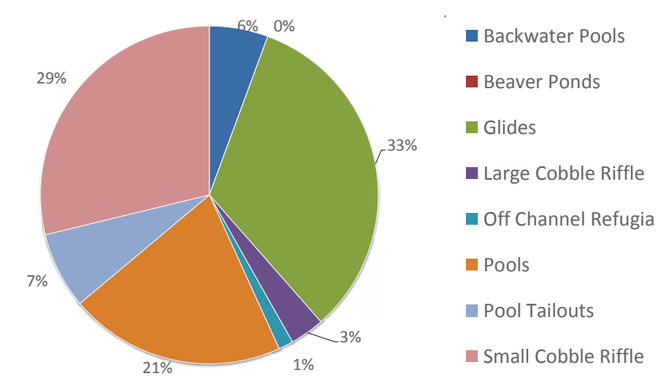



| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 69.2% | ↑ 16% |
| Fry colonization | 16.9% | — 2% |
| 0-age active | 0.0% | — 0% |
| 0-age inactive | 0.0% | — 0% |
| 1-age active | 0.0% | — 0% |
| 1-age inactive | 0.0% | — 0% |
| 2+-age migrant | 0.0% | — 0% |
| Prespawn holding | 13.8% | ↓ -25% |

**Net Habitat Capacity and Change Since Template**

| Comparison | Adult | Juvenile |
|---|---|---|
| Template to 2009 | 400 (-50%) | 36333 (-18%) |

**Okanogan River O7: Confluence to Zosel Dam Habitat Composition in 2013 and Trend in Chinook Key Habitat Area Since 2009**




| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 60.3% | ↓ -13% |
| Fry colonization | 20.5% | ↑ 21% |
| 0-age active | 0.0% | — 0% |
| 0-age inactive | 0.0% | — 0% |
| 1-age active | 0.0% | — 0% |
| 1-age inactive | 0.0% | — 0% |
| 2+-age migrant | 0.0% | — 0% |
| Prespawn holding | 19.2% | ↑ 39% |

**Net Habitat Capacity and Change Since 2009**

| Comparison | Adult | Juvenile |
|---|---|---|
| 2009 to 2013 | 398 (-1%) | 39430 (9%) |

* Percent of reach providing key habitat for this life stage in EDT in this habitat scenario

# Okanogan River 07: Confluence to Zosel

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O7: Confluence to Z |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 28a |
| Reach Length (mi) | 0.90 |
| Average Gradient | 1.4% |
| Habitat Area (ac) | 19.2 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 2% | Reach Priority | 9 |
| Diversity | + 8% | Out of | 143 |
| Abundance | + 3% | Diagnostic Unit Priority | 4 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 94 |
| Productivity | 4.4 |
| Diversity | 13% |
| Abundance | 72 |

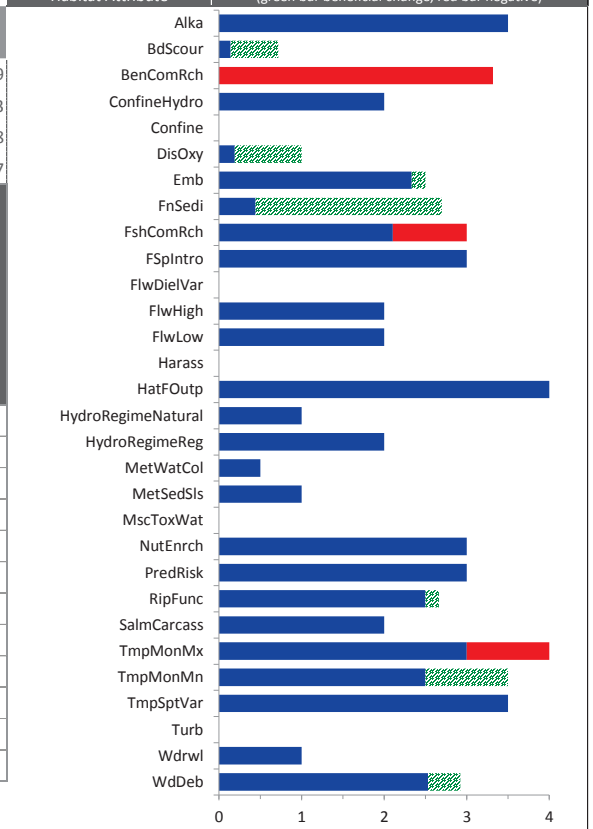
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 29 |
| Diversity | - 4% | Out of | 143 |
| Abundance | - 2% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.8% | -40.4% | 4 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 5.6% | -0.8% | 2 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 1.3% | -5.6% | 3 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 0.1% | -1.5% | 1 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 72.7% | -5.5% | 6 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 11.5% | -8.4% | 5 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

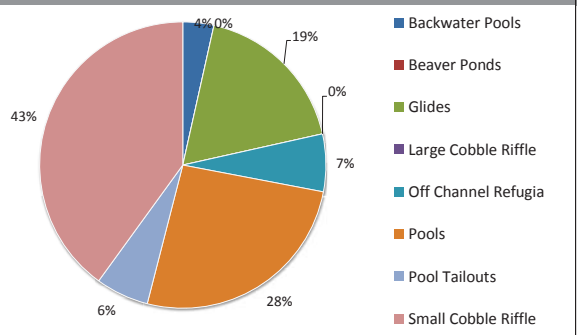
## EDT Level 2 Attribute Ratings




| Habitat Productivity Impact Key | | | | | |
|---|---|---|---|---|---|
| Impact | Extreme | High | Moderate | Small | None |
| Loss | | | | | - |
| Gain | | | | | - |

| Trend Key | | |
|---|---|---|
| Trend | Neg. | Pos. |
| <1% | | |
| >1-5% | | |
| >5% | | |

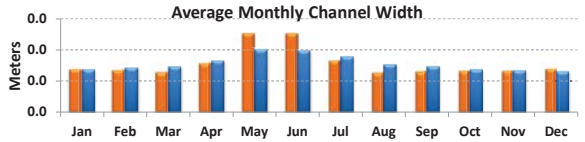
## EDT Habitat Composition Ratings

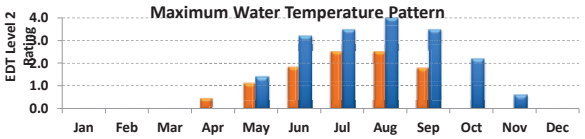


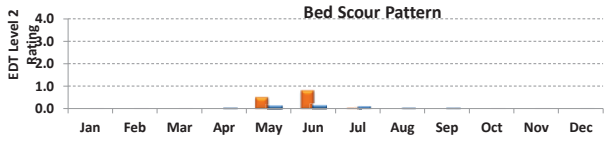

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 61.7% | |
| Fry Colonization | 18.6% | |
| Active Rearing | 0.0% | |
| Inactive Rearing | 0.0% | |
| Prespawn Holding | 19.7% | |

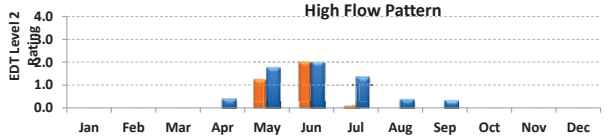
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O7: Confluence to Z |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 28b |
| Reach Length (mi) | 0.17 |
| Average Gradient | 1.4% |
| Habitat Area (ac) | 2.5 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 70 |
| Diversity | + 1% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 4 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 18 |
| Productivity | 1.6 |
| Diversity | 19% |
| Abundance | 7 |

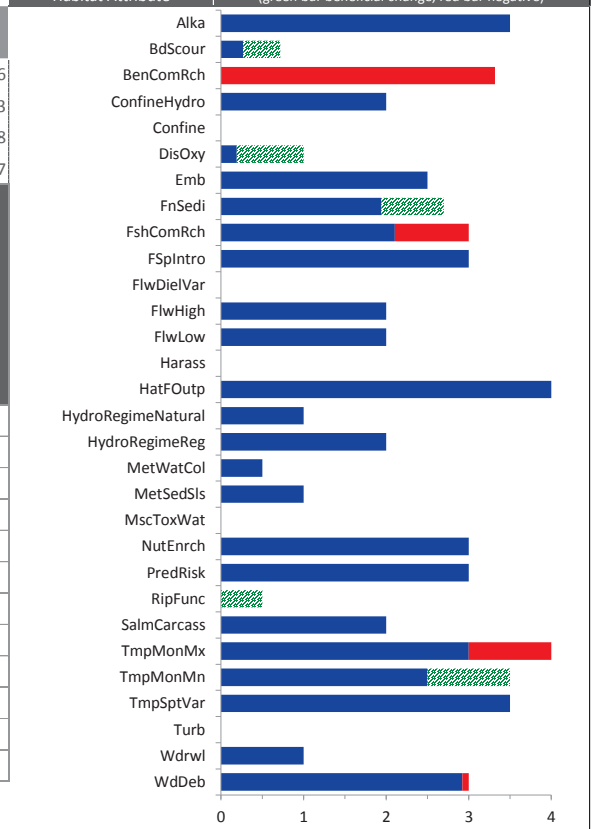
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 106 |
| Diversity | - 1% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.0% | -40.6% | 5 | | | | | | | ● | | | ● | ● | | ● | | ↓ |
| Egg Incubation | Oct-Apr | 0.2% | -2.0% | 4 | | | | | | | | | | | | | ● | | ↑ |
| Fry colonization | Apr-May | 0.0% | -3.4% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age transient rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| Migrant prespawner | Jul-Sep | 0.1% | -3.2% | 2 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 0.1% | -6.4% | 3 | | | | | | | | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| Survival Factor Trend | | | | | – | – | – | – | – | – | – | – | – | – | – | ↑ | ↓ | – | |

## EDT Level 2 Attribute Ratings



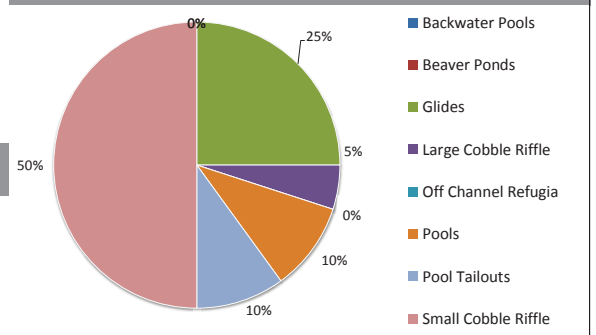

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | – | – |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

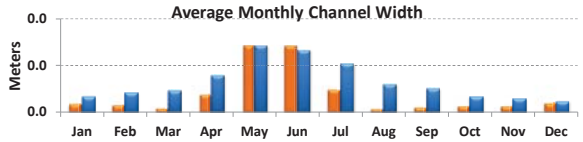
## EDT Habitat Composition Ratings

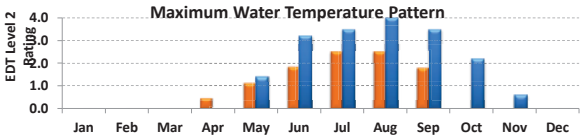


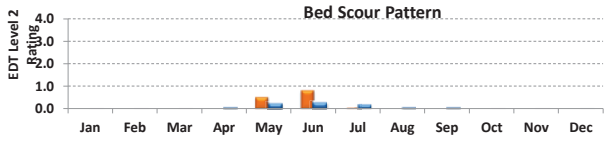

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 61.7% | ↑ |
| Fry Colonization | 18.6% | ↓ |
| Active Rearing | 0.0% | – |
| Inactive Rearing | 0.0% | – |
| Prespawn Holding | 19.7% | ↓ |

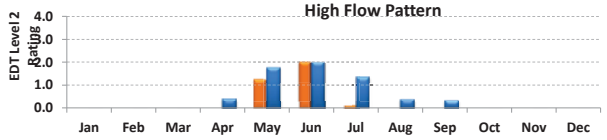
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O7: Confluence to Z |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 28c |
| Reach Length (mi) | 1.18 |
| Average Gradient | 1.4% |
| Habitat Area (ac) | 22.9 |

**OBMEP Sites**

OBMEP-064

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 22 |
|---|---|---|---|
| Productivity | 0% | Out of | 143 |
| Diversity | + 11% | Diagnostic Unit Priority | 4 |
| Abundance | + 1% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 130 |
| Productivity | 1.8 |
| Diversity | 11% |
| Abundance | 58 |

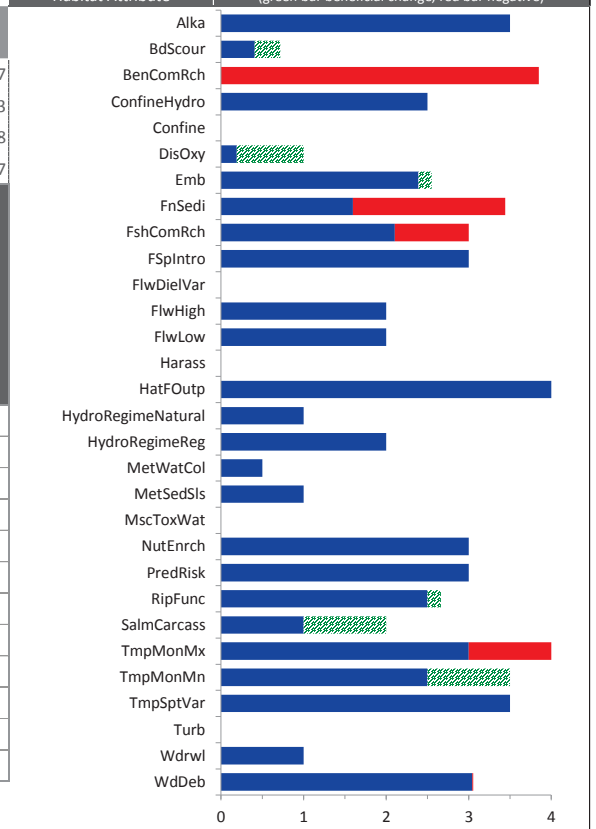
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 27 |
|---|---|---|---|
| Productivity | 0% | Out of | 143 |
| Diversity | - 3% | Diagnostic Unit Priority | 8 |
| Abundance | - 2% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.3% | -44.3% | 4 | | | | | | | | | | | | | | | ↓ |
| Egg Incubation | Oct-Apr | 1.8% | -5.7% | 3 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 0.5% | -7.8% | 2 | | | | | | | | | | | | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 0.0% | -1.8% | 1 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| Migrant prespawner | Jul-Sep | 62.0% | -5.2% | 6 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 16.8% | -9.0% | 5 | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | ↓ | — | |

## EDT Level 2 Attribute Ratings



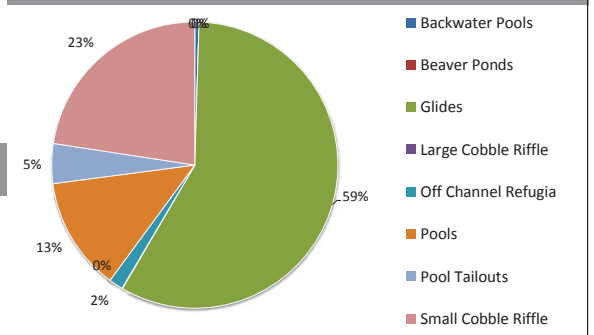

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

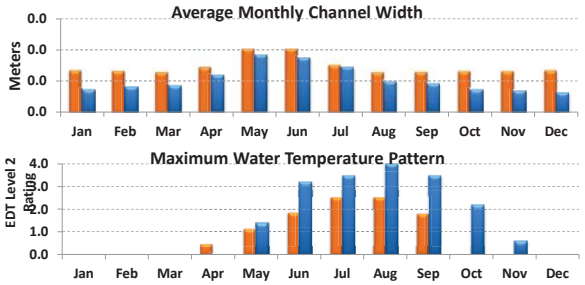
## EDT Habitat Composition Ratings

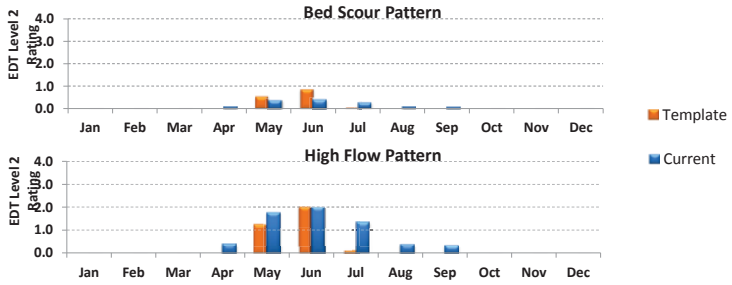



| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 61.7% | ↓ |
| Fry Colonization | 18.6% | ↑ |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 19.7% | ↑ |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O7: Confluence to Z |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 28d |
| Reach Length (mi) | 0.13 |
| Average Gradient | 1.4% |
| Habitat Area (ac) | 1.9 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 74 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 4 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 15 |
| Productivity | 1.5 |
| Diversity | 19% |
| Abundance | 5 |

## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 109 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.1% | -37.8% | 6 | | | | | | | ● | | | ● | ● | | ● | | ↓ |
| Egg Incubation | Oct-Apr | 0.8% | -3.9% | 5 | | | | | | | | | | | | ● | ● | | ↓ |
| Fry colonization | Apr-May | 0.1% | -5.7% | 4 | ● | | | | | | ● | | | | ● | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age transient rearing | Jun-Oct | 0.0% | -1.5% | 2 | | | | | | | ● | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| Migrant prespawner | Jul-Sep | 0.1% | -2.8% | 3 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 0.0% | -4.0% | 1 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| Survival Factor Trend | | | | | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ↓ | ↓ | ▬ | |

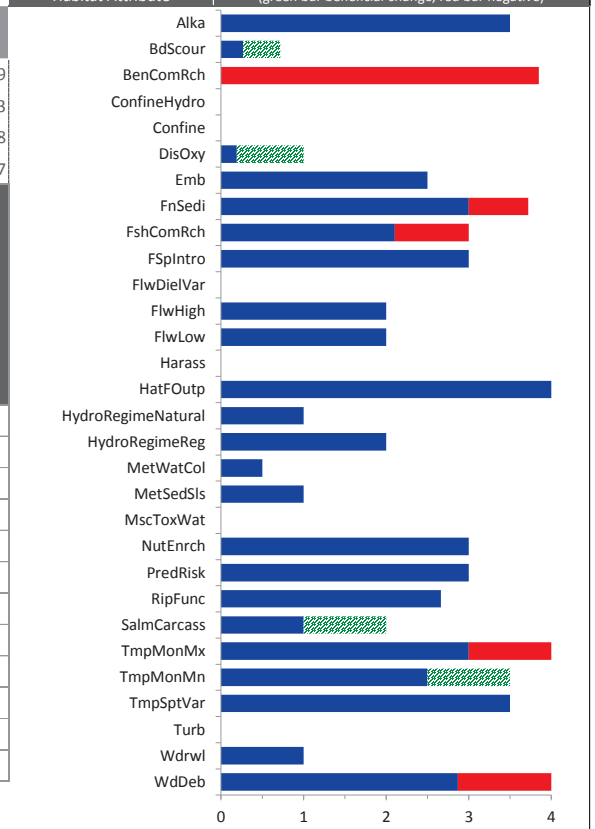
### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

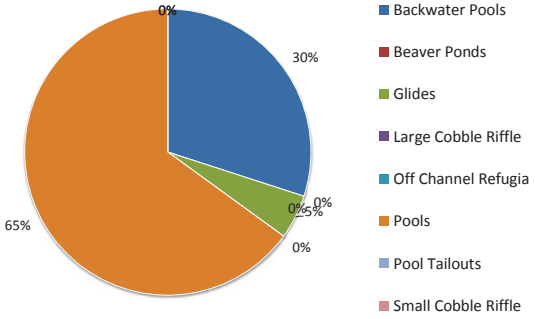
### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

## EDT Level 2 Attribute Ratings



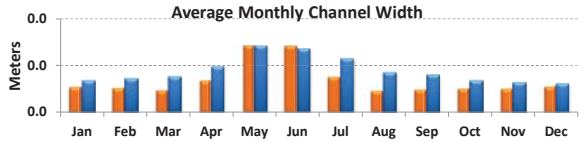

## EDT Habitat Composition Ratings

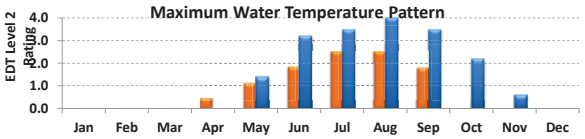


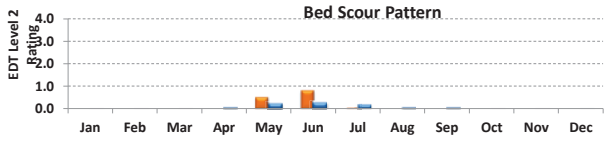

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 88.2% | ↓ |
| Fry Colonization | 10.1% | ↑ |
| Active Rearing | 0.0% | ▬ |
| Inactive Rearing | 0.0% | ▬ |
| Prespawn Holding | 1.7% | ↑ |

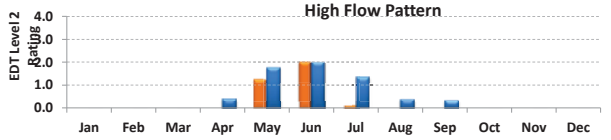
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O7: Confluence to Z |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Okanogan 28e |
| Reach Length (mi) | 0.00 |
| Average Gradient | 1.4% |
| Habitat Area (ac) | 0.0 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 79 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 4 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 0 |
| Productivity | 0.0 |
| Diversity | 19% |
| Abundance | 0 |

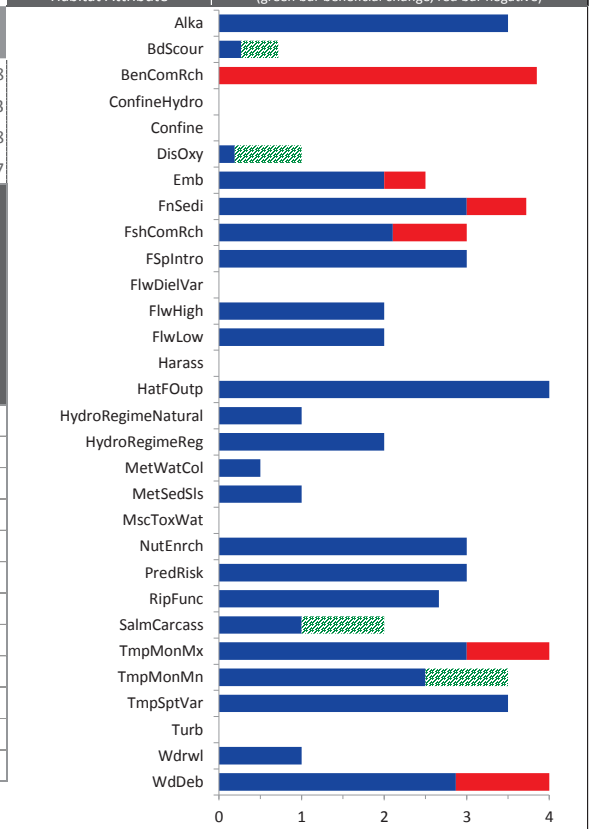
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 68 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.0% | -43.9% | 1 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 0.0% | -4.1% | 2 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 0.0% | -5.6% | 3 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 0.0% | -3.5% | 4 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



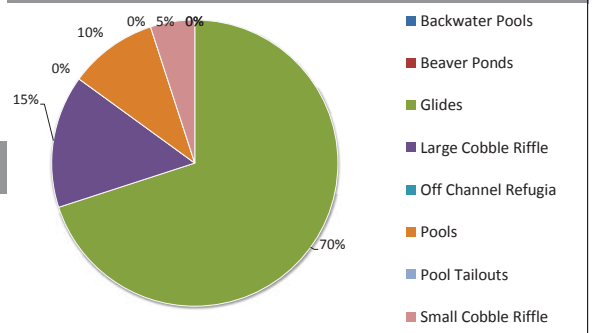

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | | | | | - |
| Gain | | | | | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | | |
| >1-5% | | |
| >5% | | |

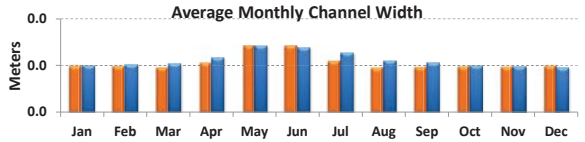
### EDT Habitat Composition Ratings

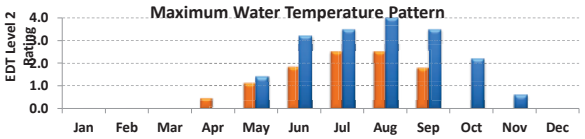


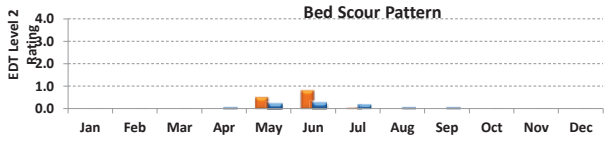

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 89.7% | |
| Fry Colonization | 10.3% | |
| Active Rearing | 0.0% | |
| Inactive Rearing | 0.0% | |
| Prespawn Holding | 0.0% | |

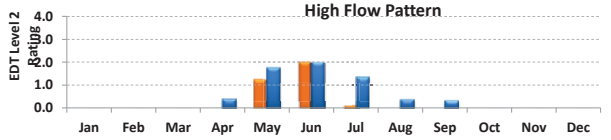
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanogan River O7: Confluence to Z |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Okanogan 28f |
| Reach Length (mi) | 1.17 |
| Average Gradient | 1.5% |
| Habitat Area (ac) | 27.1 |

**OBMEP Sites**

OBMEP-062

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 1% | Reach Priority | 15 |
| Diversity | + 12% | Out of | 143 |
| Abundance | + 2% | Diagnostic Unit Priority | 4 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 142 |
| Productivity | 1.7 |
| Diversity | 10% |
| Abundance | 59 |

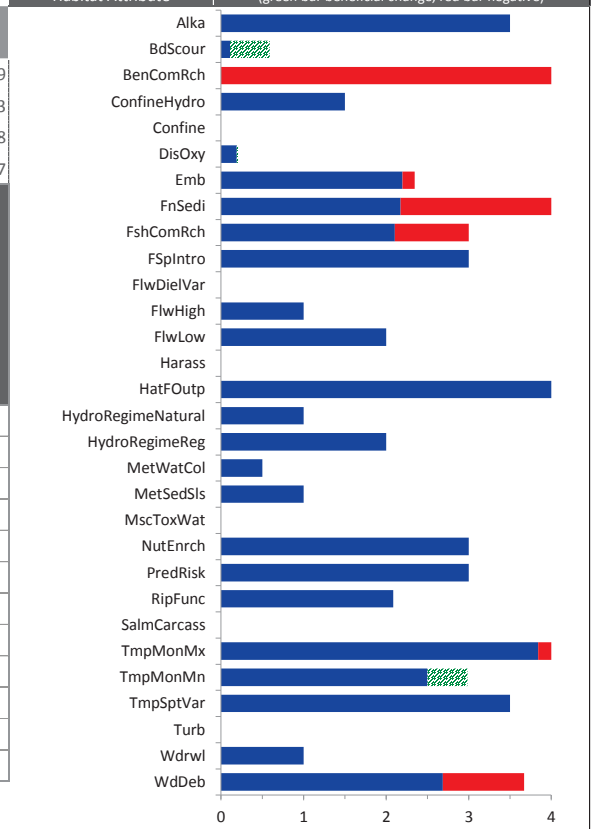
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 1% | Reach Priority | 29 |
| Diversity | - 3% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.1% | -37.0% | 3 | | | | | | | ● | | | ● | ● | | ● | | ↑ |
| Egg Incubation | Oct-Apr | 0.8% | -6.1% | 4 | | | | | | | | | | | | ● | ● | | ↓ |
| Fry colonization | Apr-May | 0.1% | -7.2% | 2 | | | | | ● | | ● | | | | ● | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age transient rearing | Jun-Oct | 0.0% | -1.9% | 1 | | | | | | | ● | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| Migrant prespawner | Jul-Sep | 49.6% | -4.5% | 6 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 21.0% | -8.7% | 5 | | | | | | | ● | | | | | | ● | | – |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| Survival Factor Trend | | | | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | |

## EDT Level 2 Attribute Ratings



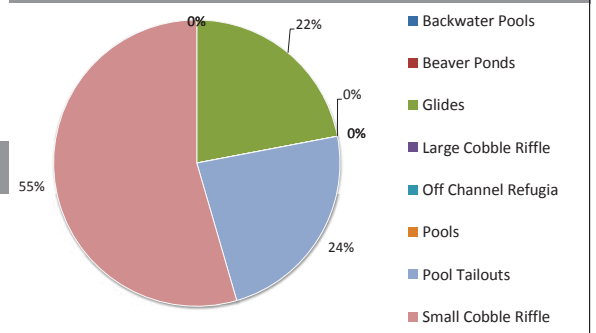

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | – | – |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

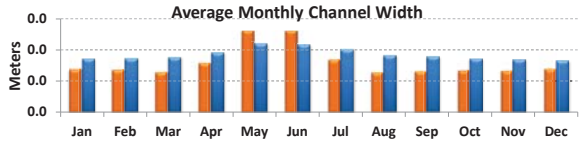
## EDT Habitat Composition Ratings

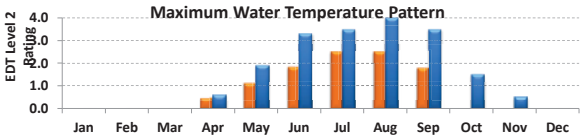


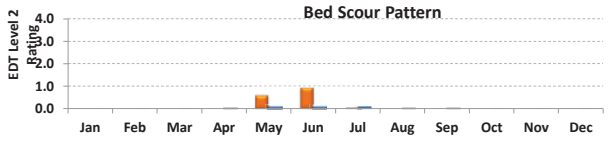

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 83.8% | ▲ |
| Fry Colonization | 12.7% | – |
| Active Rearing | 0.0% | – |
| Inactive Rearing | 0.0% | – |
| Prespawn Holding | 3.5% | ▼ |

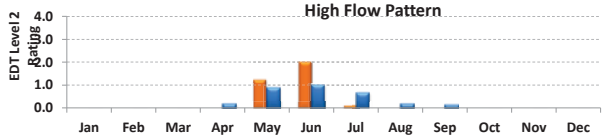
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

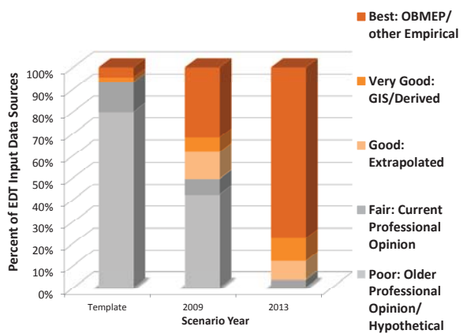
| | |
|---|---|
| Diagnostic Unit | Similkameen River Lower |
| Species | Chinook |
| Population | Okanogan (US) |
| Status and Trend Year | 2013 |
| Trend Comparison | 2013 to 2009 |

## How Important is Similkameen River Lower for Conservation of Okanogan (US) Chinook?

| Effect on Population Potential if this Unit | Degrades | Is Restored |
|---|---|---|
| Adult Abundance | 0.0% | +0.9% |
| Adult Productivity | 0.0% | +7.1% |
| Life History Diversity | -2.0% | +1.2% |
| Diagnostic Unit Priority Rank[1] | 8 of 11 | 4 of 11 |

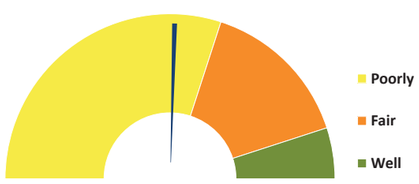
[1] Relative to all Okanogan (US) Diagnostic Units used by this Chinook population

## How Good is Our Information in Similkameen River Lower?

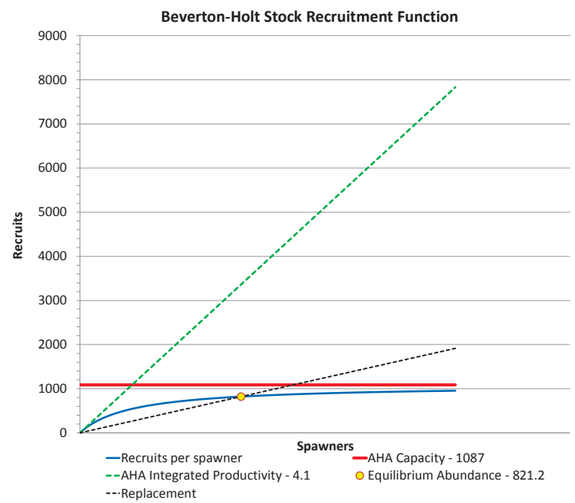


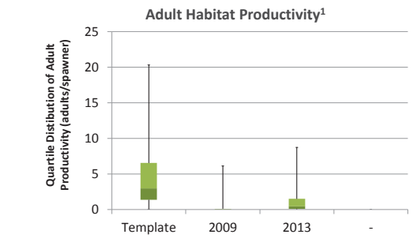

## How is Similkameen River Lower Performing as Chinook Habitat?

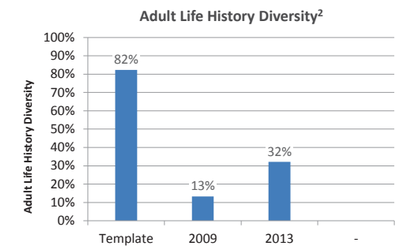
Currently Functioning at 51% of Template Habitat Potential

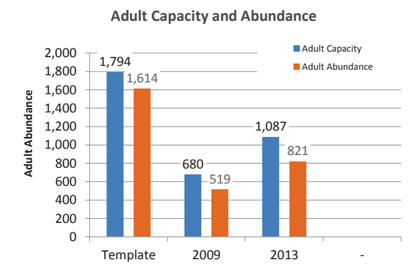


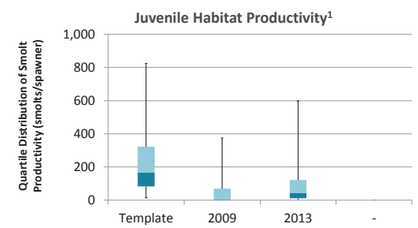

## What are the Trends in Chinook Habitat Potential in Similkameen River Lower?

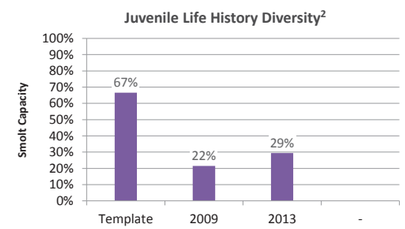


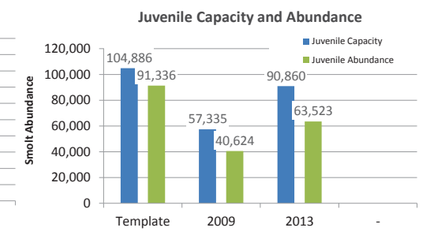



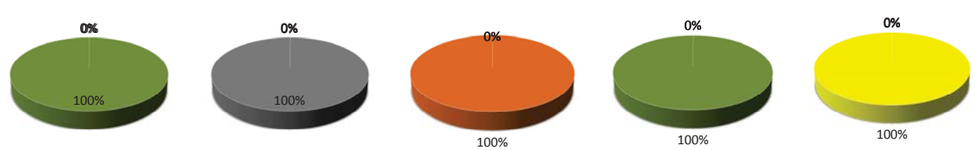



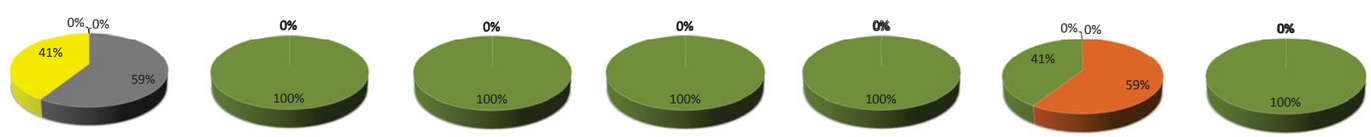

EDT used 1134 life history trajectories to model habitat potential in Similkameen River Lower

[1] Box and whisker graphs show the quartile distribution of cumulative habitat productivity for all 1134 EDT trajectories used to model this Diagnostic Unit.
[2] The percent of adult trajectories having a productivity >1.0 or juvenile productivity >100 smolts/spawner represent the range of life history diversity each habitat scenario can theoretically support.

## Chinook Survival Factor Condition in Similkameen River Lower and Trend Between 2009 and 2013




| | Channel Stability | Sediment Conditions | Flow Conditions | Withdrawals | Habitat Diversity |
|---|---|---|---|---|---|
| % of Template | 99% | 95% | 98% | 100% | 91% |
| Factor Wt. | 3% | 24% | 5% | 0% | 18% |
| Factor Trend | — | — | — | — | — |
| Level of Proof | 1.06 | 1.00 | 1.00 | 2.00 | 1.01 |




| | Temperature | Dissolved Oxygen | Competition-Hatchery | Competition-Other | Food | Predation | Obstructions |
|---|---|---|---|---|---|---|---|
| % of Template | 79% | 99% | 100% | 100% | 100% | 97% | 100% |
| Factor Wt. | 41% | 2% | 0% | 0% | 1% | 7% | 0% |
| Factor Trend | ↓ | — | — | — | — | ↑ | — |
| Level of Proof | 1.96 | 4.00 | 1.21 | 1.87 | 1.26 | 1.57 | 1.00 |

READ ME - Pie charts describe how well each EDT Survival Factor is functioning based on its overall effect on Chinook productivity; % of Template describes current Survival Factor condition relative to template; Factor Weight rates relative importance of each Survival Factor based its proportional impact on Chinook productivity relative to other survival factors; Factor Trend describes change in Survival Factor % of Template between the 2009 and 2013 habitat scenarios.

### Change in Function Relative to Benchmark Key - Proportion of Habitat

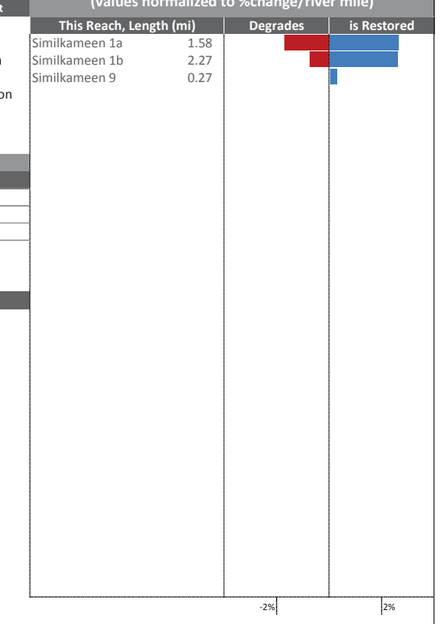
| Categorical Ranking | Productivity Impact |
|---|---|
| Not properly functioning | >5.1% reduction |
| Functioning at High Risk | 2.6% to 5% reduction |
| Functioning at Risk | 1.1% to 2.5% reduction |
| Properly Functioning | 0% to 1% reduction |

### Key - Survival Factor Trend

| Change | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

### Habitat Priorities - Change in Population Abundance If (values normalized to %change/river mile)

| This Reach, Length (mi) | | Degrades | is Restored |
|---|---|---|---|
| Similkameen 1a | 1.58 | | |
| Similkameen 1b | 2.27 | | |
| Similkameen 9 | 0.27 | | |



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

## OBSTRUCTIONS AND KEY HABITAT

**Subbasin:** Okanogan (US)
**Species:** Chinook
**Population:** Okanogan Summer/Fall
**Monitoring Cycle:** 2009-2013
**Diagnostic Unit:** Similkameen River Lower

**Diagnostic Unit Habitat Statistics**

**Stream Length (mi):** 4.13
**Template Adult Capacity:** 1,794

**Diagnostic Unit Obstruction Statistics**

**# of Obstructions:** 0 **# Manmade:** 0
**Factor Weight:** 0% of DU productivity impairment

**There Were 0 Manmade Obstructions in Similkameen River Lower in 2013 With the Following Effects on Chinook Productivity (NR = Obstruction not rated)**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

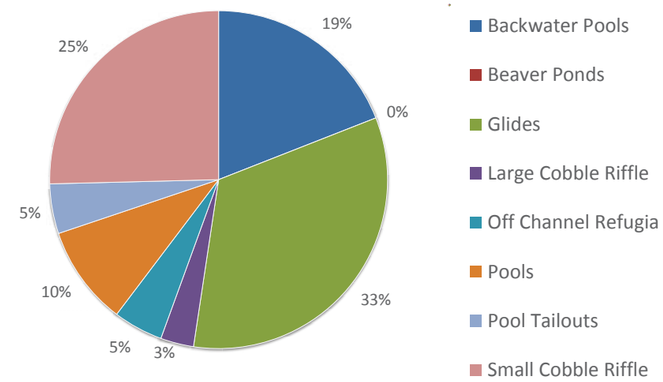
| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

**Similkameen River Lower Habitat Composition and Key Habitat Area for Chinook Under Template Conditions**

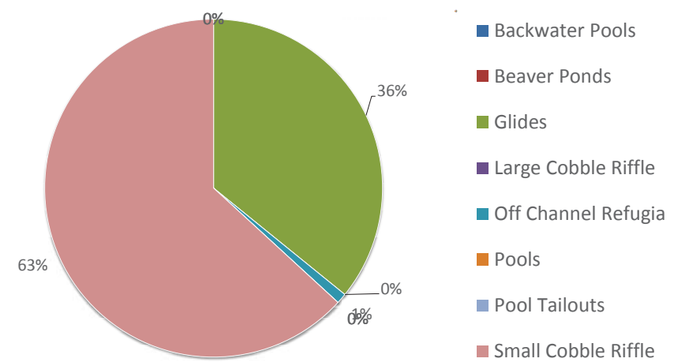



| Lifestage | Key Habitat Area* |
|---|---|
| Spawning | 34% |
| Fry colonization | 17% |
| 0-age active | 33% |
| 0-age inactive | 0% |
| 1-age active | 0% |
| 1-age inactive | 0% |
| 2+-age migrant | 0% |
| Prespawn holding | 16% |

**Template Habitat Capacity**

| Scenario | Adult | Juvenile |
|---|---|---|
| Template | 1,794 | 104,886 |

**Similkameen River Lower Habitat Composition in 2009 and Trend in Chinook Key Habitat Area Since Template**

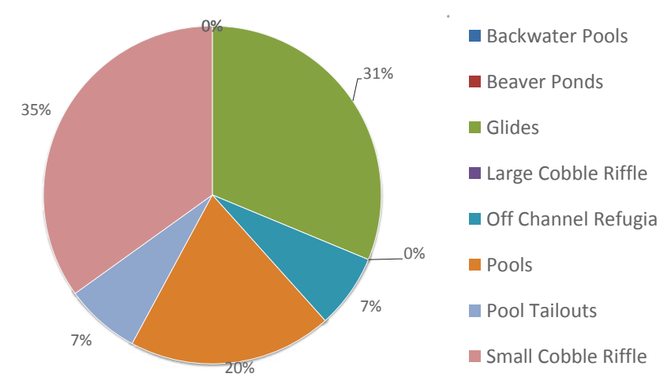



| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 50.5% | 39% |
| Fry colonization | 13.8% | -26% |
| 0-age active | 29.9% | -14% |
| 0-age inactive | 0.0% | 0% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 5.8% | -66% |

**Net Habitat Capacity and Change Since Template**

| Comparison | Adult | Juvenile |
|---|---|---|
| Template to 2009 | 680 (-62%) | 57335 (-45%) |

**Similkameen River Lower Habitat Composition in 2013 and Trend in Chinook Key Habitat Area Since 2009**




| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 23.4% | -29% |
| Fry colonization | 9.5% | 5% |
| 0-age active | 45.2% | 132% |
| 0-age inactive | 0.0% | 0% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 21.9% | 479% |

**Net Habitat Capacity and Change Since 2009**

| Comparison | Adult | Juvenile |
|---|---|---|
| 2009 to 2013 | 1087 (60%) | 90860 (58%) |

* Percent of reach providing key habitat for this life stage in EDT in this habitat scenario

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Similkameen River Lower |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Similkameen 1a |
| Reach Length (mi) | 1.58 |
| Average Gradient | 0.8% |
| Habitat Area (ac) | 65.9 |

**OBMEP Sites**

OBMEP-211

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 9 |
|---|---|---|---|
| Productivity | + 5% | Out of | 143 |
| Diversity | + 5% | Diagnostic Unit Priority | 4 |
| Abundance | + 4% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 571 |
| Productivity | 4.2 |
| Diversity | 15% |
| Abundance | 436 |

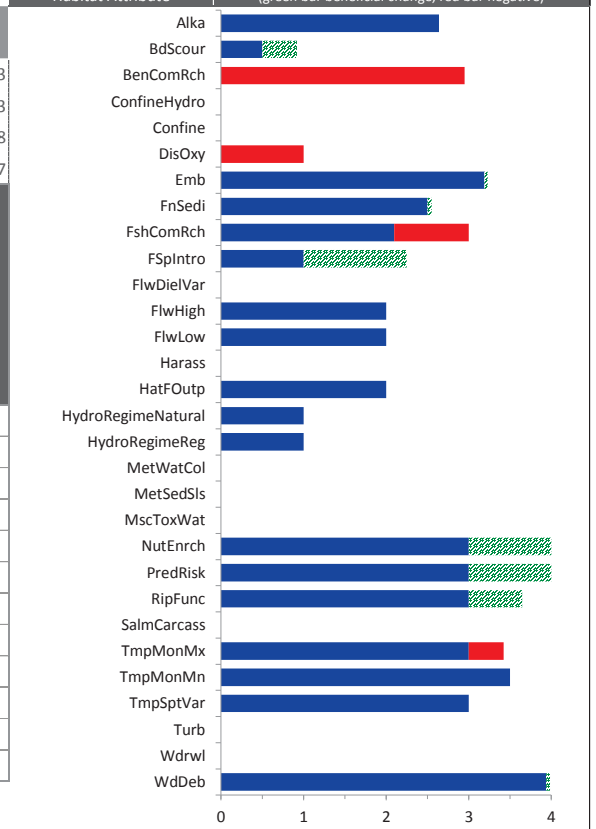
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 53 |
|---|---|---|---|
| Productivity | 0% | Out of | 143 |
| Diversity | - 10% | Diagnostic Unit Priority | 8 |
| Abundance | - 3% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 6.5% | -15.0% | 5 | | | | | | | ● | | | | | | ● | | ↑ |
| Egg Incubation | Oct-Apr | 44.8% | -2.2% | 6 | | | | | | | | | | | | ● | ● | | ↑ |
| Fry colonization | Apr-May | 12.6% | -5.5% | 3 | ● | | | | | | ● | | | | ● | ● | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age transient rearing | Jun-Oct | 20.8% | -1.6% | 2 | | | | | | | ● | | | | | | | | – |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 1-age migrant | Apr-Jun | 0.0% | -1.5% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 51.8% | -2.2% | 7 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 18.7% | -3.7% | 4 | | | | | | | ● | | | | | | ● | | – |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| Survival Factor Trend | | | | | – | – | – | – | – | – | – | – | – | – | ▲ | – | ▼ | – | |

## EDT Level 2 Attribute Ratings



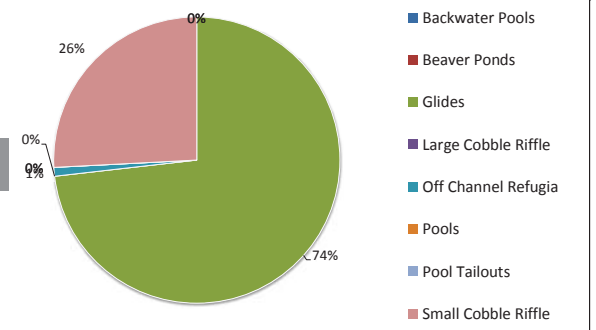

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | – | – |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

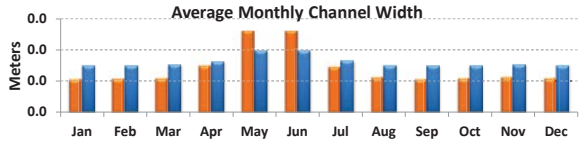
## EDT Habitat Composition Ratings

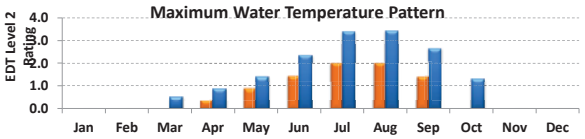


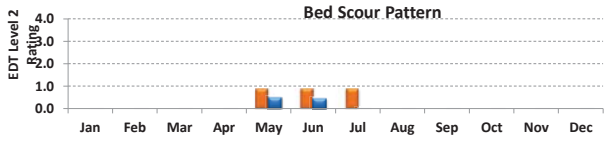

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 92.3% | ↓ |
| Fry Colonization | 7.7% | ↑ |
| Active Rearing | 0.0% | – |
| Inactive Rearing | 0.0% | – |
| Prespawn Holding | 0.0% | – |

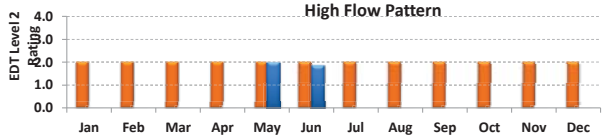
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Similkameen River Lower |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Similkameen 1b |
| Reach Length (mi) | 2.27 |
| Average Gradient | 0.8% |
| Habitat Area (ac) | 87.2 |

**OBMEP Sites**

OBMEP-352

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| | | Reach Priority | 4 |
| Productivity | + 8% | Out of | 143 |
| Diversity | + 7% | Diagnostic Unit Priority | 4 |
| Abundance | + 6% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 475 |
| Productivity | 3.7 |
| Diversity | 14% |
| Abundance | 345 |

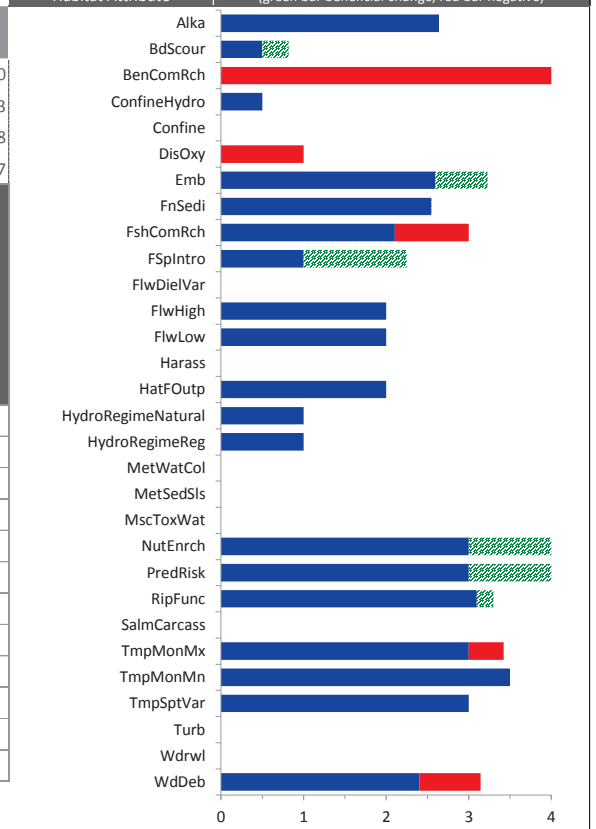
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| | | Reach Priority | 50 |
| Productivity | 0% | Out of | 143 |
| Diversity | - 14% | Diagnostic Unit Priority | 8 |
| Abundance | - 2% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 4.5% | -14.7% | 5 | | | | | | | ● | | | | | | ● | | ↑ |
| Egg Incubation | Oct-Apr | 31.0% | -2.2% | 7 | | | | | | | | | | | | ● | ● | | – |
| Fry colonization | Apr-May | 16.4% | -4.3% | 8 | | | | | | | ● | | | | ● | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age resident rearing | Jun-Oct | 0.0% | -1.5% | 2 | | | | | | | | | | | | | ● | | ↓ |
| 0-age transient rearing | Jun-Oct | 16.7% | -1.3% | 4 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | -0.8% | 3 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -1.4% | 1 | | | | | | | | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 43.1% | -1.6% | 6 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 27.8% | -2.8% | 9 | | | | | | | ● | | | | | | ● | | – |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| Survival Factor Trend | | | | | – | – | – | – | – | – | – | – | – | – | ▲ | – | ▼ | – | |

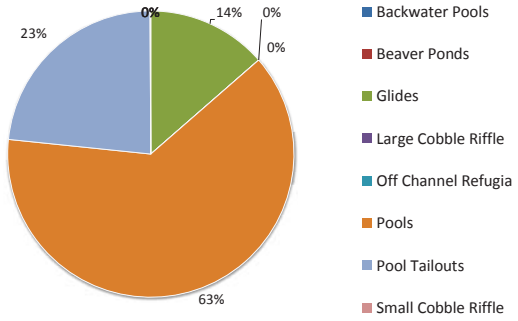
## EDT Level 2 Attribute Ratings




| Habitat Productivity Impact Key | | | | | |
|---|---|---|---|---|---|
| Impact | Extreme | High | Moderate | Small | None |
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

| Trend Key | | |
|---|---|---|
| Trend | Neg. | Pos. |
| <1% | – | – |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

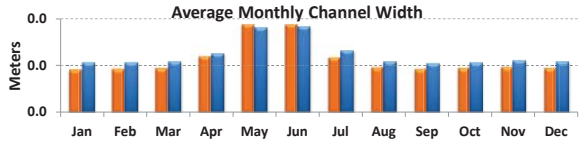
## EDT Habitat Composition Ratings

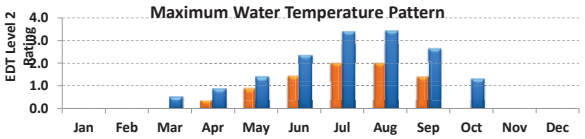


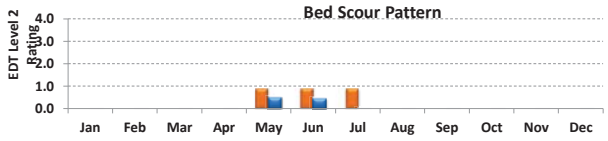

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 35.6% | ↓ |
| Fry Colonization | 17.3% | ↓ |
| Active Rearing | 25.7% | ↑ |
| Inactive Rearing | 12.9% | ↑ |
| Prespawn Holding | 8.6% | ↑ |

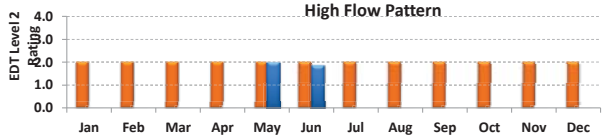
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Similkameen River Lower |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Similkameen 9 |
| Reach Length (mi) | 0.27 |
| Average Gradient | 0.5% |
| Habitat Area (ac) | 7.4 |

**OBMEP Sites**

OBMEP-528

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 72 |
|---|---|---|---|
| Productivity | 0% | Out of | 143 |
| Diversity | + 1% | Diagnostic Unit Priority | 4 |
| Abundance | 0% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 41 |
| Productivity | 6.1 |
| Diversity | 19% |
| Abundance | 34 |

## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 79 |
|---|---|---|---|
| Productivity | 0% | Out of | 143 |
| Diversity | - 1% | Diagnostic Unit Priority | 8 |
| Abundance | 0% | Out of | 17 |

### Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.5% | -16.3% | 6 | | | | | | | | | | | | | ● | | ↑ |
| Egg Incubation | Oct-Apr | 3.3% | -0.9% | 5 | | | | | | | | | | | | | ● | | ↓ |
| Fry colonization | Apr-May | 0.5% | -4.4% | 3 | | | | | | ● | ● | | | | ● | ● | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age transient rearing | Jun-Oct | 0.0% | -1.0% | 1 | | | | | | | | | | | | | | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| Migrant prespawner | Jul-Sep | 1.3% | -0.9% | 2 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 1.3% | -2.2% | 4 | | | | | | | | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| Survival Factor Trend | | | | | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▲ | ▬ | ↓ | ▬ | |

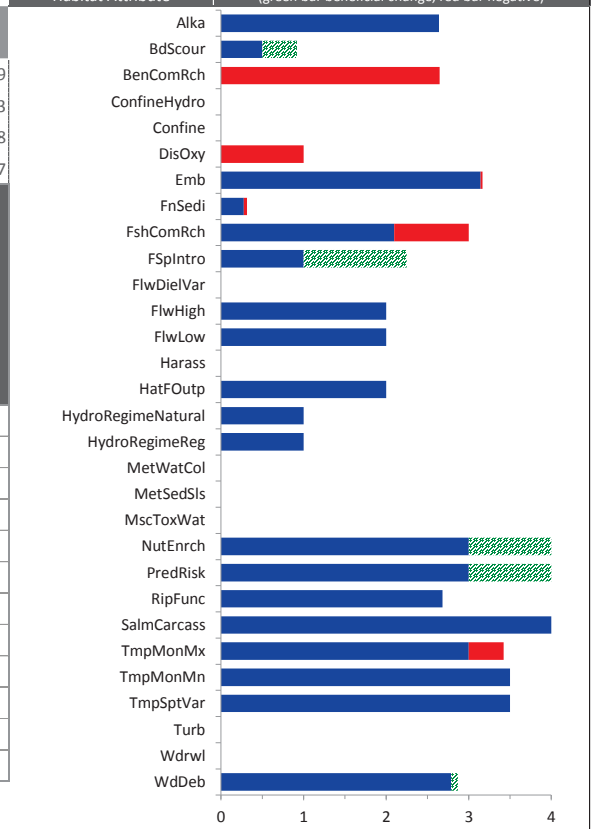
### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

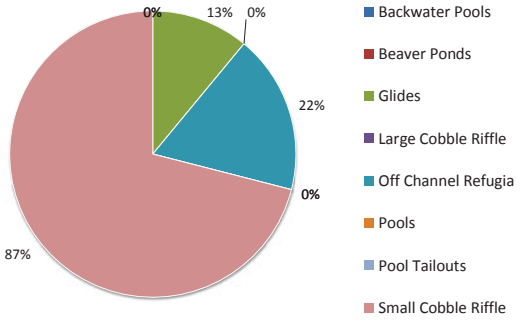
### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

## EDT Level 2 Attribute Ratings



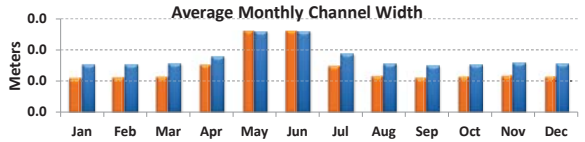

## EDT Habitat Composition Ratings

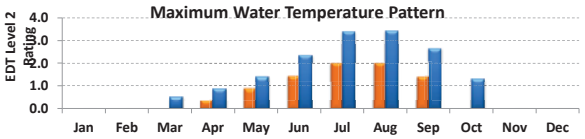


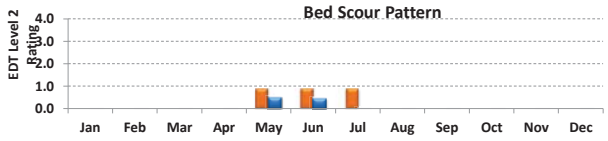

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 88.2% | ▬ |
| Fry Colonization | 10.1% | ▲ |
| Active Rearing | 0.0% | ▬ |
| Inactive Rearing | 0.0% | ▬ |
| Prespawn Holding | 1.7% | ↑ |

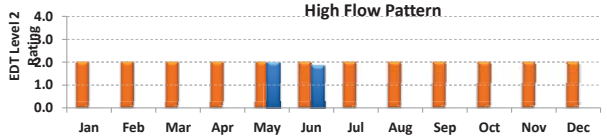
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

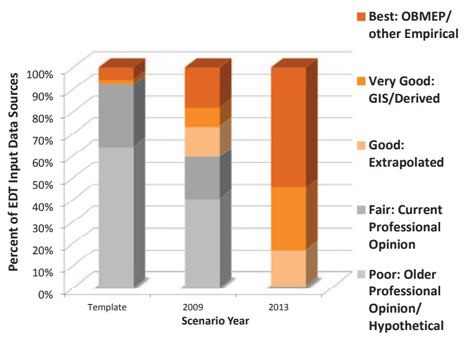
| | |
|---|---|
| **Diagnostic Unit** | **Similkameen River Middle** |
| **Species** | Chinook |
| **Population** | Okanogan (US) |
| **Status and Trend Year** | 2013 |
| **Trend Comparison** | 2013 to 2009 |

## How Important is Similkameen River Middle for Conservation of Okanogan (US) Chinook?

| Effect on Population Potential if this Unit | Degrades | Is Restored |
|---|---|---|
| Adult Abundance | 0.0% | 0.0% |
| Adult Productivity | -1.1% | +4.6% |
| Life History Diversity | -1.7% | 0.0% |
| Diagnostic Unit Priority Rank[1] | 5 of 11 | 8 of 11 |

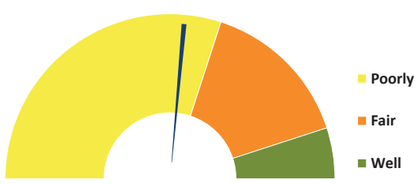
[1] Relative to all Okanogan (US) Diagnostic Units used by this Chinook population

## How Good is Our Information in Similkameen River Middle?

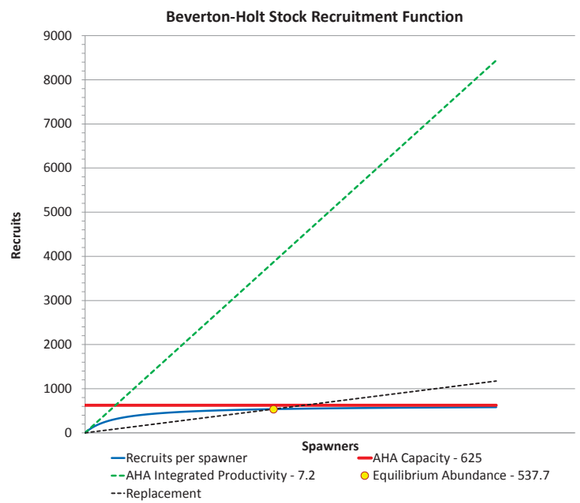


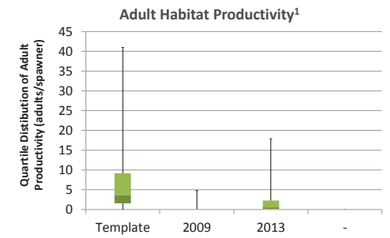

## How is Similkameen River Middle Performing as Chinook Habitat?

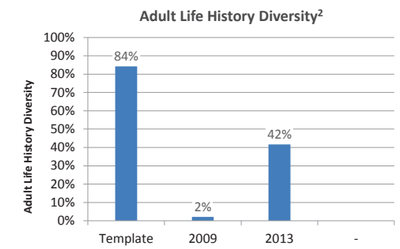
Currently Functioning at 53% of Template Habitat Potential

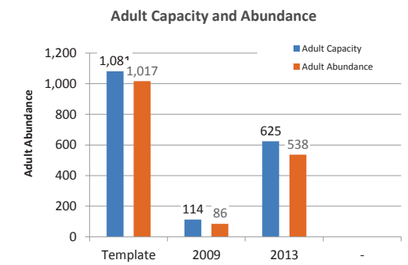


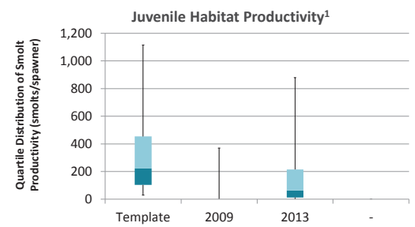

## What are the Trends in Chinook Habitat Potential in Similkameen River Middle?

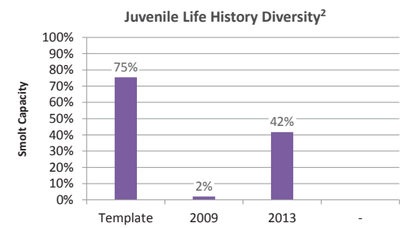


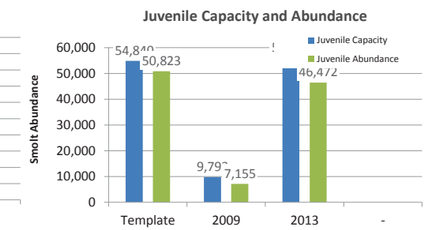



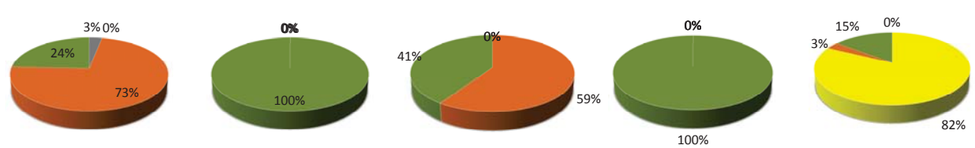



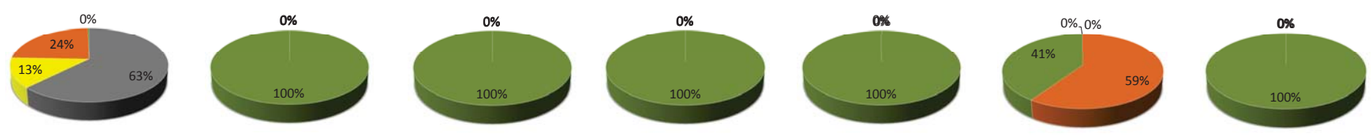

EDT used 664 life history trajectories to model habitat potential in Similkameen River Middle

[1] Box and whisker graphs show the quartile distribution of cumulative habitat productivity for all 664 EDT trajectories used to model this Diagnostic Unit.
[2] The percent of adult trajectories having a productivity >1.0 or juvenile productivity >100 smolts/spawner represent the range of life history diversity each habitat scenario can theoretically support.

## Chinook Survival Factor Condition in Similkameen River Middle and Trend Between 2009 and 2013




| | Channel Stability | Sediment Conditions | Flow Conditions | Withdrawals | Habitat Diversity |
|---|---|---|---|---|---|
| % of Template | 97% | 100% | 98% | 100% | 93% |
| Factor Wt. | 11% | 1% | 8% | 0% | 25% |
| Factor Trend | ▬ | ▲ | ▬ | ▬ | ▬ |
| Level of Proof | 2.27 | 1.83 | 1.79 | 1.00 | 2.13 |




| | Temperature | Dissolved Oxygen | Competition-Hatchery | Competition-Other | Food | Predation | Obstructions |
|---|---|---|---|---|---|---|---|
| % of Template | 86% | 100% | 100% | 100% | 100% | 98% | 100% |
| Factor Wt. | 48% | 0% | 0% | 0% | 0% | 6% | 0% |
| Factor Trend | ▼ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ |
| Level of Proof | 1.55 | 2.00 | 1.64 | 2.35 | 1.61 | 1.57 | 1.00 |

READ ME - Pie charts describe how well each EDT Survival Factor is functioning based on its overall effect on Chinook productivity; % of Template describes current Survival Factor condition relative to template; Factor Weight rates relative importance of each Survival Factor based its proportional impact on Chinook productivity relative to other survival factors; Factor Trend describes change in Survival Factor % of Template between the 2009 and 2013 habitat scenarios.

### Change in Function Relative to Benchmark Key - Proportion of Habitat

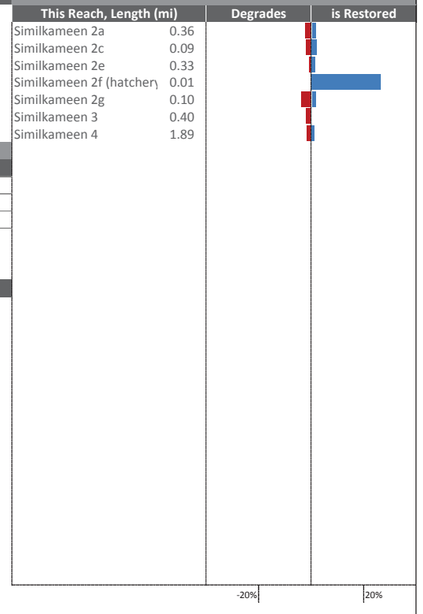
| Categorical Ranking | Productivity Impact |
|---|---|
| Not properly functioning | >5.1% reduction |
| Functioning at High Risk | 2.6% to 5% reduction |
| Functioning at Risk | 1.1% to 2.5% reduction |
| Properly Functioning | 0% to 1% reduction |

### Key - Survival Factor Trend

| Change | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ⇩ | ⇧ |

### Habitat Priorities - Change in Population Abundance If (values normalized to %change/river mile)

| This Reach, Length (mi) | | Degrades | is Restored |
|---|---|---|---|
| Similkameen 2a | 0.36 | | |
| Similkameen 2c | 0.09 | | |
| Similkameen 2e | 0.33 | | |
| Similkameen 2f (hatchery | 0.01 | | |
| Similkameen 2g | 0.10 | | |
| Similkameen 3 | 0.40 | | |
| Similkameen 4 | 1.89 | | |



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

## OBSTRUCTIONS AND KEY HABITAT

**Subbasin:** Okanogan (US)
**Species:** Chinook
**Population:** Okanogan Summer/Fall
**Monitoring Cycle:** 2009-2013
**Diagnostic Unit:** Similkameen River Middle

**Diagnostic Unit Habitat Statistics**

**Stream Length (mi):** 3.17
**Template Adult Capacity:** 1,081

**Diagnostic Unit Obstruction Statistics**

**# of Obstructions:** 0 **# Manmade:** 0
**Factor Weight:** 0% of DU productivity impairment

**There Were 0 Manmade Obstructions in Similkameen River Middle in 2013 With the Following Effects on Chinook Productivity (NR = Obstruction not rated)**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

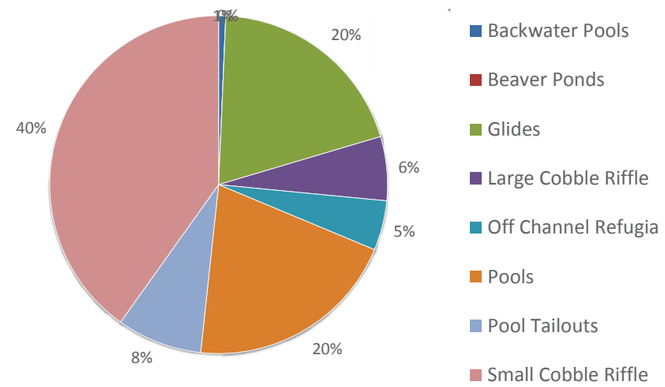
| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

**Similkameen River Middle Habitat Composition and Key Habitat Area for Chinook Under Template Conditions**

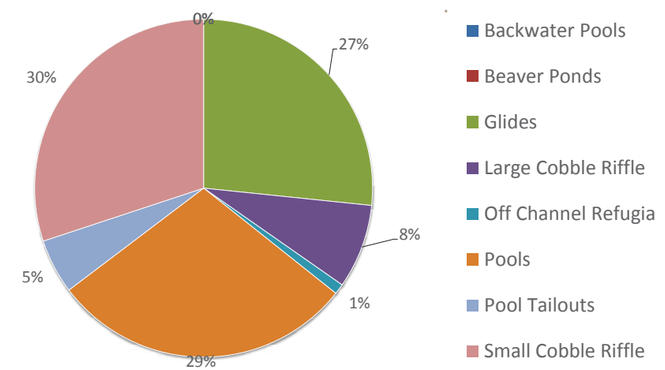



| Lifestage | Key Habitat Area* |
|---|---|
| Spawning | 31% |
| Fry colonization | 10% |
| 0-age active | 22% |
| 0-age inactive | 19% |
| 1-age active | 0% |
| 1-age inactive | 0% |
| 2+-age migrant | 0% |
| Prespawn holding | 17% |

**Template Habitat Capacity**

| Scenario | Adult | Juvenile |
|---|---|---|
| Template | 1,081 | 54,840 |

**Similkameen River Middle Habitat Composition in 2009 and Trend in Chinook Key Habitat Area Since Template**

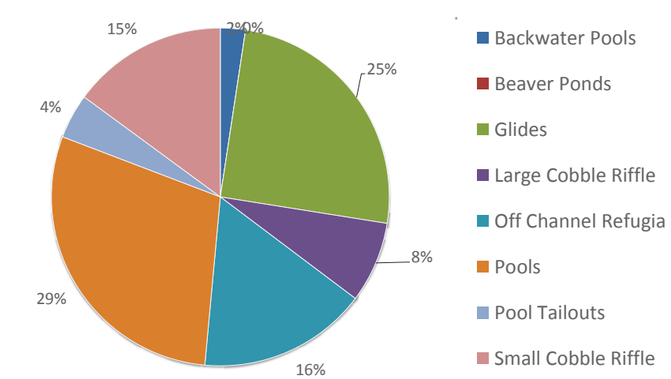



| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 32.7% | -2% |
| Fry colonization | 13.0% | 17% |
| 0-age active | 21.3% | -13% |
| 0-age inactive | 14.7% | -30% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 18.2% | -3% |

**Net Habitat Capacity and Change Since Template**

| Comparison | Adult | Juvenile |
|---|---|---|
| Template to 2009 | 114 (-89%) | 9793 (-82%) |

**Similkameen River Middle Habitat Composition in 2013 and Trend in Chinook Key Habitat Area Since 2009**




| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 27.3% | 0% |
| Fry colonization | 13.4% | 23% |
| 0-age active | 25.2% | 41% |
| 0-age inactive | 12.8% | 4% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 21.3% | 40% |

**Net Habitat Capacity and Change Since 2009**

| Comparison | Adult | Juvenile |
|---|---|---|
| 2009 to 2013 | 625 (448%) | 56197 (474%) |

* Percent of reach providing key habitat for this life stage in EDT in this habitat scenario

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Similkameen River Middle |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Similkameen 2a |
| Reach Length (mi) | 0.36 |
| Average Gradient | 0.2% |
| Habitat Area (ac) | 19.9 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 1% | Reach Priority | 34 |
| Diversity | + 1% | Out of | 143 |
| Abundance | + 1% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 62 |
| Productivity | 6.9 |
| Diversity | 19% |
| Abundance | 53 |

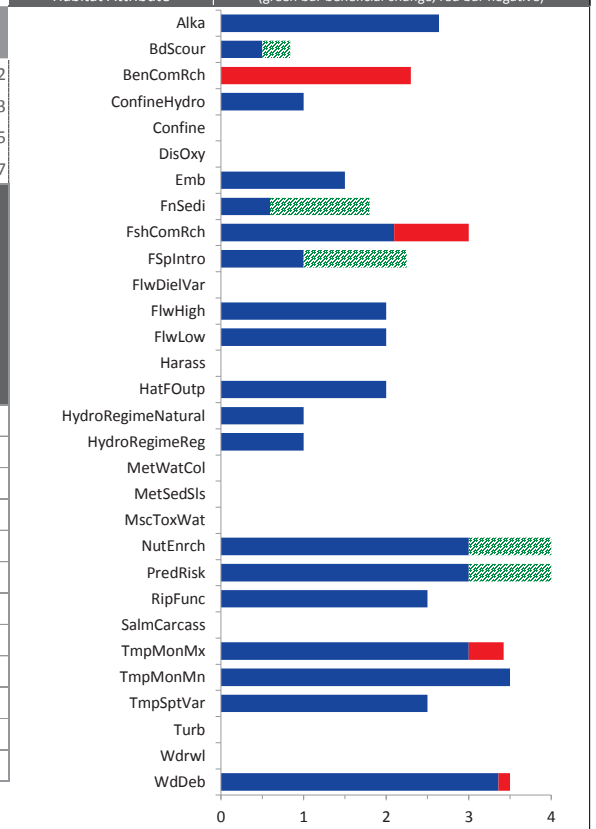
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 1% | Reach Priority | 32 |
| Diversity | - 3% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.4% | -12.6% | 4 | | | | | | | ● | | | | | | ● | | ↓ |
| Egg Incubation | Oct-Apr | 10.0% | -1.1% | 3 | | | | | | | | | | | | | ● | | ↑ |
| Fry colonization | Apr-May | 11.6% | -2.7% | 7 | | | | | | | ● | | | | ● | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age transient rearing | Jun-Oct | 5.0% | -0.9% | 2 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 1-age migrant | Apr-Jun | 0.0% | -1.4% | 1 | | | | | | | | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 25.6% | -1.1% | 6 | | | | | | | | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 11.2% | -2.2% | 5 | | | | | | | | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| Survival Factor Trend | | | | | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | |

## EDT Level 2 Attribute Ratings



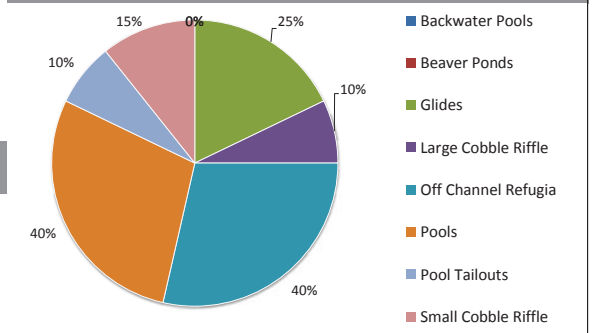

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

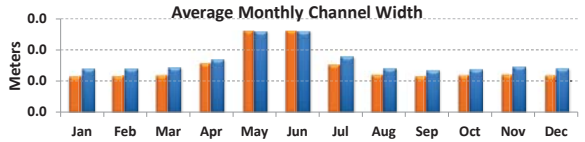
## EDT Habitat Composition Ratings

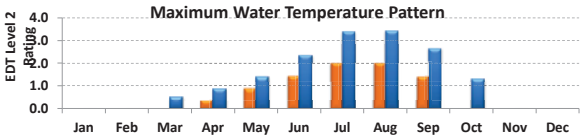


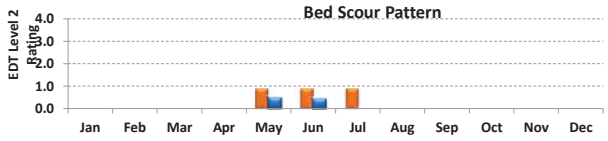

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 40.5% | ▼ |
| Fry Colonization | 14.2% | ↑ |
| Active Rearing | 0.0% | ▬ |
| Inactive Rearing | 0.0% | ▬ |
| Prespawn Holding | 45.3% | ▲ |

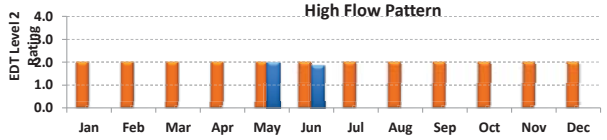
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Similkameen River Middle |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Similkameen 2c |
| Reach Length (mi) | 0.09 |
| Average Gradient | 0.2% |
| Habitat Area (ac) | 4.0 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 1% | Reach Priority | 98 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 24 |
| Productivity | 7.0 |
| Diversity | 22% |
| Abundance | 20 |

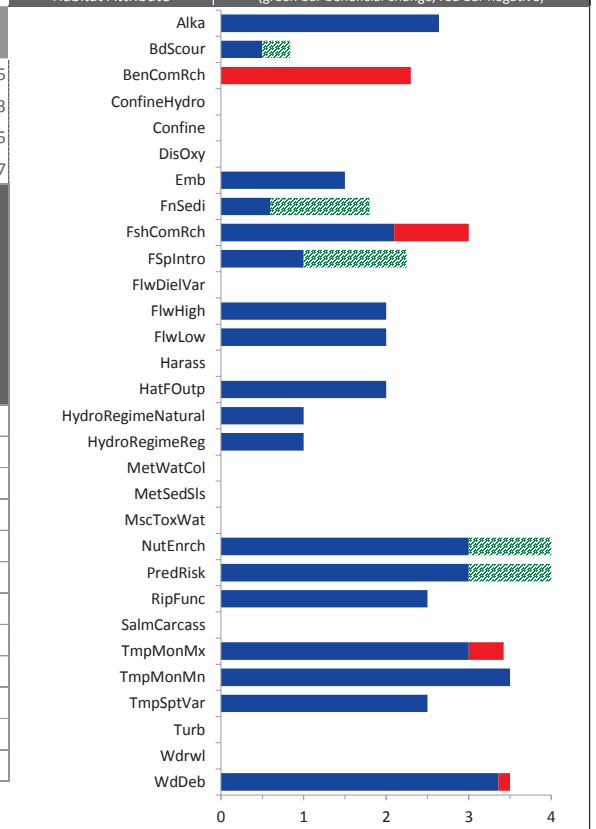
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 55 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.0% | -10.5% | 6 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 4.3% | -0.8% | 3 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 2.9% | -2.4% | 5 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 0.0% | -0.7% | 1 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 4.8% | -0.6% | 2 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 3.5% | -1.5% | 4 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



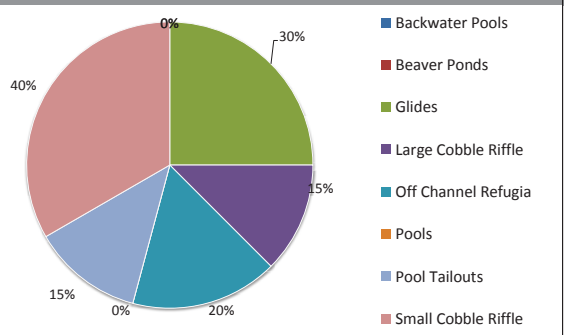

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

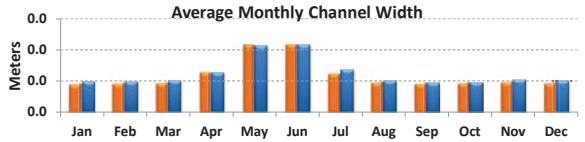
## EDT Habitat Composition Ratings

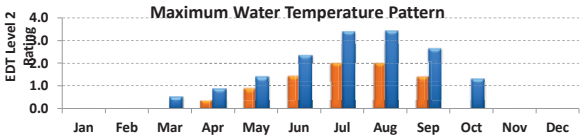


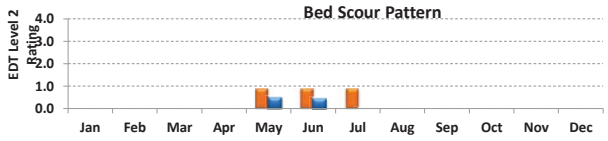

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 81.3% | ↓ |
| Fry Colonization | 14.2% | ▬ |
| Active Rearing | 0.0% | ▬ |
| Inactive Rearing | 0.0% | ▬ |
| Prespawn Holding | 4.5% | ↑ |

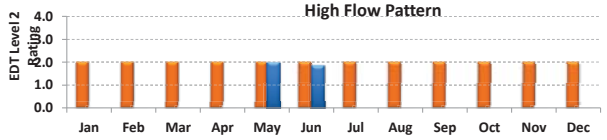
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Similkameen River Middle |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Similkameen 2e |
| Reach Length (mi) | 0.33 |
| Average Gradient | 0.2% |
| Habitat Area (ac) | 20.0 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 41 |
|---|---|---|---|
| Productivity | 0% | Out of | 143 |
| Diversity | 0% | Diagnostic Unit Priority | 8 |
| Abundance | 0% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 54 |
| Productivity | 6.1 |
| Diversity | 19% |
| Abundance | 45 |

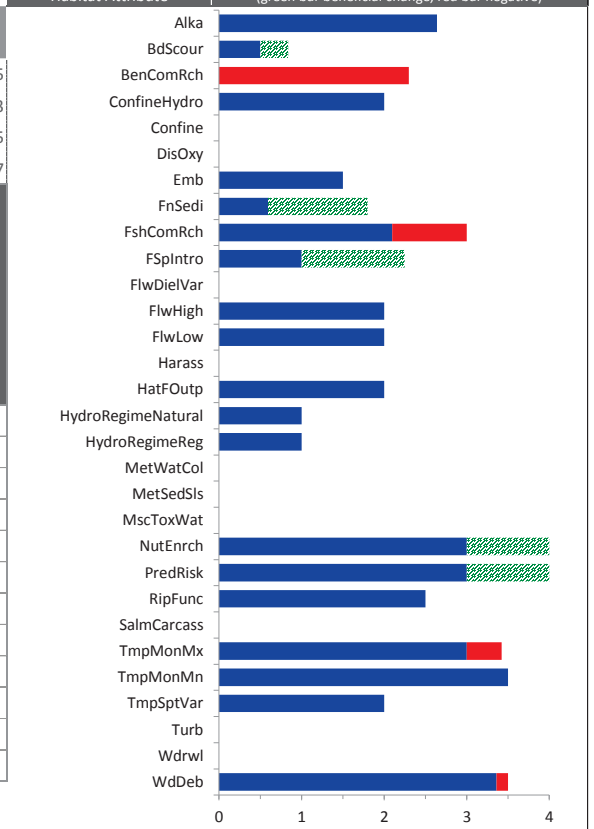
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 45 |
|---|---|---|---|
| Productivity | 0% | Out of | 143 |
| Diversity | - 2% | Diagnostic Unit Priority | 5 |
| Abundance | 0% | Out of | 17 |

### Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.9% | -10.7% | 6 | | | | | | | | | | | | | | | ↓ |
| Egg Incubation | Oct-Apr | 6.5% | -1.0% | 3 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 2.3% | -3.2% | 4 | | | | | | | | | | | | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 0.0% | -0.9% | 1 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| Migrant prespawner | Jul-Sep | 4.5% | -0.7% | 2 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 4.8% | -1.8% | 5 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | ↑ | ↓ | — | |

## EDT Level 2 Attribute Ratings



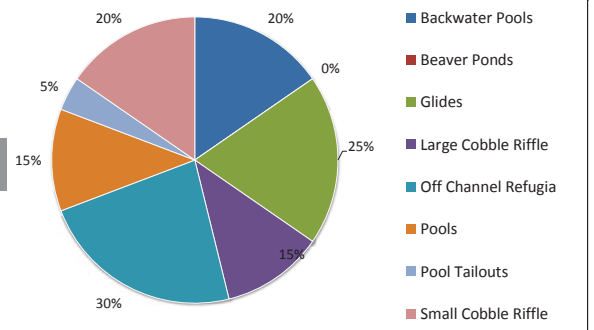

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

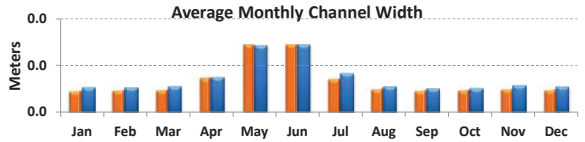
### EDT Habitat Composition Ratings

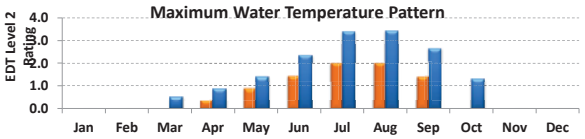


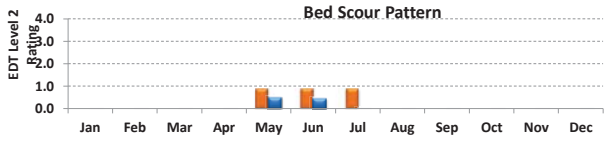

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 55.1% | ↓ |
| Fry Colonization | 13.8% | ↑ |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 31.1% | ↓ |

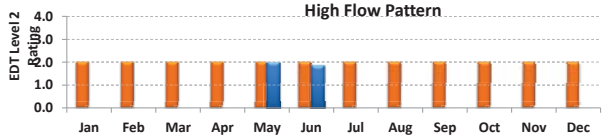
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Similkameen River Middle |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Similkameen 2f (hatcher |
| Reach Length (mi) | 0.01 |
| Average Gradient | 0.2% |
| Habitat Area (ac) | 1.0 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 1% | Reach Priority | 34 |
| Diversity | + 1% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 0 |
| Productivity | 0.0 |
| Diversity | 19% |
| Abundance | 0 |

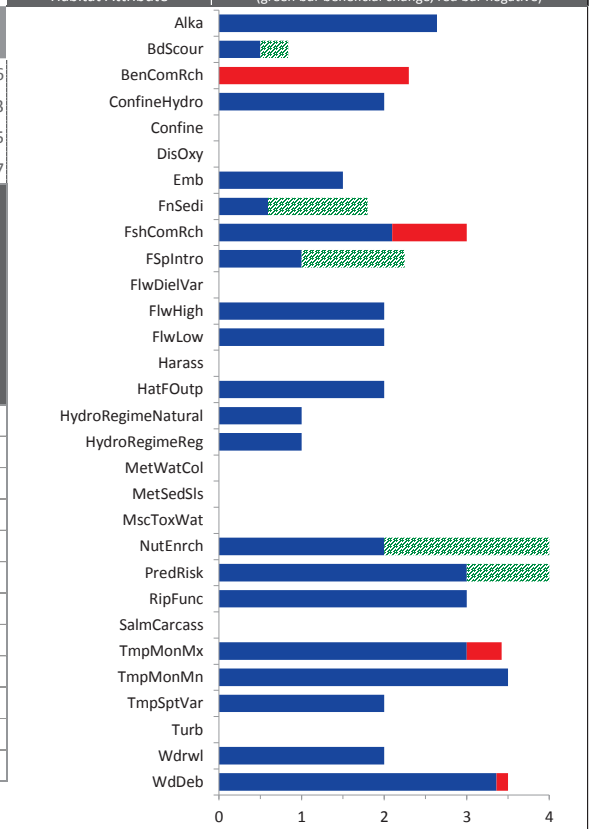
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 86 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.0% | -12.0% | 1 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 0.0% | -1.0% | 2 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 1.4% | -3.9% | 6 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 0.0% | -1.0% | 3 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 1.4% | -0.6% | 4 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.9% | -1.8% | 5 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



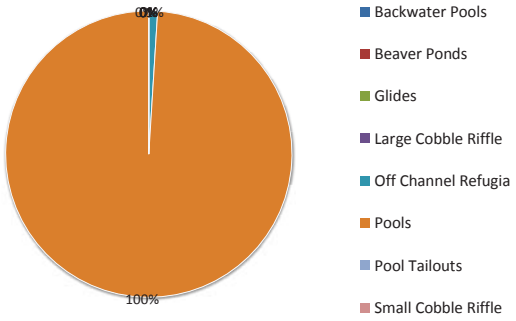

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

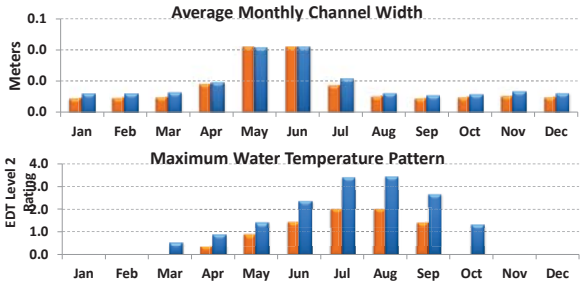
## EDT Habitat Composition Ratings

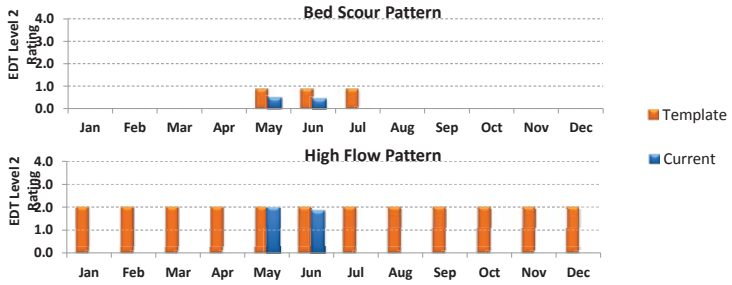



| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 0.0% | ▬ |
| Fry Colonization | 15.8% | ▬ |
| Active Rearing | 0.0% | ▬ |
| Inactive Rearing | 0.0% | ▬ |
| Prespawn Holding | 84.2% | ▬ |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Similkameen River Middle |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Similkameen 2g |
| Reach Length (mi) | 0.10 |
| Average Gradient | 0.2% |
| Habitat Area (ac) | 8.6 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 47 |
|---|---|---|---|
| Productivity | + 1% | Out of | 143 |
| Diversity | 0% | Diagnostic Unit Priority | 8 |
| Abundance | 0% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 41 |
| Productivity | 11.6 |
| Diversity | 19% |
| Abundance | 37 |

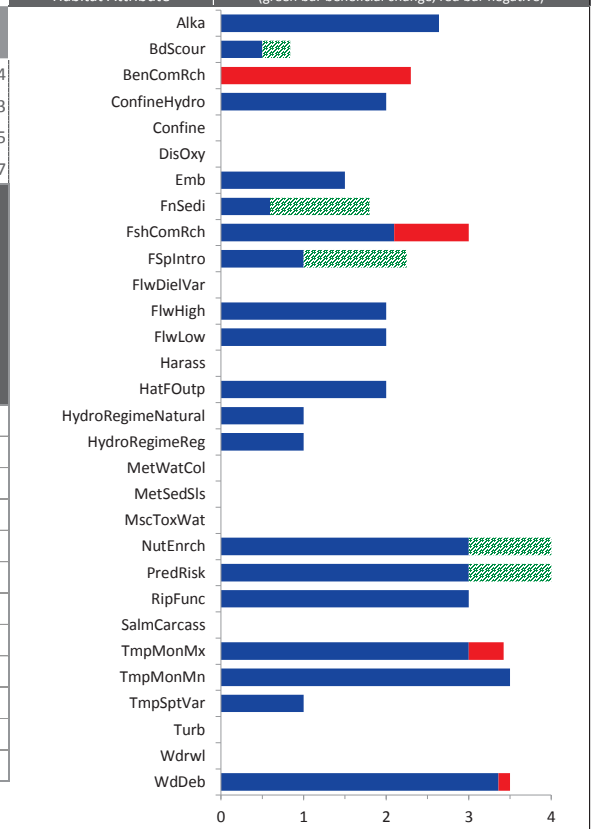
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 44 |
|---|---|---|---|
| Productivity | - 1% | Out of | 143 |
| Diversity | - 1% | Diagnostic Unit Priority | 5 |
| Abundance | 0% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.4% | -7.4% | 6 | | | | | | | ● | | | | | | ● | | ↓ |
| Egg Incubation | Oct-Apr | 9.7% | -0.9% | 5 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 1.4% | -4.0% | 4 | | | | | | | ● | | | | ● | | | | ▼ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age transient rearing | Jun-Oct | 0.0% | -1.0% | 1 | | | | | | | ● | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| Migrant prespawner | Jul-Sep | 1.8% | -0.6% | 2 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.9% | -1.9% | 3 | | | | | | | ● | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| Survival Factor Trend | | | | | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▲ | ↑ | ▼ | ▬ | |

## EDT Level 2 Attribute Ratings



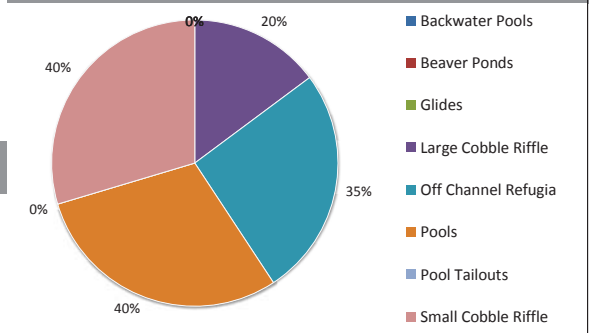

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

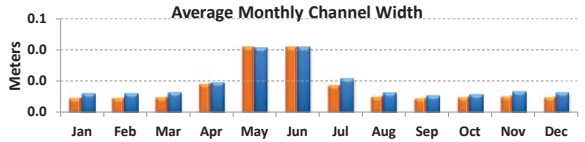
## EDT Habitat Composition Ratings

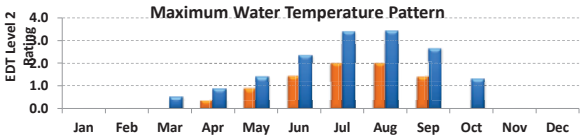


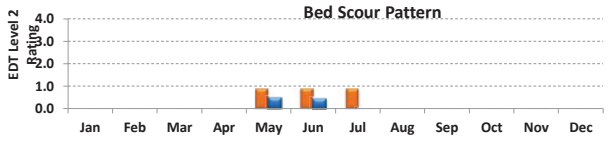

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 45.9% | ↓ |
| Fry Colonization | 11.8% | ▬ |
| Active Rearing | 0.0% | ▬ |
| Inactive Rearing | 0.0% | ▬ |
| Prespawn Holding | 42.3% | ▬ |

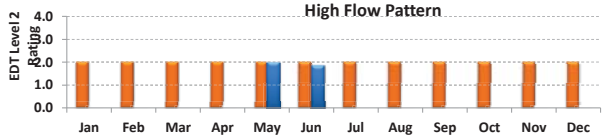
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Similkameen River Middle |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Similkameen 3 |
| Reach Length (mi) | 0.40 |
| Average Gradient | 1.4% |
| Habitat Area (ac) | 15.7 |

**OBMEP Sites**

OBMEP-532

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 1% | Reach Priority | 72 |
| Diversity | + 1% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 75 |
| Productivity | 6.8 |
| Diversity | 19% |
| Abundance | 64 |

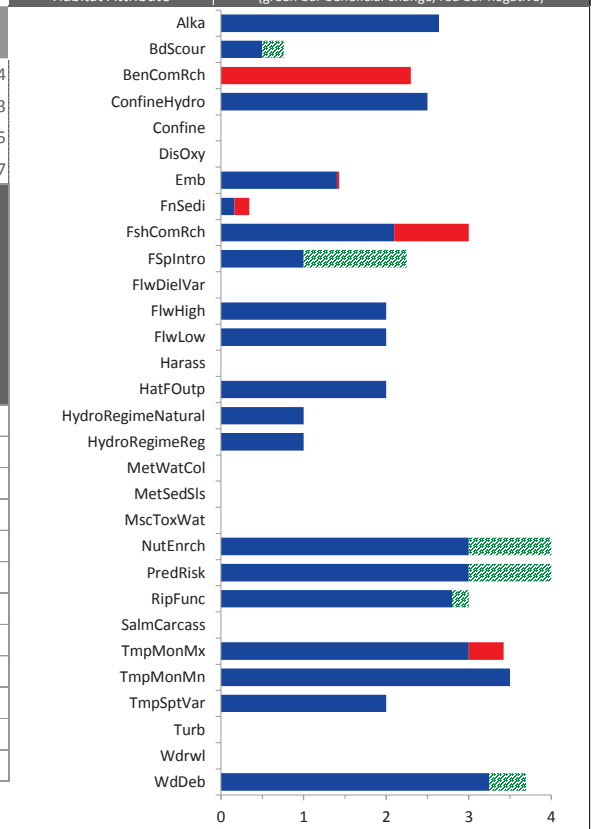
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 1% | Reach Priority | 34 |
| Diversity | - 3% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 5 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.4% | -13.0% | 4 | | | | | | | ● | | | | | | ● | | ↓ |
| Egg Incubation | Oct-Apr | 9.2% | -1.1% | 3 | | | | | | | | | | | | | ● | | ↓ |
| Fry colonization | Apr-May | 8.1% | -8.7% | 7 | | | | | ● | | ● | | | | ● | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age transient rearing | Jun-Oct | 4.2% | -1.8% | 2 | | | | | | | ● | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 1-age migrant | Apr-Jun | 0.0% | -2.7% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 19.2% | -1.5% | 6 | | | | | | | ● | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 5.6% | -3.5% | 5 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| Survival Factor Trend | | | | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | |

## EDT Level 2 Attribute Ratings



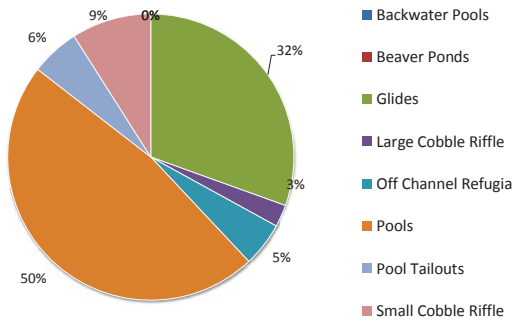

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | – | – |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

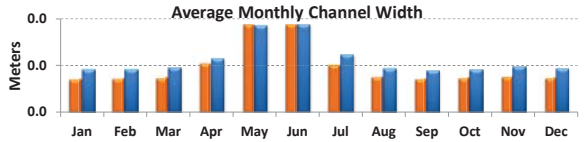
## EDT Habitat Composition Ratings

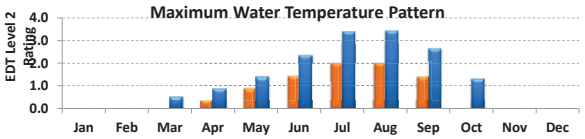


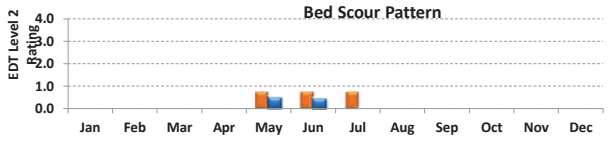

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 67.5% | ↓ |
| Fry Colonization | 22.4% | ↓ |
| Active Rearing | 0.0% | – |
| Inactive Rearing | 0.0% | – |
| Prespawn Holding | 10.1% | ↑ |

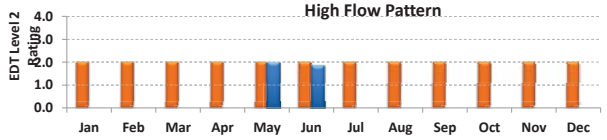
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Similkameen River Middle |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Similkameen 4 |
| Reach Length (mi) | 1.89 |
| Average Gradient | 0.8% |
| Habitat Area (ac) | 52.0 |

**OBMEP Sites**

OBMEP-046

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 17 |
|---|---|---|---|
| Productivity | + 5% | Out of | 143 |
| Diversity | + 2% | Diagnostic Unit Priority | 8 |
| Abundance | + 2% | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 369 |
| Productivity | 6.4 |
| Diversity | 18% |
| Abundance | 311 |

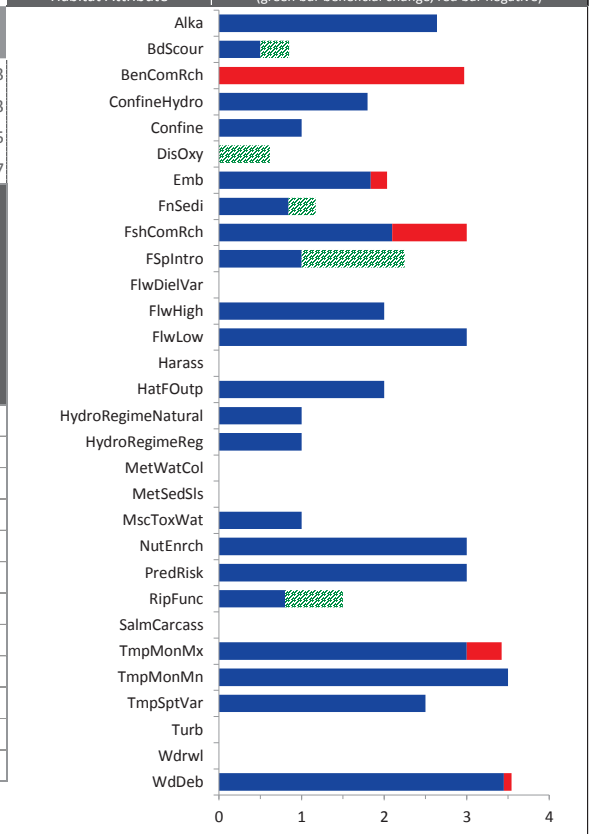
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 13 |
|---|---|---|---|
| Productivity | - 1% | Out of | 143 |
| Diversity | - 10% | Diagnostic Unit Priority | 5 |
| Abundance | - 3% | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 5.3% | -13.8% | 9 | | | | | | | | | | | | | | | ↓ |
| Egg Incubation | Oct-Apr | 36.8% | -0.9% | 7 | | | | | | | | | | | | | | | ↓ |
| Fry colonization | Apr-May | 9.9% | -3.6% | 8 | | | | | | | | | | | | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -1.5% | 1 | | | | | | | | | | | | | | | ↓ |
| 0-age transient rearing | Jun-Oct | 3.4% | -1.1% | 4 | | | | | | | | | | | | | | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 2 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.1% | 3 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 21.3% | -1.0% | 5 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 12.1% | -2.6% | 6 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | ↓ | — | |

## EDT Level 2 Attribute Ratings



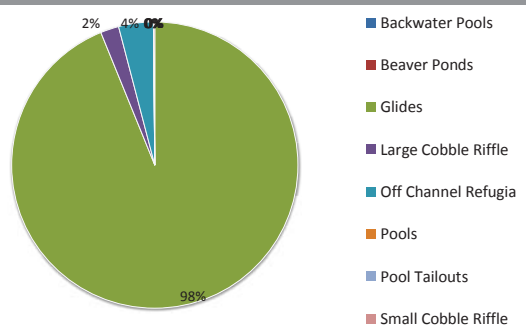

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

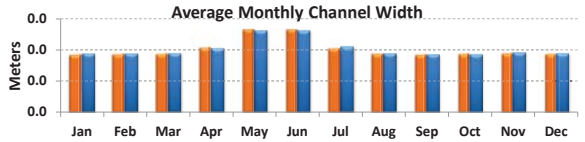
## EDT Habitat Composition Ratings

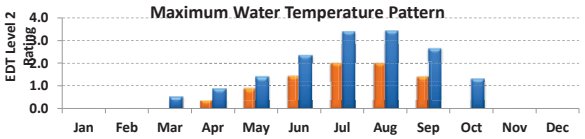


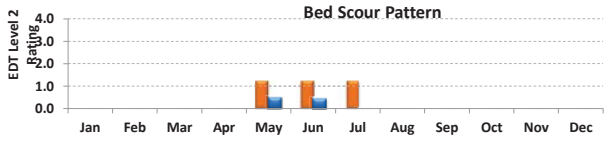

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 32.5% | ↑ |
| Fry Colonization | 17.0% | ↑ |
| Active Rearing | 24.3% | ↑ |
| Inactive Rearing | 16.8% | ↑ |
| Prespawn Holding | 9.3% | ↑ |

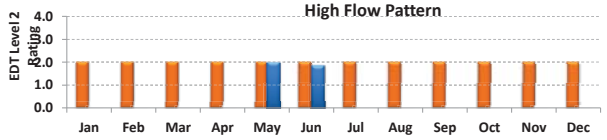
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

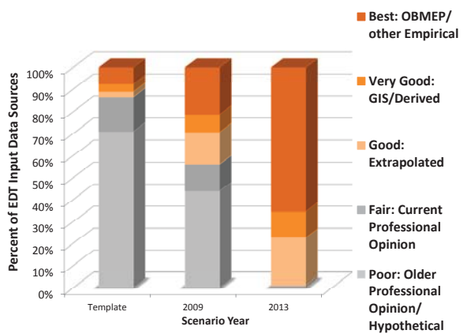
| | |
|---|---|
| Diagnostic Unit | Similkameen River Upper |
| Species | Chinook |
| Population | Okanogan (US) |
| Status and Trend Year | 2013 |
| Trend Comparison | 2013 to 2009 |

## How Important is Similkameen River Upper for Conservation of Okanogan (US) Chinook?

| Effect on Population Potential if this Unit | Degrades | Is Restored |
|---|---|---|
| Adult Abundance | 0.0% | 0.0% |
| Adult Productivity | 0.0% | +3.7% |
| Life History Diversity | -0.9% | 0.0% |
| Diagnostic Unit Priority Rank[1] | 10 of 11 | 8 of 11 |

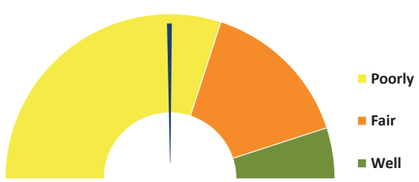
[1] Relative to all Okanogan (US) Diagnostic Units used by this Chinook population

## How Good is Our Information in Similkameen River Upper?

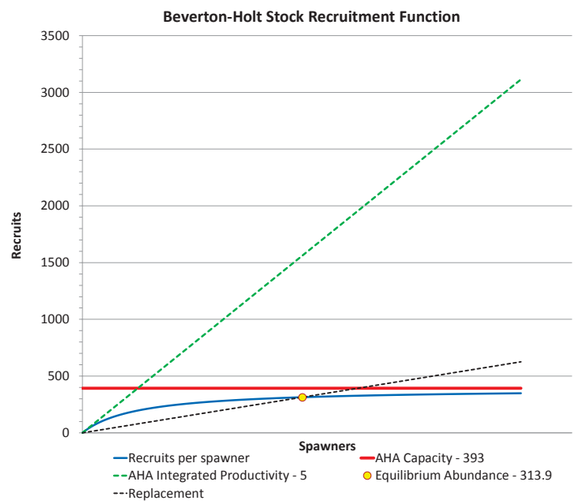


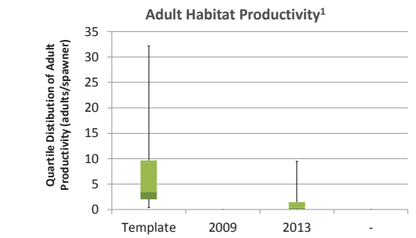

## How is Similkameen River Upper Performing as Chinook Habitat?

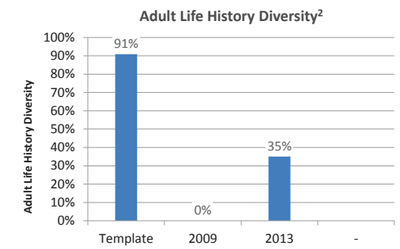
Currently Functioning at 50% of Template Habitat Potential

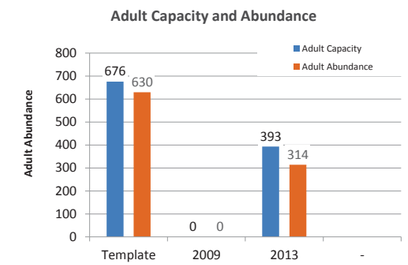


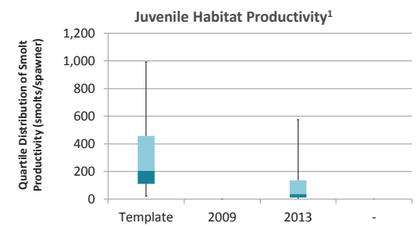

## What are the Trends in Chinook Habitat Potential in Similkameen River Upper?

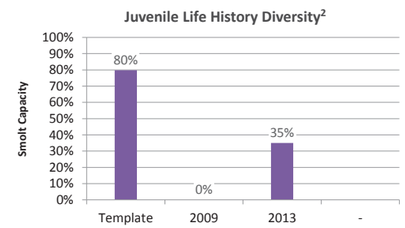


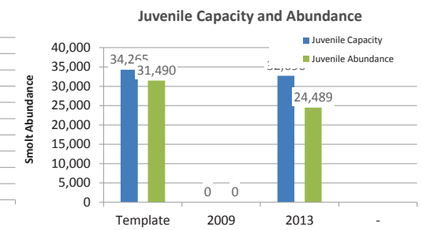



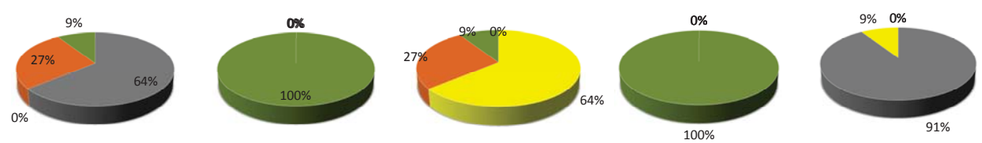




EDT used 314 life history trajectories to model habitat potential in Similkameen River Upper

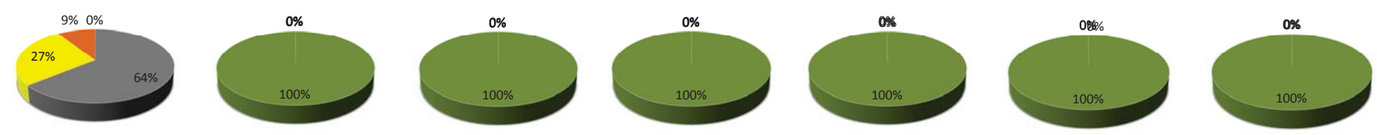
[1] Box and whisker graphs show the quartile distribution of cumulative habitat productivity for all 314 EDT trajectories used to model this Diagnostic Unit.

[2] The percent of adult trajectories having a productivity >1.0 or juvenile productivity >100 smolts/spawner represent the range of life history diversity each habitat scenario can theoretically support.

## Chinook Survival Factor Condition in Similkameen River Upper and Trend Between 2009 and 2013




| | Channel Stability | Sediment Conditions | Flow Conditions | Withdrawals | Habitat Diversity |
|---|---|---|---|---|---|
| % of Template | 91% | 100% | 96% | 100% | 77% |
| Factor Wt. | 16% | 1% | 8% | 0% | 48% |
| Factor Trend | – | – | – | – | – |
| Level of Proof | 1.69 | 1.44 | 1.48 | 1.00 | 1.78 |




| | Temperature | Dissolved Oxygen | Competition-Hatchery | Competition-Other | Food | Predation | Obstructions |
|---|---|---|---|---|---|---|---|
| % of Template | 87% | 100% | 100% | 100% | 100% | 99% | 100% |
| Factor Wt. | 24% | 0% | 0% | 0% | 0% | 2% | 0% |
| Factor Trend | ▼ | – | – | – | – | – | – |
| Level of Proof | 1.40 | 2.00 | 1.37 | 2.05 | 1.42 | 1.57 | 1.00 |

READ ME - Pie charts describe how well each EDT Survival Factor is functioning based on its overall effect on Chinook productivity; % of Template describes current Survival Factor condition relative to template; Factor Weight rates relative importance of each Survival Factor based its proportional impact on Chinook productivity relative to other survival factors; Factor Trend describes change in Survival Factor % of Template between the 2009 and 2013 habitat scenarios.

### Change in Function Relative to Benchmark Key - Proportion of Habitat

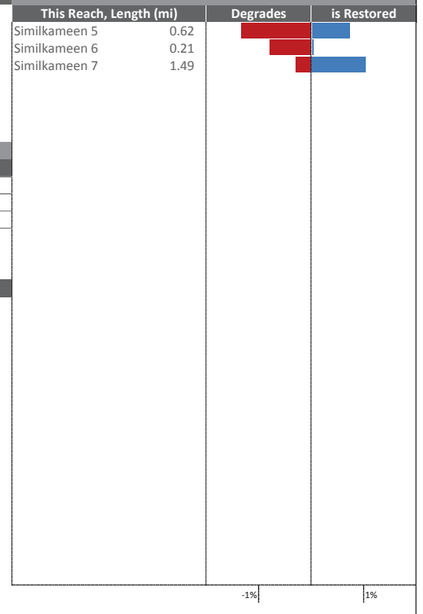
| Categorical Ranking | Productivity Impact |
|---|---|
| Not properly functioning | >5.1% reduction |
| Functioning at High Risk | 2.6% to 5% reduction |
| Functioning at Risk | 1.1% to 2.5% reduction |
| Properly Functioning | 0% to 1% reduction |

### Key - Survival Factor Trend

| Change | Neg. | Pos. |
|---|---|---|
| <1% | – | – |
| >1-5% | ▼ | ▲ |
| >5% | ⇩ | ⇧ |

### Habitat Priorities - Change in Population Abundance If (values normalized to %change/river mile)

| This Reach, Length (mi) | | Degrades | is Restored |
|---|---|---|---|
| Similkameen 5 | 0.62 | | |
| Similkameen 6 | 0.21 | | |
| Similkameen 7 | 1.49 | | |



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

## OBSTRUCTIONS AND KEY HABITAT

**Subbasin:** Okanogan (US)
**Species:** Chinook
**Population:** Okanogan Summer/Fall
**Monitoring Cycle:** 2009-2013
**Diagnostic Unit:** Similkameen River Upper

### Diagnostic Unit Habitat Statistics

**Stream Length (mi):** 2.32
**Template Adult Capacity:** 676

### Diagnostic Unit Obstruction Statistics

**# of Obstructions:** 0 **# Manmade:** 0
**Factor Weight:** 0% of DU productivity impairment

### There Were 0 Manmade Obstructions in Similkameen River Upper in 2013 With the Following Effects on Chinook Productivity (NR = Obstruction not rated)

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

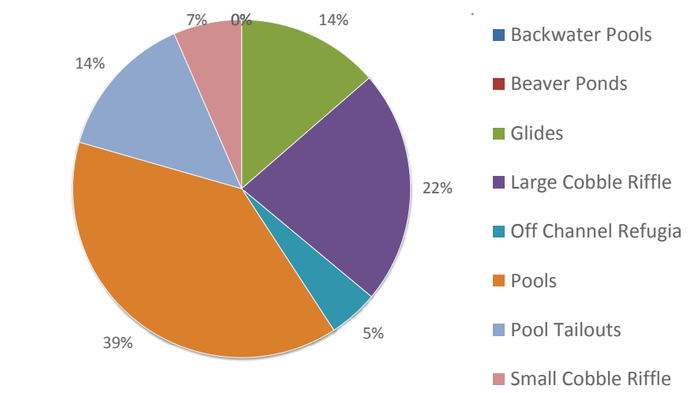
| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

### Similkameen River Upper Habitat Composition and Key Habitat Area for Chinook Under Template Conditions

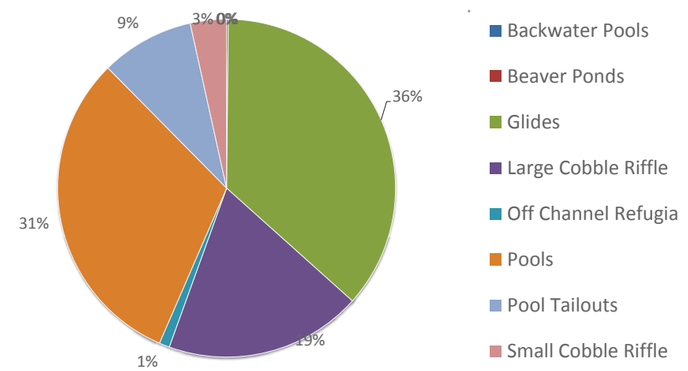



| Lifestage | Key Habitat Area* |
|---|---|
| Spawning | 32% |
| Fry colonization | 17% |
| 0-age active | 0% |
| 0-age inactive | 0% |
| 1-age active | 0% |
| 1-age inactive | 0% |
| 2+-age migrant | 0% |
| Prespawn holding | 52% |

**Template Habitat Capacity**

| Scenario | Adult | Juvenile |
|---|---|---|
| Template | 676 | 34,265 |

### Similkameen River Upper Habitat Composition in 2009 and Trend in Chinook Key Habitat Area Since Template

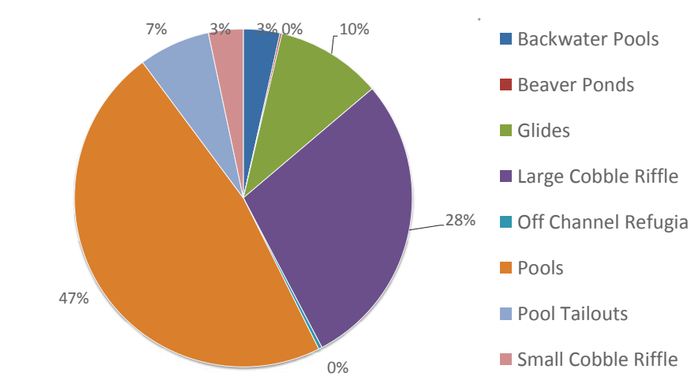



| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 31.8% | -5% |
| Fry colonization | 21.1% | 21% |
| 0-age active | 0.0% | 0% |
| 0-age inactive | 0.0% | 0% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 47.1% | -13% |

**Net Habitat Capacity and Change Since Template**

| Comparison | Adult | Juvenile |
|---|---|---|
| Template to 2009 | 0 (-100%) | 0 (-100%) |

### Similkameen River Upper Habitat Composition in 2013 and Trend in Chinook Key Habitat Area Since 2009




| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 16.0% | -51% |
| Fry colonization | 21.7% | 0% |
| 0-age active | 0.0% | 0% |
| 0-age inactive | 0.0% | 0% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 62.3% | 29% |

**Net Habitat Capacity and Change Since 2009**

| Comparison | Adult | Juvenile |
|---|---|---|
| 2009 to 2013 | #DIV/0! | #DIV/0! |

* Percent of reach providing key habitat for this life stage in EDT in this habitat scenario

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Similkameen River Upper |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Similkameen 5 |
| Reach Length (mi) | 0.62 |
| Average Gradient | 1.9% |
| Habitat Area (ac) | 9.4 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 2% | Reach Priority | 26 |
| Diversity | + 1% | Out of | 143 |
| Abundance | + 1% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 136 |
| Productivity | 5.8 |
| Diversity | 19% |
| Abundance | 113 |

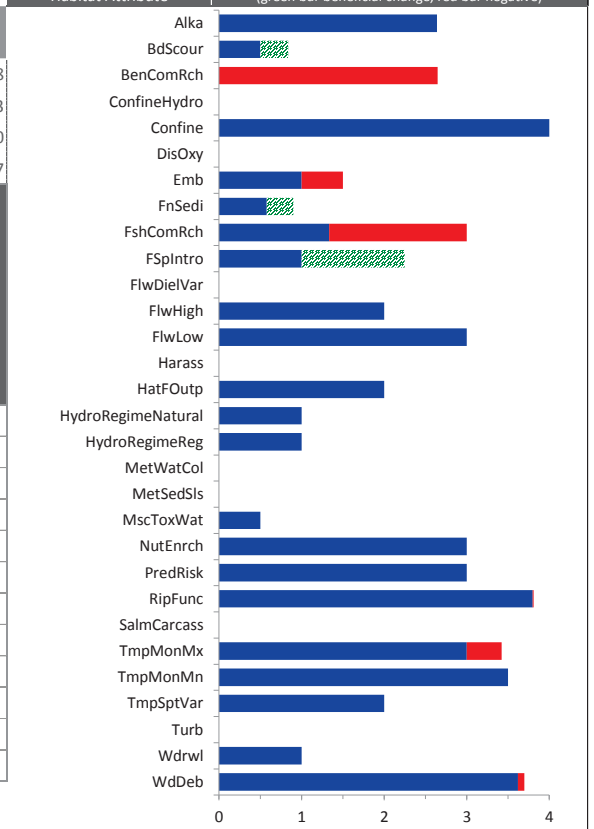
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 28 |
| Diversity | - 5% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 10 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.8% | -13.8% | 5 | | | | | | | ● | | | | | | ● | | ↓ |
| Egg Incubation | Oct-Apr | 10.6% | -1.2% | 2 | | | | | | | | | | | | | ● | | ↑ |
| Fry colonization | Apr-May | 3.9% | -23.1% | 6 | ● | | | | ● | | ● | | | | ● | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age transient rearing | Jun-Oct | 0.2% | -5.6% | 1 | | | | | | | ● | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| Migrant prespawner | Jul-Sep | 12.7% | -1.2% | 3 | | | | | | | ● | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 7.3% | -2.7% | 4 | | | | | ● | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| Survival Factor Trend | | | | | – | – | – | – | – | – | – | – | – | – | – | – | ▼ | – | |

## EDT Level 2 Attribute Ratings



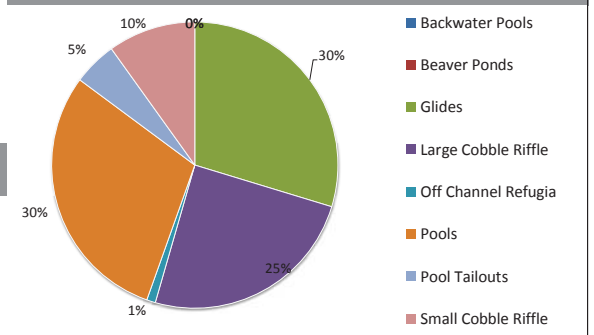

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | – | – |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

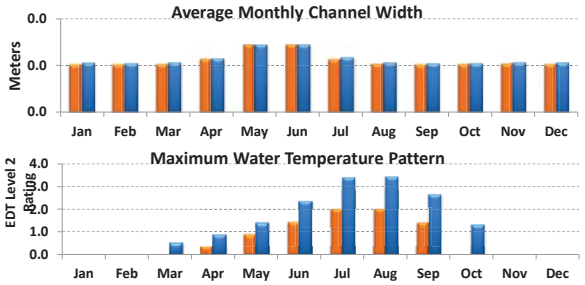
### EDT Habitat Composition Ratings

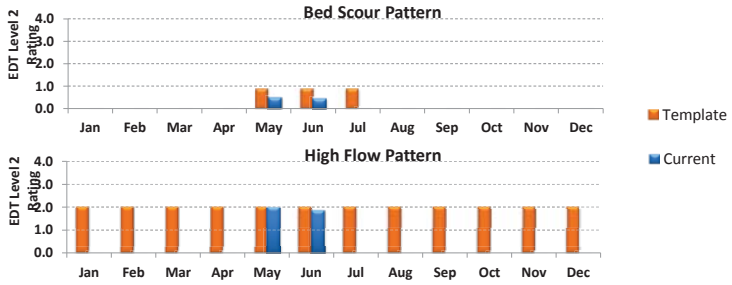



| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 35.1% | – |
| Fry Colonization | 19.9% | – |
| Active Rearing | 0.0% | – |
| Inactive Rearing | 0.0% | – |
| Prespawn Holding | 45.0% | – |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Similkameen River Upper |
| Species | Chinook |
| Population | Okanogan (US) |

| | |
|---|---|
| Reach | Similkameen 6 |
| Reach Length (mi) | 0.21 |
| Average Gradient | 1.9% |
| Habitat Area (ac) | 3.2 |

**OBMEP Sites**: none

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 78 |
| Diversity | 0% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 17 |
| Productivity | 2.1 |
| Diversity | 19% |
| Abundance | 9 |

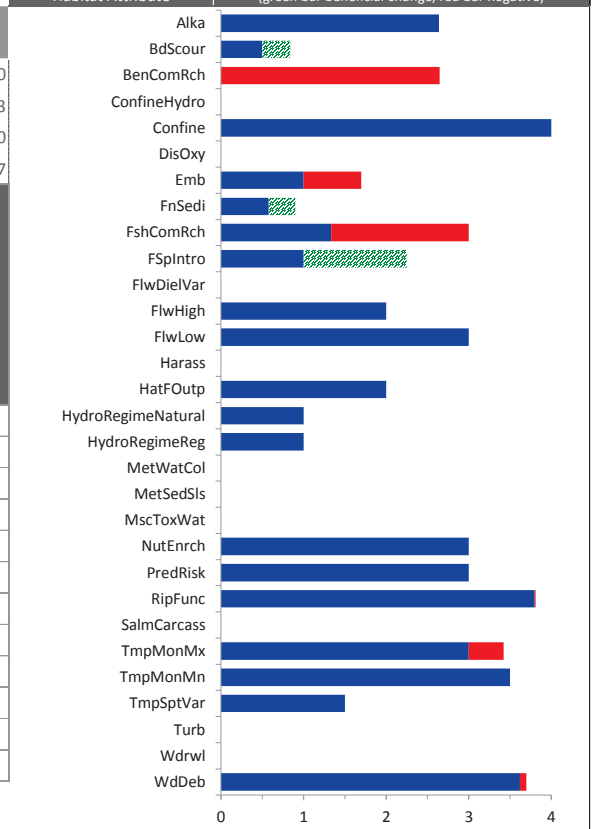
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 70 |
| Diversity | - 2% | Out of | 143 |
| Abundance | 0% | Diagnostic Unit Priority | 10 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.3% | -13.9% | 3 | | | | | | | ● | | | | | | ● | | ↓ |
| Egg Incubation | Oct-Apr | 2.0% | -1.3% | 2 | | | | | | | | | | | | | ● | | ↑ |
| Fry colonization | Apr-May | 2.4% | -23.0% | 6 | ● | | | | ● | | ● | | | | ● | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age transient rearing | Jun-Oct | 0.1% | -5.7% | 1 | | | | | | | ● | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| Migrant prespawner | Jul-Sep | 8.9% | -1.1% | 4 | | | | | | | ● | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 5.4% | -2.3% | 5 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| Survival Factor Trend | | | | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | |

## EDT Level 2 Attribute Ratings



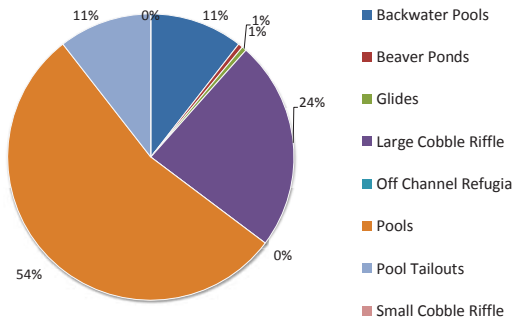

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | – | – |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

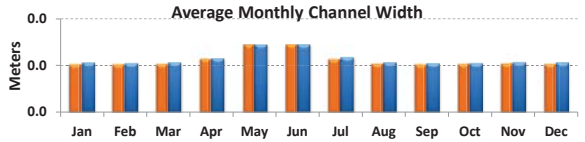
## EDT Habitat Composition Ratings

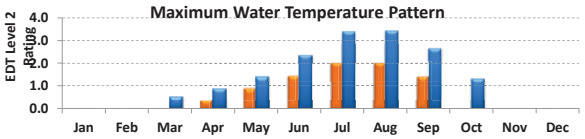


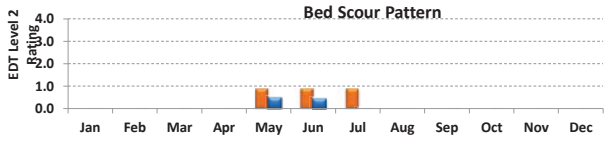

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 48.3% | ↓ |
| Fry Colonization | 24.8% | ↓ |
| Active Rearing | 0.0% | – |
| Inactive Rearing | 0.0% | – |
| Prespawn Holding | 26.8% | ↑ |

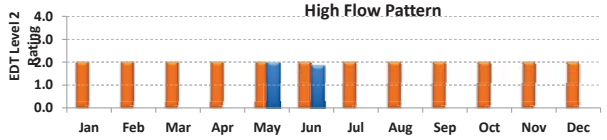
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Similkameen River Upper |
| Species | Chinook |
| Population | Okanogan (US) |
| Reach | Similkameen 7 |
| Reach Length (mi) | 1.49 |
| Average Gradient | 1.9% |
| Habitat Area (ac) | 27.0 |

**OBMEP Sites**

OBMEP-356

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 4% | Reach Priority | 16 |
| Diversity | + 1% | Out of | 143 |
| Abundance | + 2% | Diagnostic Unit Priority | 8 |
| | | Out of | 17 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 240 |
| Productivity | 4.8 |
| Diversity | 18% |
| Abundance | 189 |

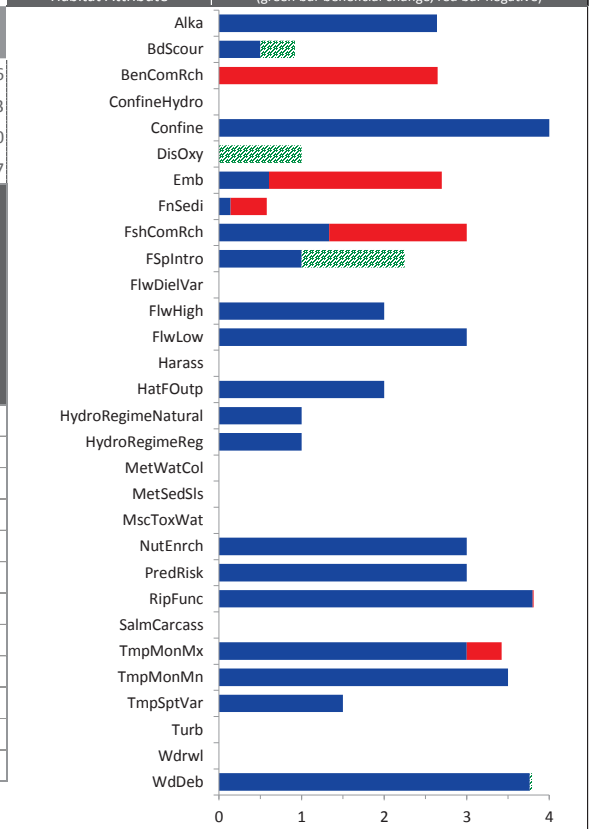
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 56 |
| Diversity | - 5% | Out of | 143 |
| Abundance | - 1% | Diagnostic Unit Priority | 10 |
| | | Out of | 17 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 2.2% | -13.6% | 5 | | | | | | | ● | | | | | | ● | | ↓ |
| Egg Incubation | Oct-Apr | 15.2% | -1.2% | 3 | | | | | | | | | | | | | ● | | ↑ |
| Fry colonization | Apr-May | 2.2% | -23.8% | 6 | ● | | | | ● | | ● | | | | ● | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 0.0% | -5.8% | 1 | | | | | | | ● | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| Migrant prespawner | Jul-Sep | 8.7% | -1.1% | 2 | | | | | | | ● | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 8.9% | -2.7% | 4 | | | | | ● | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | ▼ | — | |

## EDT Level 2 Attribute Ratings



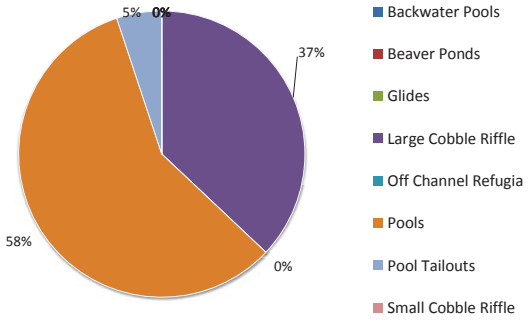

## Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

## Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

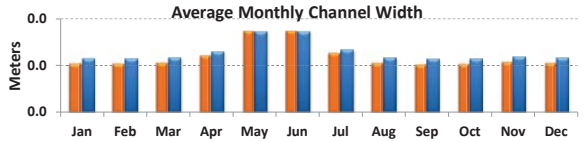
## EDT Habitat Composition Ratings

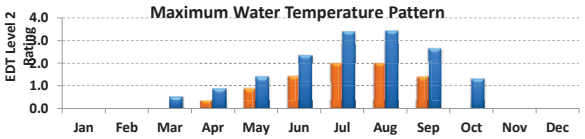


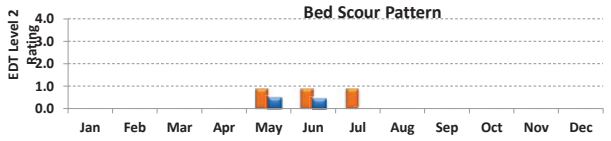

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 21.7% | ↓ |
| Fry Colonization | 15.4% | ▲ |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 62.9% | ↑ |

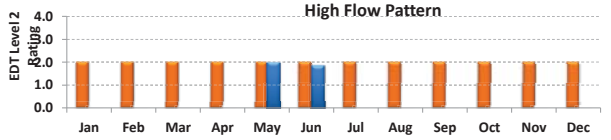
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# SALMONID POPULATION REPORT CARD

## 2013 Habitat Status and Trend Cycle

**Subbasin** Okanagan (Can)

**Species** Chinook

**Poulation** Okanogan Summer/Fall

**Stauts & Trend Year** 2013

**Trend Comparison** 2013 to 2009

## Summary of EDT Population Parameters

| Population Parameter | 2013 Scenario Result |
|---|---|
| Habitat Capacity | 2,890 |
| Habitat Productivity | 5.12 Adults/Spawner |
| Equilibrium Abundance | 2,326 |
| Juvenile Capacity | 313,299 |
| Juvenile Productivity | 428 Migrants/Spawner |
| Juvenile Abundance (Columbia River Mouth) | 238,304 |
| Smolt to Adult Ocean Survival (Columbia River Mouth to Columbia River Mouth) | 2.22% |
| Smolt to Spawner Survival (Columbia River Mouth to Spawning Grounds) | 0.98% |

## Management Milestones

Actions - Revisions to template and 2009 baseline required due to substantial Okanogan EDT model revisions

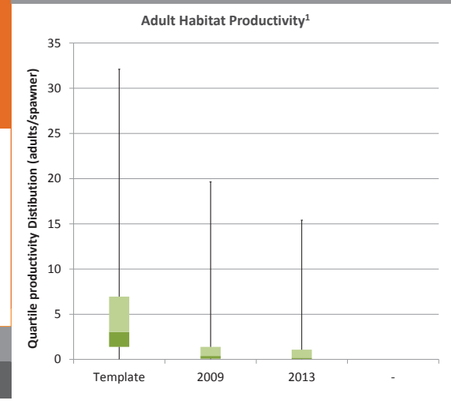
New EDT reporting - New results format customized for CCT reporting needs

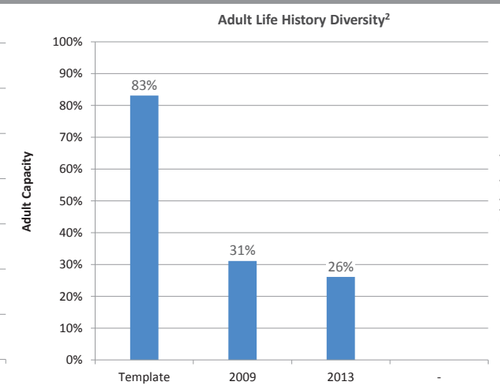
Data quality - 87% of inputs derived from quantitative data

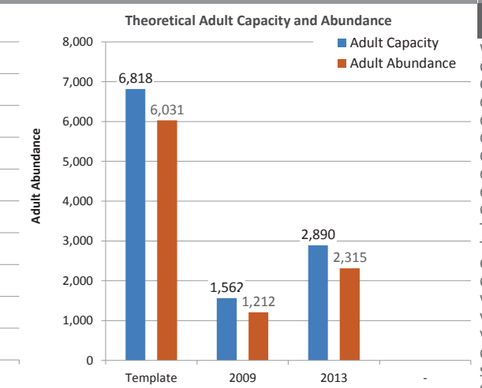
Habitat actions - EDT results show effect of fish passage at McIntyre Dam

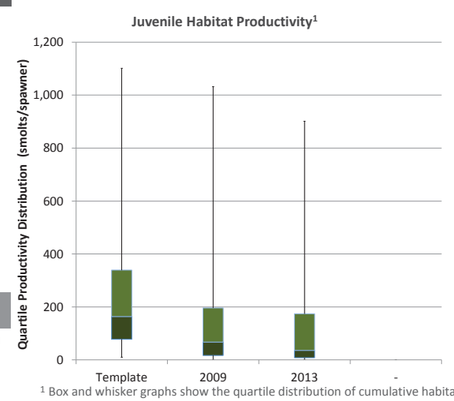
## What are the Trends in Habitat Potential for Okanagan (Can) Chinook?

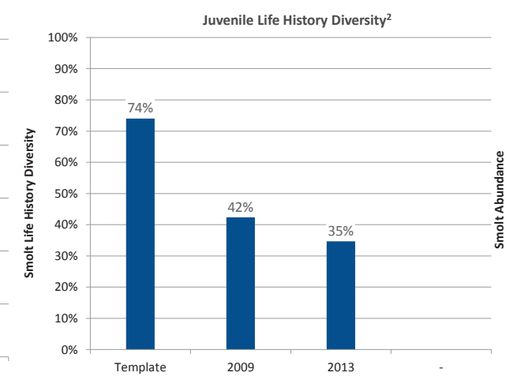
EDT used 4000 life history trajectories to model this population

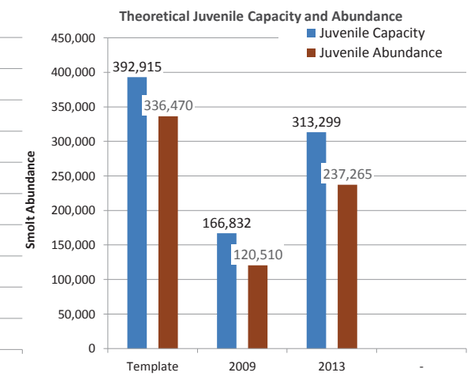


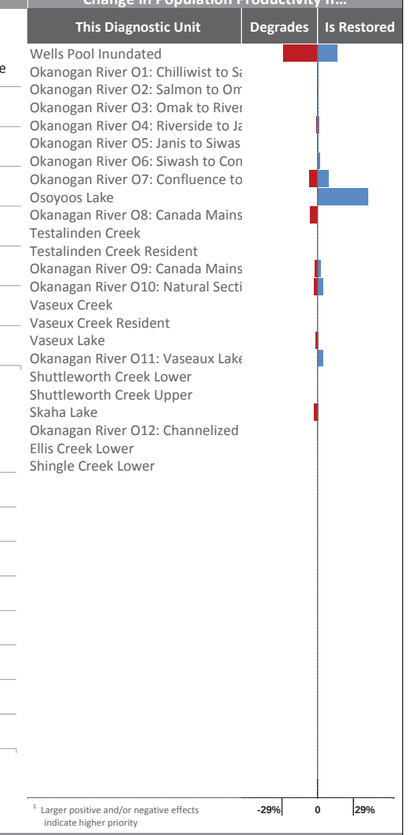

[1] Box and whisker graphs show the quartile distribution of cumulative habitat productivity for all 4000 EDT trajectories used to model this population.

[2] The percent of adult trajectories having a productivity >1.0 or juvenile productivity >100 juveniles/spawner represent the range of life history diversity each habitat scenario can support.

[3] Values are the sum of diagnostic unit equlibrium abundance. This total differs from the population equilibrium abundance in the Summary of EDT Population Parameters, which integrates habitat performance across all trajectories.

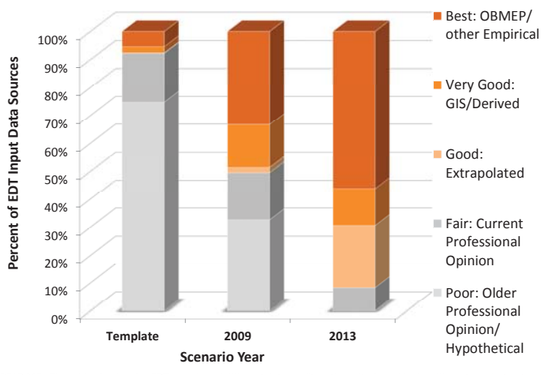
## Priority Habitats for Chinook

Change in Population Productivity If...




[1] Larger positive and/or negative effects indicate higher priority

## How Good Is Our Information in This Subbasin?




READ ME - The subbasin planning EDT model used different data quality rating criteria and had a different reach structure and shorter overall reach length compared to the current model. Therefore subbasin planning ratings are not directly comparable to current or template conditions.

## How Has Chinook Habitat Potential Changed Between 2009 and 2013?

DIAGNOSTIC UNIT

| Population Parameter and Trend Since Template | Okanagan River O8: Canada Mainstem Lower | Okanagan River O9: Canada Mainstem Middle | Okanagan River O10: Natural Section | Okanagan River O11: Vaseaux Lake to Skaha Lake | Okanagan River O12: Channelized |
|---|---|---|---|---|---|
| Productivity | 5.2 | 5.1 | 6.5 | 4.2 | 5.2 |
| Trend | ↑ | ▲ | ▬ | ↑ | ↑ |
| Abundance | 1156 | 158 | 124 | 401 | 476 |
| Trend | ↑ | ↑ | ↑ | ↑ | ↑ |
| Habitat Capacity | 1433 | 197 | 147 | 524 | 590 |
| Trend | ↑ | ↑ | ↑ | ↑ | ↑ |
| Diversity | 28% | 33% | 17% | 24% | 26% |
| Trend | ▬ | ↓ | ↓ | ▬ | ▼ |

Symbol Key

| Parameter Trend | Negative | Positive |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

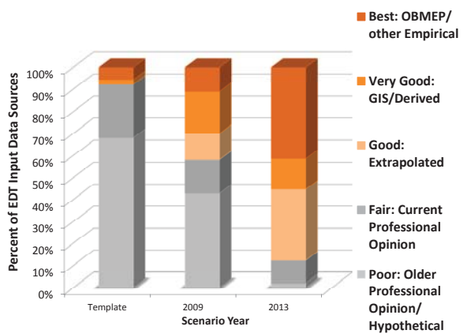
| | |
|---|---|
| Diagnostic Unit | Okanagan River O8: Canada Main |
| Species | Chinook |
| Population | Okanagan (Can) |
| Status and Trend Year | 2013 |
| Trend Comparison | 2013 to 2009 |

## How Important is Okanagan River O8: Canada Mainstem Lower for Conservation of Okanagan (Can) Chinook?

| Effect on Population Potential if this Unit | Degrades | Is Restored |
|---|---|---|
| Adult Abundance | -26.9% | 0.0% |
| Adult Productivity | -12.3% | 0.0% |
| Life History Diversity | -4.1% | +1.3% |
| Diagnostic Unit Priority Rank[1] | 1 of 5 | 9 of 5 |

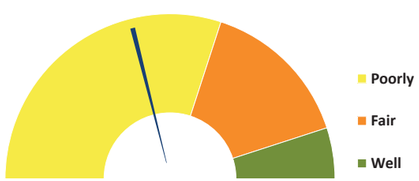
[1] Relative to all Okanagan (Can) Diagnostic Units used by this Chinook population

## How Good is Our Information in Okanagan River O8: Canada Mainstem Lower?

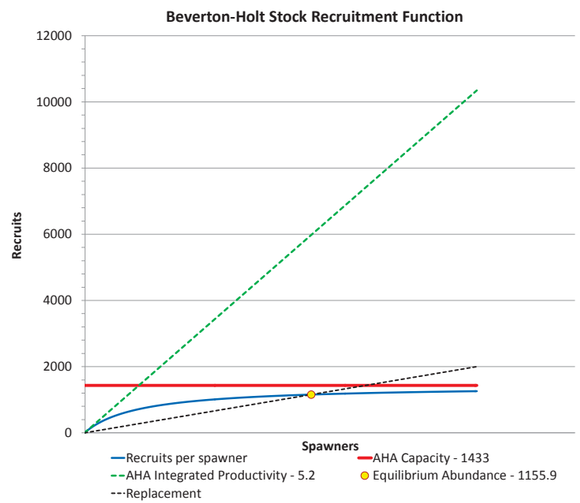


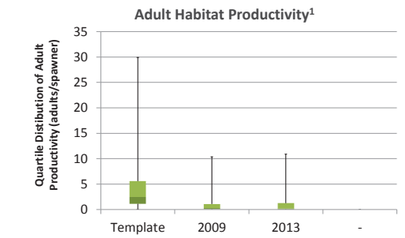

## How is Okanagan River O8: Canada Mainstem Lower Performing as Chinook Habitat?

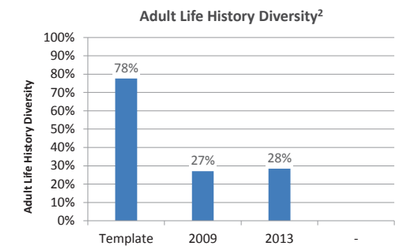
Currently Functioning at 42% of Template Habitat Potential

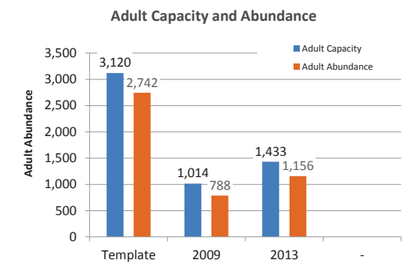


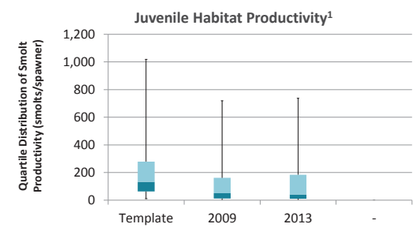

## What are the Trends in Chinook Habitat Potential in Okanagan River O8: Canada Mainstem Lower?

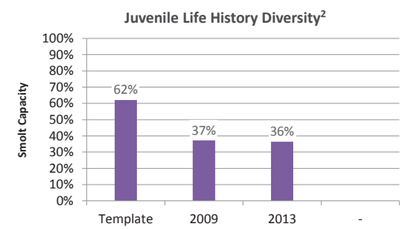


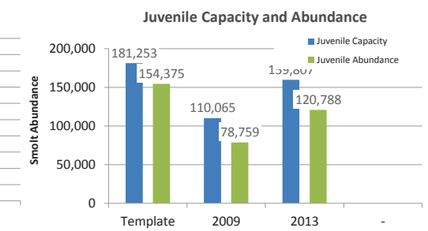



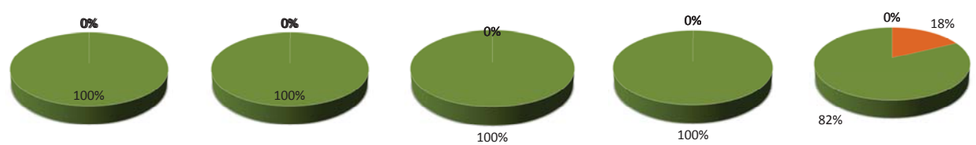



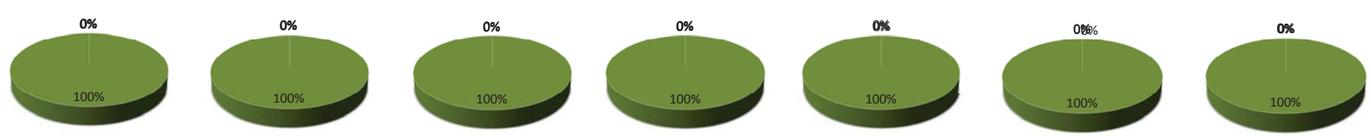

EDT used 4000 life history trajectories to model habitat potential in Okanagan River O8: Canada Mainstem Lower

[1] Box and whisker graphs show the quartile distribution of cumulative habitat productivity for all 4000 EDT trajectories used to model this Diagnostic Unit.
[2] The percent of adult trajectories having a productivity >1.0 or juvenile productivity >100 smolts/spawner represent the range of life history diversity each habitat scenario can theoretically support.

## Chinook Survival Factor Condition in Okanagan River O8: Canada Mainste and Trend Between 2009 and 2013




| | Channel Stability | Sediment Conditions | Flow Conditions | Withdrawals | Habitat Diversity |
|---|---|---|---|---|---|
| % of Template | 97% | 120% | 98% | 100% | 88% |
| Factor Wt. | 7% | 10% | 4% | 0% | 26% |
| Factor Trend | — | ↑ | — | — | — |
| Level of Proof | 1.68 | 2.38 | 1.73 | 4.00 | 1.71 |




| | Temperature | Dissolved Oxygen | Competition-Hatchery | Competition-Other | Food | Predation | Obstructions |
|---|---|---|---|---|---|---|---|
| % of Template | 80% | 100% | 100% | 100% | 100% | 96% | 100% |
| Factor Wt. | 42% | 1% | 1% | 1% | 1% | 8% | 0% |
| Factor Trend | ↓ | — | — | — | — | — | — |
| Level of Proof | 2.38 | 4.00 | 1.99 | 2.01 | 1.28 | 2.05 | 2.23 |

READ ME - Pie charts describe how well each EDT Survival Factor is functioning based on its overall effect on Chinook productivity; % of Template describes current Survival Factor condition relative to template; Factor Weight rates relative importance of each Survival Factor based its proportional impact on Chinook productivity relative to other survival factors; Factor Trend describes change in Survival Factor % of Template between the 2009 and 2013 habitat scenarios.

### Change in Function Relative to Benchmark Key - Proportion of Habitat

| Categorical Ranking | Productivity Impact |
|---|---|
| Not properly functioning | >5.1% reduction |
| Functioning at High Risk | 2.6% to 5% reduction |
| Functioning at Risk | 1.1% to 2.5% reduction |
| Properly Functioning | 0% to 1% reduction |

### Key - Survival Factor Trend

| Change | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

### Habitat Priorities - Change in Population Abundance If (values normalized to %change/river mile)

| This Reach, Length (mi) | | Degrades | is Restored |
|---|---|---|---|
| Okanagan River 35a | 0.67 | | |
| Okanagan River 36 | 0.56 | | |
| Okanagan River 37 | 0.05 | | |
| Okanagan River 38a | 1.13 | | |
| Okanagan River 39 | 0.07 | | |
| Okanagan River 40 | 0.21 | | |
| Okanagan River 41 | 0.32 | | |
| Okanagan River 42a | 0.21 | | |
| Okanagan River 43a | 0.30 | | |
| Okanagan River 44a | 0.47 | | |
| Okanagan River 44b | 0.01 | | |
| Okanagan River 45b | 0.03 | | |
| Okanagan River 46 | 0.69 | | |
| Okanagan River 47a | 0.67 | | |
| Okanagan River 48 | 0.23 | | |
| Okanagan River 49b | 0.46 | | |
| Okanagan River 50 | 0.19 | | |
| Okanagan River 52a | 0.67 | | |
| Okanagan River 53 | 0.49 | | |
| Okanagan River 55b | 0.66 | | |
| Okanagan River 57a | 0.69 | | |
| Okanagan River 59c | 0.81 | | |
| Okanagan River 60 | 0.68 | | |

-10% 10%

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

## OBSTRUCTIONS AND KEY HABITAT

**Subbasin:** Okanagan (Can)
**Species:** Chinook
**Population:** Okanogan Summer/Fall
**Monitoring Cycle:** 2009-2013
**Diagnostic Unit:** Okanagan River O8: Canada Mainstem Lower

### Diagnostic Unit Habitat Statistics

**Stream Length (mi):** 10.25
**Template Adult Capacity:** 3,120

### Diagnostic Unit Obstruction Statistics

**# of Obstructions:** 13 **# Manmade:** 13
**Factor Weight:** 0% of DU productivity impairment

### There Were 13 Manmade Obstructions in Okanagan River O8: Canada Mainstem Lower in 2013 With the Following Effects on Chinook Productivity (NR = Obstruction not rated)

**Okanagan River 35b (VDS 1) - 93% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 2,756 | 2,422 |
| Juvenile | NR | NR | 151,172 | 129,743 |

**Okanagan River 38b (vds 2) - 75% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 2,124 | 1,867 |
| Juvenile | NR | NR | 114,503 | 98,533 |

**Okanagan River 42b (VDS 3) - 67% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 1,871 | 1,645 |
| Juvenile | NR | NR | 100,460 | 86,501 |

**Okanagan River 43b (vds 4) - 64% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 1,790 | 1,573 |
| Juvenile | NR | NR | 96,060 | 82,716 |

**Okanagan River 45a (vds 5) - 60% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 1,655 | 1,455 |
| Juvenile | NR | NR | 88,403 | 76,173 |

**Okanagan River 47b (vds 6) - 47% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 1,255 | 1,103 |
| Juvenile | NR | NR | 66,707 | 57,517 |

**Okanagan River 49a (vds 7) - 44% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 1,198 | 1,053 |
| Juvenile | NR | NR | 63,606 | 54,853 |

**Okanagan River 51 (vds 8) - 38% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 1,033 | 908 |
| Juvenile | NR | NR | 54,613 | 47,126 |

**Okanagan River 52b (vds 9) - 32% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 830 | 729 |
| Juvenile | NR | NR | 43,601 | 37,653 |

**Okanagan River 55a (vds 10) - 27% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 676 | 594 |
| Juvenile | NR | NR | 36,448 | 31,376 |

**Okanagan River 56b (vds 11) - 21% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 540 | 475 |
| Juvenile | NR | NR | 28,781 | 24,817 |

**Okanagan River 59b (bridge) - 14% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 372 | 327 |
| Juvenile | NR | NR | 19,873 | 17,131 |

**Okanagan River 59d (vds 13) - 7% of DU reach length upstream**

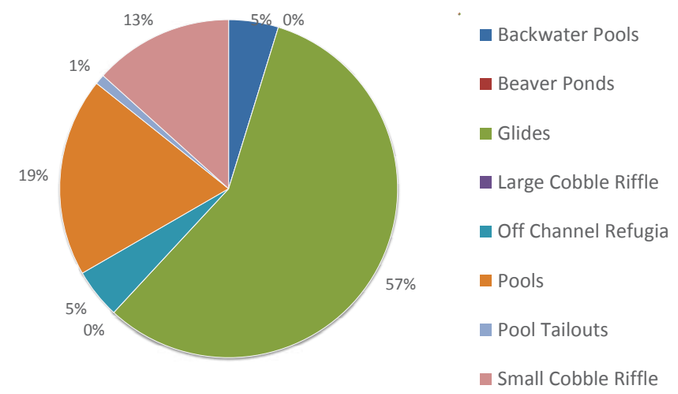
| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 173 | 152 |
| Juvenile | NR | NR | 9,475 | 8,136 |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

### Okanagan River O8: Canada Mainstem Lower Habitat Composition and Key Habitat Area for Chinook Under Template Conditions

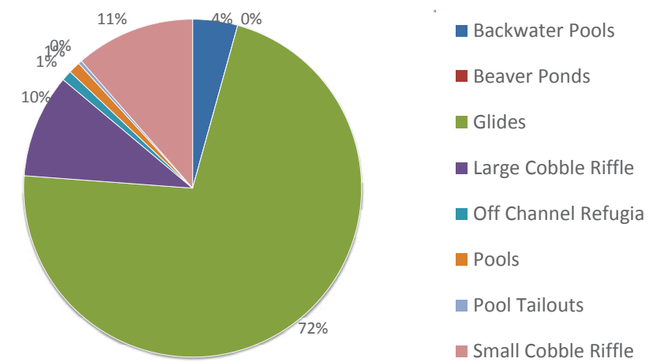



| Lifestage | Key Habitat Area* |
|---|---|
| Spawning | 23% |
| Fry colonization | 14% |
| 0-age active | 28% |
| 0-age inactive | 20% |
| 1-age active | 0% |
| 1-age inactive | 0% |
| 2+-age migrant | 0% |
| Prespawn holding | 15% |

**Template Habitat Capacity**

| Scenario | Adult | Juvenile |
|---|---|---|
| Template | 3,120 | 181,253 |

### Okanagan River O8: Canada Mainstem Lower Habitat Composition in 2009 and Trend in Chinook Key Habitat Area Since Template

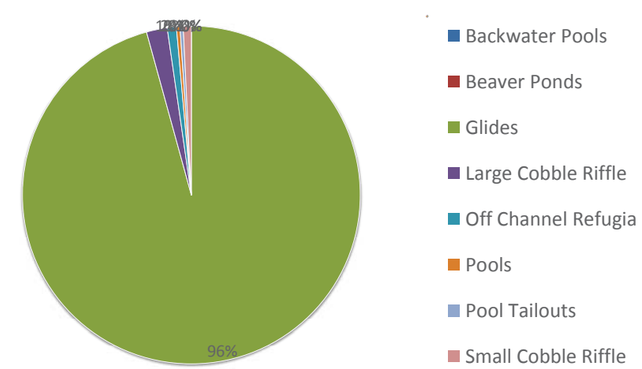



| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 36.0% | 13% |
| Fry colonization | 18.3% | -2% |
| 0-age active | 24.0% | -37% |
| 0-age inactive | 13.4% | -50% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 8.3% | -61% |

**Net Habitat Capacity and Change Since Template**

| Comparison | Adult | Juvenile |
|---|---|---|
| Template to 2009 | 1014 (-68%) | 110065 (-39%) |

### Okanagan River O8: Canada Mainstem Lower Habitat Composition in 2013 and Trend in Chinook Key Habitat Area Since 2009




| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 34.6% | 5% |
| Fry colonization | 17.2% | 2% |
| 0-age active | 26.1% | 18% |
| 0-age inactive | 13.3% | 8% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 8.8% | 16% |

**Net Habitat Capacity and Change Since 2009**

| Comparison | Adult | Juvenile |
|---|---|---|
| 2009 to 2013 | 1433 (41%) | 159807 (45%) |

* Percent of reach providing key habitat for this life stage in EDT in this habitat scenario

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 35a |
| Reach Length (mi) | 0.67 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 9.4 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 80 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | + 1% | Diagnostic Unit Priority | 9 |
| Abundance | 0% | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 143 |
| Productivity | 4.4 |
| Diversity | 26% |
| Abundance | 111 |

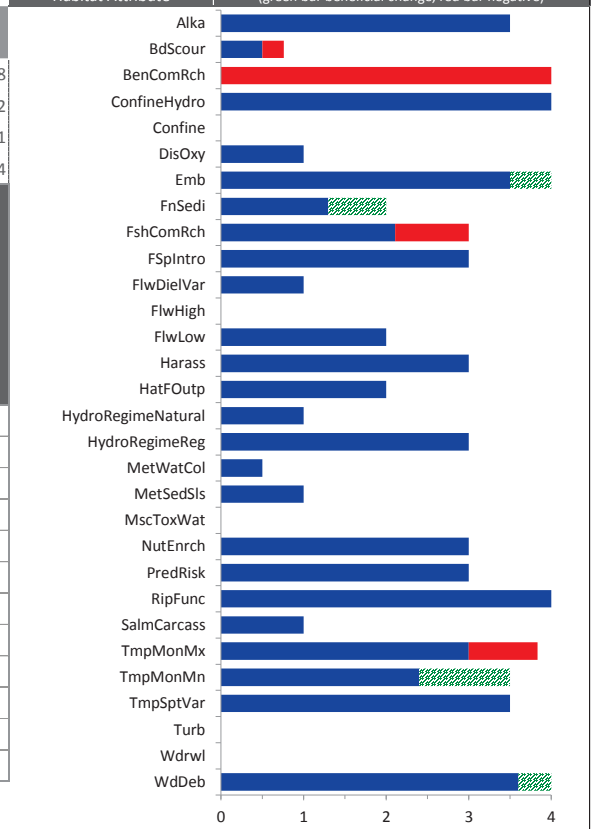
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 68 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | - 5% | Diagnostic Unit Priority | 1 |
| Abundance | - 6% | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 4.9% | -38.7% | 6 | | | | | | | Large | | | Small | Small | | Large | | ↓ |
| Egg Incubation | Oct-Apr | 34.7% | 1.1% | 1 | | | | | | | | | | | | Large | Small | | ↑ |
| Fry colonization | Apr-May | 21.5% | -9.3% | 7 | Small | | | | Small | | Large | | | | Small | Small | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -4.0% | 3 | | | | | | | | | | Small | | | Large | | ↓ |
| 0-age transient rearing | Jun-Oct | 85.8% | -3.5% | 9 | | | | | | | Small | | | | | | Small | | — |
| 0-age inactive | Apr-Oct | 0.0% | -3.5% | 4 | | | | | | | | | | | | Large | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.9% | 2 | | | | | | | Small | | | | Small | | | | ↓ |
| Migrant prespawner | Jul-Sep | 99.8% | -2.4% | 8 | | | | | | | Small | | | | | | Large | | ↓ |
| Holding prespawner | Jul-Oct | 0.4% | -17.2% | 5 | | | | | | | Large | | | | | | Large | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



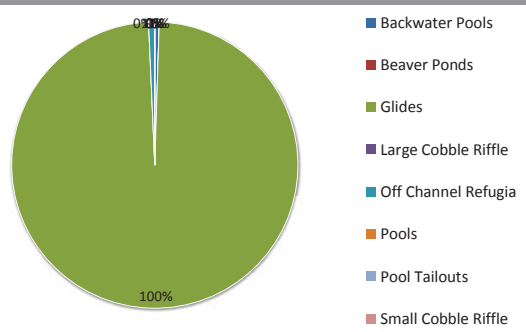

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

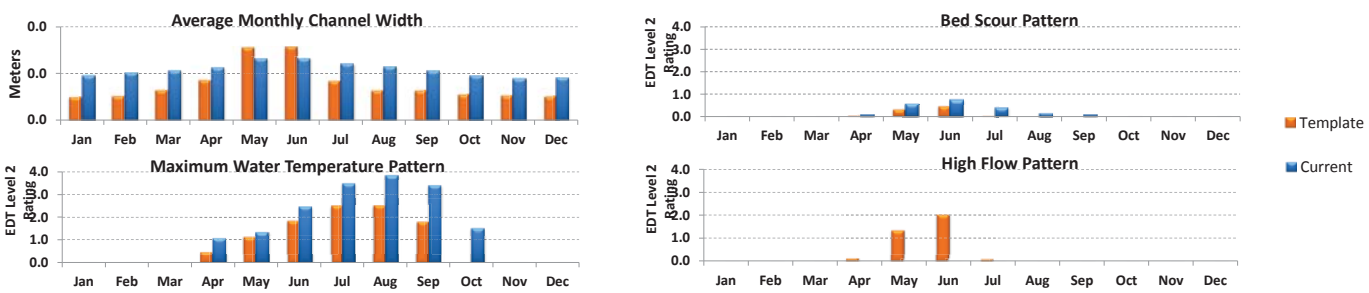
## EDT Habitat Composition Ratings




| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 34.8% | — |
| Fry Colonization | 17.4% | — |
| Active Rearing | 26.1% | — |
| Inactive Rearing | 13.0% | — |
| Prespawn Holding | 8.7% | — |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 36 |
| Reach Length (mi) | 0.56 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 7.8 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 23 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | + 2% | Diagnostic Unit Priority | 9 |
| Abundance | + 1% | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 104 |
| Productivity | 5.0 |
| Diversity | 25% |
| Abundance | 83 |

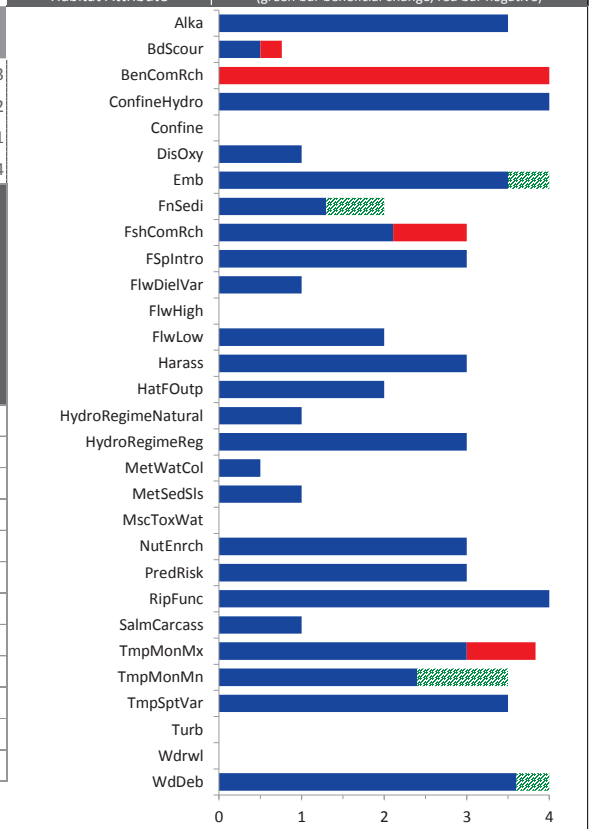
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 73 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | - 4% | Diagnostic Unit Priority | 1 |
| Abundance | - 4% | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 4.0% | -39.8% | 6 | | | | | | | | | | | | | | | ↓ |
| Egg Incubation | Oct-Apr | 28.3% | -0.2% | 5 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 18.6% | -9.4% | 7 | | | | | | | | | | | | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -4.3% | 2 | | | | | | | | | | | | | | | ↓ |
| 0-age transient rearing | Jun-Oct | 80.5% | -3.5% | 9 | | | | | | | | | | | | | | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | -3.5% | 3 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.9% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 94.9% | -2.4% | 8 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.2% | -17.1% | 4 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



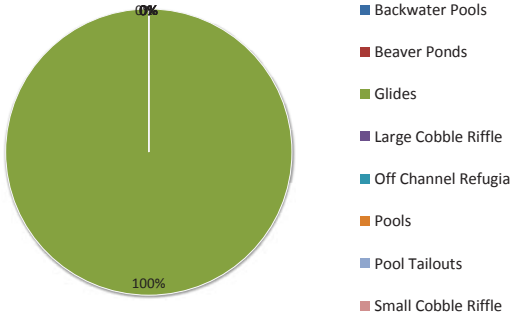

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

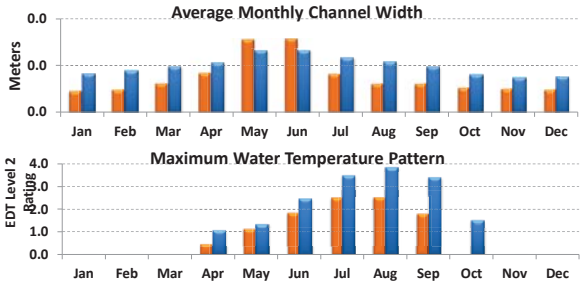
## EDT Habitat Composition Ratings

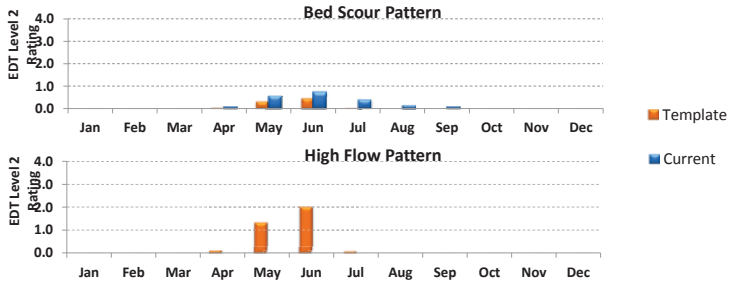



| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 34.8% | — |
| Fry Colonization | 17.4% | — |
| Active Rearing | 26.1% | — |
| Inactive Rearing | 13.0% | — |
| Prespawn Holding | 8.7% | — |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 37 |
| Reach Length (mi) | 0.05 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 0.6 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 70 |
| Diversity | 0% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 9 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 8 |
| Productivity | 3.3 |
| Diversity | 26% |
| Abundance | 5 |

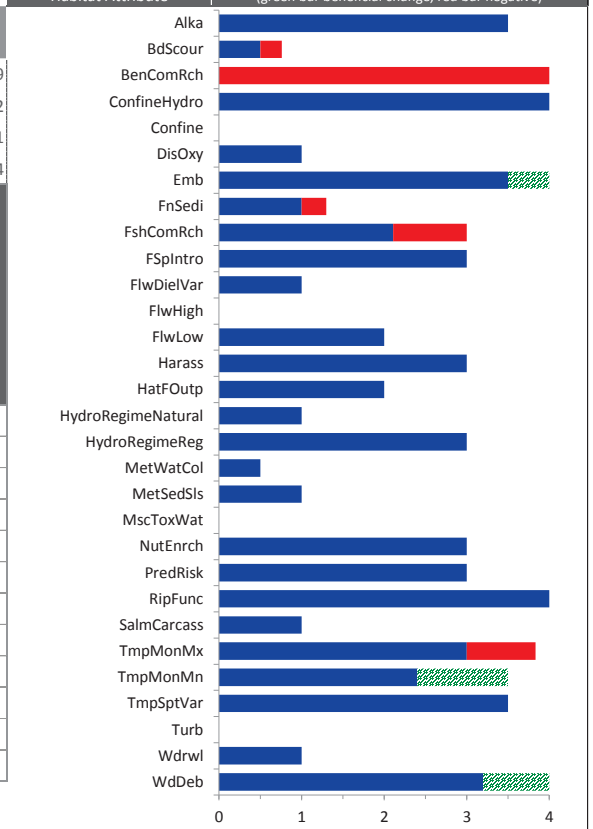
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 99 |
| Diversity | - 1% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 1 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.6% | -42.4% | 6 | | | | | | | | | | | | | | | ↓ |
| Egg Incubation | Oct-Apr | 4.5% | -0.1% | 4 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 14.3% | -8.5% | 7 | | | | | | | | | | | | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -4.6% | 2 | | | | | | | | | | | | | | | ↑ |
| 0-age transient rearing | Jun-Oct | 76.8% | -3.3% | 9 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | -3.4% | 3 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.8% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 90.8% | -2.3% | 8 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.2% | -15.9% | 5 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



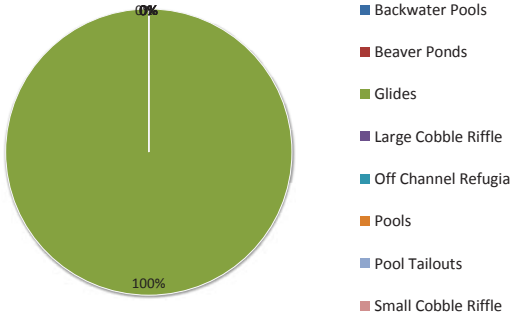

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

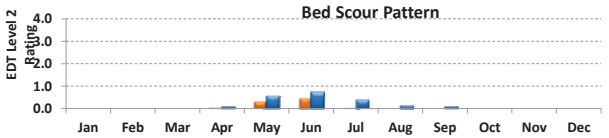
## EDT Habitat Composition Ratings

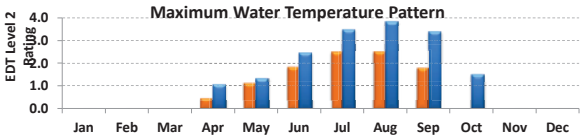


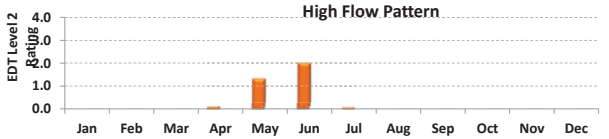

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 34.8% | — |
| Fry Colonization | 17.4% | — |
| Active Rearing | 26.1% | — |
| Inactive Rearing | 13.0% | — |
| Prespawn Holding | 8.7% | — |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 38a |
| Reach Length (mi) | 1.13 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 14.4 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 4% | Reach Priority | 8 |
| Diversity | + 5% | Out of | 192 |
| Abundance | + 2% | Diagnostic Unit Priority | 9 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 169 |
| Productivity | 4.2 |
| Diversity | 23% |
| Abundance | 128 |

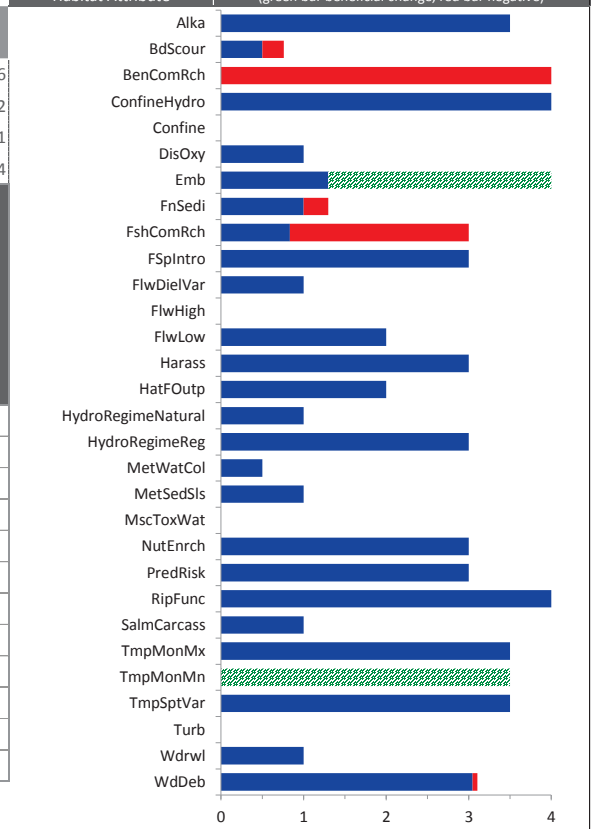
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 66 |
| Diversity | - 8% | Out of | 192 |
| Abundance | - 6% | Diagnostic Unit Priority | 1 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 6.5% | -38.3% | 9 | | | | | | | ● | | | ● | ● | | ● | | ↓ |
| Egg Incubation | Oct-Apr | 45.5% | -1.1% | 5 | | | | | | | | | | | | | ● | | ↑ |
| Fry colonization | Apr-May | 19.6% | -7.1% | 6 | ● | | | | ● | | ● | | | | ● | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.8% | 2 | | | | | | | | | | | | | ● | | ↓ |
| 0-age transient rearing | Jun-Oct | 80.7% | -2.9% | 8 | | | | | | | ● | | | | | | ● | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 3 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.6% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 90.4% | -1.9% | 7 | | | | | | | ● | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 0.2% | -11.2% | 4 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| | | | | Survival Factor Trend | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | |

## EDT Level 2 Attribute Ratings



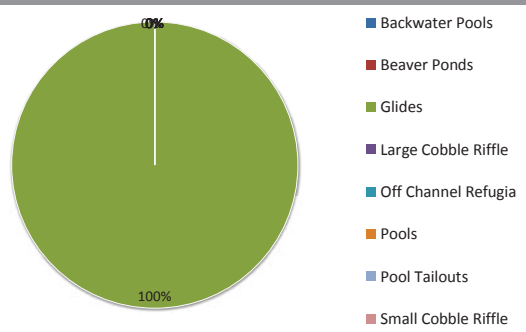

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

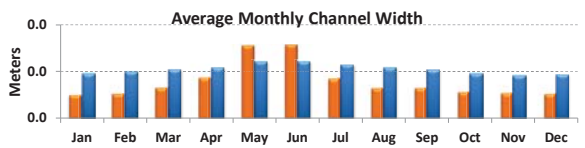
## EDT Habitat Composition Ratings

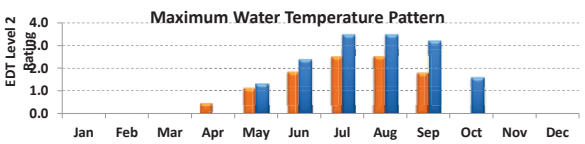


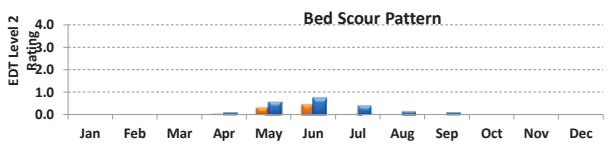

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 34.8% | ▬ |
| Fry Colonization | 17.4% | ▬ |
| Active Rearing | 26.1% | ▬ |
| Inactive Rearing | 13.0% | ▬ |
| Prespawn Holding | 8.7% | ▬ |

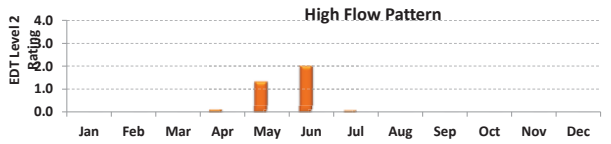
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 39 |
| Reach Length (mi) | 0.07 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 1.0 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 62 |
| Diversity | 0% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 9 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 8 |
| Productivity | 2.6 |
| Diversity | 26% |
| Abundance | 5 |

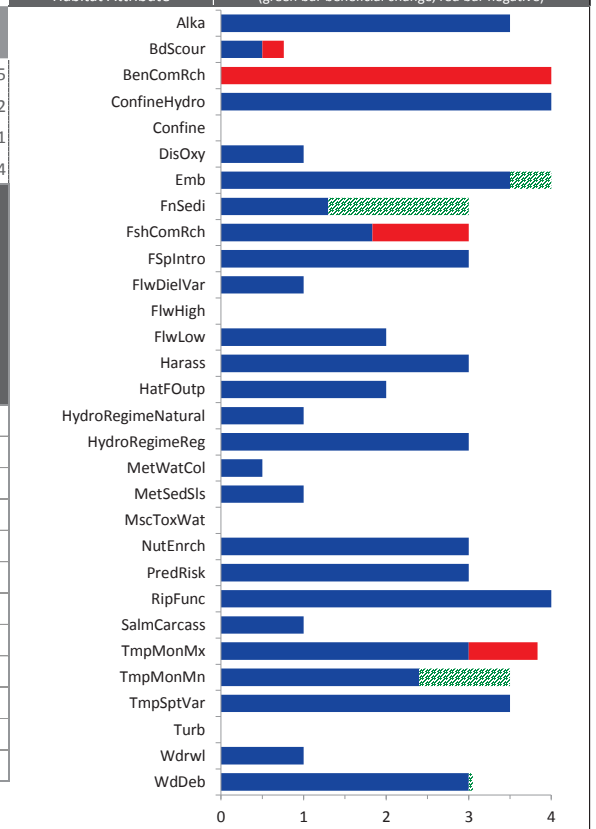
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 95 |
| Diversity | - 1% | Out of | 192 |
| Abundance | - 1% | Diagnostic Unit Priority | 1 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.5% | -35.2% | 4 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 3.7% | 1.3% | 1 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 12.8% | -8.0% | 5 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 71.7% | -3.1% | 7 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.7% | 2 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 83.8% | -2.3% | 6 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.1% | -15.6% | 3 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



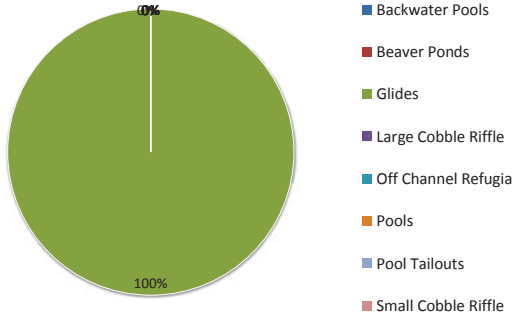

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

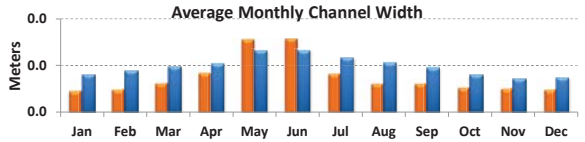
## EDT Habitat Composition Ratings

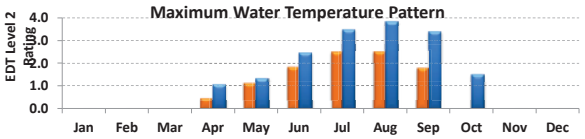


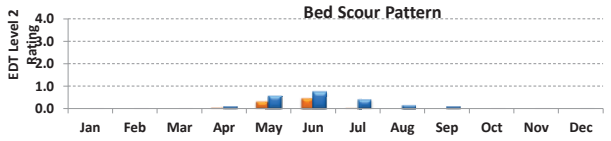

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 57.1% | ▬ |
| Fry Colonization | 28.6% | ▬ |
| Active Rearing | 0.0% | ▬ |
| Inactive Rearing | 0.0% | ▬ |
| Prespawn Holding | 14.3% | ▬ |

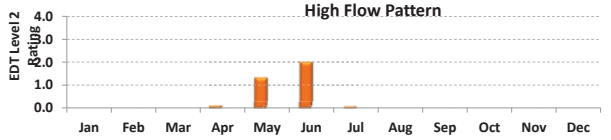
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 40 |
| Reach Length (mi) | 0.21 |
| Average Gradient | 0.1% |
| Habitat Area (ac) | 3.0 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 97 |
| Diversity | 0% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 9 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 37 |
| Productivity | 5.2 |
| Diversity | 26% |
| Abundance | 30 |

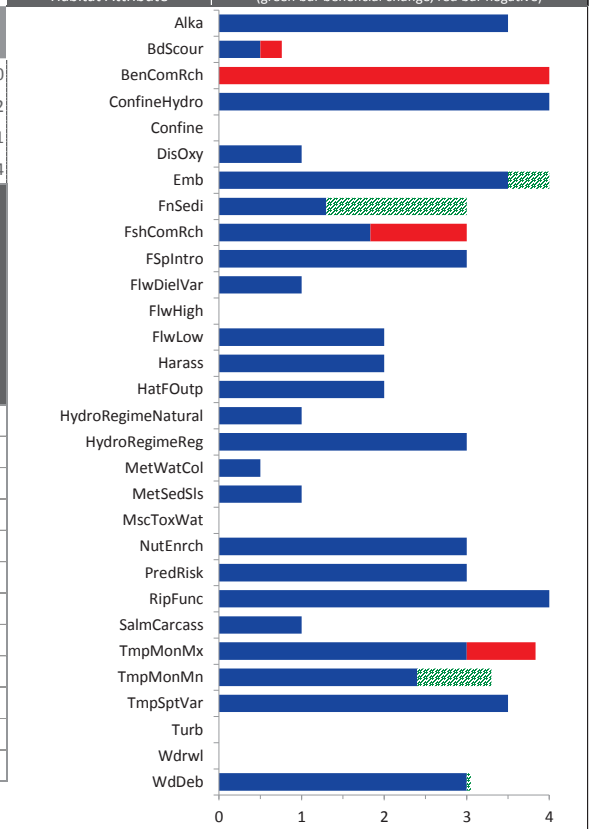
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 30 |
| Diversity | - 2% | Out of | 192 |
| Abundance | - 2% | Diagnostic Unit Priority | 1 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.8% | -37.5% | 6 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 12.8% | 1.2% | 1 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 14.6% | -8.1% | 7 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -3.7% | 3 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 71.8% | -3.1% | 9 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -3.4% | 4 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.7% | 2 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 83.6% | -2.3% | 8 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.1% | -15.6% | 5 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



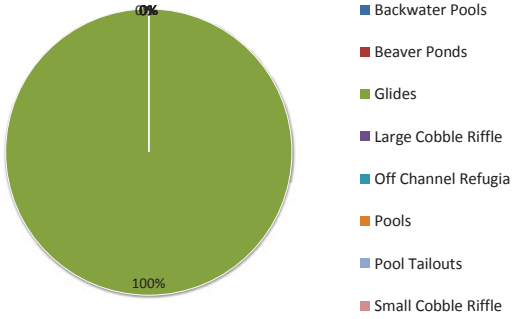

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | | | | | - |
| Gain | | | | | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | | |
| >1-5% | | |
| >5% | | |

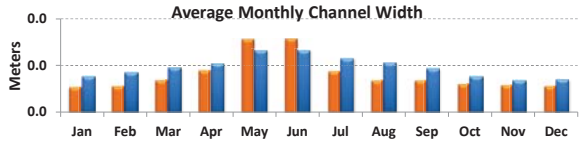
## EDT Habitat Composition Ratings

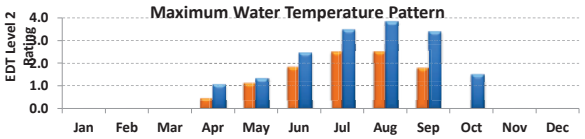


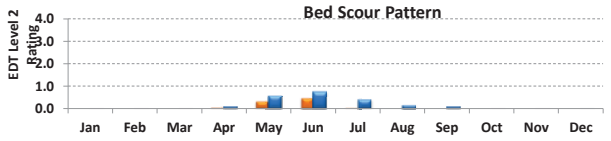

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 0.0% | |
| Fry Colonization | 44.1% | |
| Active Rearing | 44.1% | |
| Inactive Rearing | 11.8% | |
| Prespawn Holding | 0.0% | |

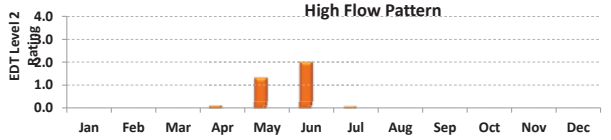
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 41 |
| Reach Length (mi) | 0.32 |
| Average Gradient | 0.1% |
| Habitat Area (ac) | 3.9 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 109 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | 0% | Diagnostic Unit Priority | 9 |
| Abundance | 0% | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 53 |
| Productivity | 5.6 |
| Diversity | 26% |
| Abundance | 44 |

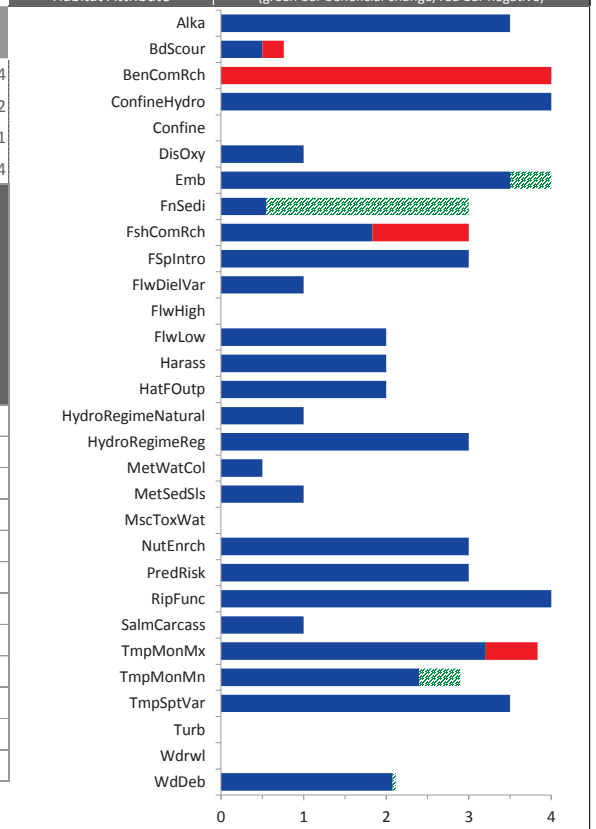
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 24 |
|---|---|---|---|
| Productivity | - 1% | Out of | 192 |
| Diversity | - 3% | Diagnostic Unit Priority | 1 |
| Abundance | - 3% | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 2.8% | -39.4% | 7 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 19.6% | 1.4% | 1 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 13.9% | -6.6% | 6 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -3.6% | 3 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 69.6% | -2.6% | 9 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -3.4% | 4 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.4% | 2 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 81.5% | -2.1% | 8 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.1% | -14.1% | 5 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



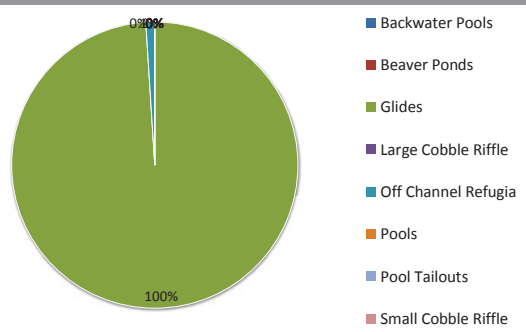

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

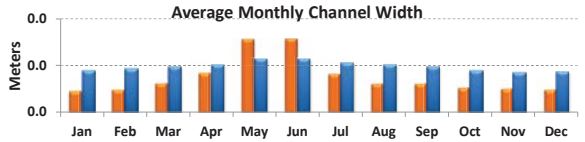
## EDT Habitat Composition Ratings

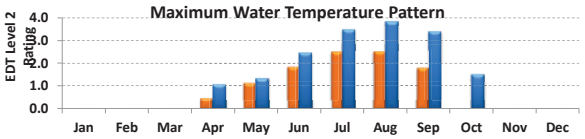


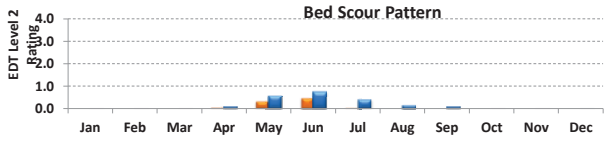

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 34.8% | ▬ |
| Fry Colonization | 17.4% | ▬ |
| Active Rearing | 26.1% | ▬ |
| Inactive Rearing | 13.0% | ▬ |
| Prespawn Holding | 8.7% | ▬ |

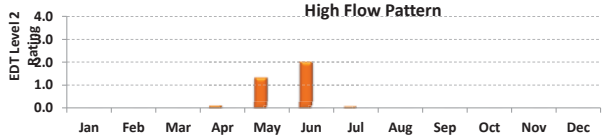
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 42a |
| Reach Length (mi) | 0.21 |
| Average Gradient | 0.1% |
| Habitat Area (ac) | 2.9 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 88 |
| Diversity | + 1% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 9 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 29 |
| Productivity | 4.1 |
| Diversity | 26% |
| Abundance | 22 |

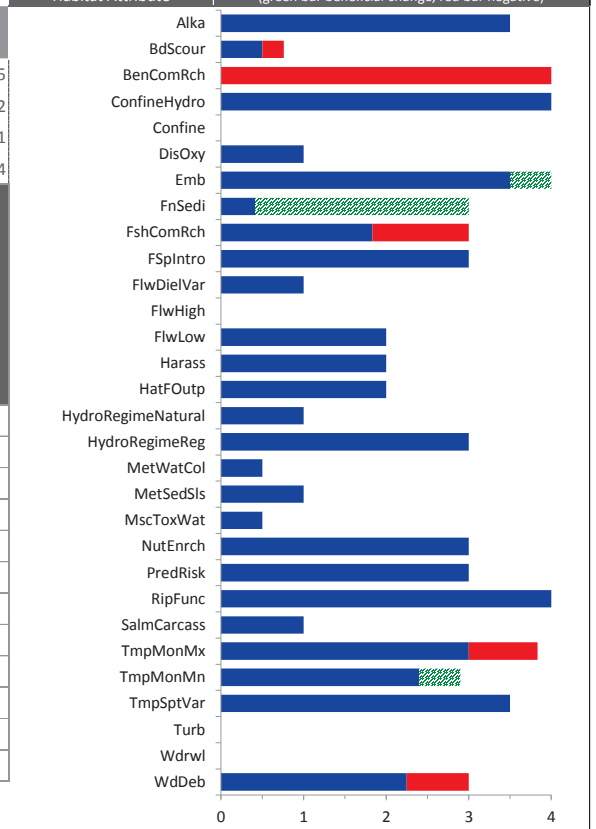
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 85 |
| Diversity | - 1% | Out of | 192 |
| Abundance | - 2% | Diagnostic Unit Priority | 1 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.2% | -35.1% | 6 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 8.7% | 1.5% | 1 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 10.9% | -8.1% | 7 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -4.5% | 3 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 69.2% | -3.0% | 9 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -3.5% | 4 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.7% | 2 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 78.7% | -2.3% | 8 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.1% | -15.6% | 5 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



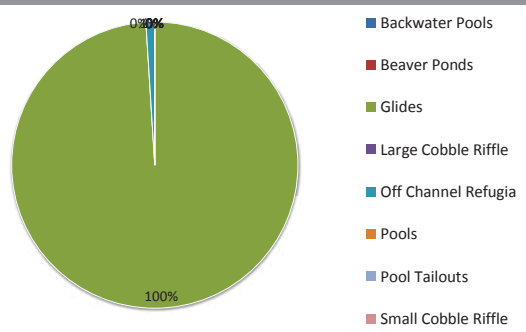

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

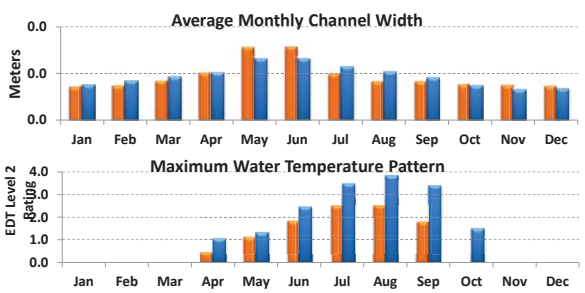
## EDT Habitat Composition Ratings

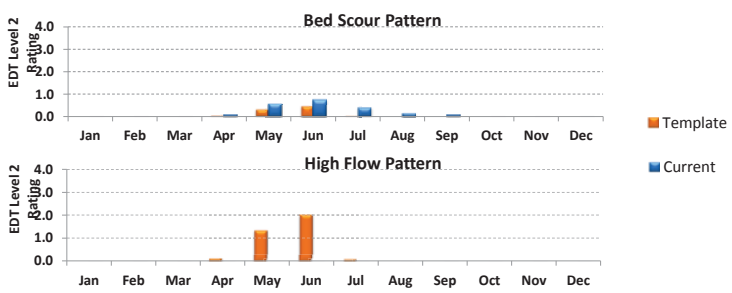



| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 33.4% | ↑ |
| Fry Colonization | 17.3% | ↑ |
| Active Rearing | 25.5% | ↑ |
| Inactive Rearing | 14.8% | ▬ |
| Prespawn Holding | 9.0% | ▲ |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 43a |
| Reach Length (mi) | 0.30 |
| Average Gradient | 0.1% |
| Habitat Area (ac) | 4.2 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 81 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | + 1% | Diagnostic Unit Priority | 9 |
| Abundance | 0% | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 26 |
| Productivity | 3.0 |
| Diversity | 25% |
| Abundance | 17 |

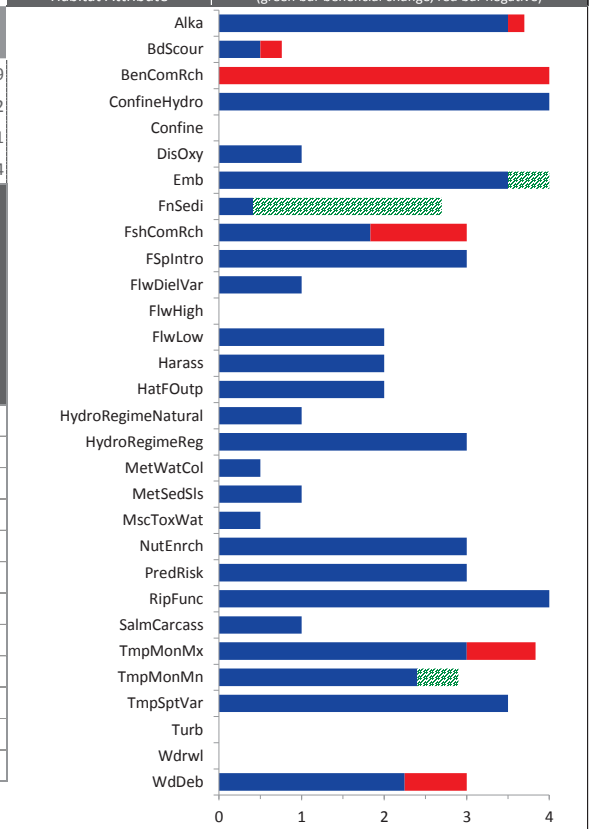
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 79 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | - 2% | Diagnostic Unit Priority | 1 |
| Abundance | - 2% | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.8% | -38.2% | 6 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 5.9% | 0.1% | 1 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 11.5% | -8.2% | 7 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -4.6% | 3 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 68.4% | -3.0% | 9 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -3.6% | 4 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.7% | 2 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 77.7% | -2.3% | 8 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.1% | -16.3% | 5 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



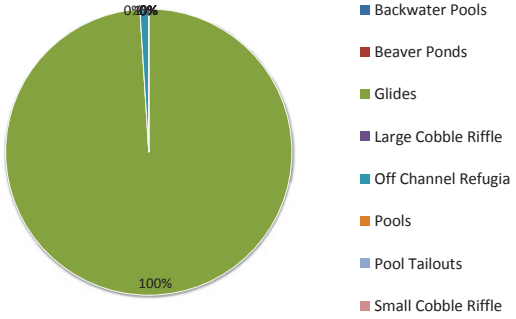

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | | | | | - |
| Gain | | | | | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | | |
| >1-5% | | |
| >5% | | |

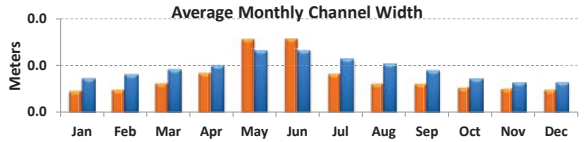
## EDT Habitat Composition Ratings

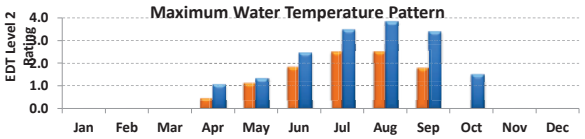


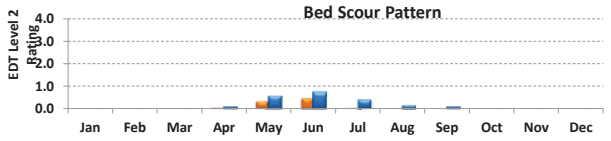

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 33.4% | |
| Fry Colonization | 17.3% | |
| Active Rearing | 25.5% | |
| Inactive Rearing | 14.8% | |
| Prespawn Holding | 9.0% | |

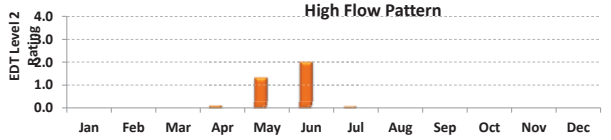
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 44a |
| Reach Length (mi) | 0.47 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 5.2 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 74 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | + 1% | Diagnostic Unit Priority | 9 |
| Abundance | + 1% | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 49 |
| Productivity | 4.4 |
| Diversity | 26% |
| Abundance | 38 |

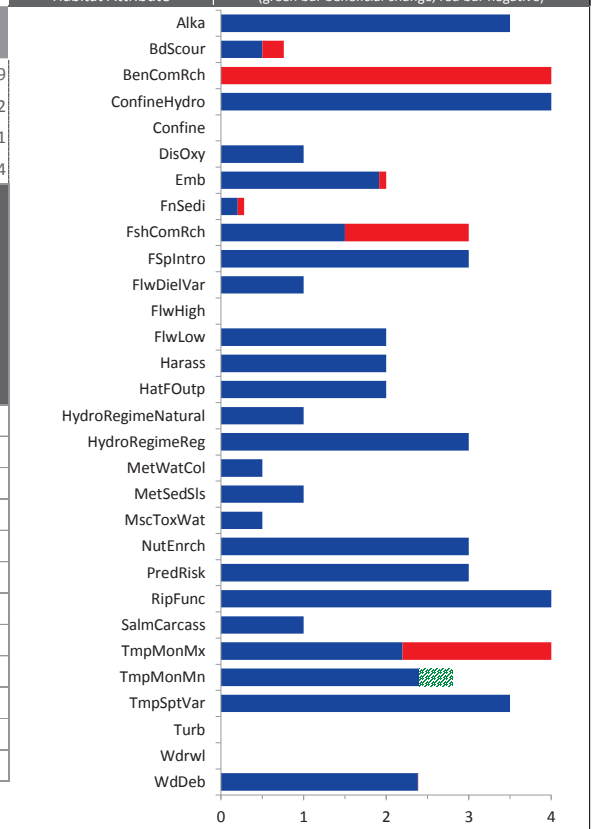
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 29 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | - 4% | Diagnostic Unit Priority | 1 |
| Abundance | - 3% | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 2.2% | -34.5% | 7 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 15.9% | 0.2% | 1 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 12.0% | -6.3% | 6 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -3.3% | 3 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 67.3% | -2.6% | 9 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -0.7% | 4 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.5% | 2 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 77.0% | -1.3% | 8 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.1% | -14.3% | 5 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



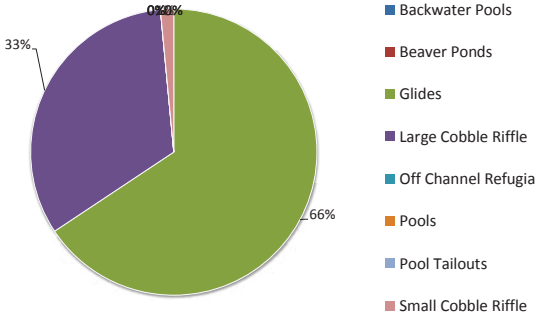

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

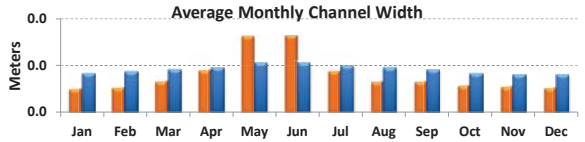
## EDT Habitat Composition Ratings

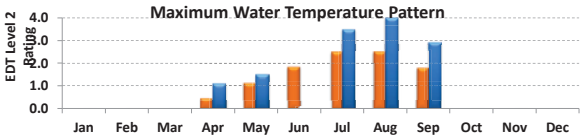


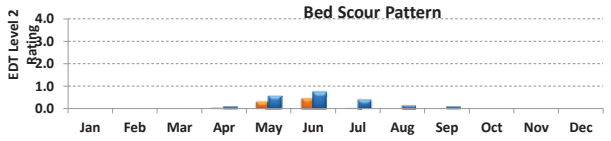

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 31.5% | ▬ |
| Fry Colonization | 17.2% | ▬ |
| Active Rearing | 24.7% | ▬ |
| Inactive Rearing | 17.1% | ▬ |
| Prespawn Holding | 9.5% | ▬ |

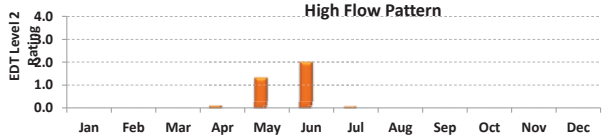
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 44b |
| Reach Length (mi) | 0.01 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 0.1 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 81 |
| Diversity | 0% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 9 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 1 |
| Productivity | 4.8 |
| Diversity | 26% |
| Abundance | 0 |

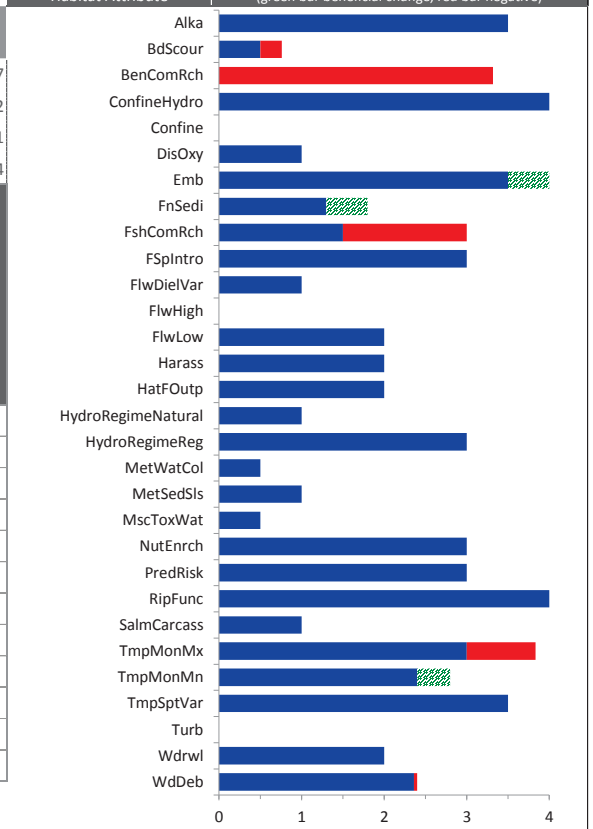
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 87 |
| Diversity | 0% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 1 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.1% | -34.0% | 4 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 0.9% | -0.8% | 2 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 9.5% | -7.3% | 5 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 65.0% | -2.7% | 7 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.6% | 1 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 74.4% | -2.2% | 6 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.1% | -15.5% | 3 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



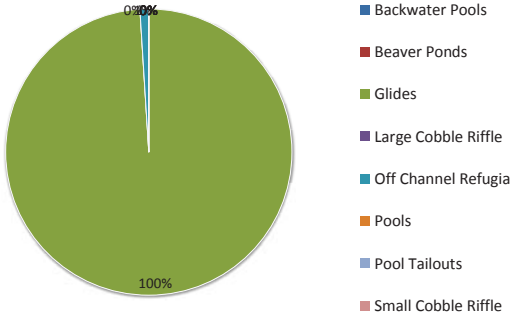

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

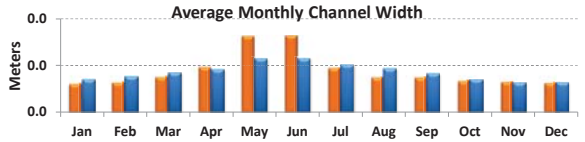
## EDT Habitat Composition Ratings

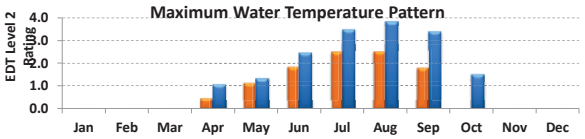


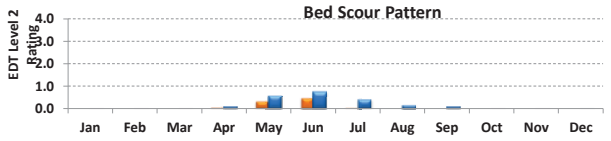

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 65.9% | ↑ |
| Fry Colonization | 20.0% | ↑ |
| Active Rearing | 0.0% | ▬ |
| Inactive Rearing | 0.0% | ▬ |
| Prespawn Holding | 14.2% | ↑ |

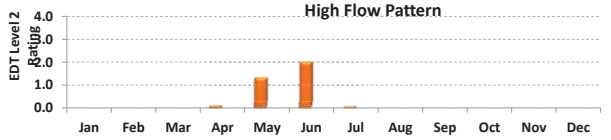
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 45b |
| Reach Length (mi) | 0.03 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 0.3 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 112 |
| Diversity | 0% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 9 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 3 |
| Productivity | 5.0 |
| Diversity | 26% |
| Abundance | 3 |

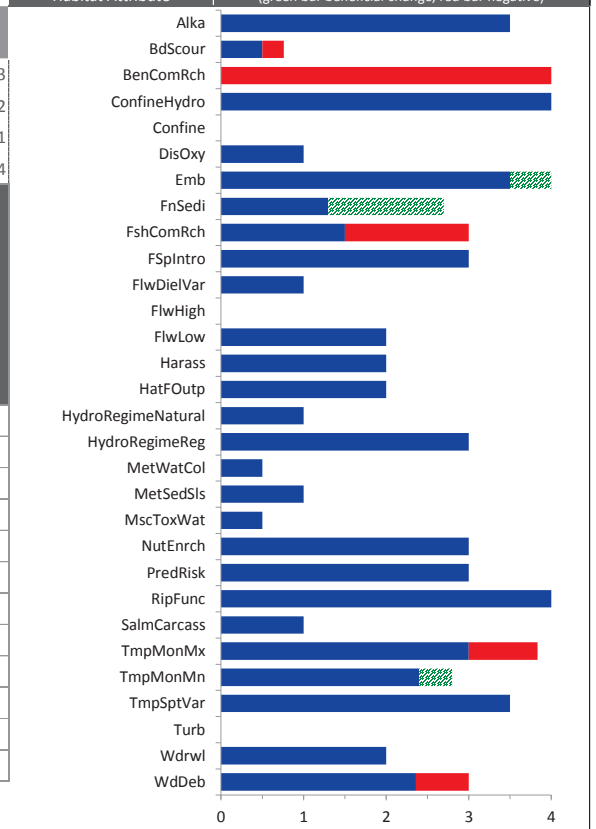
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 73 |
| Diversity | 0% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 1 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.2% | -16.6% | 4 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 1.2% | 0.4% | 1 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 9.5% | -8.3% | 5 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 65.1% | -3.0% | 7 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.8% | 2 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 74.3% | -2.3% | 6 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.1% | -16.6% | 3 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



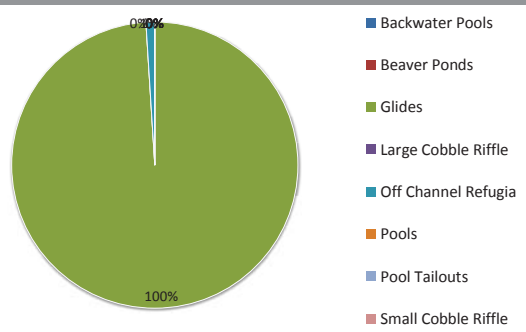

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

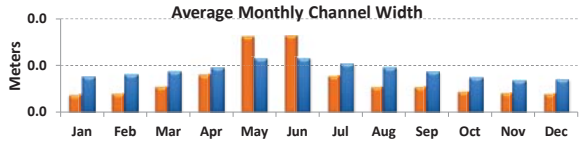
## EDT Habitat Composition Ratings

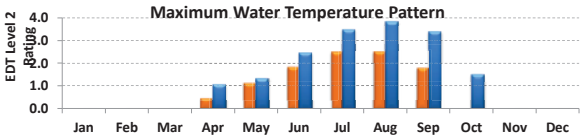


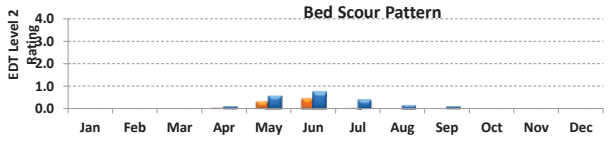

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 65.9% | ↑ |
| Fry Colonization | 20.0% | ↑ |
| Active Rearing | 0.0% | ▬ |
| Inactive Rearing | 0.0% | ▬ |
| Prespawn Holding | 14.2% | ↑ |

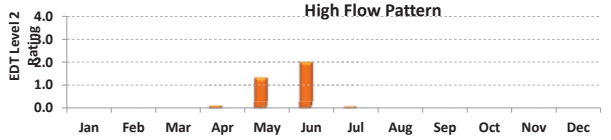
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 46 |
| Reach Length (mi) | 0.69 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 8.3 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 1% | Reach Priority | 34 |
| Diversity | 0% | Out of | 192 |
| Abundance | + 1% | Diagnostic Unit Priority | 9 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 71 |
| Productivity | 3.9 |
| Diversity | 26% |
| Abundance | 53 |

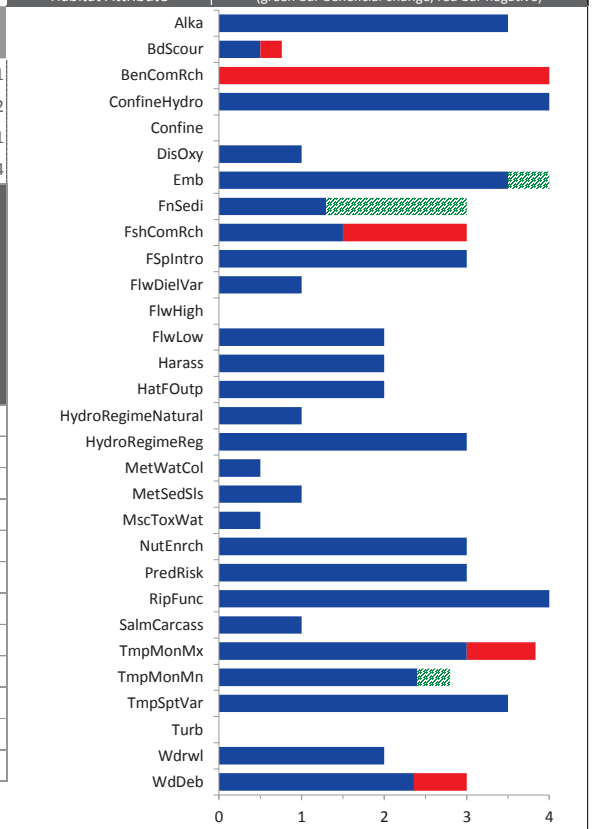
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 1% | Reach Priority | 11 |
| Diversity | - 4% | Out of | 192 |
| Abundance | - 5% | Diagnostic Unit Priority | 1 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 2.7% | -38.1% | 6 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 18.6% | 1.2% | 1 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 14.1% | -8.2% | 7 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -4.1% | 3 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 67.1% | -3.0% | 9 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -3.5% | 4 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.8% | 2 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 74.3% | -2.3% | 8 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.1% | -16.6% | 5 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



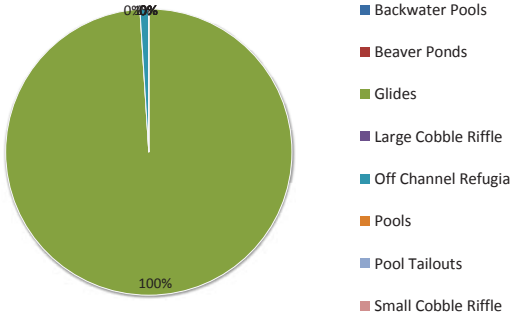

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

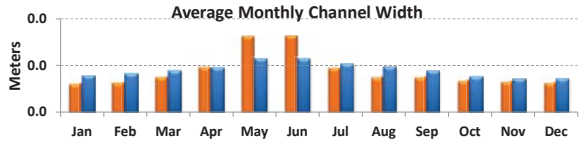
## EDT Habitat Composition Ratings

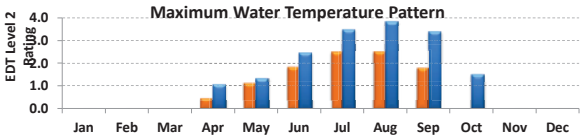


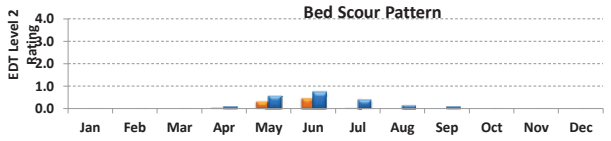

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 43.4% | ↑ |
| Fry Colonization | 13.1% | ↑ |
| Active Rearing | 18.7% | ↑ |
| Inactive Rearing | 15.5% | ↑ |
| Prespawn Holding | 9.3% | ↑ |

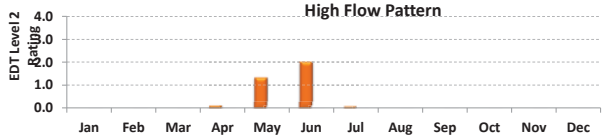
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 47a |
| Reach Length (mi) | 0.67 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 8.1 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 133 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | 0% | Diagnostic Unit Priority | 9 |
| Abundance | 0% | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 114 |
| Productivity | 6.8 |
| Diversity | 26% |
| Abundance | 97 |

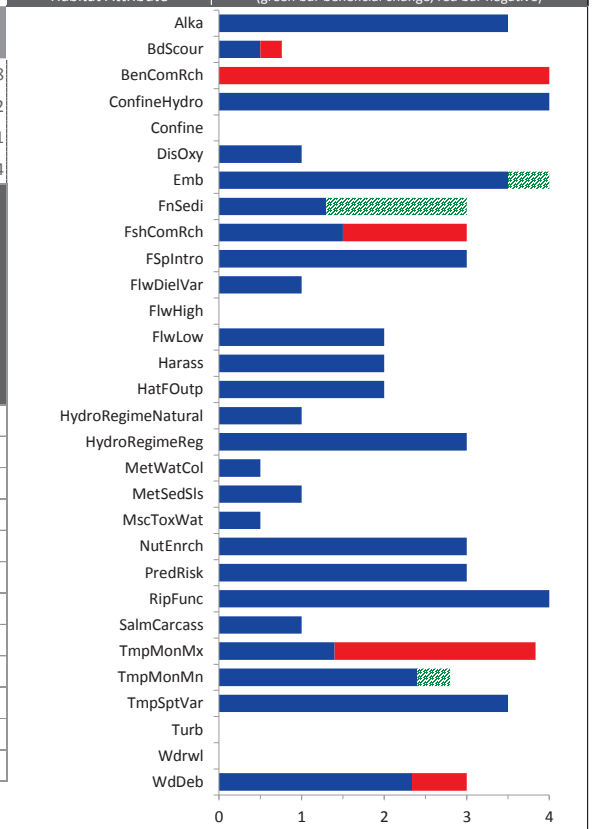
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 8 |
|---|---|---|---|
| Productivity | - 3% | Out of | 192 |
| Diversity | - 4% | Diagnostic Unit Priority | 1 |
| Abundance | - 9% | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 3.1% | -39.1% | 6 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 21.8% | 1.2% | 1 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 14.7% | -8.3% | 7 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -4.2% | 3 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 62.7% | -3.0% | 9 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -3.9% | 4 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.6% | 2 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 71.6% | -2.2% | 8 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.1% | -16.4% | 5 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



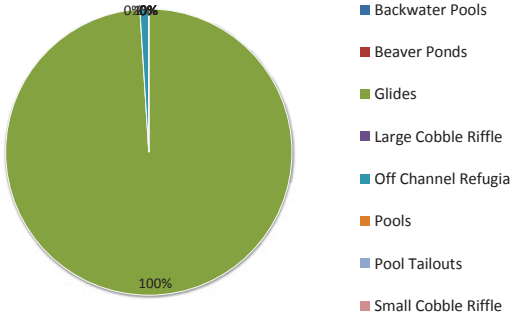

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

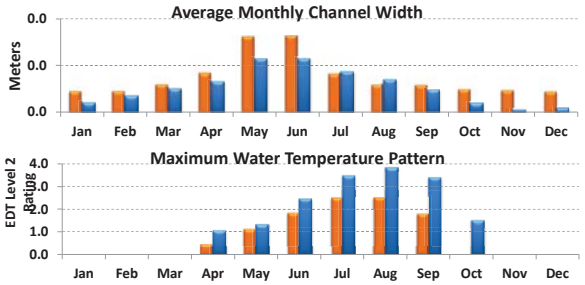
## EDT Habitat Composition Ratings

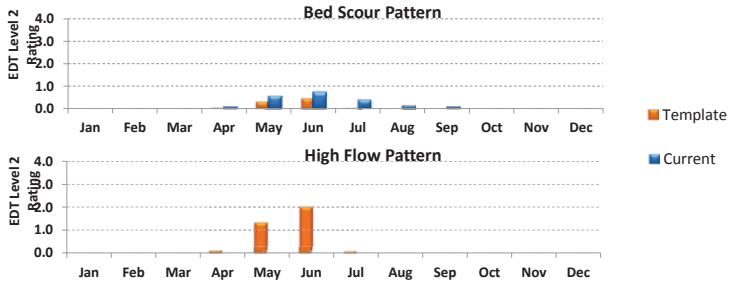



| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 57.6% | ▼ |
| Fry Colonization | 8.3% | ↑ |
| Active Rearing | 11.4% | ↑ |
| Inactive Rearing | 13.6% | ↑ |
| Prespawn Holding | 9.1% | ↑ |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 48 |
| Reach Length (mi) | 0.23 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 2.8 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 40 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | + 1% | Diagnostic Unit Priority | 9 |
| Abundance | 0% | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 24 |
| Productivity | 3.6 |
| Diversity | 26% |
| Abundance | 17 |

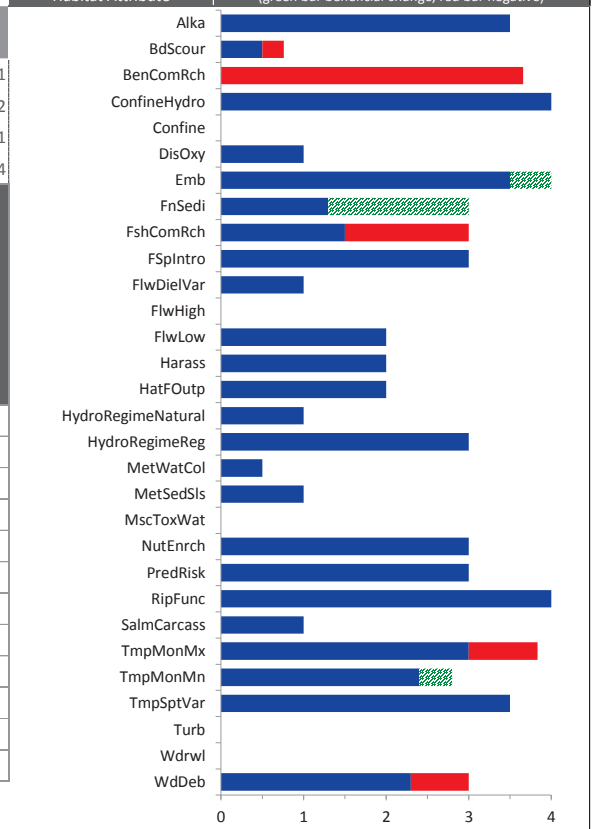
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 31 |
|---|---|---|---|
| Productivity | - 1% | Out of | 192 |
| Diversity | - 1% | Diagnostic Unit Priority | 1 |
| Abundance | - 2% | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.5% | -36.4% | 6 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 3.4% | 1.2% | 1 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 12.1% | -8.0% | 7 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -4.1% | 3 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 57.6% | -3.0% | 9 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -3.5% | 4 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.6% | 2 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 68.6% | -2.3% | 8 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.0% | -16.4% | 5 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



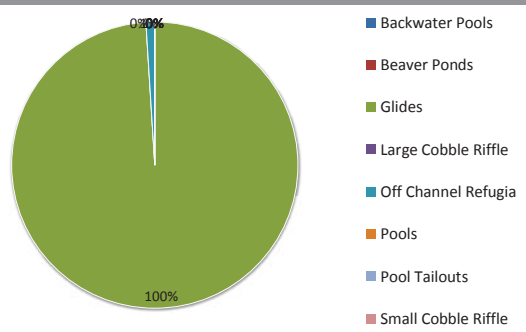

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

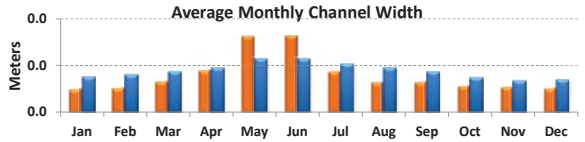
## EDT Habitat Composition Ratings

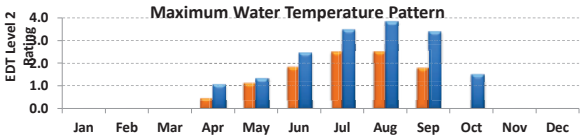


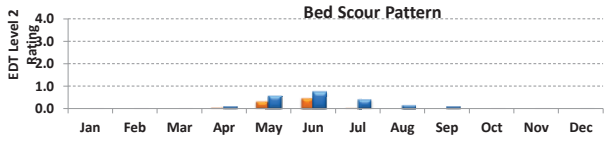

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 43.6% | ▬ |
| Fry Colonization | 13.9% | ↑ |
| Active Rearing | 20.4% | ↑ |
| Inactive Rearing | 13.3% | ↑ |
| Prespawn Holding | 8.9% | ↑ |

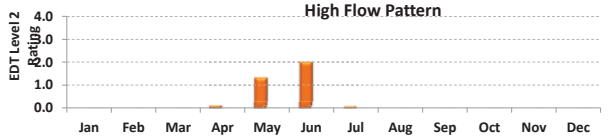
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 49b |
| Reach Length (mi) | 0.46 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 5.6 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 34 |
|---|---|---|---|
| Productivity | + 1% | Out of | 192 |
| Diversity | 0% | Diagnostic Unit Priority | 9 |
| Abundance | 0% | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 48 |
| Productivity | 3.5 |
| Diversity | 26% |
| Abundance | 34 |

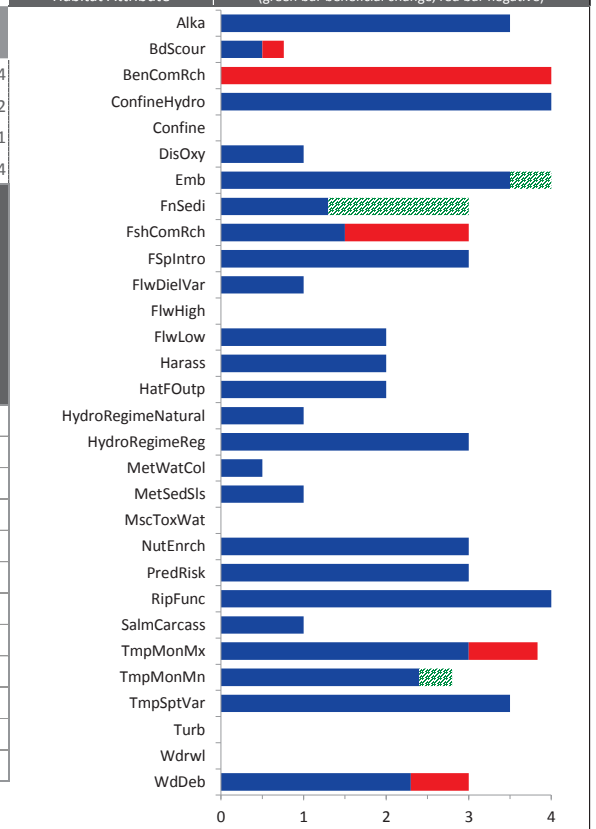
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 14 |
|---|---|---|---|
| Productivity | - 1% | Out of | 192 |
| Diversity | - 4% | Diagnostic Unit Priority | 1 |
| Abundance | - 4% | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 2.1% | -36.0% | 6 | | | | | | | ● | | | ● | ● | | ● | | ↓ |
| Egg Incubation | Oct-Apr | 15.0% | 1.3% | 1 | | | | | | | | | | | | ● | ● | | ↑ |
| Fry colonization | Apr-May | 13.6% | -8.1% | 7 | ● | | | | ● | | ● | | | | ● | ● | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age resident rearing | Jun-Oct | 0.0% | -4.2% | 3 | | | | | | | | | | ● | | | ● | | ↓ |
| 0-age transient rearing | Jun-Oct | 57.3% | -3.0% | 9 | | | | | | | ● | | | | | | ● | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | -3.5% | 4 | | | | | | | | | | | | ● | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.6% | 2 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 67.9% | -2.3% | 8 | | | | | | | ● | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 0.0% | -16.3% | 5 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| Survival Factor Trend | | | | | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | |

## EDT Level 2 Attribute Ratings



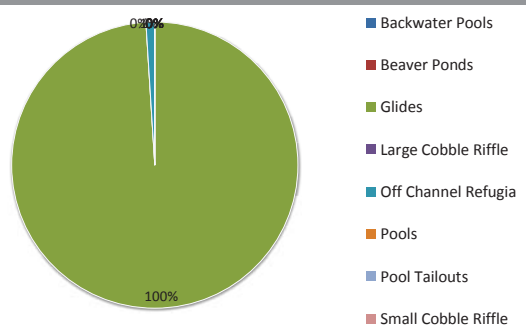

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

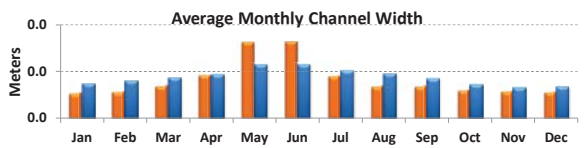
## EDT Habitat Composition Ratings

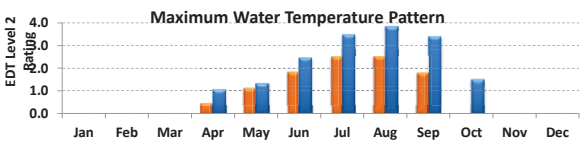


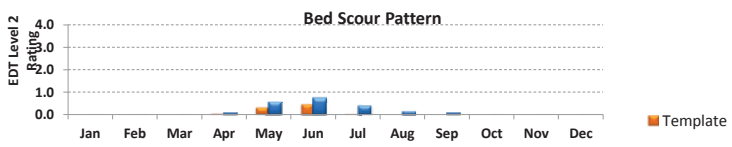

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 43.6% | ▬ |
| Fry Colonization | 13.9% | ↑ |
| Active Rearing | 20.4% | ↑ |
| Inactive Rearing | 13.3% | ↑ |
| Prespawn Holding | 8.9% | ↑ |

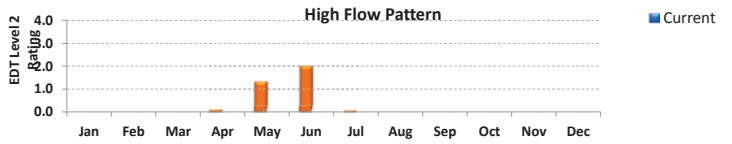
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 50 |
| Reach Length (mi) | 0.19 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 2.3 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 40 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | + 1% | Diagnostic Unit Priority | 9 |
| Abundance | 0% | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 20 |
| Productivity | 2.9 |
| Diversity | 26% |
| Abundance | 13 |

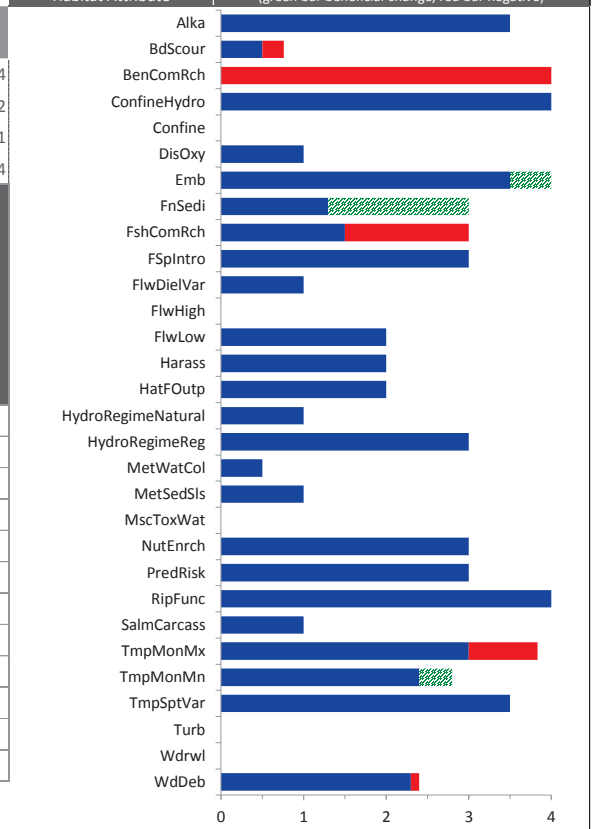
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 34 |
|---|---|---|---|
| Productivity | - 1% | Out of | 192 |
| Diversity | - 1% | Diagnostic Unit Priority | 1 |
| Abundance | - 2% | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.7% | -43.5% | 4 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 5.1% | 1.1% | 1 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 12.0% | -7.1% | 5 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 55.2% | -2.7% | 7 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.5% | 2 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 65.8% | -2.2% | 6 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.0% | -14.9% | 3 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



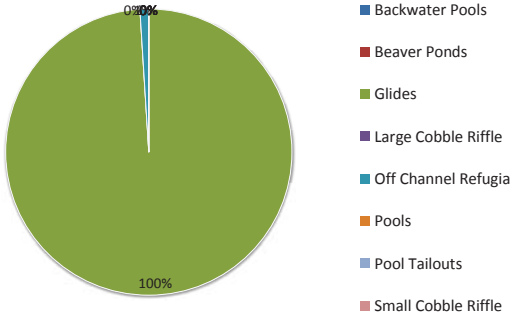

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

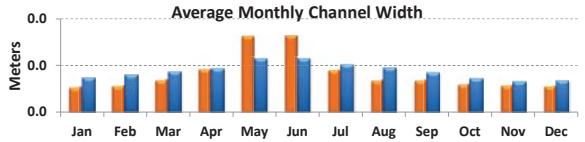
## EDT Habitat Composition Ratings

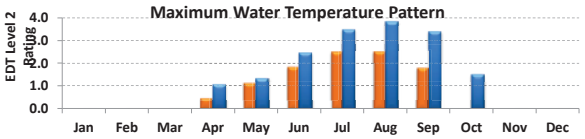


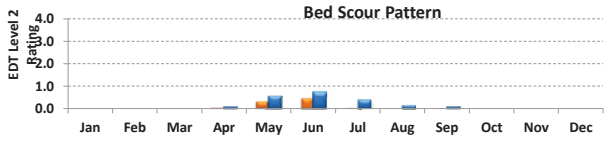

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 65.7% | ▬ |
| Fry Colonization | 20.9% | ↑ |
| Active Rearing | 0.0% | ▬ |
| Inactive Rearing | 0.0% | ▬ |
| Prespawn Holding | 13.4% | ↑ |

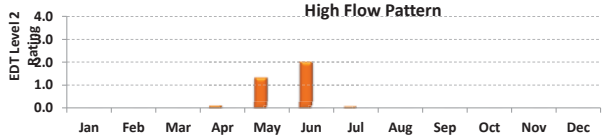
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 52a |
| Reach Length (mi) | 0.67 |
| Average Gradient | 0.1% |
| Habitat Area (ac) | 7.9 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 99 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | 0% | Diagnostic Unit Priority | 9 |
| Abundance | 0% | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 76 |
| Productivity | 4.8 |
| Diversity | 26% |
| Abundance | 60 |

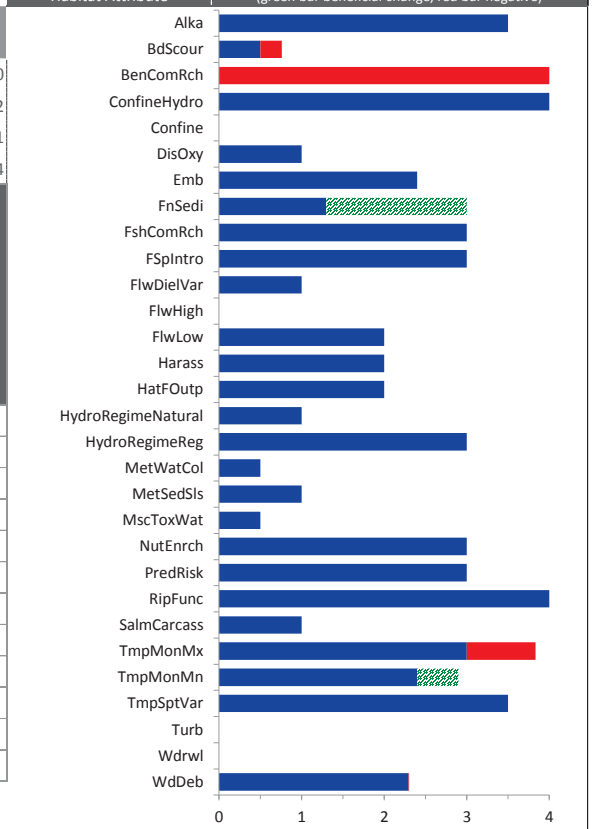
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 10 |
|---|---|---|---|
| Productivity | - 2% | Out of | 192 |
| Diversity | - 4% | Diagnostic Unit Priority | 1 |
| Abundance | - 5% | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 3.1% | -38.6% | 7 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 22.0% | 1.3% | 1 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 14.1% | -6.1% | 6 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -4.4% | 3 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 55.5% | -2.6% | 9 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -0.7% | 4 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.4% | 2 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 65.1% | -2.1% | 8 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.1% | -14.6% | 5 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



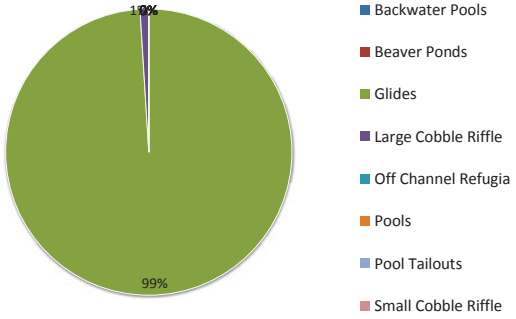

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

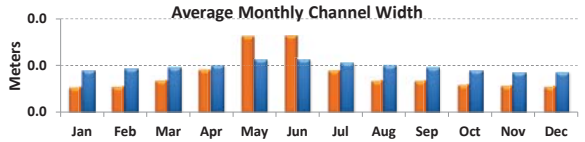
## EDT Habitat Composition Ratings

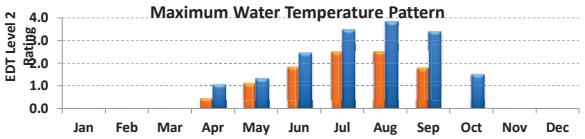


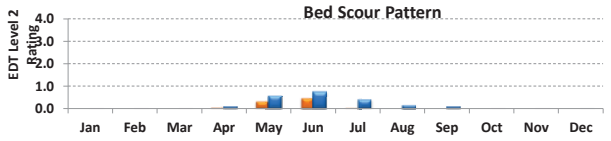

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 34.7% | ▬ |
| Fry Colonization | 17.4% | ▬ |
| Active Rearing | 26.1% | ▬ |
| Inactive Rearing | 13.1% | ▬ |
| Prespawn Holding | 8.7% | ▬ |

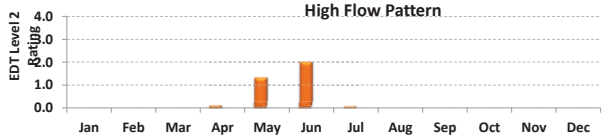
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 53 |
| Reach Length (mi) | 0.49 |
| Average Gradient | 0.1% |
| Habitat Area (ac) | 5.9 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 84 |
| Diversity | + 1% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 9 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 131 |
| Productivity | 11.9 |
| Diversity | 25% |
| Abundance | 120 |

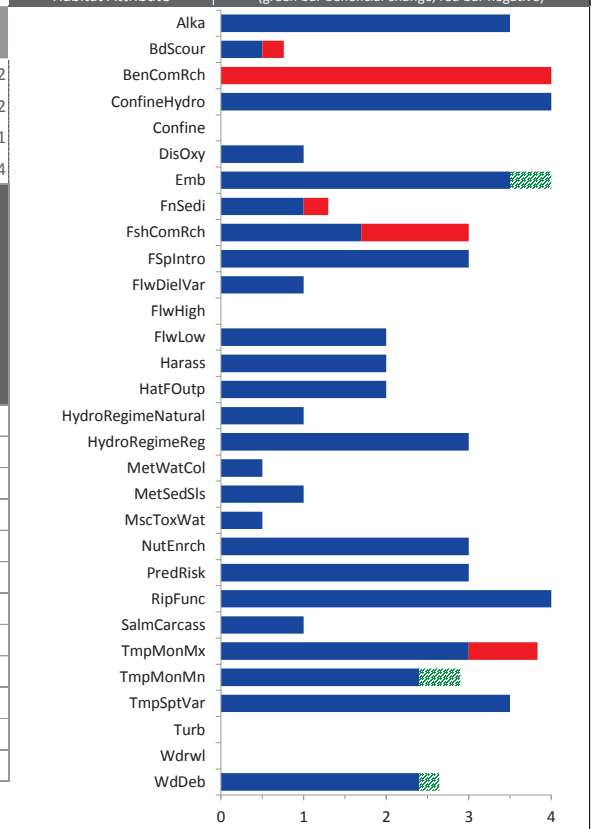
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 4% | Reach Priority | 12 |
| Diversity | - 3% | Out of | 192 |
| Abundance | - 5% | Diagnostic Unit Priority | 1 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 2.6% | -39.9% | 7 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 18.2% | 0.0% | 4 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 12.6% | -7.1% | 6 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -3.5% | 2 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 52.6% | -2.6% | 9 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -3.4% | 3 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.4% | 1 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 62.1% | -2.1% | 8 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.1% | -14.8% | 5 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



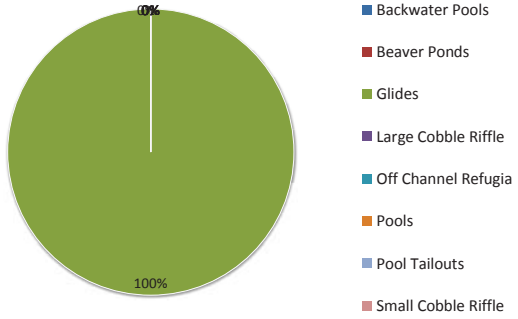

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

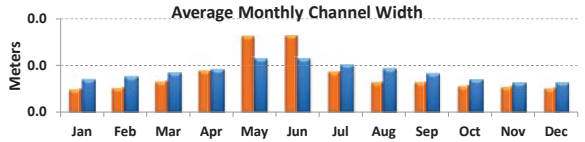
## EDT Habitat Composition Ratings

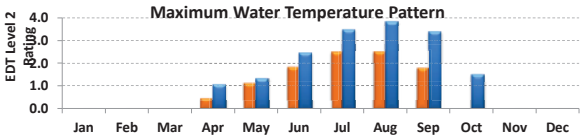


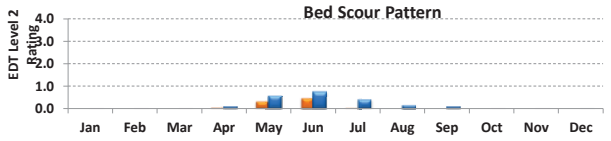

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 34.7% | ▬ |
| Fry Colonization | 17.4% | ▬ |
| Active Rearing | 26.1% | ▬ |
| Inactive Rearing | 13.1% | ▬ |
| Prespawn Holding | 8.7% | ▬ |

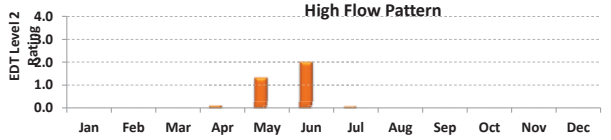
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 55b |
| Reach Length (mi) | 0.66 |
| Average Gradient | 0.1% |
| Habitat Area (ac) | 7.7 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 1% | Reach Priority | 19 |
| Diversity | + 1% | Out of | 192 |
| Abundance | + 1% | Diagnostic Unit Priority | 9 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 46 |
| Productivity | 2.7 |
| Diversity | 25% |
| Abundance | 29 |

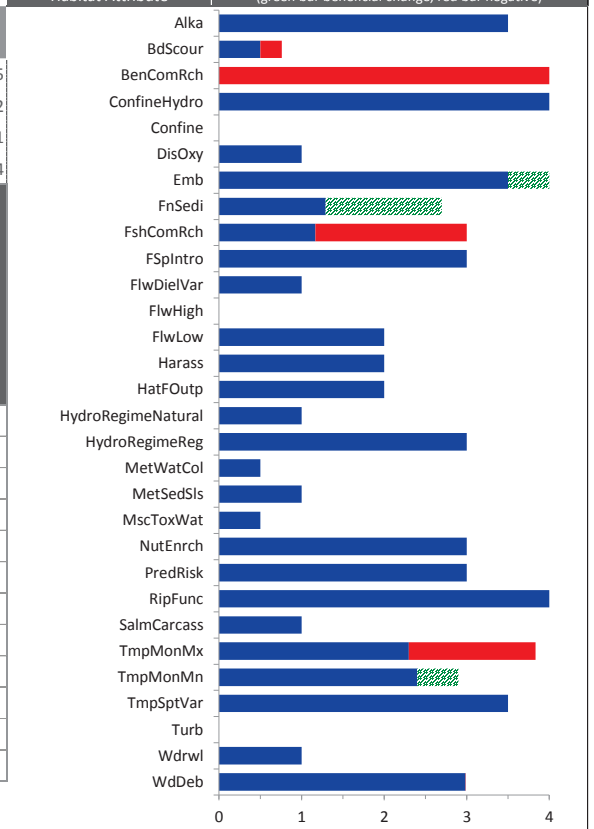
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 1% | Reach Priority | 15 |
| Diversity | - 4% | Out of | 192 |
| Abundance | - 4% | Diagnostic Unit Priority | 1 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.4% | -35.7% | 6 | | | | | | | | | | | | | | | ↓ |
| Egg Incubation | Oct-Apr | 9.9% | 0.0% | 4 | | | | | | | | | | | | | | | — |
| Fry colonization | Apr-May | 13.3% | -8.1% | 7 | | | | | | | | | | | | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -3.6% | 2 | | | | | | | | | | | | | | | ↓ |
| 0-age transient rearing | Jun-Oct | 51.0% | -2.9% | 9 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | -3.4% | 3 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.6% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 59.3% | -2.2% | 8 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.1% | -15.7% | 5 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| | | | | Survival Factor Trend | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

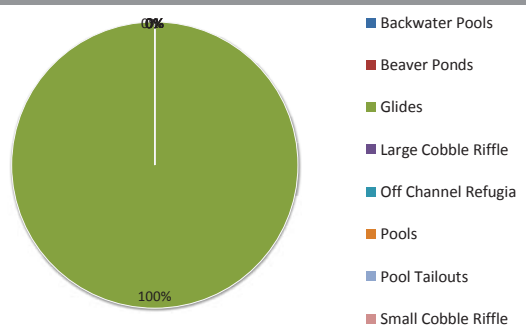
## EDT Level 2 Attribute Ratings




| Habitat Productivity Impact Key | | | | | |
|---|---|---|---|---|---|
| Impact | Extreme | High | Moderate | Small | None |
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

| Trend Key | | |
|---|---|---|
| Trend | Neg. | Pos. |
| <1% | — | — |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

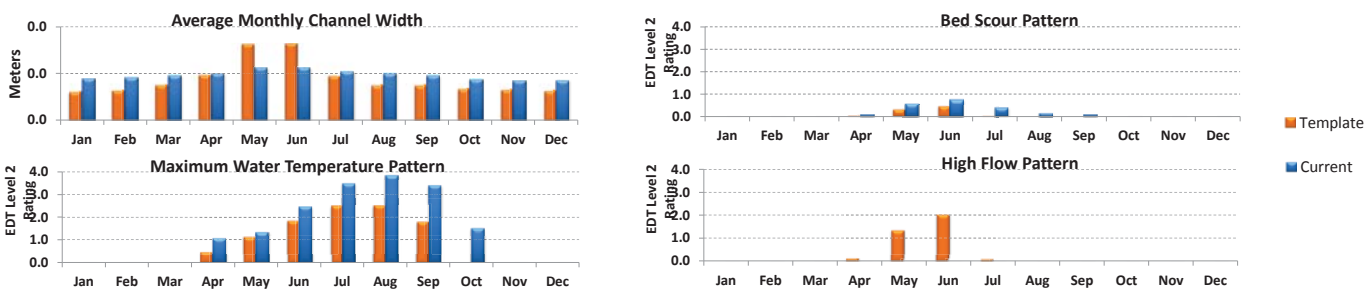
## EDT Habitat Composition Ratings




| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 34.8% | — |
| Fry Colonization | 17.4% | — |
| Active Rearing | 26.1% | — |
| Inactive Rearing | 13.0% | — |
| Prespawn Holding | 8.7% | — |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 57a |
| Reach Length (mi) | 0.69 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 8.2 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 80 |
| Diversity | + 2% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 9 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 125 |
| Productivity | 9.0 |
| Diversity | 25% |
| Abundance | 111 |

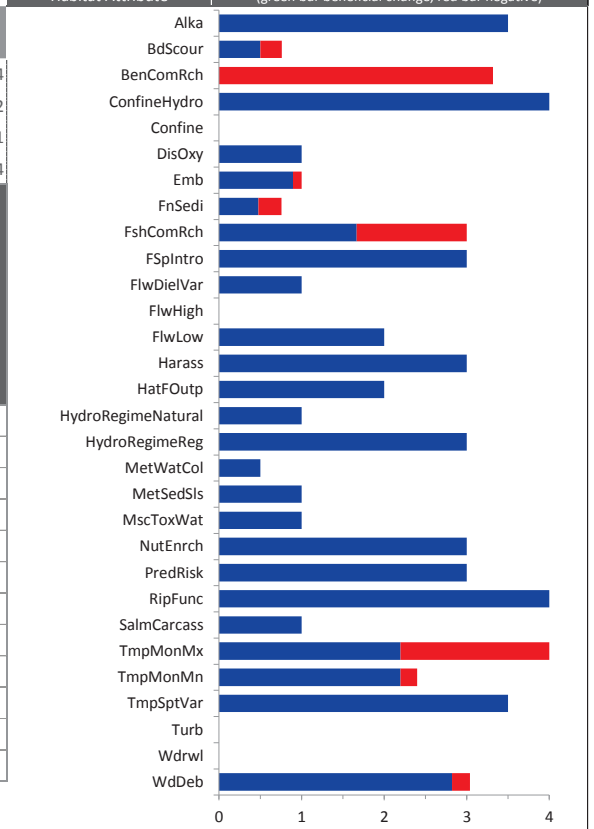
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 3% | Reach Priority | 14 |
| Diversity | - 4% | Out of | 192 |
| Abundance | - 4% | Diagnostic Unit Priority | 1 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 3.0% | -38.5% | 8 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 21.1% | 0.2% | 1 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 14.0% | -7.2% | 7 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -3.9% | 3 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 48.4% | -2.8% | 9 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -0.7% | 4 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.6% | 2 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 58.1% | -1.6% | 6 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.1% | -14.4% | 5 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



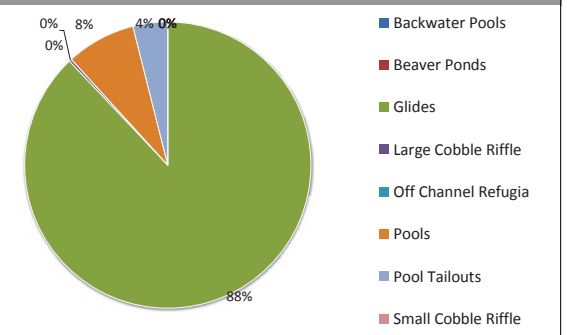

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | | | | | - |
| Gain | | | | | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | | |
| >1-5% | | |
| >5% | | |

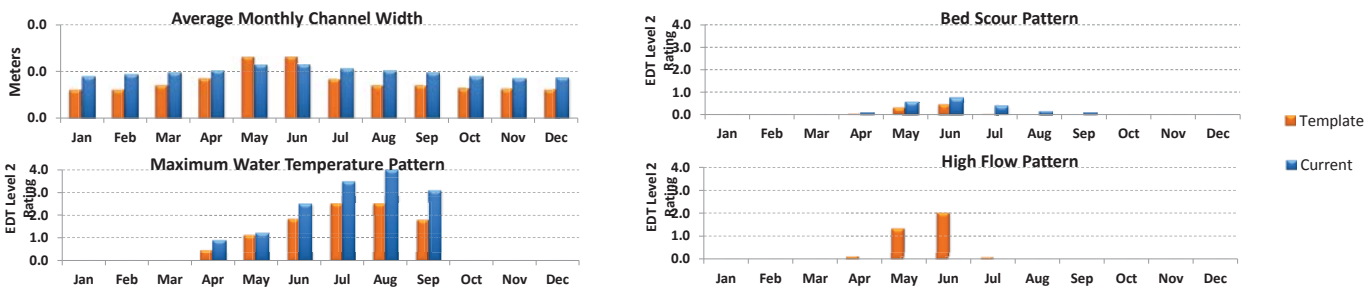
### EDT Habitat Composition Ratings




| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 33.3% | |
| Fry Colonization | 17.4% | |
| Active Rearing | 25.7% | |
| Inactive Rearing | 14.7% | |
| Prespawn Holding | 9.0% | |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 59c |
| Reach Length (mi) | 0.81 |
| Average Gradient | 0.1% |
| Habitat Area (ac) | 8.5 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 80 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | + 1% | Diagnostic Unit Priority | 9 |
| Abundance | 0% | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 82 |
| Productivity | 4.8 |
| Diversity | 26% |
| Abundance | 65 |

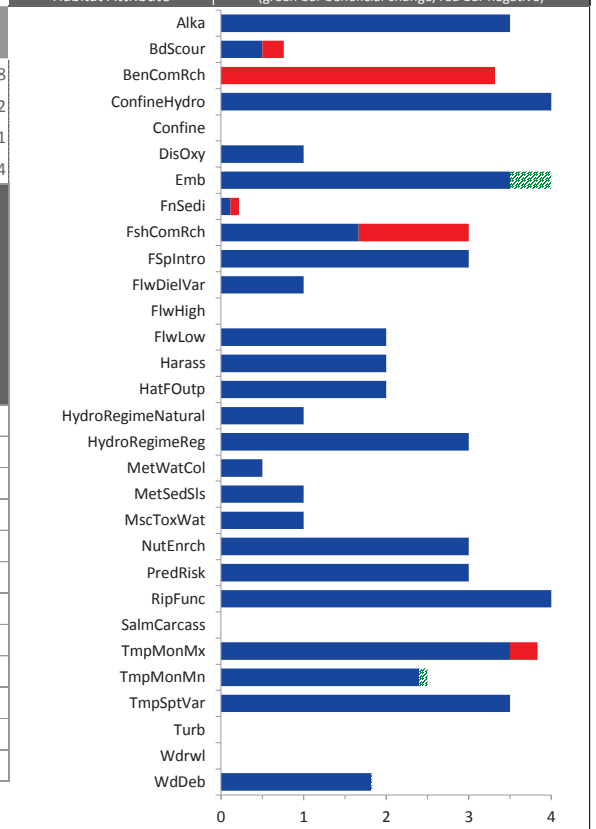
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 18 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | - 6% | Diagnostic Unit Priority | 1 |
| Abundance | - 4% | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 3.2% | -37.4% | 9 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 22.5% | 0.3% | 1 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 14.0% | -6.4% | 6 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | -3.9% | 3 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 46.8% | -2.4% | 7 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | -3.4% | 4 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | -2.3% | 2 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 54.9% | -2.1% | 8 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.1% | -12.3% | 5 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



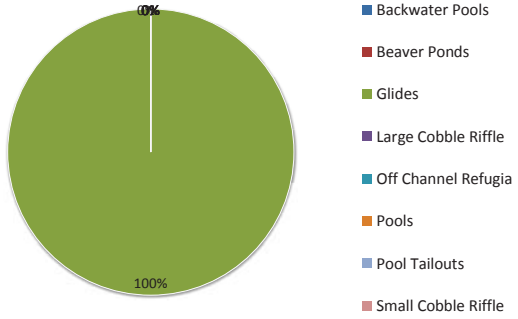

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

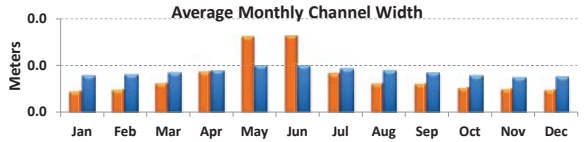
## EDT Habitat Composition Ratings

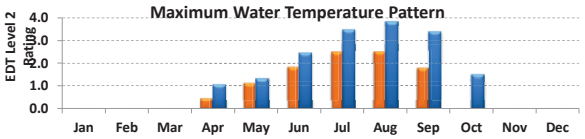


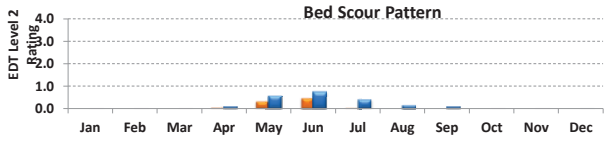

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 34.8% | ▬ |
| Fry Colonization | 17.4% | ▬ |
| Active Rearing | 26.1% | ▬ |
| Inactive Rearing | 13.0% | ▬ |
| Prespawn Holding | 8.7% | ▬ |

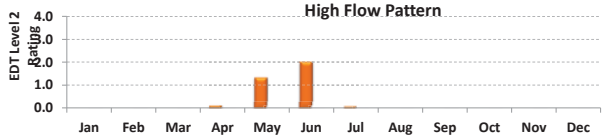
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O8: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 60 |
| Reach Length (mi) | 0.68 |
| Average Gradient | 0.1% |
| Habitat Area (ac) | 8.3 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 1% | Reach Priority | 19 |
| Diversity | + 2% | Out of | 192 |
| Abundance | + 1% | Diagnostic Unit Priority | 9 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 67 |
| Productivity | 4.4 |
| Diversity | 25% |
| Abundance | 52 |

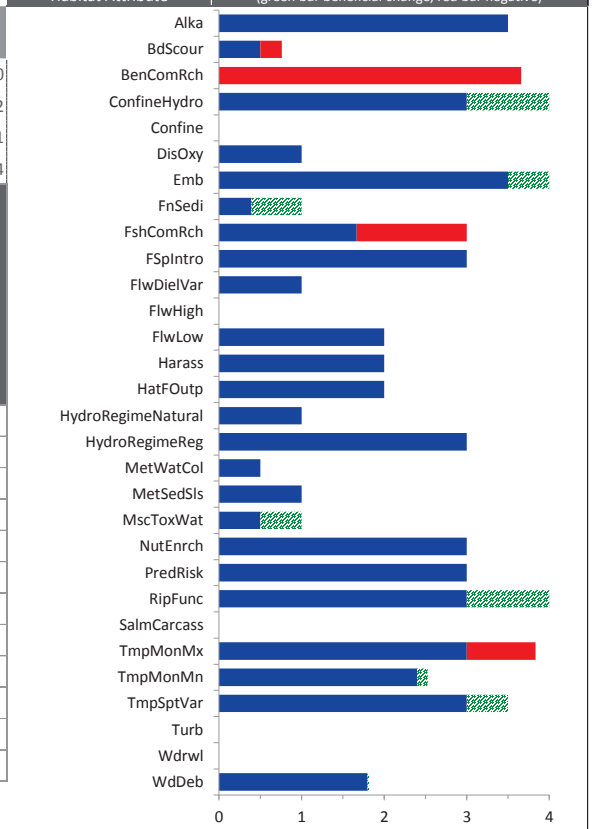
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 1% | Reach Priority | 20 |
| Diversity | - 4% | Out of | 192 |
| Abundance | - 3% | Diagnostic Unit Priority | 1 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 2.1% | -36.5% | 7 | | | | | | | | | | | | | | | ↓ |
| Egg Incubation | Oct-Apr | 14.9% | -0.7% | 5 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 12.3% | -4.1% | 6 | | | | | | | | | | | | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -3.3% | 2 | | | | | | | | | | | | | | | ↓ |
| 0-age transient rearing | Jun-Oct | 41.9% | -1.9% | 8 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | -3.2% | 3 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -1.8% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 51.9% | -1.5% | 9 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.1% | -8.0% | 4 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



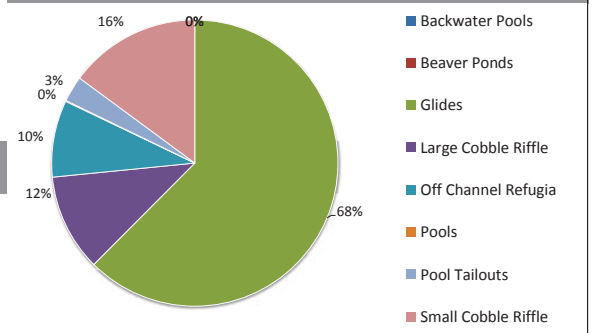

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

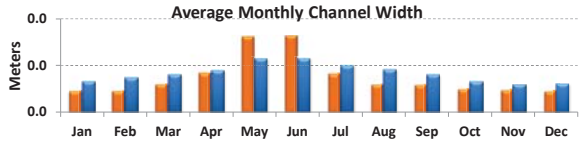
## EDT Habitat Composition Ratings

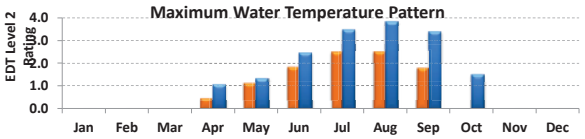


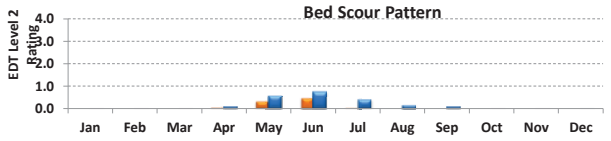

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 34.4% | — |
| Fry Colonization | 17.3% | ↓ |
| Active Rearing | 26.2% | ↓ |
| Inactive Rearing | 13.3% | ↓ |
| Prespawn Holding | 8.9% | ↓ |

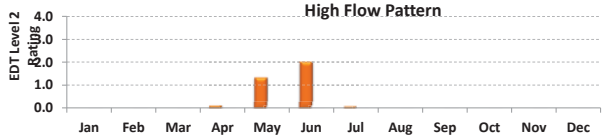
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

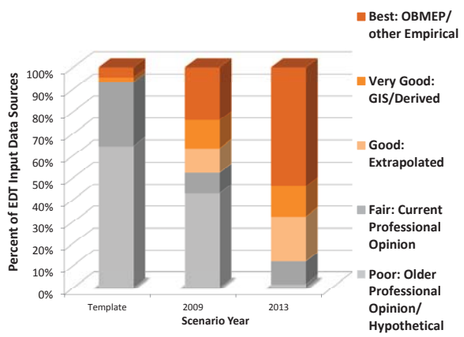
| | |
|---|---|
| Diagnostic Unit | Okanagan River O9: Canada Main |
| Species | Chinook |
| Population | Okanagan (Can) |
| Status and Trend Year | 2013 |
| Trend Comparison | 2013 to 2009 |

## How Important is Okanagan River O9: Canada Mainstem Middle for Conservation of Okanagan (Can) Chinook?

| Effect on Population Potential if this Unit | Degrades | Is Restored |
|---|---|---|
| Adult Abundance | -0.5% | 0.0% |
| Adult Productivity | -4.5% | +4.9% |
| Life History Diversity | -1.0% | 0.0% |
| Diagnostic Unit Priority Rank[1] | 5 of 5 | 11 of 5 |

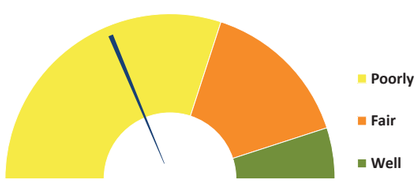
[1] Relative to all Okanagan (Can) Diagnostic Units used by this Chinook population

## How Good is Our Information in Okanagan River O9: Canada Mainstem Middle?

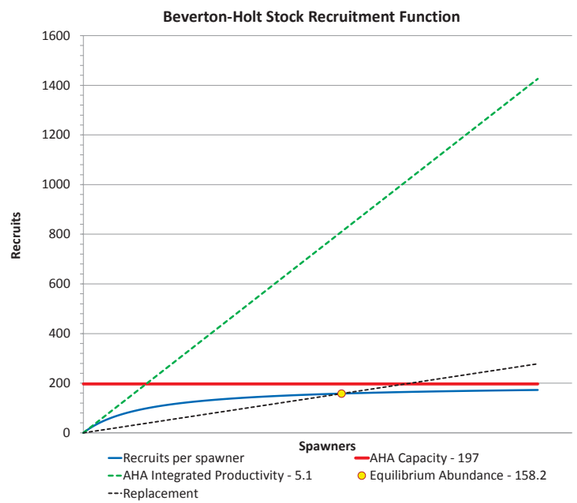


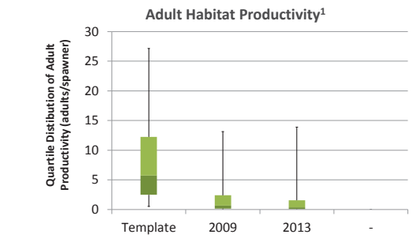

## How is Okanagan River O9: Canada Mainstem Middle Performing as Chinook Habitat?

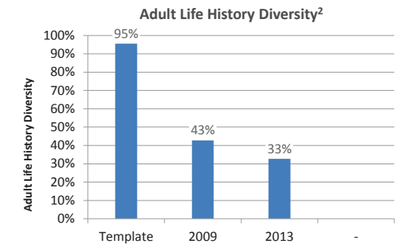
Currently Functioning at 37% of Template Habitat Potential

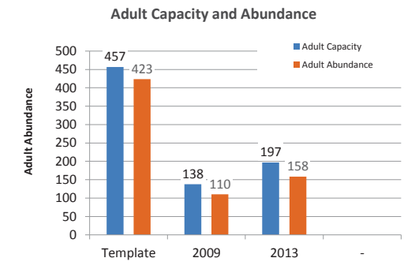


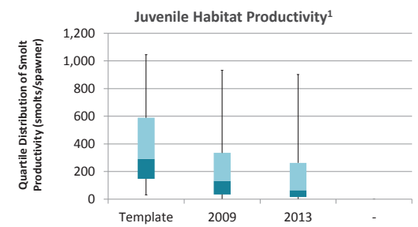

## What are the Trends in Chinook Habitat Potential in Okanagan River O9: Canada Mainstem Middle?

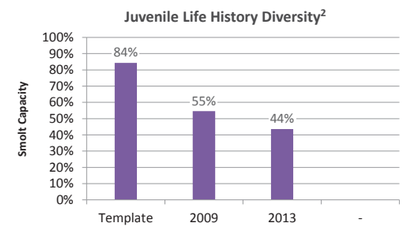


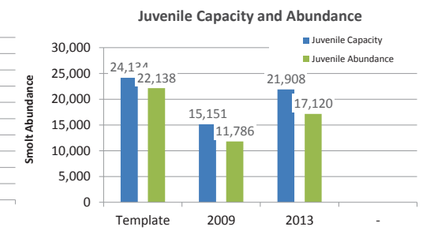



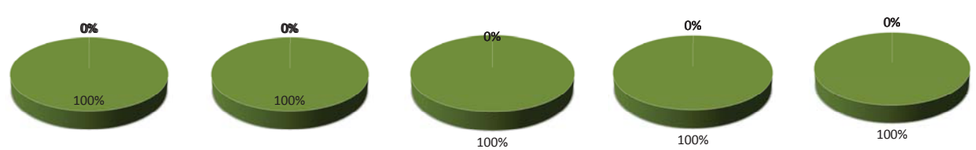



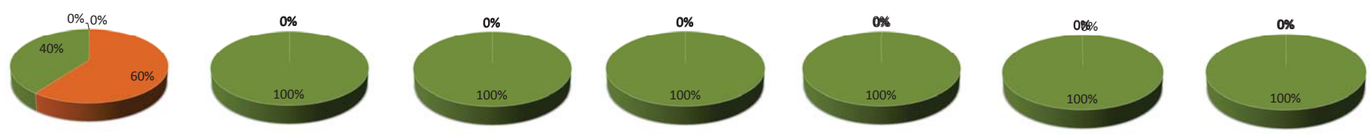

EDT used 2151 life history trajectories to model habitat potential in Okanagan River O9: Canada Mainstem Middle

[1] Box and whisker graphs show the quartile distribution of cumulative habitat productivity for all 2151 EDT trajectories used to model this Diagnostic Unit.
[2] The percent of adult trajectories having a productivity >1.0 or juvenile productivity >100 smolts/spawner represent the range of life history diversity each habitat scenario can theoretically support.

## Chinook Survival Factor Condition in Okanagan River O9: Canada Mainste and Trend Between 2009 and 2013




| | Channel Stability | Sediment Conditions | Flow Conditions | Withdrawals | Habitat Diversity |
|---|---|---|---|---|---|
| % of Template | 100% | 100% | 100% | 100% | 99% |
| Factor Wt. | 1% | 2% | 2% | 1% | 8% |
| Factor Trend | - | - | - | - | - |
| Level of Proof | 1.59 | 1.84 | 1.54 | 4.00 | 1.62 |




| | Temperature | Dissolved Oxygen | Competition-Hatchery | Competition-Other | Food | Predation | Obstructions |
|---|---|---|---|---|---|---|---|
| % of Template | 94% | 100% | 100% | 100% | 100% | 99% | 100% |
| Factor Wt. | 73% | 1% | 0% | 1% | 0% | 11% | 0% |
| Factor Trend | ▼ | - | - | - | - | - | - |
| Level of Proof | 1.98 | 4.00 | 1.91 | 1.96 | 1.11 | 2.00 | 1.00 |

READ ME - Pie charts describe how well each EDT Survival Factor is functioning based on its overall effect on Chinook productivity; % of Template describes current Survival Factor condition relative to template; Factor Weight rates relative importance of each Survival Factor based its proportional impact on Chinook productivity relative to other survival factors; Factor Trend describes change in Survival Factor % of Template between the 2009 and 2013 habitat scenarios.

### Change in Function Relative to Benchmark Key - Proportion of Habitat

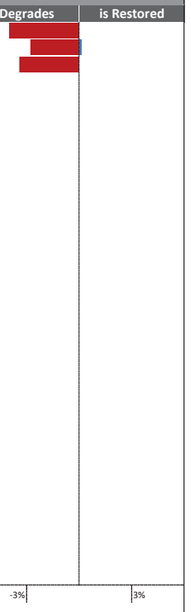
| Categorical Ranking | Productivity Impact |
|---|---|
| Not properly functioning | >5.1% reduction |
| Functioning at High Risk | 2.6% to 5% reduction |
| Functioning at Risk | 1.1% to 2.5% reduction |
| Properly Functioning | 0% to 1% reduction |

### Key - Survival Factor Trend

| Change | Neg. | Pos. |
|---|---|---|
| <1% | - | - |
| >1-5% | ▼ | ▲ |
| >5% | ⇩ | ⇧ |

### Habitat Priorities - Change in Population Abundance If (values normalized to %change/river mile)

| This Reach, Length (mi) | | Degrades | is Restored |
|---|---|---|---|
| Okanagan River 61 | 0.57 | | |
| Okanagan River 64 | 1.18 | | |
| Okanagan River 65b | 0.21 | | |



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

## OBSTRUCTIONS AND KEY HABITAT

**Subbasin:** Okanagan (Can)
**Species:** Chinook
**Population:** Okanogan Summer/Fall
**Monitoring Cycle:** 2009-2013
**Diagnostic Unit:** Okanagan River O9: Canada Mainstem Middle

**Diagnostic Unit Habitat Statistics**

**Stream Length (mi):** 1.97
**Template Adult Capacity:** 457

**Diagnostic Unit Obstruction Statistics**

**# of Obstructions:** 0 **# Manmade:** 0
**Factor Weight:** 0% of DU productivity impairment

**There Were 0 Manmade Obstructions in Okanagan River O9: Canada Mainstem Middle in 2013 With the Following Effects on Chinook Productivity (NR = Obstruction not rated)**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

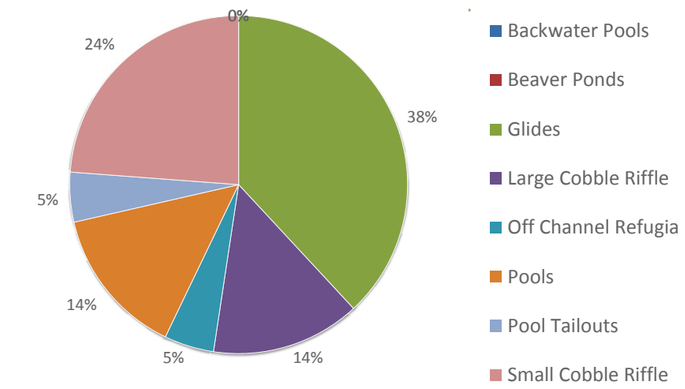
| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Habitat available upstream of this barrier: Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

**Okanagan River O9: Canada Mainstem Middle Habitat Composition and Key Habitat Area for Chinook Under Template Conditions**

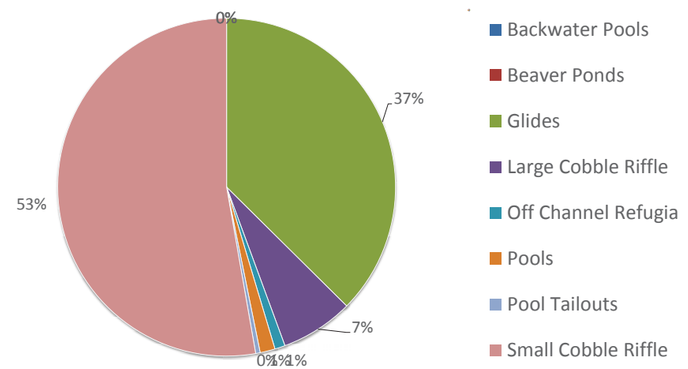



| Lifestage | Key Habitat Area* |
|---|---|
| Spawning | 31% |
| Fry colonization | 11% |
| 0-age active | 24% |
| 0-age inactive | 19% |
| 1-age active | 0% |
| 1-age inactive | 0% |
| 2+-age migrant | 0% |
| Prespawn holding | 15% |

**Template Habitat Capacity**

| Scenario | Adult | Juvenile |
|---|---|---|
| Template | 457 | 24,134 |

**Okanagan River O9: Canada Mainstem Middle Habitat Composition in 2009 and Trend in Chinook Key Habitat Area Since Template**

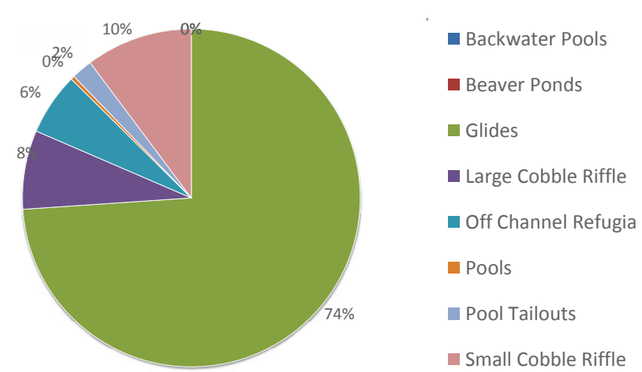



| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 65.6% | 37% |
| Fry colonization | 15.4% | -10% |
| 0-age active | 6.0% | -84% |
| 0-age inactive | 5.7% | -81% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 7.3% | -68% |

**Net Habitat Capacity and Change Since Template**

| Comparison | Adult | Juvenile |
|---|---|---|
| Template to 2009 | 138 (-70%) | 15151 (-37%) |

**Okanagan River O9: Canada Mainstem Middle Habitat Composition in 2013 and Trend in Chinook Key Habitat Area Since 2009**




| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 39.9% | -17% |
| Fry colonization | 17.1% | 50% |
| 0-age active | 22.2% | 404% |
| 0-age inactive | 12.2% | 190% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 8.6% | 61% |

**Net Habitat Capacity and Change Since 2009**

| Comparison | Adult | Juvenile |
|---|---|---|
| 2009 to 2013 | 197 (43%) | 21908 (45%) |

* Percent of reach providing key habitat for this life stage in EDT in this habitat scenario

# Okanagan River 09: Semi-Natural Section

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O9: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 61 |
| Reach Length (mi) | 0.57 |
| Average Gradient | 0.1% |
| Habitat Area (ac) | 6.5 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 82 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | + 1% | Diagnostic Unit Priority | 11 |
| Abundance | 0% | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 52 |
| Productivity | 4.9 |
| Diversity | 25% |
| Abundance | 41 |

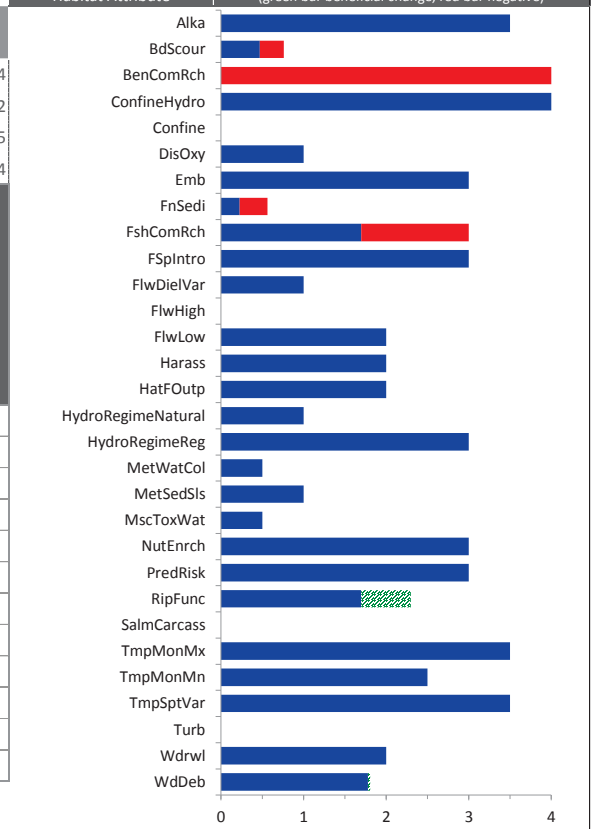
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 24 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | - 4% | Diagnostic Unit Priority | 5 |
| Abundance | - 3% | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 2.1% | -35.6% | 7 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 14.8% | -0.6% | 3 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 12.3% | -3.4% | 4 | | | | | | | | | | | | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 40.4% | -1.2% | 5 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | -1.8% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 49.8% | -1.2% | 6 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.0% | -5.4% | 2 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



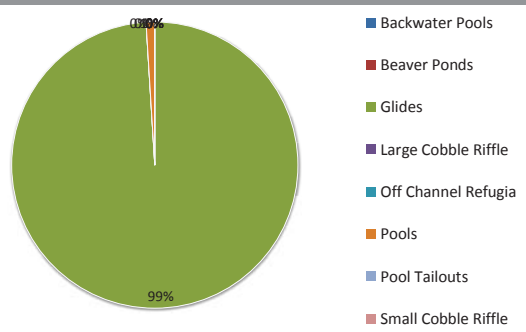

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

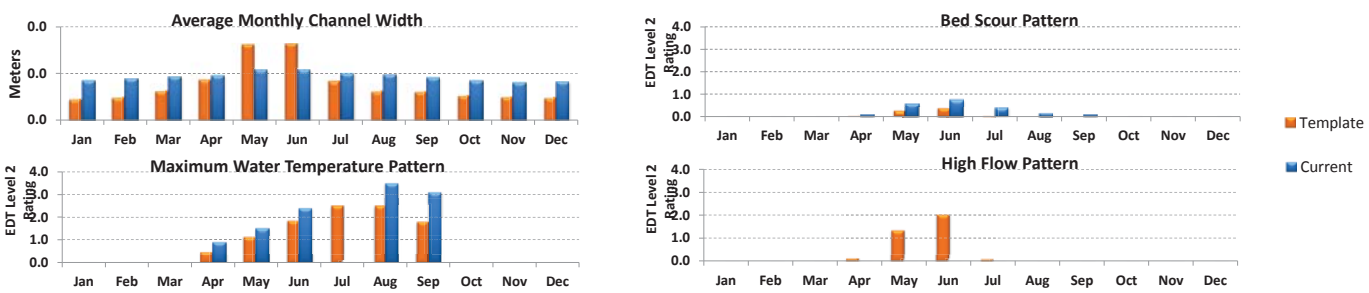
## EDT Habitat Composition Ratings




| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 56.4% | — |
| Fry Colonization | 28.4% | — |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 15.2% | — |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O9: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 64 |
| Reach Length (mi) | 1.18 |
| Average Gradient | 0.1% |
| Habitat Area (ac) | 16.8 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 68 |
|---|---|---|---|
| Productivity | + 2% | Out of | 192 |
| Diversity | + 3% | Diagnostic Unit Priority | 11 |
| Abundance | 0% | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 127 |
| Productivity | 5.3 |
| Diversity | 24% |
| Abundance | 103 |

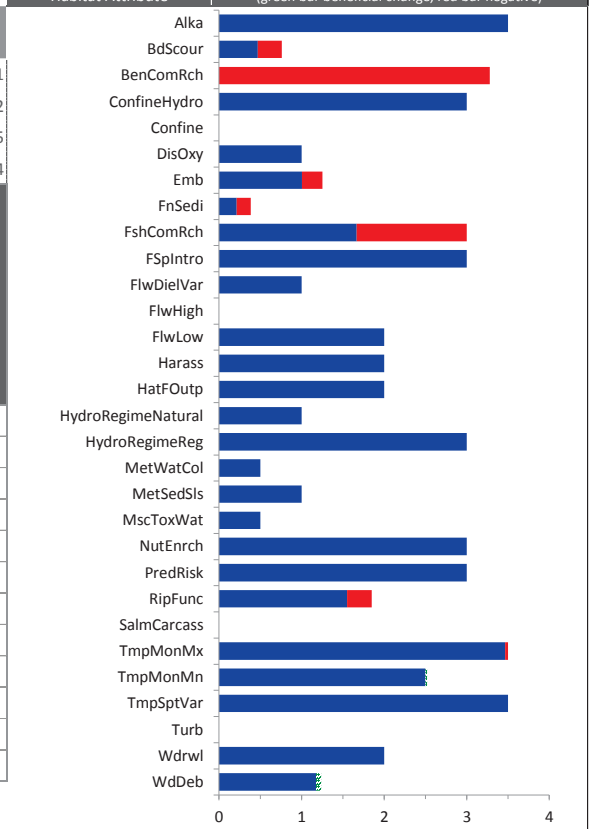
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 11 |
|---|---|---|---|
| Productivity | - 2% | Out of | 192 |
| Diversity | - 9% | Diagnostic Unit Priority | 5 |
| Abundance | - 4% | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 6.0% | -36.6% | 9 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 42.2% | -0.7% | 6 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 12.3% | -1.8% | 5 | | | | | | | | | | | | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.6% | 2 | | | | | | | | | | | | | | | ↓ |
| 0-age transient rearing | Jun-Oct | 41.3% | -1.5% | 7 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | -0.2% | 3 | | | | | | | | | | | | | | | ↓ |
| 1-age migrant | Apr-Jun | 0.0% | -1.5% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 47.7% | -1.6% | 8 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.0% | -5.0% | 4 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



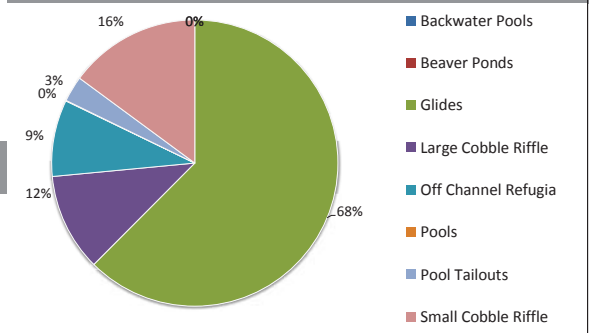

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

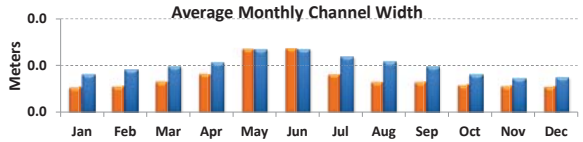
## EDT Habitat Composition Ratings

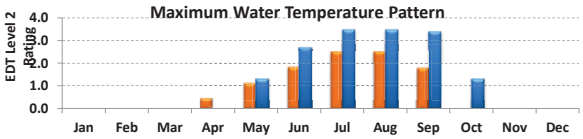


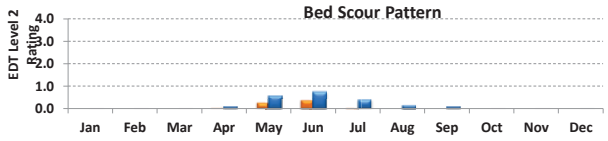

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 74.7% | ↓ |
| Fry Colonization | 9.1% | ↑ |
| Active Rearing | 6.4% | ↑ |
| Inactive Rearing | 6.1% | ↑ |
| Prespawn Holding | 3.8% | ↑ |

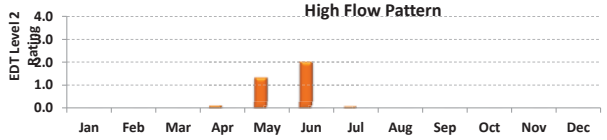
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O9: Canada Mainste |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 65b |
| Reach Length (mi) | 0.21 |
| Average Gradient | 0.3% |
| Habitat Area (ac) | 2.6 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 91 |
| Diversity | + 1% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 17 |
| Productivity | 4.6 |
| Diversity | 26% |
| Abundance | 14 |

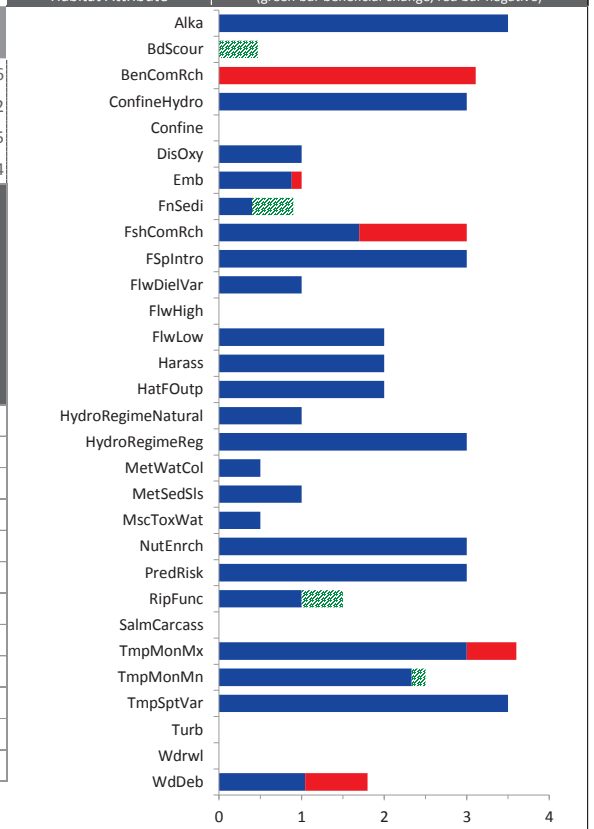
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 1% | Reach Priority | 36 |
| Diversity | - 2% | Out of | 192 |
| Abundance | - 1% | Diagnostic Unit Priority | 5 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.9% | -28.5% | 5 | | | | | | | | | | | | | | | ↓ |
| Egg Incubation | Oct-Apr | 6.3% | -0.6% | 3 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 6.0% | -2.0% | 4 | | | | | | | | | | | | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 35.9% | -1.7% | 7 | | | | | | | | | | | | | | | ↑ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | -1.5% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 41.5% | -0.9% | 6 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.1% | -4.0% | 2 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| | | | | Survival Factor Trend | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



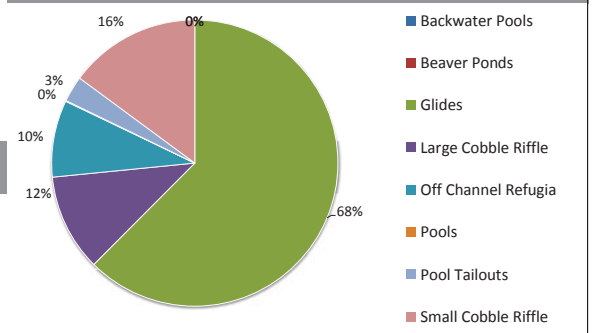

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

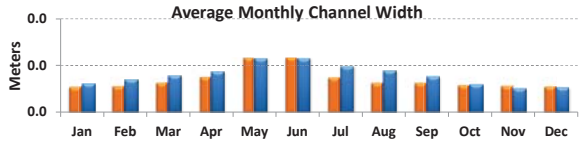
## EDT Habitat Composition Ratings

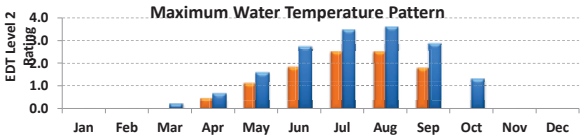


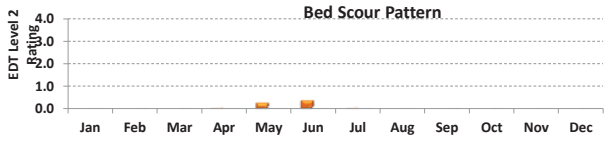

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 85.3% | ↓ |
| Fry Colonization | 10.4% | ↑ |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 4.3% | ↑ |

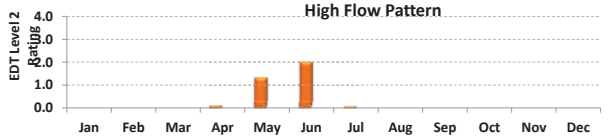
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

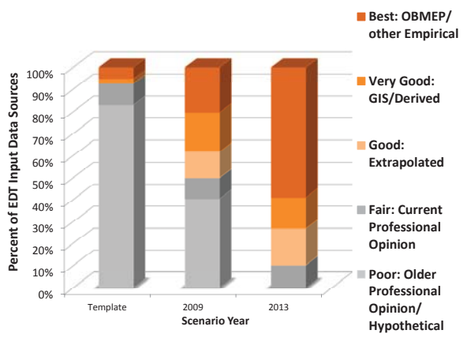
| | |
|---|---|
| Diagnostic Unit | Okanagan River O10: Natural Sect |
| Species | Chinook |
| Population | Okanagan (Can) |
| Status and Trend Year | 2013 |
| Trend Comparison | 2013 to 2009 |

## How Important is Okanagan River O10: Natural Section for Conservation of Okanagan (Can) Chinook?

| Effect on Population Potential if this Unit | Degrades | Is Restored |
|---|---|---|
| Adult Abundance | 0.0% | 0.0% |
| Adult Productivity | -6.2% | +9.8% |
| Life History Diversity | -0.6% | +0.9% |
| Diagnostic Unit Priority Rank[1] | 11 of 5 | 3 of 5 |

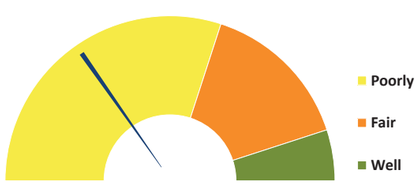
[1] Relative to all Okanagan (Can) Diagnostic Units used by this Chinook population

## How Good is Our Information in Okanagan River O10: Natural Section?

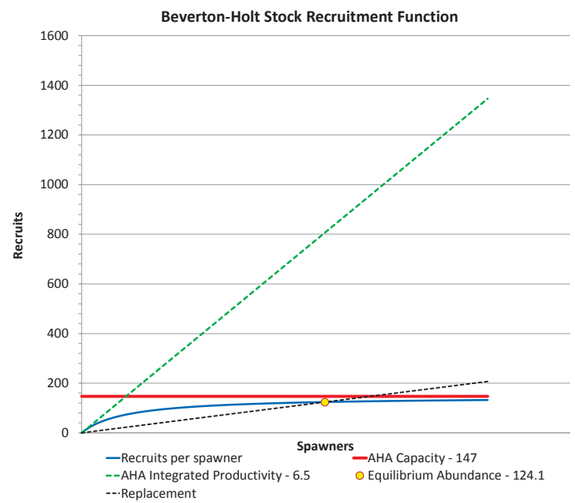


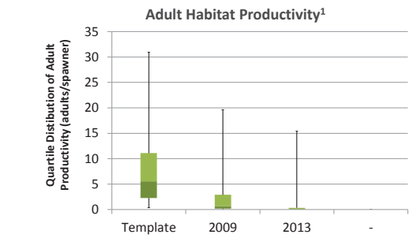

## How is Okanagan River O10: Natural Section Performing as Chinook Habitat?

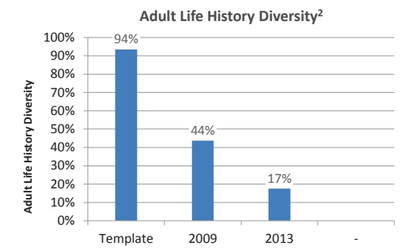
Currently Functioning at 31% of Template Habitat Potential

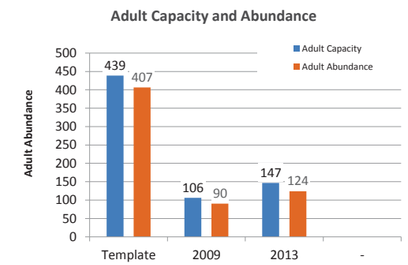


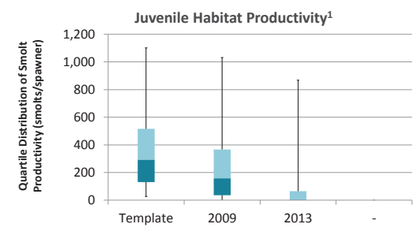

## What are the Trends in Chinook Habitat Potential in Okanagan River O10: Natural Section?

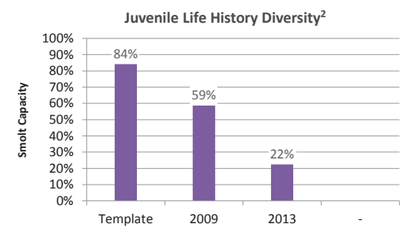


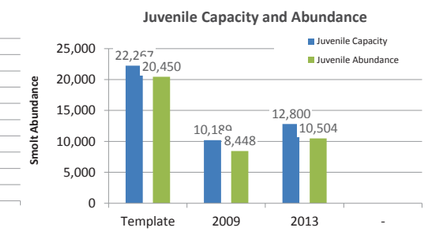



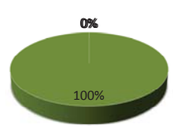




EDT used 1771 life history trajectories to model habitat potential in Okanagan River O10: Natural Section

[1] Box and whisker graphs show the quartile distribution of cumulative habitat productivity for all 1771 EDT trajectories used to model this Diagnostic Unit.
[2] The percent of adult trajectories having a productivity >1.0 or juvenile productivity >100 smolts/spawner represent the range of life history diversity each habitat scenario can theoretically support.

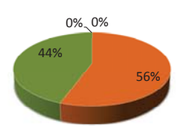
## Chinook Survival Factor Condition in Okanagan River O10: Natural Secti and Trend Between 2009 and 2013

### Channel Stability



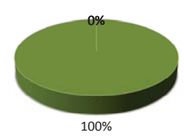

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 0% |
| Factor Trend | |
| Level of Proof | 2.00 |

### Sediment Conditions



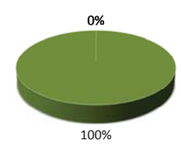

| | |
|---|---|
| % of Template | 98% |
| Factor Wt. | 15% |
| Factor Trend | |
| Level of Proof | 1.46 |

### Flow Conditions



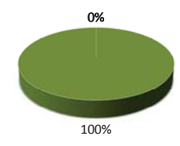

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 0% |
| Factor Trend | |
| Level of Proof | 1.45 |

### Withdrawals



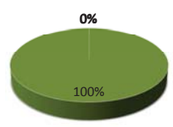

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 0% |
| Factor Trend | |
| Level of Proof | 4.00 |

### Habitat Diversity



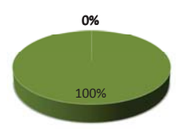

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 1% |
| Factor Trend | |
| Level of Proof | 2.00 |

### Temperature



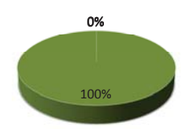

| | |
|---|---|
| % of Template | 92% |
| Factor Wt. | 73% |
| Factor Trend | |
| Level of Proof | 2.24 |

### Dissolved Oxygen



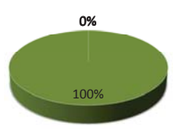

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 1% |
| Factor Trend | |
| Level of Proof | 4.00 |

### Competition-Hatchery



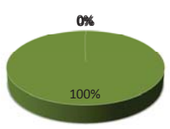

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 0% |
| Factor Trend | |
| Level of Proof | 2.16 |

### Competition-Other



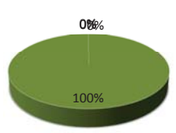

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 0% |
| Factor Trend | |
| Level of Proof | 2.16 |

### Food



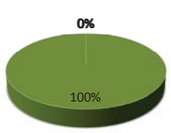

| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 0% |
| Factor Trend | |
| Level of Proof | 1.17 |

### Predation




| | |
|---|---|
| % of Template | 99% |
| Factor Wt. | 8% |
| Factor Trend | |
| Level of Proof | 2.03 |

### Obstructions




| | |
|---|---|
| % of Template | 100% |
| Factor Wt. | 0% |
| Factor Trend | |
| Level of Proof | 2.00 |

READ ME - Pie charts describe how well each EDT Survival Factor is functioning based on its overall effect on Chinook productivity; % of Template describes current Survival Factor condition relative to template; Factor Weight rates relative importance of each Survival Factor based its proportional impact on Chinook productivity relative to other survival factors; Factor Trend describes change in Survival Factor % of Template between the 2009 and 2013 habitat scenarios.

### Change in Function Relative to Benchmark Key - Proportion of Habitat

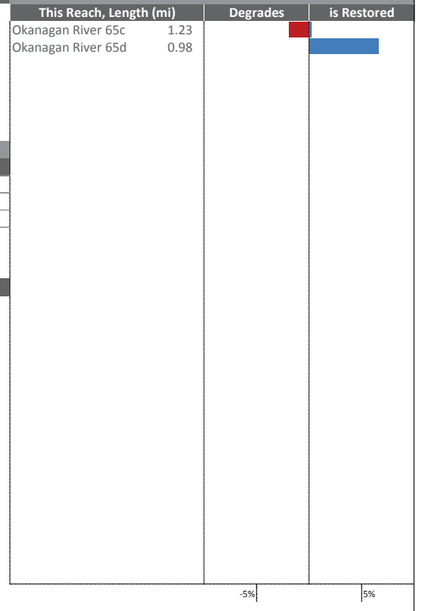
| Categorical Ranking | Productivity Impact |
|---|---|
| Not properly functioning | >5.1% reduction |
| Functioning at High Risk | 2.6% to 5% reduction |
| Functioning at Risk | 1.1% to 2.5% reduction |
| Properly Functioning | 0% to 1% reduction |

### Key - Survival Factor Trend

| Change | Neg. | Pos. |
|---|---|---|
| <1% | | |
| >1-5% | | |
| >5% | | |

## Habitat Priorities - Change in Population Abundance If (values normalized to %change/river mile)

| This Reach, Length (mi) | | Degrades | is Restored |
|---|---|---|---|
| Okanagan River 65c | 1.23 | | |
| Okanagan River 65d | 0.98 | | |



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

## OBSTRUCTIONS AND KEY HABITAT

**Subbasin:** Okanagan (Can)
**Species:** Chinook
**Population:** Okanogan Summer/Fall
**Monitoring Cycle:** 2009-2013
**Diagnostic Unit:** Okanagan River O10: Natural Section

### Diagnostic Unit Habitat Statistics

**Stream Length (mi):** 2.20
**Template Adult Capacity:** 439

### Diagnostic Unit Obstruction Statistics

**# of Obstructions:** 1 **# Manmade:** 1
**Factor Weight:** 0% of DU productivity impairment

### There Was 1 Manmade Obstruction in Okanagan River O10: Natural Section in 2013 With the Following Effects on Chinook Productivity (NR = Obstruction not rated)

agan River 65e (McIntyre dam) - 0% of DU reach length upstream

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 0 | 0 |
| Juvenile | NR | NR | 0 | 0 |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

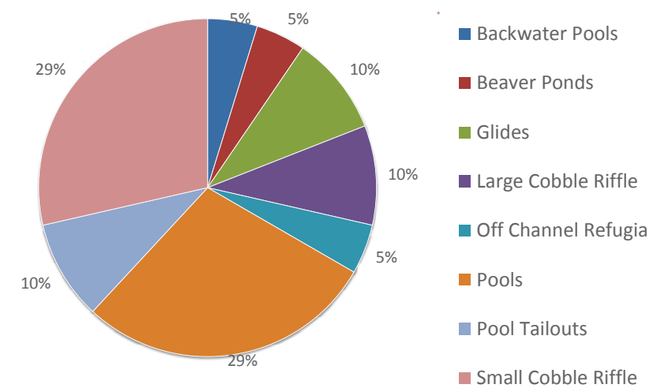
| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

### Okanagan River O10: Natural Section Habitat Composition and Key Habitat Area for Chinook Under Template Conditions

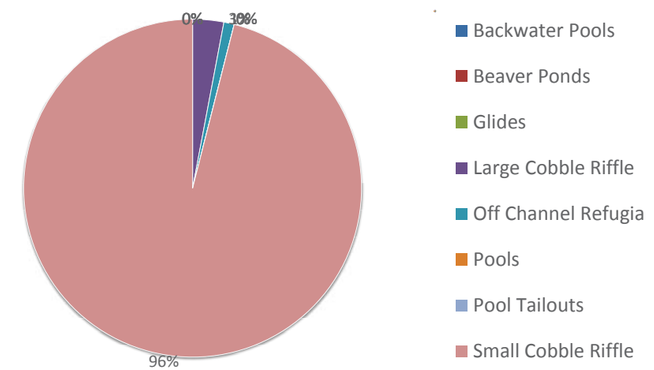



| Lifestage | Key Habitat Area* |
|---|---|
| Spawning | 22% |
| Fry colonization | 9% |
| 0-age active | 28% |
| 0-age inactive | 23% |
| 1-age active | 0% |
| 1-age inactive | 0% |
| 2+-age migrant | 0% |
| Prespawn holding | 18% |

**Template Habitat Capacity**

| Scenario | Adult | Juvenile |
|---|---|---|
| Template | 439 | 22,267 |

### Okanagan River O10: Natural Section Habitat Composition in 2009 and Trend in Chinook Key Habitat Area Since Template

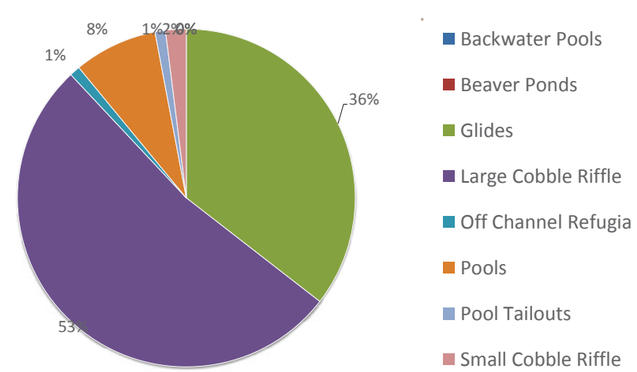



| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 91.0% | 94% |
| Fry colonization | 7.8% | -62% |
| 0-age active | 0.2% | -100% |
| 0-age inactive | 0.7% | -99% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 0.2% | -99% |

**Net Habitat Capacity and Change Since Template**

| Comparison | Adult | Juvenile |
|---|---|---|
| Template to 2009 | 106 (-76%) | 10189 (-54%) |

### Okanagan River O10: Natural Section Habitat Composition in 2013 and Trend in Chinook Key Habitat Area Since 2009




| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 21.6% | -68% |
| Fry colonization | 15.3% | 162% |
| 0-age active | 23.1% | 13073% |
| 0-age inactive | 23.8% | 4437% |
| 1-age active | 0.0% | 0% |
| 1-age inactive | 0.0% | 0% |
| 2+-age migrant | 0.0% | 0% |
| Prespawn holding | 16.1% | 9120% |

**Net Habitat Capacity and Change Since 2009**

| Comparison | Adult | Juvenile |
|---|---|---|
| 2009 to 2013 | 147 (39%) | 12800 (26%) |

* Percent of reach providing key habitat for this life stage in EDT in this habitat scenario

# Okanagan River 010: Natural Section

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O10: Natural Sectio |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 65c |
| Reach Length (mi) | 1.23 |
| Average Gradient | 0.3% |
| Habitat Area (ac) | 13.9 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 2% | Reach Priority | 68 |
| Diversity | + 3% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 3 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 147 |
| Productivity | 6.5 |
| Diversity | 24% |
| Abundance | 124 |

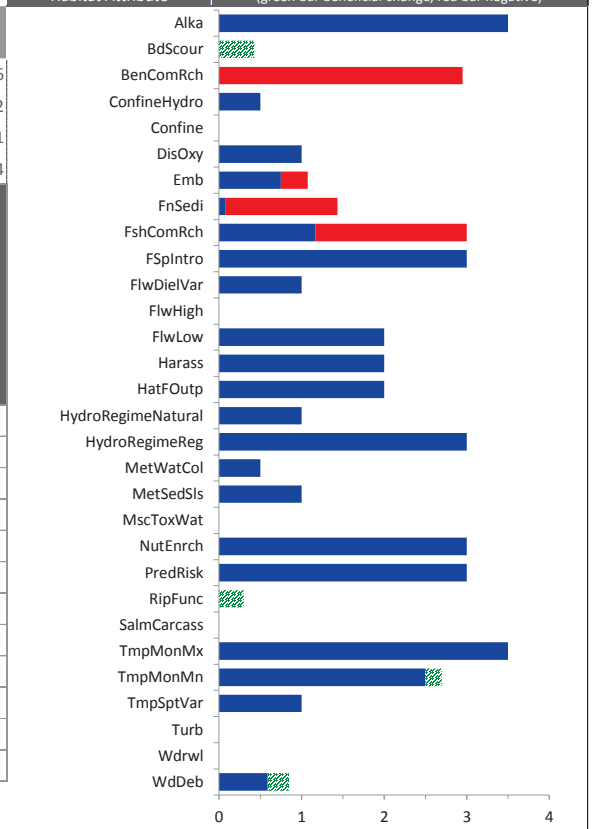
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 2% | Reach Priority | 16 |
| Diversity | - 8% | Out of | 192 |
| Abundance | - 2% | Diagnostic Unit Priority | 11 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 6.2% | -36.7% | 9 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 43.4% | -1.0% | 8 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 6.3% | -0.7% | 5 | | | | | | | | | | | | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -1.5% | 2 | | | | | | | | | | | | | | | ↓ |
| 0-age transient rearing | Jun-Oct | 38.1% | -0.8% | 7 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | -0.1% | 3 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -1.0% | 1 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 40.9% | -0.7% | 6 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.5% | -2.0% | 4 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | ▼ | — | |

## EDT Level 2 Attribute Ratings



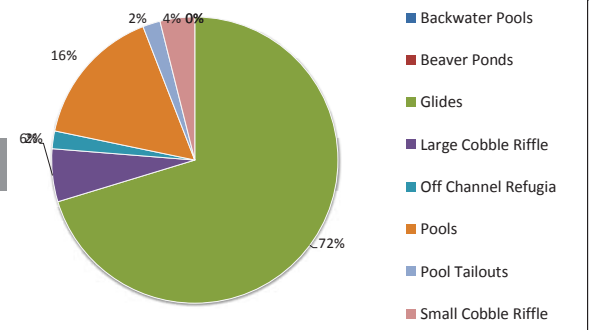

## Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

## Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

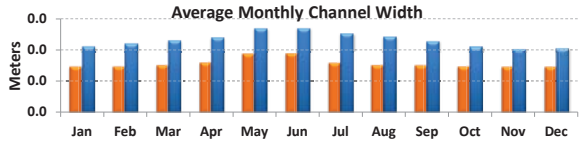
## EDT Habitat Composition Ratings

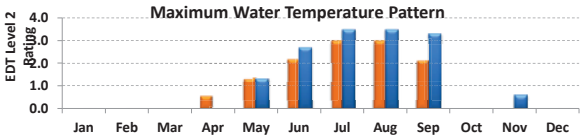


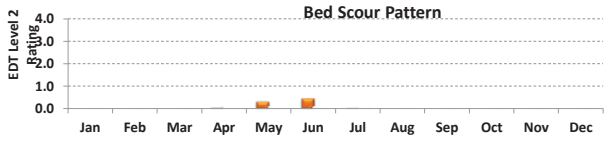

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 91.0% | ↓ |
| Fry Colonization | 7.8% | ↑ |
| Active Rearing | 0.2% | ↑ |
| Inactive Rearing | 0.7% | ↑ |
| Prespawn Holding | 0.2% | ↑ |

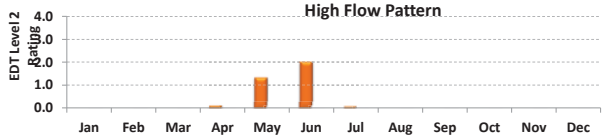
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O10: Natural Sectio |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 65d |
| Reach Length (mi) | 0.98 |
| Average Gradient | 0.7% |
| Habitat Area (ac) | 9.5 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 2% | Reach Priority | 4 |
| Diversity | + 9% | Out of | 192 |
| Abundance | + 7% | Diagnostic Unit Priority | 3 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 0 |
| Productivity | 0.0 |
| Diversity | 20% |
| Abundance | 0 |

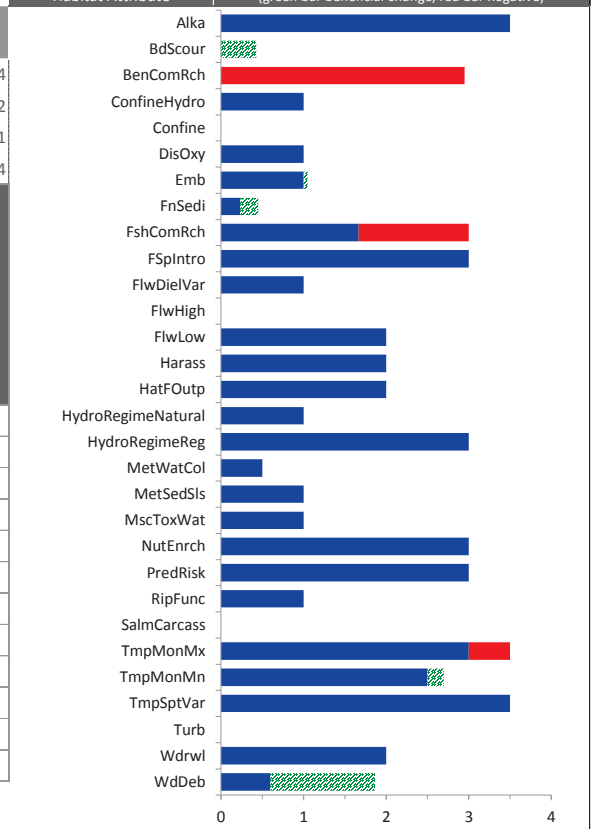
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | - 1% | Reach Priority | 84 |
| Diversity | - 1% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.0% | -37.9% | 1 | | | | | | | | | | | | | | | ↓ |
| Egg Incubation | Oct-Apr | 0.0% | -0.7% | 2 | | | | | | | | | | | | | | | ↓ |
| Fry colonization | Apr-May | 0.4% | -1.3% | 6 | | | | | | | | | | | | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -2.5% | 4 | | | | | | | | | | | | | | | ↑ |
| 0-age transient rearing | Jun-Oct | 35.8% | -1.3% | 8 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | -0.1% | 5 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -1.3% | 3 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 34.4% | -1.4% | 9 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.4% | -3.9% | 7 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | ↓ | — | |

## EDT Level 2 Attribute Ratings



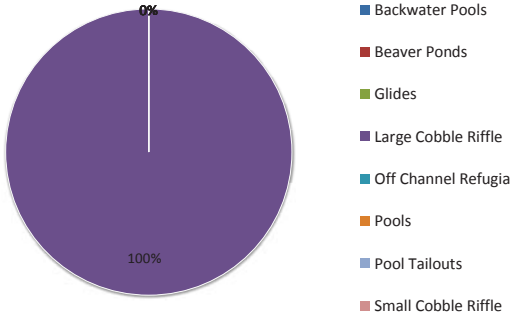

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

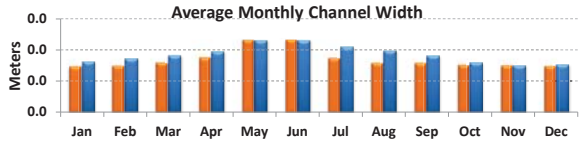
### EDT Habitat Composition Ratings

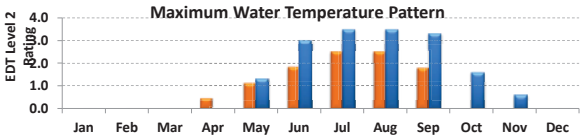


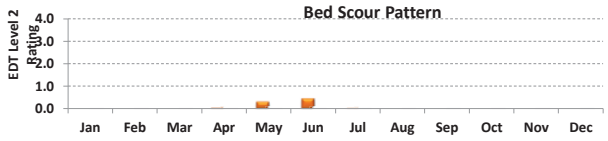

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 91.0% | ↓ |
| Fry Colonization | 7.8% | — |
| Active Rearing | 0.2% | ↑ |
| Inactive Rearing | 0.7% | ↑ |
| Prespawn Holding | 0.2% | ↑ |

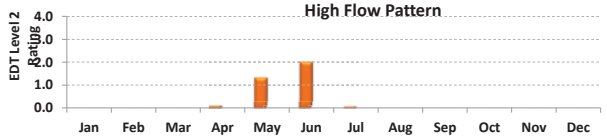
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

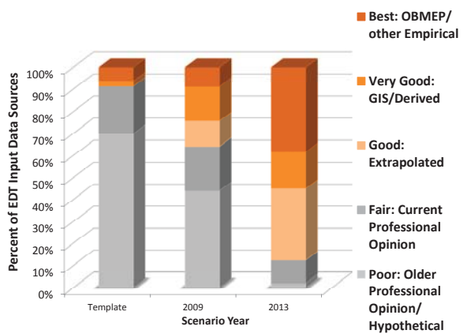
| | |
|---|---|
| Diagnostic Unit | Okanagan River O11: Vaseaux Lak |
| Species | Chinook |
| Population | Okanagan (Can) |
| Status and Trend Year | 2013 |
| Trend Comparison | 2013 to 2009 |

## How Important is Okanagan River O11: Vaseaux Lake to Skaha Lake for Conservation of Okanagan (Can) Chinook?

| Effect on Population Potential if this Unit | Degrades | Is Restored |
|---|---|---|
| Adult Abundance | -0.6% | 0.0% |
| Adult Productivity | 0.0% | +9.3% |
| Life History Diversity | -1.1% | 0.0% |
| Diagnostic Unit Priority Rank[1] | 10 of 5 | 7 of 5 |

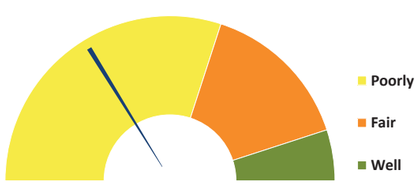
[1] Relative to all Okanagan (Can) Diagnostic Units used by this Chinook population

## How Good is Our Information in Okanagan River O11: Vaseaux Lake to Skaha

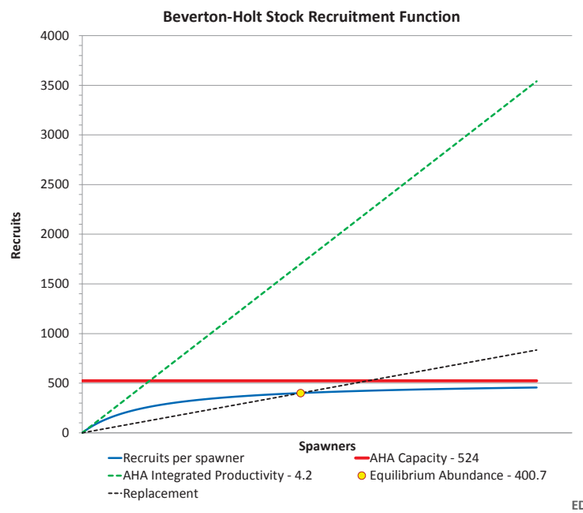


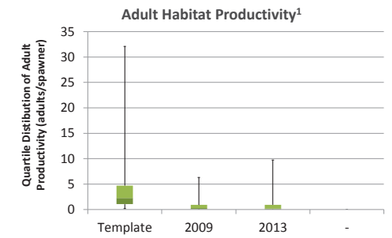

## How is Okanagan River O11: Vaseaux Lake to Skaha Lake Performing as Chinook Habitat?

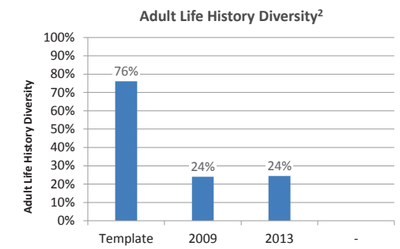
Currently Functioning at 32% of Template Habitat Potential

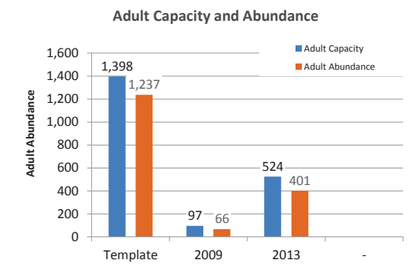


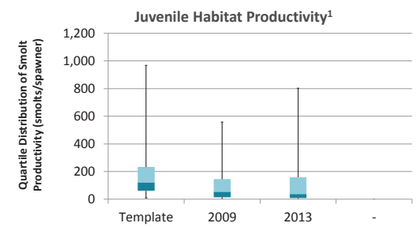

## What are the Trends in Chinook Habitat Potential in Okanagan River O11: Vaseaux Lake to Skaha Lake?

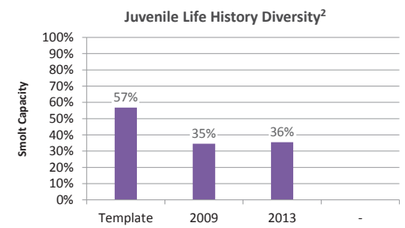


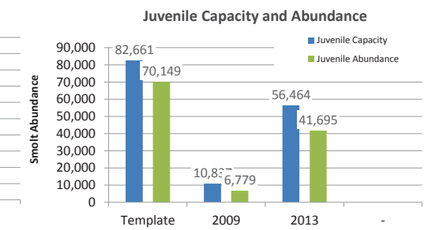



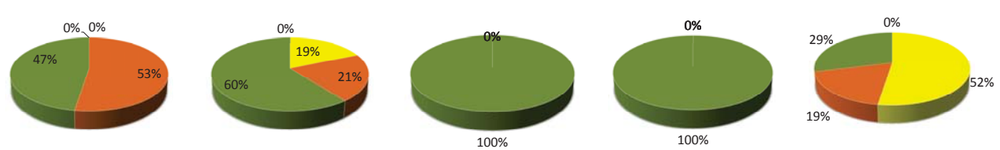



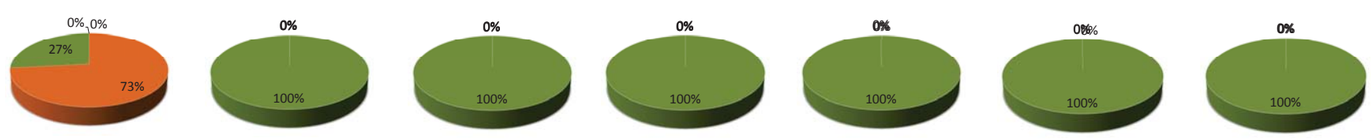

EDT used 1347 life history trajectories to model habitat potential in Okanagan River O11: Vaseaux Lake to Skaha Lake

[1] Box and whisker graphs show the quartile distribution of cumulative habitat productivity for all 1347 EDT trajectories used to model this Diagnostic Unit.
[2] The percent of adult trajectories having a productivity >1.0 or juvenile productivity >100 smolts/spawner represent the range of life history diversity each habitat scenario can theoretically support.

## Chinook Survival Factor Condition in Okanagan River O11: Vaseaux Lake and Trend Between 2009 and 2013




| | Channel Stability | Sediment Conditions | Flow Conditions | Withdrawals | Habitat Diversity |
|---|---|---|---|---|---|
| % of Template | 96% | 120% | 99% | 100% | 92% |
| Factor Wt. | 10% | 14% | 2% | 0% | 22% |
| Factor Trend | – | ↑ | – | – | – |
| Level of Proof | 1.91 | 2.21 | 1.87 | 4.00 | 1.92 |




| | Temperature | Dissolved Oxygen | Competition-Hatchery | Competition-Other | Food | Predation | Obstructions |
|---|---|---|---|---|---|---|---|
| % of Template | 83% | 100% | 100% | 100% | 100% | 98% | 100% |
| Factor Wt. | 46% | 0% | 0% | 1% | 1% | 5% | 0% |
| Factor Trend | ↓ | – | – | – | – | – | – |
| Level of Proof | 2.32 | 4.00 | 1.99 | 2.01 | 1.28 | 2.05 | 2.00 |

READ ME - Pie charts describe how well each EDT Survival Factor is functioning based on its overall effect on Chinook productivity; % of Template describes current Survival Factor condition relative to template; Factor Weight rates relative importance of each Survival Factor based its proportional impact on Chinook productivity relative to other survival factors; Factor Trend describes change in Survival Factor % of Template between the 2009 and 2013 habitat scenarios.

### Change in Function Relative to Benchmark Key - Proportion of Habitat

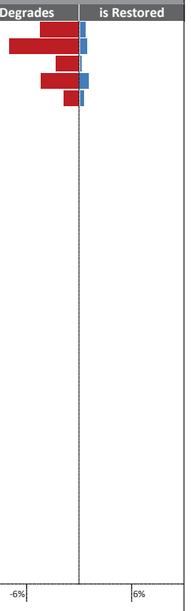
| Categorical Ranking | Productivity Impact |
|---|---|
| Not properly functioning | >5.1% reduction |
| Functioning at High Risk | 2.6% to 5% reduction |
| Functioning at Risk | 1.1% to 2.5% reduction |
| Properly Functioning | 0% to 1% reduction |

### Key - Survival Factor Trend

| Change | Neg. | Pos. |
|---|---|---|
| <1% | – | – |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

### Habitat Priorities - Change in Population Abundance If (values normalized to %change/river mile)

| This Reach, Length (mi) | | Degrades | is Restored |
|---|---|---|---|
| Okanagan River 68b | 1.67 | | |
| Okanagan River 72a | 0.59 | | |
| Okanagan River 73 | 0.28 | | |
| Okanagan River 74 | 0.04 | | |
| Okanagan River 75b | 0.21 | | |



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

## OBSTRUCTIONS AND KEY HABITAT

**Subbasin:** Okanagan (Can)
**Species:** Chinook
**Population:** Okanogan Summer/Fall
**Monitoring Cycle:** 2009-2013
**Diagnostic Unit:** Okanagan River O11: Vaseaux Lake to Skaha Lake

**Diagnostic Unit Habitat Statistics**

**Stream Length (mi):** 3.18
**Template Adult Capacity:** 1,398

**Diagnostic Unit Obstruction Statistics**

**# of Obstructions:** 6 **# Manmade:** 6
**Factor Weight:** 0% of DU productivity impairment

**There Were 6 Manmade Obstructions in Okanagan River O11: Vaseaux Lake to Skaha Lake in 2013 With the Following Effects on Chinook Productivity (NR = Obstruction not rated)**

**Okanagan River 72a (vds 14) - 48% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 704 | 623 |
| Juvenile | NR | NR | 38,692 | 33,162 |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

**Okanagan River 72b (vds 15) - 30% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 349 | 309 |
| Juvenile | NR | NR | 18,022 | 15,577 |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

**Okanagan River 75a (vds 16) - 20% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 203 | 180 |
| Juvenile | NR | NR | 10,751 | 9,271 |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

**Okanagan River 75c (vds 17) - 13% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 120 | 107 |
| Juvenile | NR | NR | 6,265 | 5,415 |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

**anagan River 76a (naturalized) - 0% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | NR | NR | 0 | 0 |
| Juvenile | NR | NR | 0 | 0 |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

**River 76b (Skaha Outlet Dam) - 0% of DU reach length upstream**

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | 100% | 0 | 0 | 0 |
| Juvenile | NR | NR | 0 | 0 |

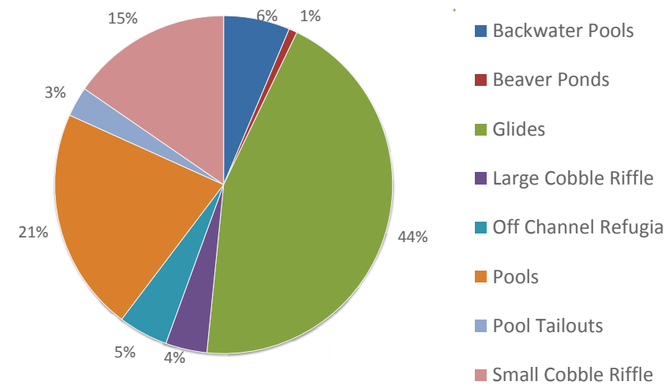
| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

**Okanagan River O11: Vaseaux Lake to Skaha Lake Habitat Composition and Key Habitat Area for Chinook Under Template Conditions**

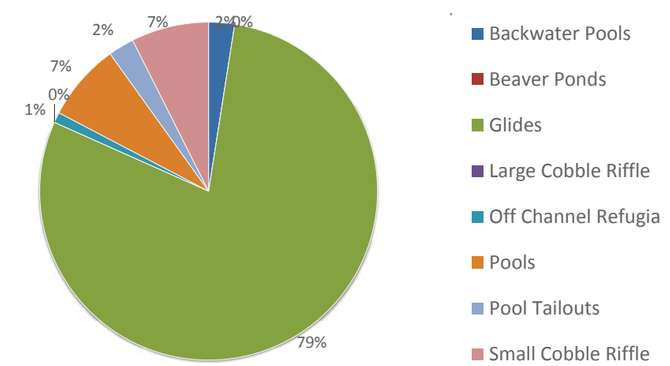



| Lifestage | Key Habitat Area* |
|---|---|
| Spawning | 17% |
| Fry colonization | 15% |
| 0-age active | 32% |
| 0-age inactive | 22% |
| 1-age active | 0% |
| 1-age inactive | 0% |
| 2+-age migrant | 0% |
| Prespawn holding | 15% |

**Template Habitat Capacity**

| Scenario | Adult | Juvenile |
|---|---|---|
| Template | 1,398 | 82,661 |

**Okanagan River O11: Vaseaux Lake to Skaha Lake Habitat Composition in 2009 and Trend in Chinook Key Habitat Area Since Template**

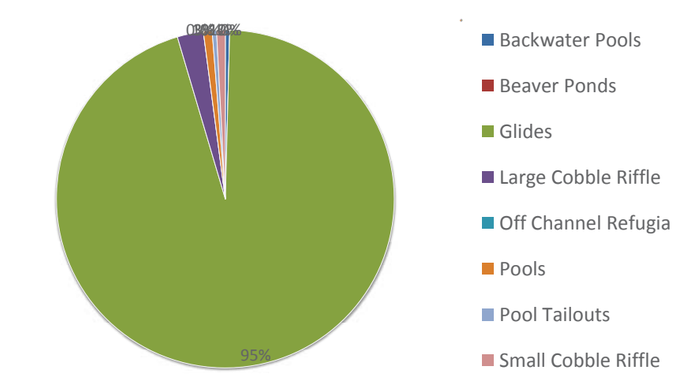



| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 33.6% | ↑ 52% |
| Fry colonization | 16.9% | ↓ -15% |
| 0-age active | 25.6% | ↓ -40% |
| 0-age inactive | 12.8% | ↓ -56% |
| 1-age active | 0.0% | — 0% |
| 1-age inactive | 0.0% | — 0% |
| 2+-age migrant | 0.0% | — 0% |
| Prespawn holding | 11.1% | ↓ -44% |

**Net Habitat Capacity and Change Since Template**

| Comparison | Adult | Juvenile |
|---|---|---|
| Template to 2009 | 97 (-93%) | 10837 (-87%) |

**Okanagan River O11: Vaseaux Lake to Skaha Lake Habitat Composition in 2013 and Trend in Chinook Key Habitat Area Since 2009**




| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 34.3% | — -1% |
| Fry colonization | 17.4% | — 0% |
| 0-age active | 26.3% | — 0% |
| 0-age inactive | 13.1% | — 0% |
| 1-age active | 0.0% | — 0% |
| 1-age inactive | 0.0% | — 0% |
| 2+-age migrant | 0.0% | — 0% |
| Prespawn holding | 8.9% | ↓ -22% |

**Net Habitat Capacity and Change Since 2009**

| Comparison | Adult | Juvenile |
|---|---|---|
| 2009 to 2013 | 524 (440%) | 56464 (421%) |

* Percent of reach providing key habitat for this life stage in EDT in this habitat scenario

# Okanagan River 011: Vaseaux Lake

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O11: Vaseaux Lake |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 68b |
| Reach Length (mi) | 1.67 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 30.4 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 130 |
| Diversity | 0% | Out of | 192 |
| Abundance | + 1% | Diagnostic Unit Priority | 7 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 214 |
| Productivity | 4.7 |
| Diversity | 27% |
| Abundance | 169 |

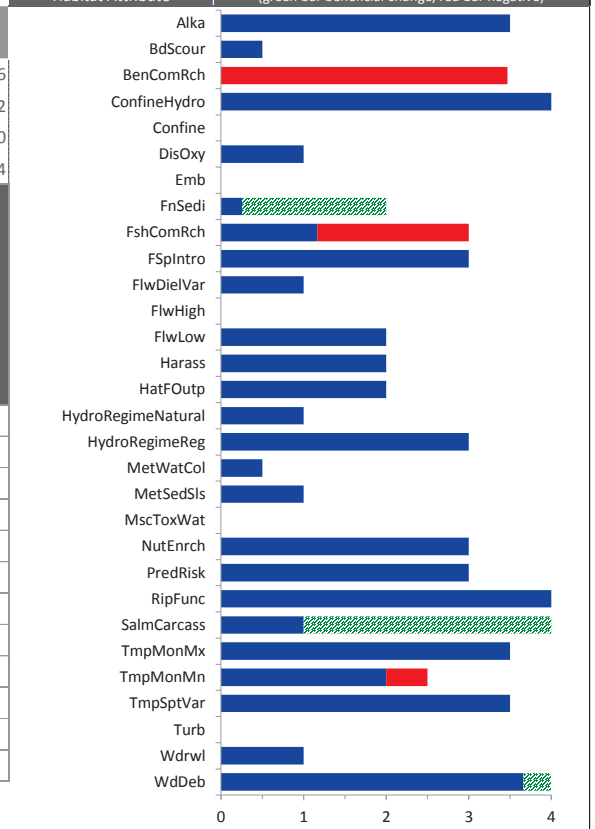
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 66 |
| Diversity | - 9% | Out of | 192 |
| Abundance | - 8% | Diagnostic Unit Priority | 10 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 6.9% | -39.3% | 9 | | | | | | | | | | | | | | | ↑ |
| Egg Incubation | Oct-Apr | 48.6% | 1.3% | 1 | | | | | | | | | | | | | | | — |
| Fry colonization | Apr-May | 14.2% | -8.3% | 8 | | | | | | | | | | | | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -3.2% | 2 | | | | | | | | | | | | | | | ↓ |
| 0-age transient rearing | Jun-Oct | 25.5% | -2.7% | 6 | | | | | | | | | | | | | | | — |
| 0-age inactive | Apr-Oct | 0.0% | -1.0% | 3 | | | | | | | | | | | | | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.6% | 4 | | | | | | | | | | | | | | | ↓ |
| Migrant prespawner | Jul-Sep | 34.5% | -2.2% | 7 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.0% | -13.1% | 5 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | ↑ | ↓ | — | |

## EDT Level 2 Attribute Ratings



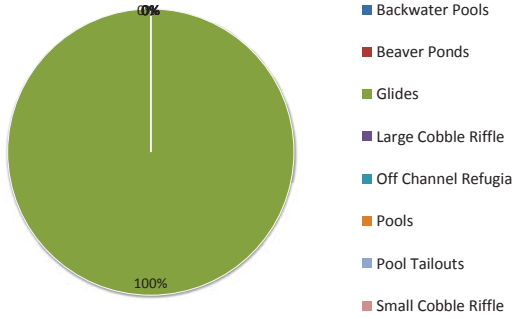

## Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

## Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

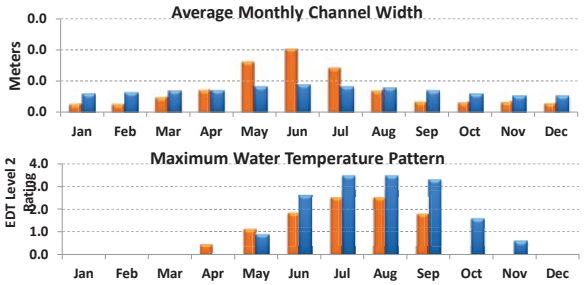
## EDT Habitat Composition Ratings

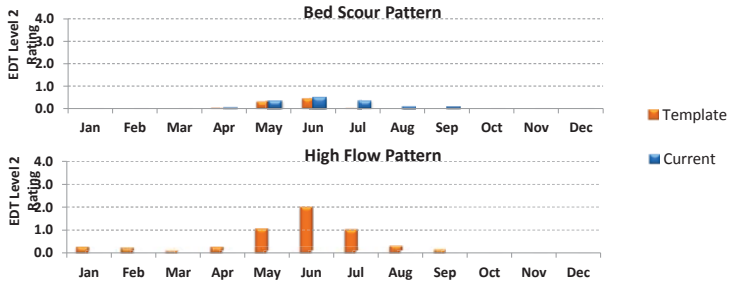



| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 34.8% | — |
| Fry Colonization | 17.4% | — |
| Active Rearing | 26.1% | — |
| Inactive Rearing | 13.0% | — |
| Prespawn Holding | 8.7% | — |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O11: Vaseaux Lake |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 72a |
| Reach Length (mi) | 0.59 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 9.3 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 2% | Reach Priority | 69 |
| Diversity | + 1% | Out of | 192 |
| Abundance | + 1% | Diagnostic Unit Priority | 7 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 186 |
| Productivity | 4.4 |
| Diversity | 25% |
| Abundance | 143 |

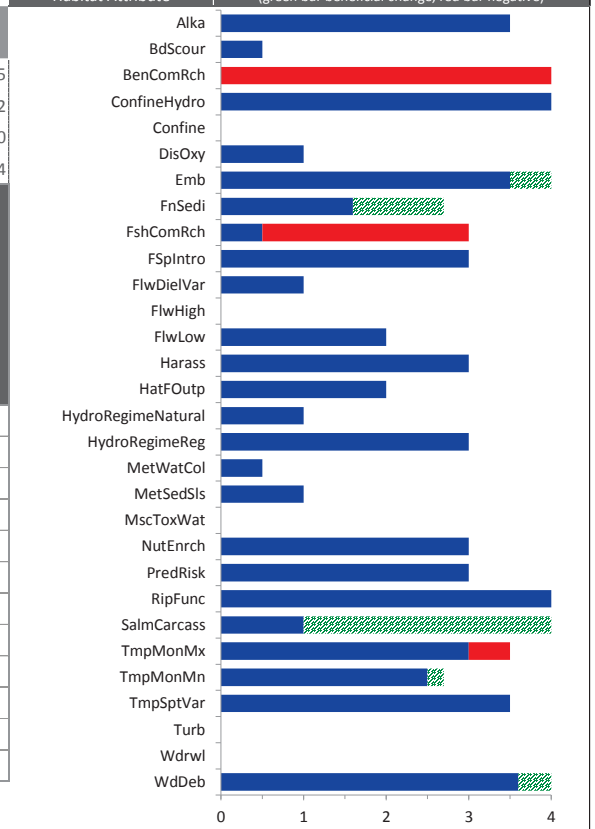
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 75 |
| Diversity | - 3% | Out of | 192 |
| Abundance | - 5% | Diagnostic Unit Priority | 10 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 2.9% | -41.3% | 9 | | | | | | | ● | | | ● | ● | | ● | | ↓ |
| Egg Incubation | Oct-Apr | 20.6% | -0.4% | 5 | | | | | | | | | | | | | ● | | — |
| Fry colonization | Apr-May | 7.0% | -8.9% | 7 | ● | | | | ● | | ● | | | | ● | ● | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | -3.0% | 2 | | | | | | | | | | | | | ● | | ↓ |
| 0-age transient rearing | Jun-Oct | 22.0% | -2.9% | 8 | | | | | | | ● | | | | | | ● | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | -3.0% | 3 | | | | | | | | | | | | ● | | | ↑ |
| 1-age migrant | Apr-Jun | 0.0% | -2.5% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 27.5% | -2.2% | 6 | | | | | | | ● | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 0.0% | -12.4% | 4 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | ▲ | ▼ | — | |

## EDT Level 2 Attribute Ratings



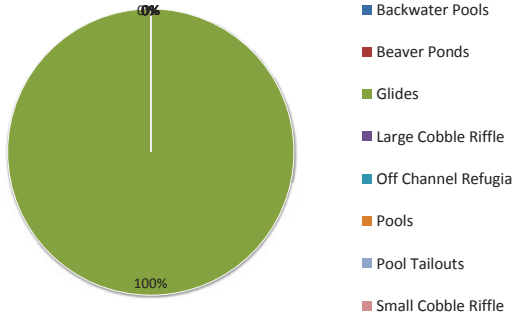

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

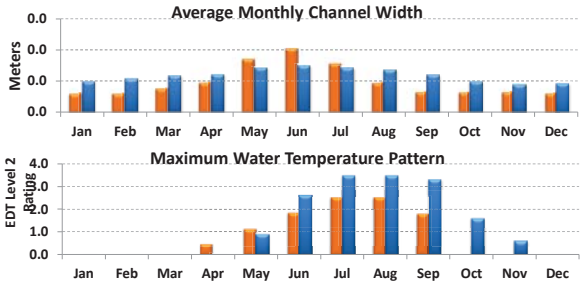
## EDT Habitat Composition Ratings

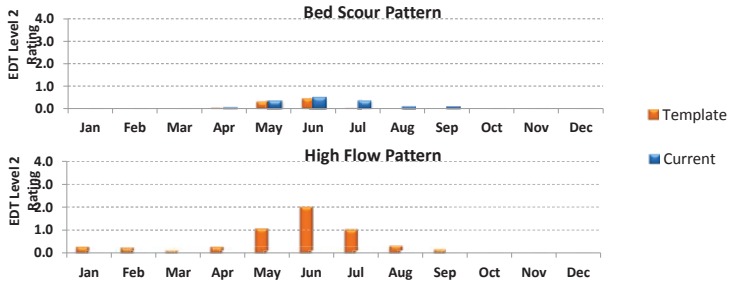



| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 34.8% | — |
| Fry Colonization | 17.4% | — |
| Active Rearing | 26.1% | — |
| Inactive Rearing | 13.0% | — |
| Prespawn Holding | 8.7% | — |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O11: Vaseaux Lake |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 73 |
| Reach Length (mi) | 0.28 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 4.4 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 55 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | + 1% | Diagnostic Unit Priority | 7 |
| Abundance | 0% | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 42 |
| Productivity | 3.4 |
| Diversity | 26% |
| Abundance | 30 |

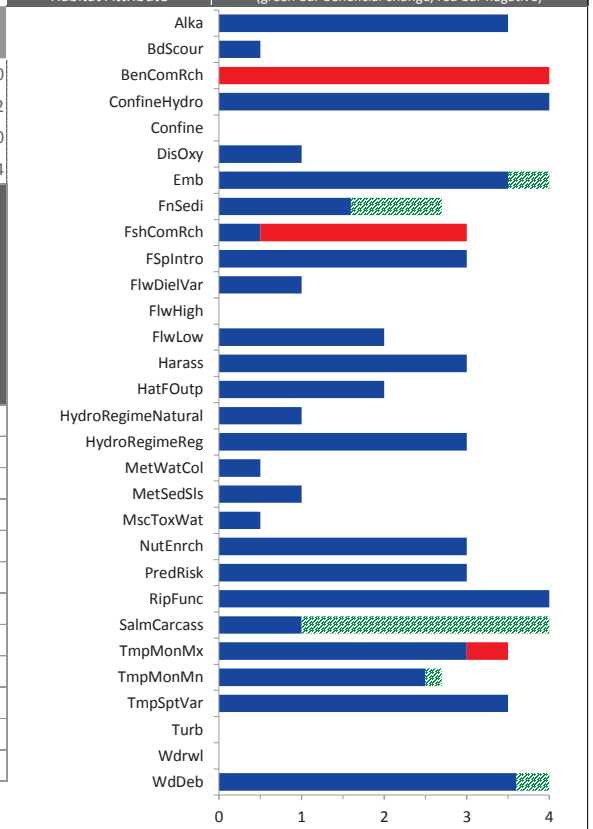
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 90 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | - 1% | Diagnostic Unit Priority | 10 |
| Abundance | - 1% | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.5% | -42.2% | 7 | | | | | | | ● | | | ● | ● | | ● | | ↑ |
| Egg Incubation | Oct-Apr | 10.4% | -0.4% | 3 | | | | | | | | | | | | | ● | | ↑ |
| Fry colonization | Apr-May | 4.0% | -9.2% | 4 | ● | | | | ● | | ● | | | | ● | ● | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 0-age transient rearing | Jun-Oct | 20.8% | -2.8% | 6 | | | | | | | ● | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | – |
| 1-age migrant | Apr-Jun | 0.0% | -2.5% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 24.8% | -2.2% | 5 | | | | | | | ● | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 0.0% | -12.2% | 2 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | – |
| Survival Factor Trend | | | | | – | – | – | – | – | – | – | – | – | – | – | ▲ | – | – | |

## EDT Level 2 Attribute Ratings



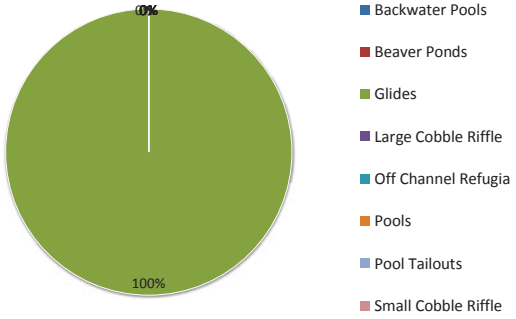

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | – | – |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

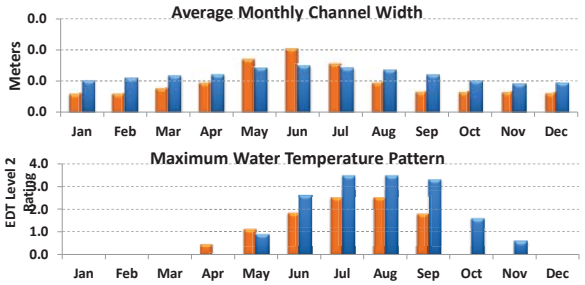
## EDT Habitat Composition Ratings

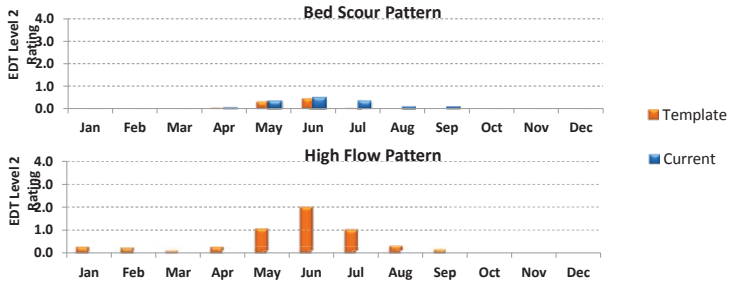



| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 57.1% | – |
| Fry Colonization | 28.6% | – |
| Active Rearing | 0.0% | – |
| Inactive Rearing | 0.0% | – |
| Prespawn Holding | 14.3% | – |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O11: Vaseaux Lake |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 74 |
| Reach Length (mi) | 0.04 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 0.7 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 73 |
| Diversity | 0% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 7 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 8 |
| Productivity | 4.3 |
| Diversity | 26% |
| Abundance | 6 |

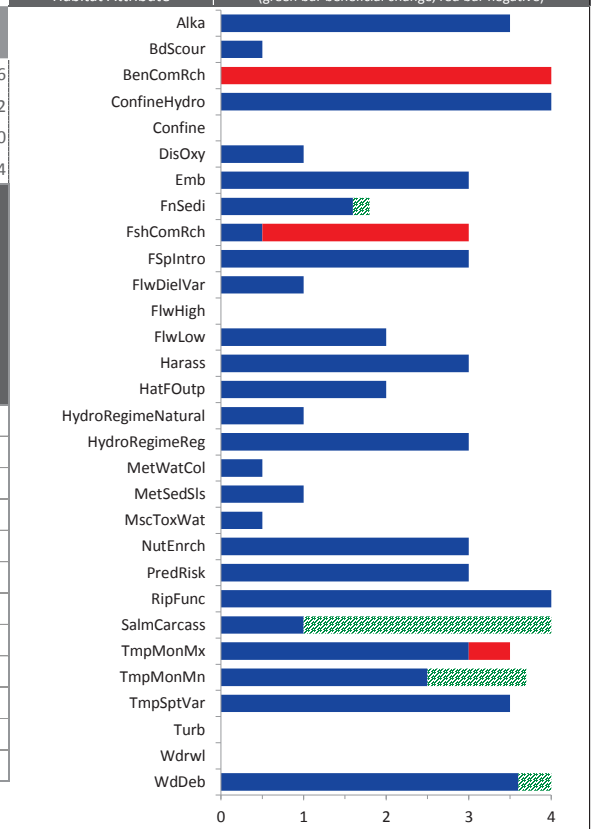
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 106 |
| Diversity | 0% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 10 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.4% | -17.2% | 4 | | | | | | | Extreme | | | Small | Small | | Extreme | | Decline |
| Egg Incubation | Oct-Apr | 2.6% | -1.2% | 3 | | | | | | | | | | | | | | | Gain |
| Fry colonization | Apr-May | 2.5% | -8.4% | 5 | Small | | | | Small | | Extreme | | | | Small | Small | | | Gain |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | Trend Unknown |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | Trend Unknown |
| 0-age transient rearing | Jun-Oct | 20.6% | -2.7% | 7 | | | | | | | Extreme | | | | | | | | Decline |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | Trend Unknown |
| 1-age migrant | Apr-Jun | 0.0% | -2.4% | 1 | | | | | | | Extreme | | | | Small | | | | Decline |
| Migrant prespawner | Jul-Sep | 23.1% | -2.1% | 6 | | | | | | | Small | | | | | | Small | | Decline |
| Holding prespawner | Jul-Oct | 0.0% | -11.8% | 2 | | | | | | | Extreme | | | | | | Extreme | | Decline |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | Trend Unknown |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | Trend Unknown |
| Survival Factor Trend | | | | | Trend Unknown | Trend Unknown | Trend Unknown | Trend Unknown | Trend Unknown | Trend Unknown | Trend Unknown | Trend Unknown | Trend Unknown | Trend Unknown | Trend Unknown | Trend Unknown | Trend Unknown | Trend Unknown | |

## EDT Level 2 Attribute Ratings



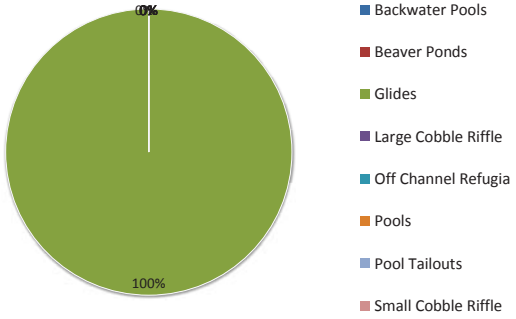

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | Extreme | High | Moderate | Small | - |
| Gain | Extreme | High | Moderate | Small | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | Trend Unknown | Trend Unknown |
| >1-5% | Decline | Gain |
| >5% | Decline | Gain |

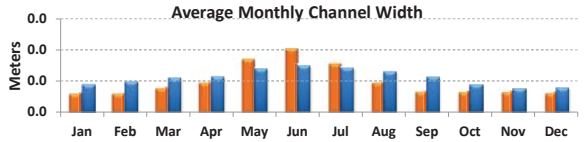
## EDT Habitat Composition Ratings

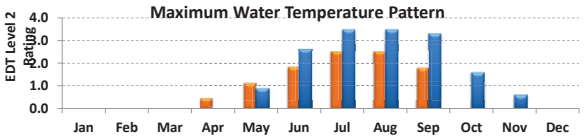


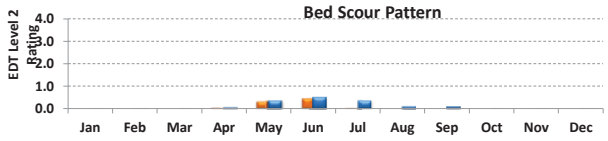

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 50.0% | Gain |
| Fry Colonization | 25.7% | Gain |
| Active Rearing | 0.0% | Trend Unknown |
| Inactive Rearing | 0.0% | Trend Unknown |
| Prespawn Holding | 24.3% | Decline |

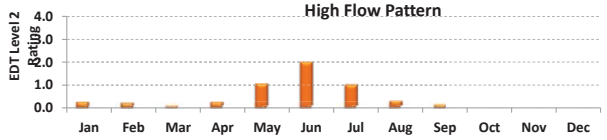
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O11: Vaseaux Lake |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 75b |
| Reach Length (mi) | 0.21 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 3.4 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | + 1% | Reach Priority | 77 |
| Diversity | + 1% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 7 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 33 |
| Productivity | 2.7 |
| Diversity | 26% |
| Abundance | 21 |

## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 96 |
| Diversity | - 1% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 10 |
| | | Out of | 24 |

### Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.8% | -39.1% | 5 | | | | | | | ● | | | ● | ● | | ● | | ↑ |
| Egg Incubation | Oct-Apr | 5.5% | -1.5% | 3 | | | | | | | | | | | | | ● | | ↑ |
| Fry colonization | Apr-May | 2.1% | -8.1% | 4 | ● | | | | ● | | ● | | | | ● | | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 0-age transient rearing | Jun-Oct | 20.6% | -2.7% | 7 | | | | | | | ● | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | ▬ |
| 1-age migrant | Apr-Jun | 0.0% | -2.5% | 1 | | | | | | | ● | | | | ● | | | | ↓ |
| Migrant prespawner | Jul-Sep | 22.7% | -2.1% | 6 | | | | | | | ● | | | | | | ● | | ↓ |
| Holding prespawner | Jul-Oct | 0.0% | -11.5% | 2 | | | | | | | ● | | | | | | ● | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | ▬ |
| Survival Factor Trend | | | | | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | |

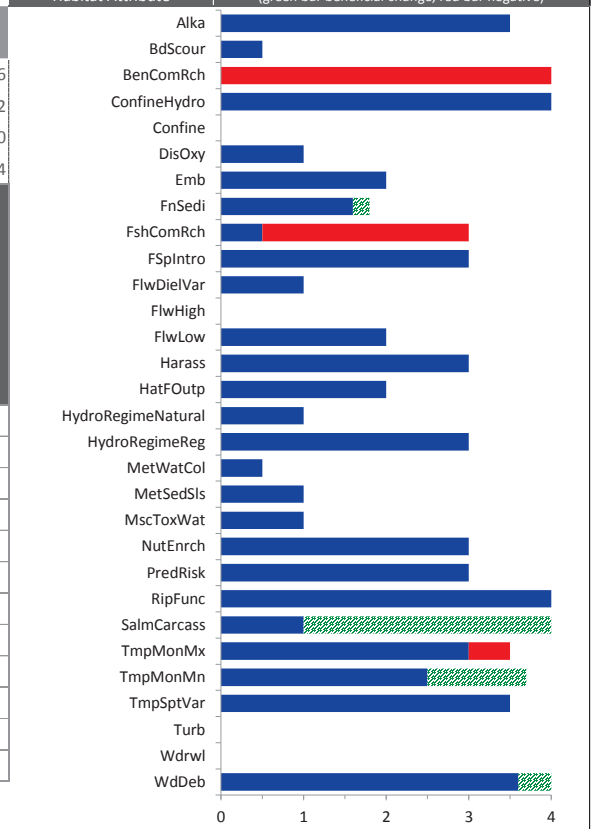
### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

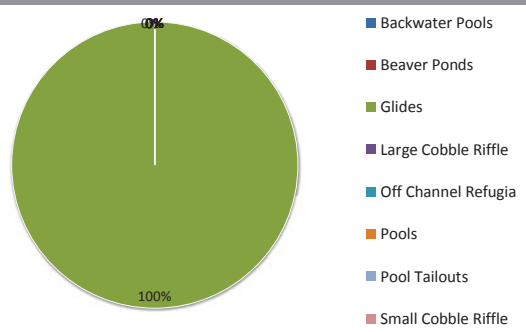
### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

## EDT Level 2 Attribute Ratings



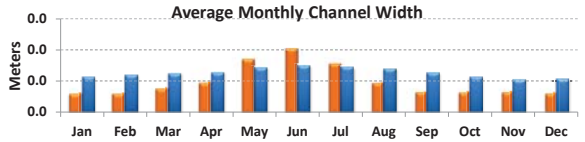

## EDT Habitat Composition Ratings

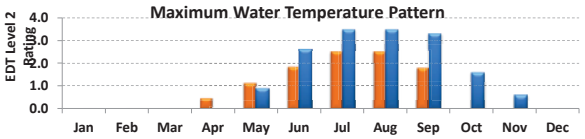


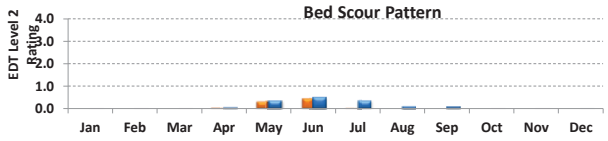

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 50.0% | ▲ |
| Fry Colonization | 25.7% | ▲ |
| Active Rearing | 0.0% | ▬ |
| Inactive Rearing | 0.0% | ▬ |
| Prespawn Holding | 24.3% | ↓ |

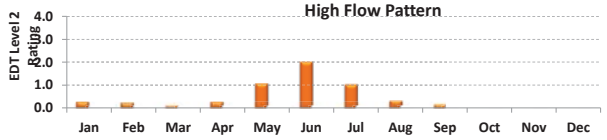
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

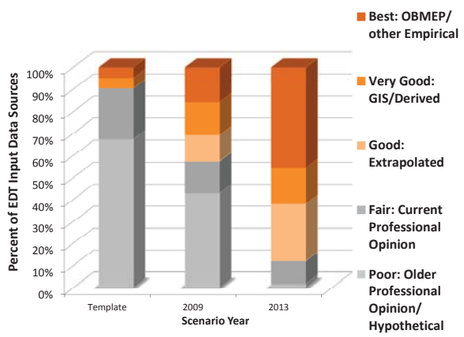
| | |
|---|---|
| Diagnostic Unit | Okanagan River O12: Channelized |
| Species | Chinook |
| Population | Okanagan (Can) |
| Status and Trend Year | 2013 |
| Trend Comparison | 2013 to 2009 |

## How Important is Okanagan River O12: Channelized for Conservation of Okanagan (Can) Chinook?

| Effect on Population Potential if this Unit | Degrades | Is Restored |
|---|---|---|
| Adult Abundance | -1.5% | 0.0% |
| Adult Productivity | -0.6% | 0.0% |
| Life History Diversity | -1.3% | +0.6% |
| Diagnostic Unit Priority Rank[1] | 4 of 5 | 11 of 5 |

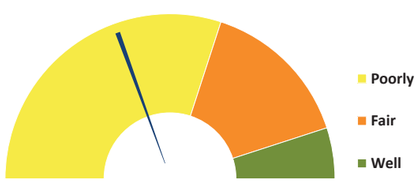
[1] Relative to all Okanagan (Can) Diagnostic Units used by this Chinook population

## How Good is Our Information in Okanagan River O12: Channelized?

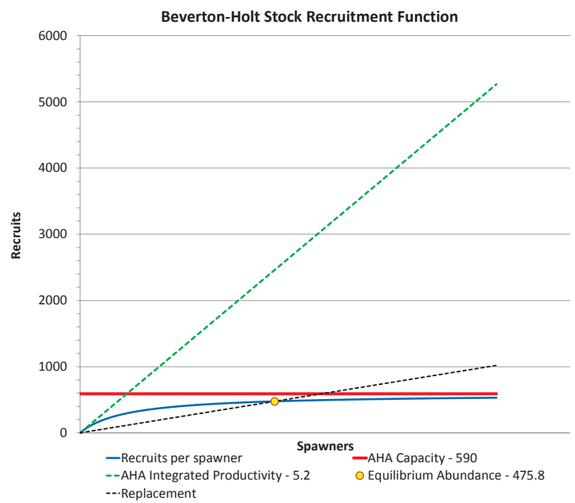


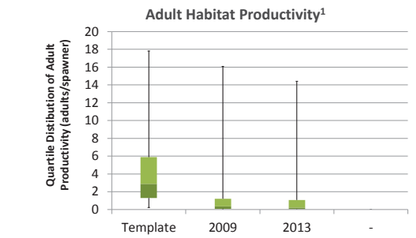

## How is Okanagan River O12: Channelized Performing as Chinook Habitat?

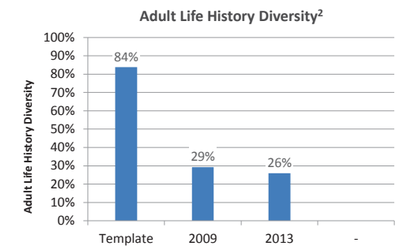
Currently Functioning at 39% of Template Habitat Potential

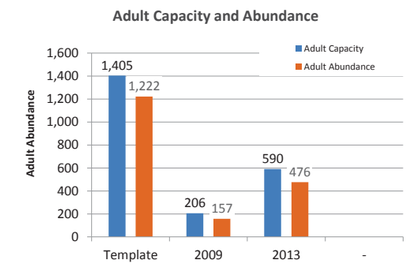


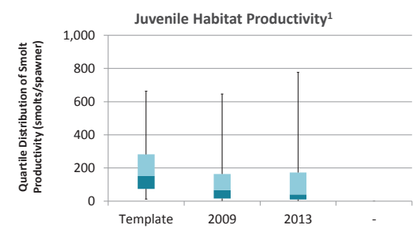

## What are the Trends in Chinook Habitat Potential in Okanagan River O12: Channelized?

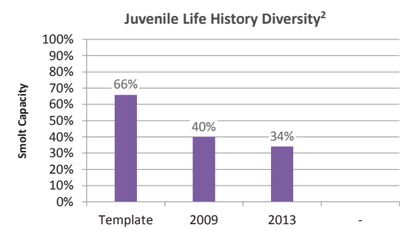


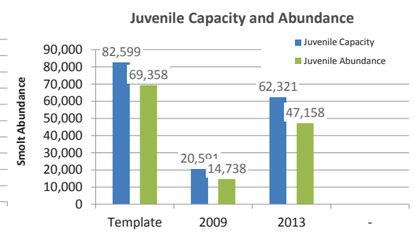



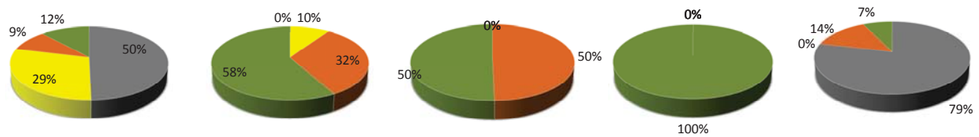



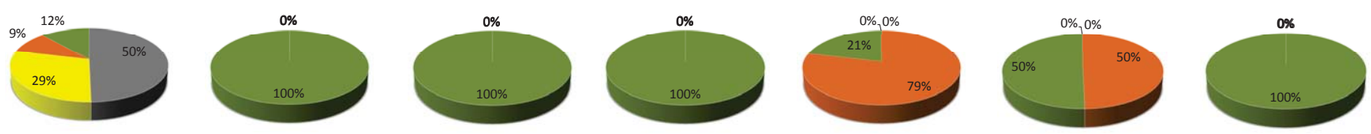

EDT used 720 life history trajectories to model habitat potential in Okanagan River O12: Channelized

[1] Box and whisker graphs show the quartile distribution of cumulative habitat productivity for all 720 EDT trajectories used to model this Diagnostic Unit.
[2] The percent of adult trajectories having a productivity >1.0 or juvenile productivity >100 smolts/spawner represent the range of life history diversity each habitat scenario can theoretically support.

## Chinook Survival Factor Condition in Okanagan River O12: Channelized and Trend Between 2009 and 2013




| | Channel Stability | Sediment Conditions | Flow Conditions | Withdrawals | Habitat Diversity |
|---|---|---|---|---|---|
| % of Template | 92% | 161% | 98% | 100% | 82% |
| Factor Wt. | 10% | 11% | 3% | 0% | 22% |
| Factor Trend | – | ↑ | – | – | – |
| Level of Proof | 1.62 | 2.21 | 1.64 | 4.00 | 1.73 |




| | Temperature | Dissolved Oxygen | Competition-Hatchery | Competition-Other | Food | Predation | Obstructions |
|---|---|---|---|---|---|---|---|
| % of Template | 68% | 100% | 100% | 99% | 97% | 97% | 100% |
| Factor Wt. | 42% | 0% | 0% | 1% | 4% | 4% | 0% |
| Factor Trend | ↓ | – | – | – | – | – | – |
| Level of Proof | 2.20 | 4.00 | 1.73 | 1.79 | 1.17 | 2.05 | 2.00 |

READ ME - Pie charts describe how well each EDT Survival Factor is functioning based on its overall effect on Chinook productivity; % of Template describes current Survival Factor condition relative to template; Factor Weight rates relative importance of each Survival Factor based its proportional impact on Chinook productivity relative to other survival factors; Factor Trend describes change in Survival Factor % of Template between the 2009 and 2013 habitat scenarios.

### Change in Function Relative to Benchmark Key - Proportion of Habitat

| Categorical Ranking | Productivity Impact |
|---|---|
| Not properly functioning | >5.1% reduction |
| Functioning at High Risk | 2.6% to 5% reduction |
| Functioning at Risk | 1.1% to 2.5% reduction |
| Properly Functioning | 0% to 1% reduction |

### Key - Survival Factor Trend

| Change | Neg. | Pos. |
|---|---|---|
| <1% | – | – |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

### Habitat Priorities - Change in Population Abundance If (values normalized to %change/river mile)

| This Reach, Length (mi) | | Degrades | is Restored |
|---|---|---|---|
| Okanagan River 80 | 0.36 | | |
| Okanagan River 81 | 0.07 | | |
| Okanagan River 82 | 0.08 | | |
| Okanagan River 83 | 0.12 | | |
| Okanagan River 86 | 1.09 | | |
| Okanagan River 87 | 0.17 | | |
| Okanagan River 90a | 1.87 | | |

-13% 13%

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# DIAGNOSTIC UNIT REPORT CARD

## OBSTRUCTIONS AND KEY HABITAT

**Subbasin:** Okanagan (Can)
**Species:** Chinook
**Population:** Okanogan Summer/Fall
**Monitoring Cycle:** 2009-2013
**Diagnostic Unit:** Okanagan River O12: Channelized

### Diagnostic Unit Habitat Statistics

**Stream Length (mi):** 3.76
**Template Adult Capacity:** 1,405

### Diagnostic Unit Obstruction Statistics

**# of Obstructions:** 0 **# Manmade:** 0
**Factor Weight:** 0% of DU productivity impairment

### There Were 0 Manmade Obstructions in Okanagan River O12: Channelized in 2013 With the Following Effects on Chinook Productivity (NR = Obstruction not rated)

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

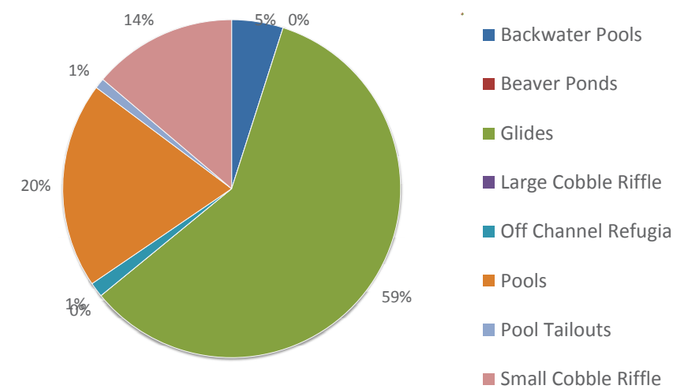
| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

| | Minimum Passage | # of Barrier Months | Habitat available upstream of this barrier: Template Capacity | Template Neq |
|---|---|---|---|---|
| Adult | -- | -- | -- | -- |
| Juvenile | -- | -- | -- | -- |

### Okanagan River O12: Channelized Habitat Composition and Key Habitat Area for Chinook Under Template Conditions

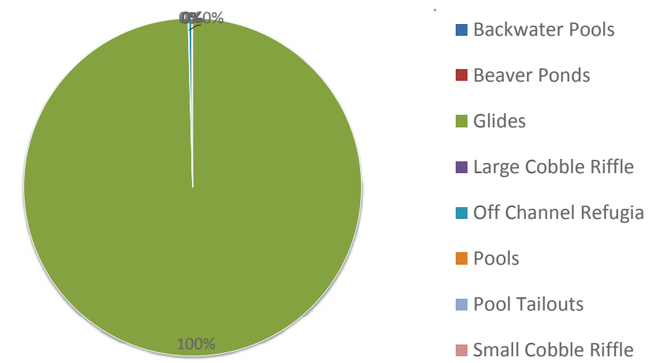



| Lifestage | Key Habitat Area* |
|---|---|
| Spawning | 44% |
| Fry colonization | 26% |
| 0-age active | 0% |
| 0-age inactive | 0% |
| 1-age active | 0% |
| 1-age inactive | 0% |
| 2+-age migrant | 0% |
| Prespawn holding | 29% |

**Template Habitat Capacity**

| Scenario | Adult | Juvenile |
|---|---|---|
| Template | 1,405 | 82,599 |

### Okanagan River O12: Channelized Habitat Composition in 2009 and Trend in Chinook Key Habitat Area Since Template

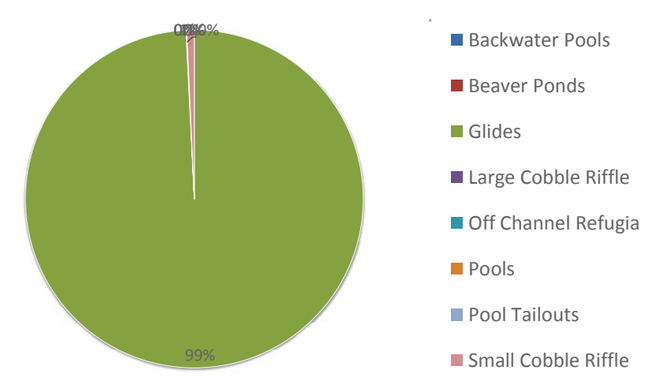



| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 57.2% | ↑ 20% |
| Fry colonization | 28.6% | — 2% |
| 0-age active | 0.0% | — 0% |
| 0-age inactive | 0.0% | — 0% |
| 1-age active | 0.0% | — 0% |
| 1-age inactive | 0.0% | — 0% |
| 2+-age migrant | 0.0% | — 0% |
| Prespawn holding | 14.3% | ↓ -55% |

**Net Habitat Capacity and Change Since Template**

| Comparison | Adult | Juvenile |
|---|---|---|
| Template to 2009 | 206 (-85%) | 20591 (-75%) |

### Okanagan River O12: Channelized Habitat Composition in 2013 and Trend in Chinook Key Habitat Area Since 2009




| Lifestage | Key Habitat Area* | Trend |
|---|---|---|
| Spawning | 57.3% | — 0% |
| Fry colonization | 28.5% | — 0% |
| 0-age active | 0.0% | — 0% |
| 0-age inactive | 0.0% | — 0% |
| 1-age active | 0.0% | — 0% |
| 1-age inactive | 0.0% | — 0% |
| 2+-age migrant | 0.0% | — 0% |
| Prespawn holding | 14.2% | — 0% |

**Net Habitat Capacity and Change Since 2009**

| Comparison | Adult | Juvenile |
|---|---|---|
| 2009 to 2013 | 590 (186%) | 62321 (203%) |

* Percent of reach providing key habitat for this life stage in EDT in this habitat scenario

# Okanagan River 012: Channelized III

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O12: Channelized |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 80 |
| Reach Length (mi) | 0.36 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 4.3 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 95 |
| Diversity | 0% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 57 |
| Productivity | 4.0 |
| Diversity | 26% |
| Abundance | 43 |

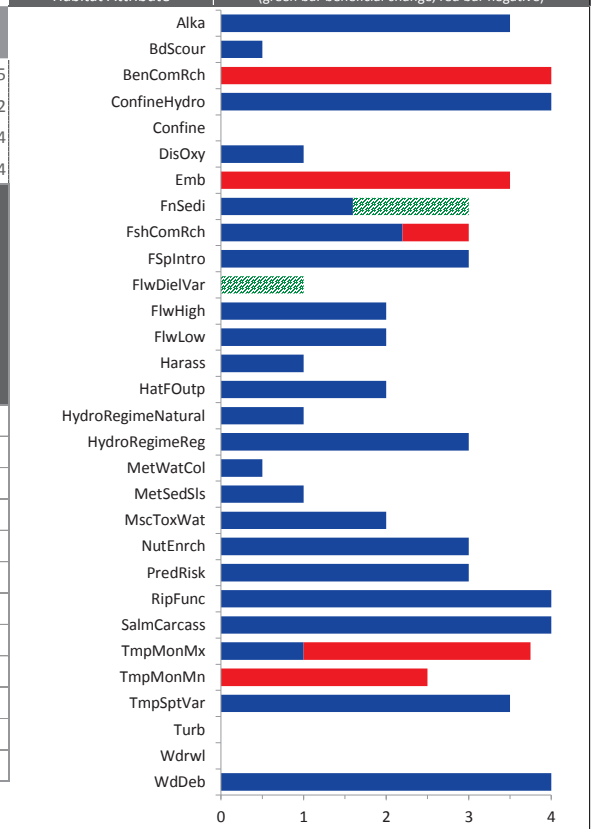
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 75 |
| Diversity | - 2% | Out of | 192 |
| Abundance | - 4% | Diagnostic Unit Priority | 4 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 3.1% | -36.6% | 5 | | Small | | | | | Large | | | Small | Small | | Large | | ↓ |
| Egg Incubation | Oct-Apr | 21.6% | 0.6% | 1 | | | | | | | | | | | | Large | Small | | ↑ |
| Fry colonization | Apr-May | 15.1% | -11.4% | 6 | Small | | | | Small | Small | Large | | | | Small | Large | | | ↑ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 6.5% | -3.0% | 3 | | | | | | | Small | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| Migrant prespawner | Jul-Sep | 20.6% | -2.0% | 4 | | | | | | | Small | | | | | | Small | | ↓ |
| Holding prespawner | Jul-Oct | 0.0% | -13.1% | 2 | | | | | | | Large | | | | | | Large | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | ↑ | ↓ | — | |

## EDT Level 2 Attribute Ratings



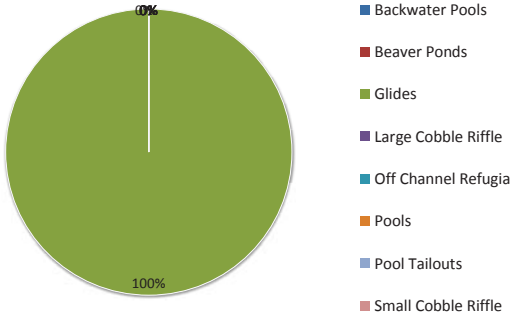

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | Large | Large | Large | Small | - |
| Gain | Large | Large | Large | Small | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

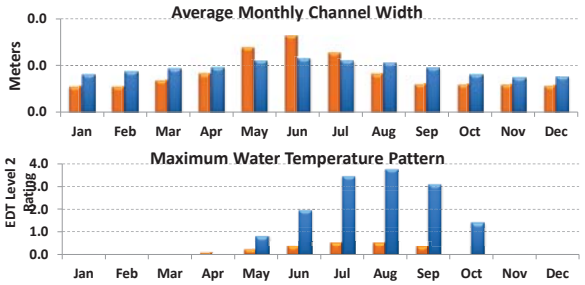
## EDT Habitat Composition Ratings

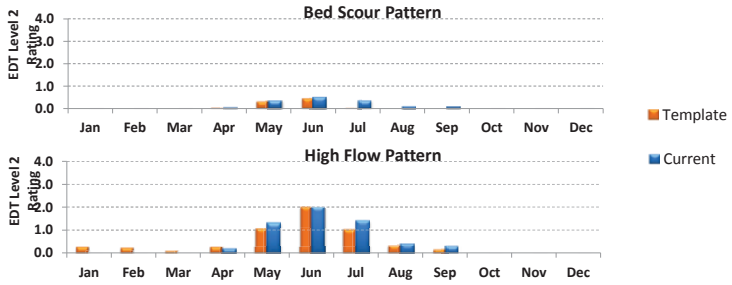



| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 57.1% | — |
| Fry Colonization | 28.6% | — |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 14.3% | — |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O12: Channelized |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 81 |
| Reach Length (mi) | 0.07 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 0.8 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 54 |
| Diversity | 0% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 8 |
| Productivity | 1.8 |
| Diversity | 26% |
| Abundance | 3 |

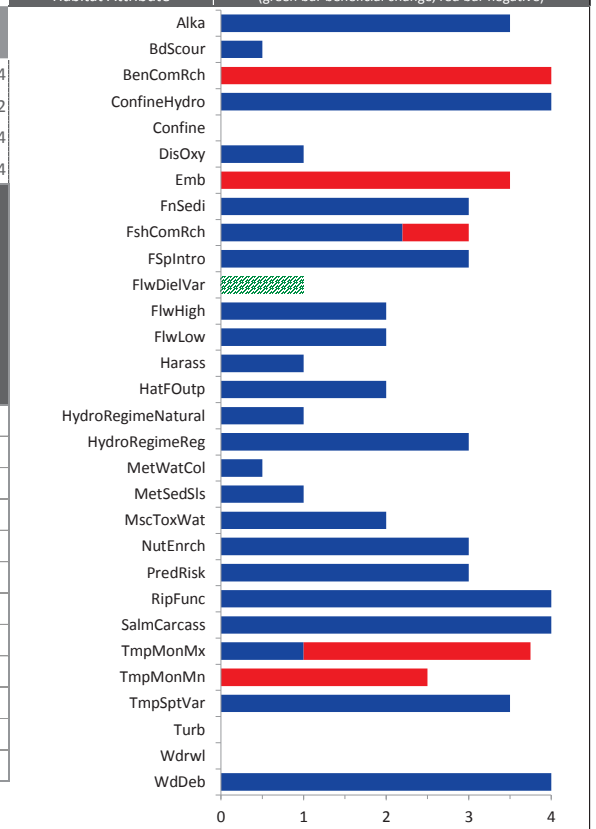
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 64 |
| Diversity | 0% | Out of | 192 |
| Abundance | - 1% | Diagnostic Unit Priority | 4 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.2% | -26.8% | 3 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 1.5% | -2.0% | 2 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 11.9% | -11.4% | 6 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 5.8% | -3.0% | 4 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 17.5% | -2.0% | 5 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.0% | -12.6% | 1 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



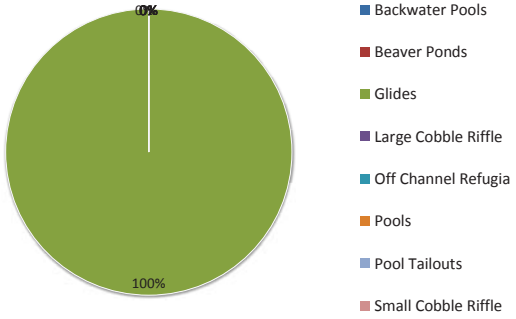

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

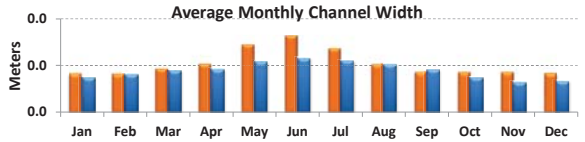
## EDT Habitat Composition Ratings

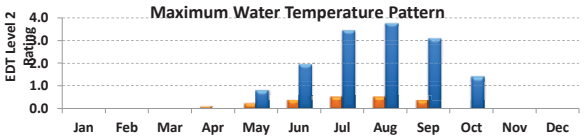


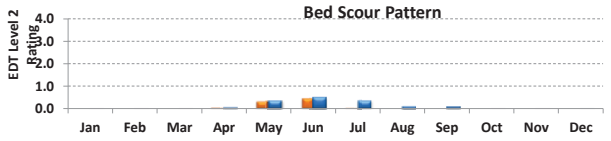

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 57.1% | ▬ |
| Fry Colonization | 28.6% | ▬ |
| Active Rearing | 0.0% | ▬ |
| Inactive Rearing | 0.0% | ▬ |
| Prespawn Holding | 14.3% | ▬ |

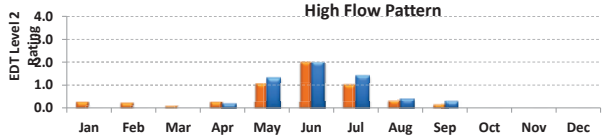
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O12: Channelized |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 82 |
| Reach Length (mi) | 0.08 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 1.0 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 68 |
| Diversity | 0% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 14 |
| Productivity | 1.2 |
| Diversity | 26% |
| Abundance | 2 |

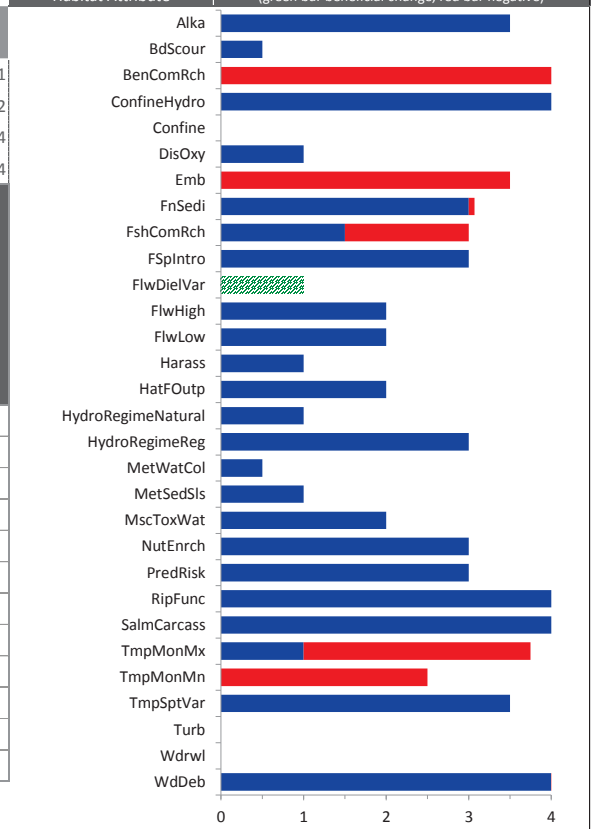
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 61 |
| Diversity | 0% | Out of | 192 |
| Abundance | - 1% | Diagnostic Unit Priority | 4 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 0.1% | -38.8% | 3 | | | | | | | | | | | | | | | ↓ |
| Egg Incubation | Oct-Apr | 0.4% | -2.2% | 2 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 12.0% | -11.4% | 6 | | | | | | | | | | | | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 5.8% | -3.0% | 4 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| Migrant prespawner | Jul-Sep | 17.3% | -2.0% | 5 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.0% | -12.6% | 1 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



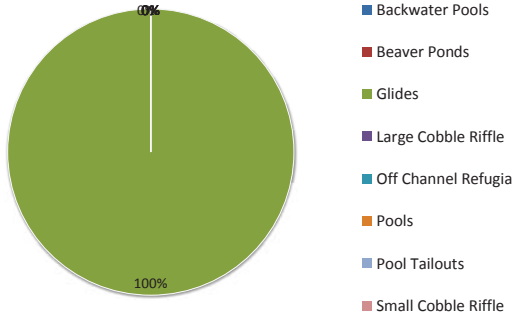

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

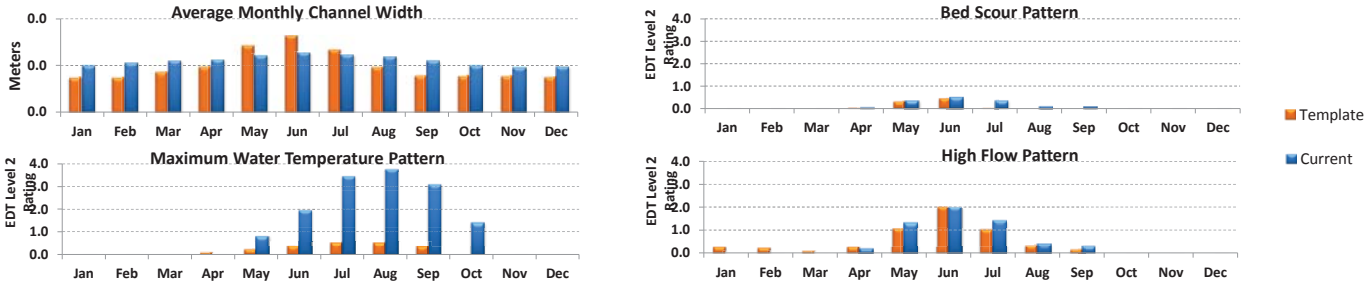
## EDT Habitat Composition Ratings




| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 57.1% | — |
| Fry Colonization | 28.6% | — |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 14.3% | — |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O12: Channelized |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 83 |
| Reach Length (mi) | 0.12 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 1.5 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 101 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | 0% | Diagnostic Unit Priority | 11 |
| Abundance | 0% | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 56 |
| Productivity | 8.0 |
| Diversity | 26% |
| Abundance | 49 |

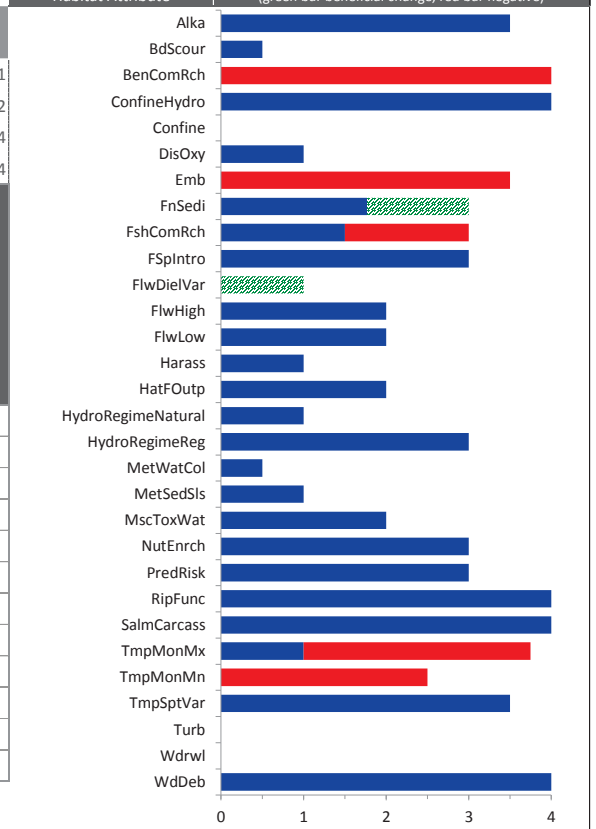
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 41 |
|---|---|---|---|
| Productivity | - 1% | Out of | 192 |
| Diversity | 0% | Diagnostic Unit Priority | 4 |
| Abundance | - 2% | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.2% | -35.9% | 5 | | | | | | | | | | | | | | | ↓ |
| Egg Incubation | Oct-Apr | 8.1% | 0.3% | 1 | | | | | | | | | | | | | | | ↑ |
| Fry colonization | Apr-May | 12.0% | -11.4% | 6 | | | | | | | | | | | | | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 5.5% | -3.0% | 3 | | | | | | | | | | | | | | | ↓ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| Migrant prespawner | Jul-Sep | 17.3% | -2.0% | 4 | | | | | | | | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.0% | -12.6% | 2 | | | | | | | | | | | | | | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |

## EDT Level 2 Attribute Ratings



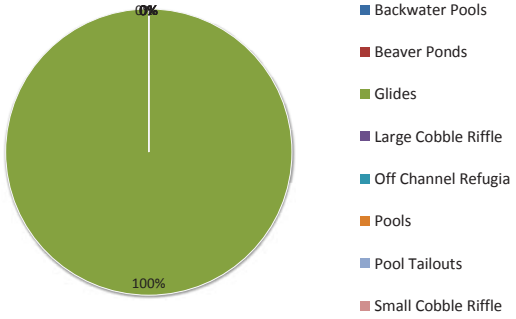

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ↓ | ↑ |
| >5% | ↓ | ↑ |

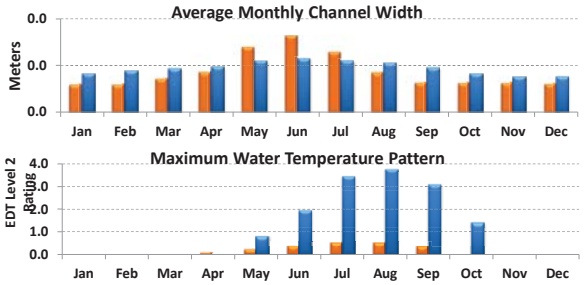
## EDT Habitat Composition Ratings

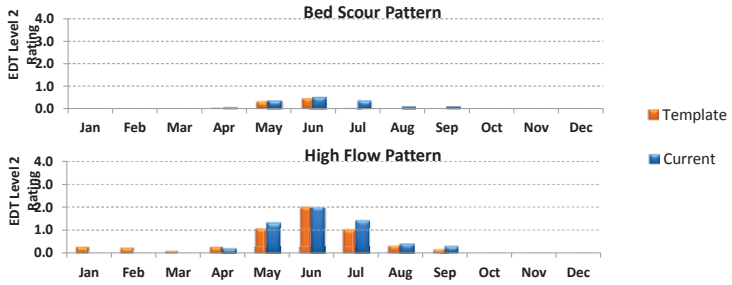



| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 57.1% | — |
| Fry Colonization | 28.6% | — |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 14.3% | — |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O12: Channelized |
| Species | Chinook |
| Population | Okanagan (Can) |
| Reach | Okanagan River 86 |
| Reach Length (mi) | 1.09 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 13.6 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | Reach Priority | 71 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | + 3% | Diagnostic Unit Priority | 11 |
| Abundance | + 1% | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 199 |
| Productivity | 5.4 |
| Diversity | 24% |
| Abundance | 162 |

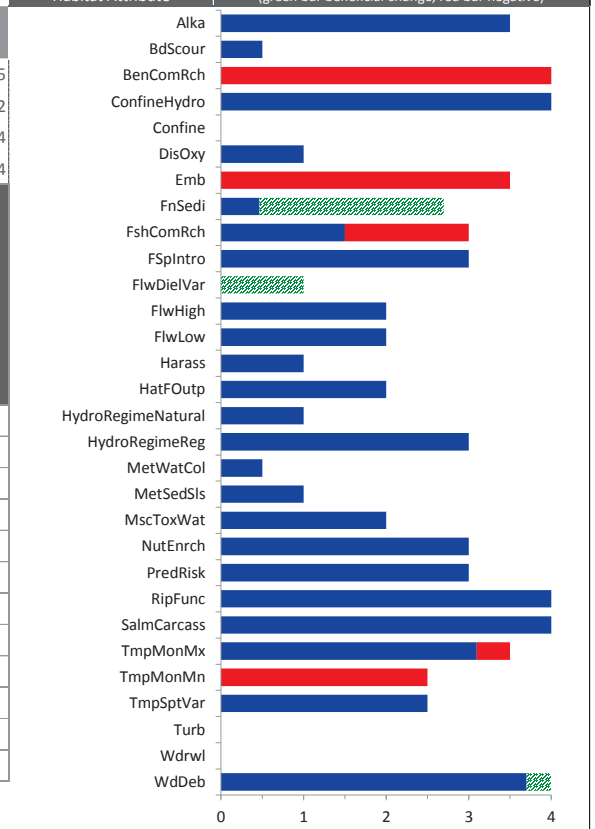
## Reach Preservation Priority

| Effect of Degradation on | | Reach Priority | 15 |
|---|---|---|---|
| Productivity | 0% | Out of | 192 |
| Diversity | - 5% | Diagnostic Unit Priority | 4 |
| Abundance | - 5% | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 6.0% | -36.6% | 6 | | Small | | | | | Large | | | Small | Small | | Large | | ↓ |
| Egg Incubation | Oct-Apr | 42.3% | 0.0% | 1 | | | | | | | | | | | | Small | Small | | — |
| Fry colonization | Apr-May | 15.0% | -10.9% | 5 | Small | | | | Small | Small | Large | | | | Small | Large | | | ↓ |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 0-age transient rearing | Jun-Oct | 5.3% | -2.7% | 3 | | | | | | | Small | | | | | | | | ▼ |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | — |
| Migrant prespawner | Jul-Sep | 16.1% | -1.6% | 4 | | | | | | | Small | | | | | | | | ↓ |
| Holding prespawner | Jul-Oct | 0.0% | -11.1% | 2 | | | | | | | Large | | | | | | Small | | ↓ |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | — |
| Survival Factor Trend | | | | | — | — | — | — | — | — | — | — | — | — | — | ↑ | ▼ | — | |

## EDT Level 2 Attribute Ratings



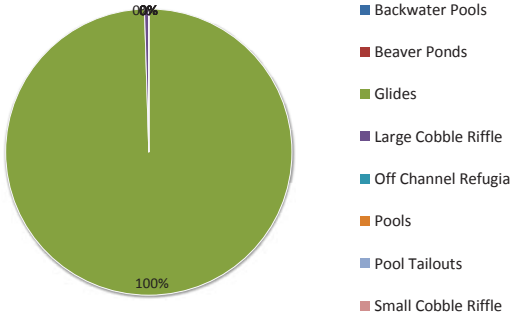

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | Large | Large | Large | Small | - |
| Gain | Large | Large | Large | Small | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | — | — |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

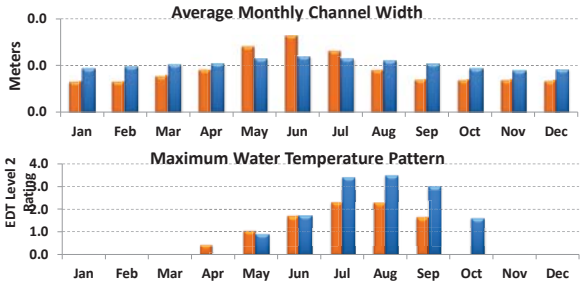
## EDT Habitat Composition Ratings

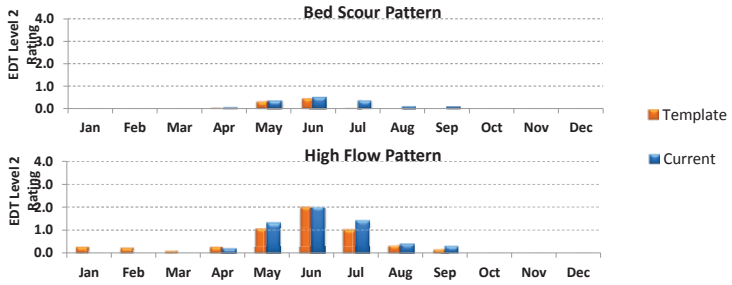



| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 57.1% | — |
| Fry Colonization | 28.6% | — |
| Active Rearing | 0.0% | — |
| Inactive Rearing | 0.0% | — |
| Prespawn Holding | 14.3% | — |

[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes



OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O12: Channelized |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 87 |
| Reach Length (mi) | 0.17 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 1.7 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 96 |
| Diversity | 0% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 30 |
| Productivity | 4.8 |
| Diversity | 26% |
| Abundance | 23 |

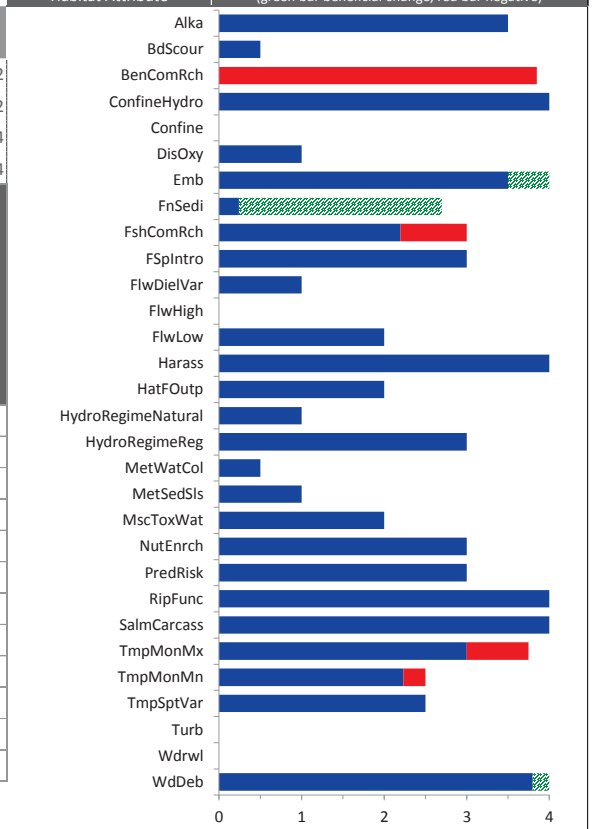
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 42 |
| Diversity | - 1% | Out of | 192 |
| Abundance | - 1% | Diagnostic Unit Priority | 4 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 1.2% | -41.6% | 5 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 8.4% | 0.0% | 1 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 9.1% | -10.4% | 6 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 1.8% | -2.9% | 3 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 10.2% | -1.7% | 4 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.0% | -10.7% | 2 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



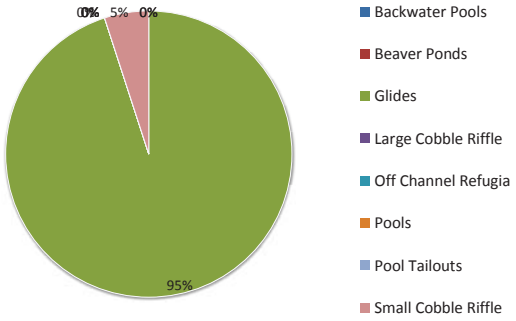

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | | | | | - |
| Gain | | | | | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | | |
| >1-5% | | |
| >5% | | |

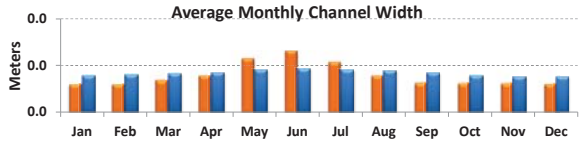
## EDT Habitat Composition Ratings

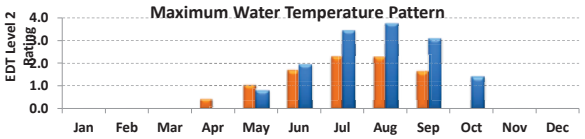


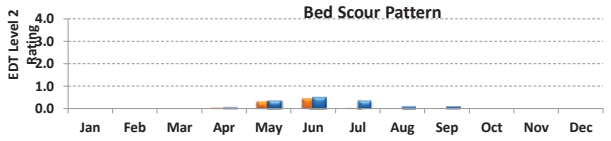

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 57.1% | |
| Fry Colonization | 28.6% | |
| Active Rearing | 0.0% | |
| Inactive Rearing | 0.0% | |
| Prespawn Holding | 14.3% | |

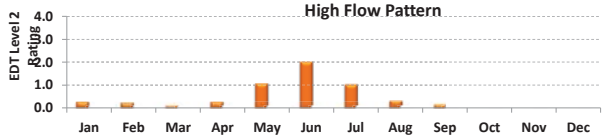
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current

OKANOGAN BASIN MONITORING AND EVALUATION PROGRAM

# REACH REPORT CARD

| | |
|---|---|
| Subbasin | OBMEP_04232013 |
| Diagnostic Unit | Okanagan River O12: Channelized |
| Species | Chinook |
| Population | Okanagan (Can) |

| | |
|---|---|
| Reach | Okanagan River 90a |
| Reach Length (mi) | 1.87 |
| Average Gradient | 0.0% |
| Habitat Area (ac) | 21.6 |

**OBMEP Sites**

#N/A

## Reach Restoration Priority

| Effect of Restoration on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 73 |
| Diversity | + 3% | Out of | 192 |
| Abundance | 0% | Diagnostic Unit Priority | 11 |
| | | Out of | 24 |

## Current Habitat Potential

| | |
|---|---|
| Capacity | 227 |
| Productivity | 5.2 |
| Diversity | 24% |
| Abundance | 183 |

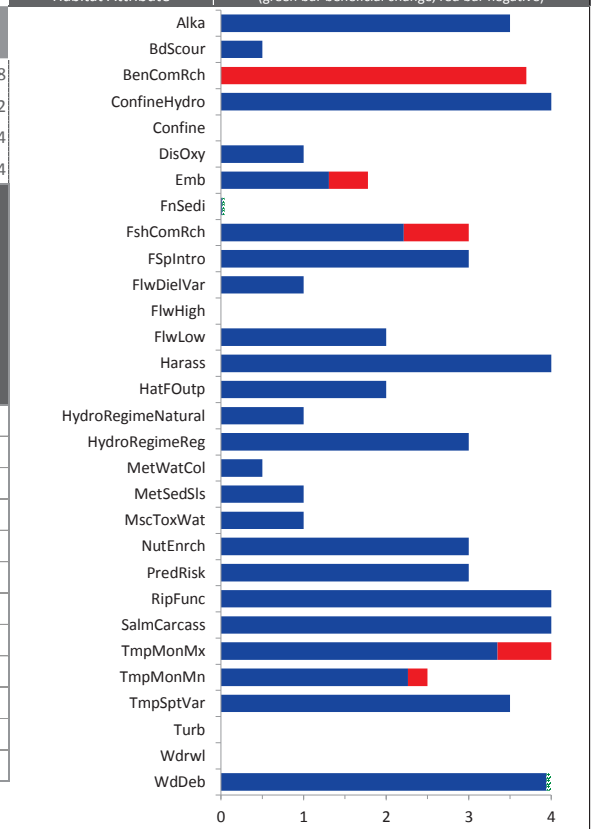
## Reach Preservation Priority

| Effect of Degradation on | | | |
|---|---|---|---|
| Productivity | 0% | Reach Priority | 18 |
| Diversity | - 10% | Out of | 192 |
| Abundance | - 4% | Diagnostic Unit Priority | 4 |
| | | Out of | 24 |

## Survival Factor Performance and Trend Analysis

| Life Stage | Relevant months | Proportion of trajectories exposed by life stage | Productivity change (relative to benchmark) | Life Stage Priority Rank | Channel stability | Chemicals | Competition-Hatchery | Competition-other sp. | Flow | Food | Habitat diversity | Harassment/ poaching | Oxygen | Pathogens | Predation | Sediment load | Temperature | Withdrawals | Life stage trend |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spawning | Sep-Oct | 8.9% | -37.2% | 6 | | | | | | | | | | | | | | | |
| Egg Incubation | Oct-Apr | 62.6% | 0.1% | 1 | | | | | | | | | | | | | | | |
| Fry colonization | Apr-May | 9.3% | -9.4% | 5 | | | | | | | | | | | | | | | |
| 0-age migrant | May-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age resident rearing | Jun-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 0-age transient rearing | Jun-Oct | 1.2% | -2.6% | 3 | | | | | | | | | | | | | | | |
| 0-age inactive | Apr-Oct | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| 1-age migrant | Apr-Jun | 0.0% | 0.0% | 0 | | | | | | | | | | | | | | | |
| Migrant prespawner | Jul-Sep | 8.9% | -1.7% | 4 | | | | | | | | | | | | | | | |
| Holding prespawner | Jul-Oct | 0.0% | -11.5% | 2 | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| -- | -- | -- | -- | -- | | | | | | | | | | | | | | | |
| Survival Factor Trend | | | | | | | | | | | | | | | | | | | |

## EDT Level 2 Attribute Ratings



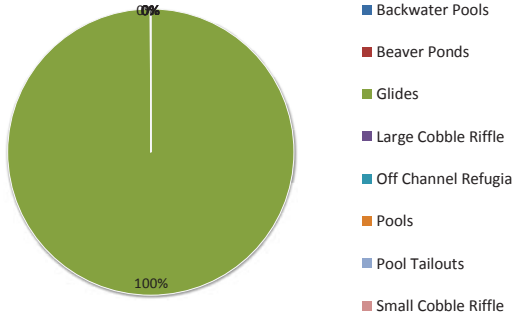

### Habitat Productivity Impact Key

| Impact | Extreme | High | Moderate | Small | None |
|---|---|---|---|---|---|
| Loss | ● | ● | ● | ● | - |
| Gain | ● | ● | ● | ● | - |

### Trend Key

| Trend | Neg. | Pos. |
|---|---|---|
| <1% | ▬ | ▬ |
| >1-5% | ▼ | ▲ |
| >5% | ↓ | ↑ |

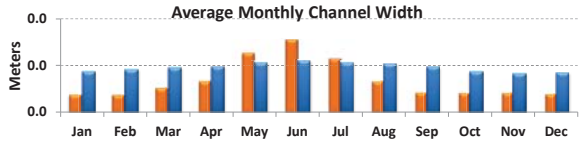
## EDT Habitat Composition Ratings

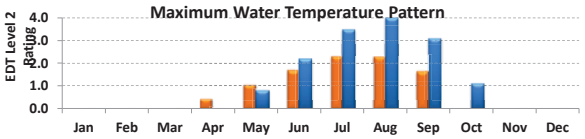


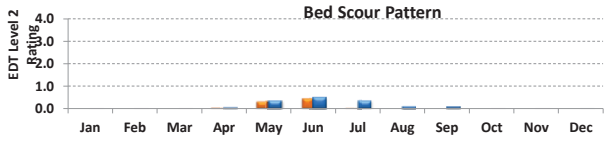

| Lifestage | Key Habitat Area[1] | Trend |
|---|---|---|
| Spawning | 57.3% | ▬ |
| Fry Colonization | 28.5% | ▬ |
| Active Rearing | 0.0% | ▬ |
| Inactive Rearing | 0.0% | ▬ |
| Prespawn Holding | 14.2% | ▬ |

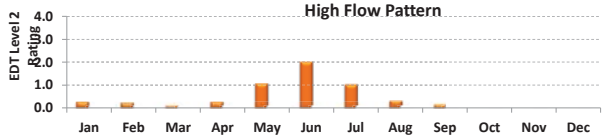
[1] Percent of reach providing key habitat function for this life stage in EDT

## Temporal Patterns for Selected EDT Level 2 Attributes




Template

Current