

Okanogan Adult Temporary Weir

Objectives

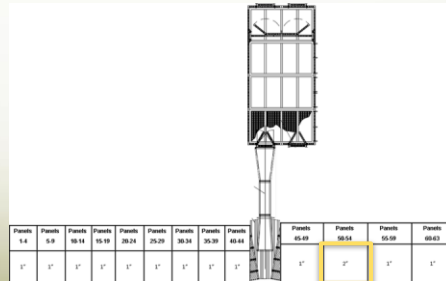
- Install early July or August, operate through September under allowable flow (< 3,000 cfs) and temperature (<22.5 °C) conditions
- Adult management tool for broodstock needs, meet pHOS (<30%) and PNI (> .67) target
- Refine trap configuration to meet the CJHP's biological and brood-take goals
- Remove HOR summer/fall Chinook fish; fish from this "adult management" activity are destined for tribal member ceremonial and subsistence purposes
- Collect late arriving natural- or hatchery-origin summer/fall Chinook broodstock and transport safely to the hatchery
- Document weir effects and conduct observations around vicinity of the weir for species composition, abundance, health, and timing to inform management decisions and future program operations

2022 Operation

- Deployed on August 30th at 1,080 cfs flow @ Malott
- Completed September 8th with underwater video system
- Daily monitoring activities began following week
- Trapping began on September 8th
 - Trapped for 15 days
 - Ended on September 22nd
- Configuration
 - River right- 1" picket spacings
 - River left- 1" picket spacings, set of (5) 2" picket spacings for passage, similar to previous years

2022 Configuration and Design

- Installed the accelerator chute again
- Installed a light bar and camera housing on west side trap and two on the chute
- Installed the Whooshh™ fish transport system for brood stock collection from 9/12-9/21
- Used an aerial cable system for the weir video cables again

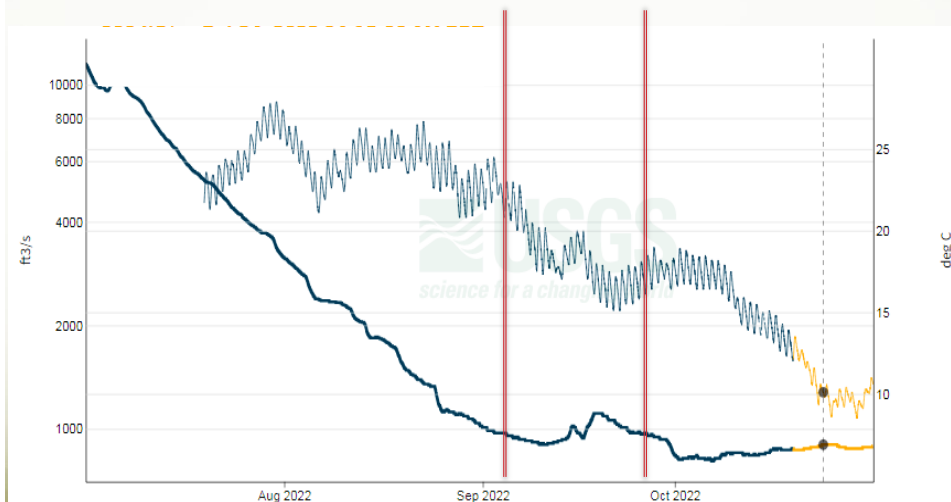


Daily Monitoring Activities

- **Daily maintenance-** debris, algae removal, carcass removal, cameras, lights
- **Water quality:** temperature, dissolved oxygen, and turbidity
- **Water velocity and head differential***
- **Direct observations** (estimates)
 - Tower- 2x/day, 5 minutes, morning and afternoon
 - Bank- about .8 river km downstream, 2x/day, 10 minutes
- **Mortalities**
 - Collected, assessed, biological information
 - 5 Chinook carcasses (2 HOR, 3 NOR)
 - 128 Sockeye
- **Underwater video review**
 - 2 cameras along the chute (1 DS, 1 US) and 1 camera inside trap (west panel)
 - Live monitoring to assist in daytime trapping

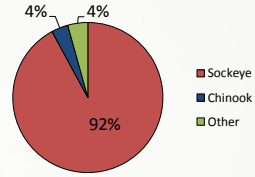


Water Quality

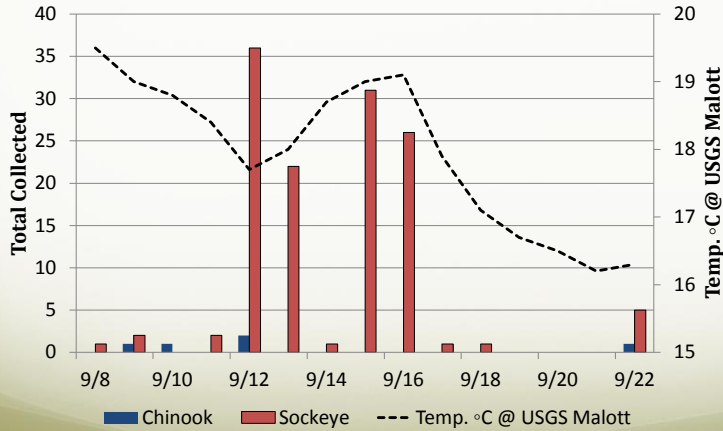


<https://waterdata.usgs.gov/monitoring-location/12447200/#parameterCode=00060&startDT=2022-07-01&endDT=2022-10-31>

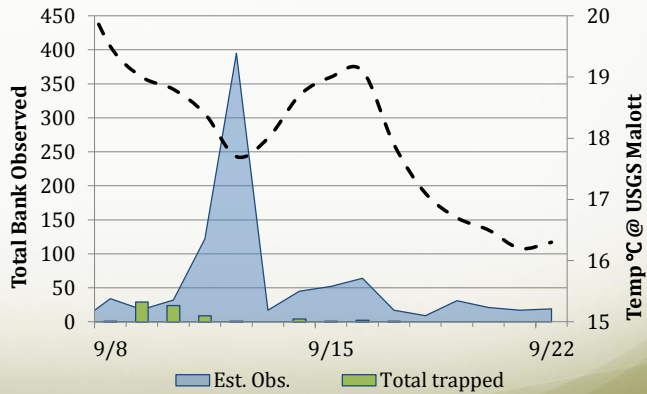
Carcasses at the Weir



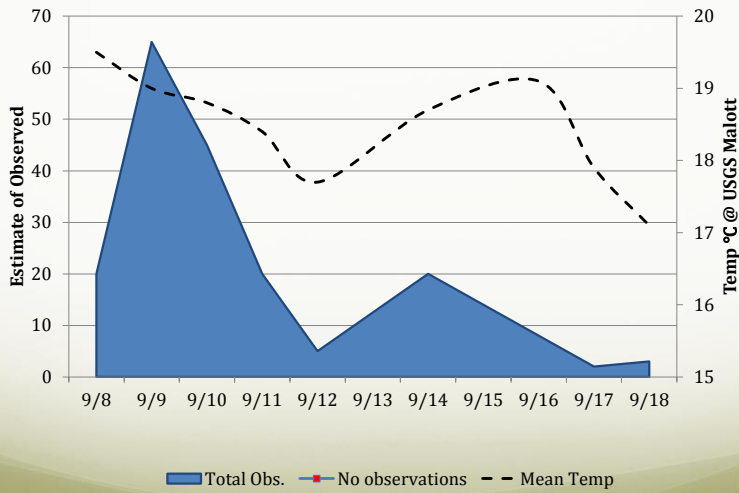
n=139



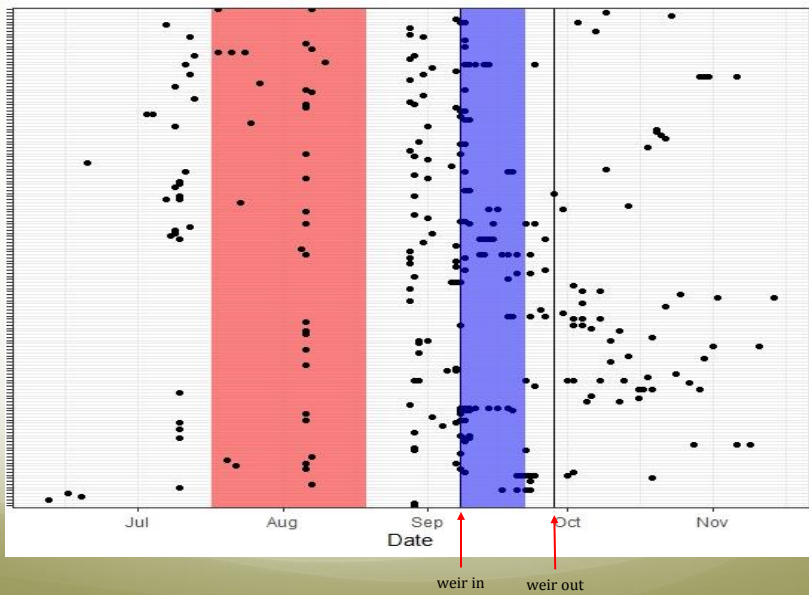
Bank Observations



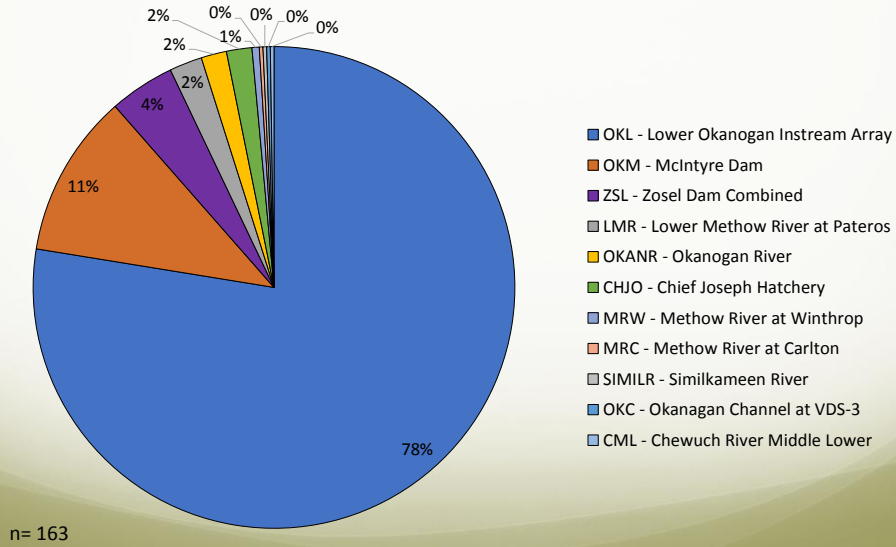
Tower Observations



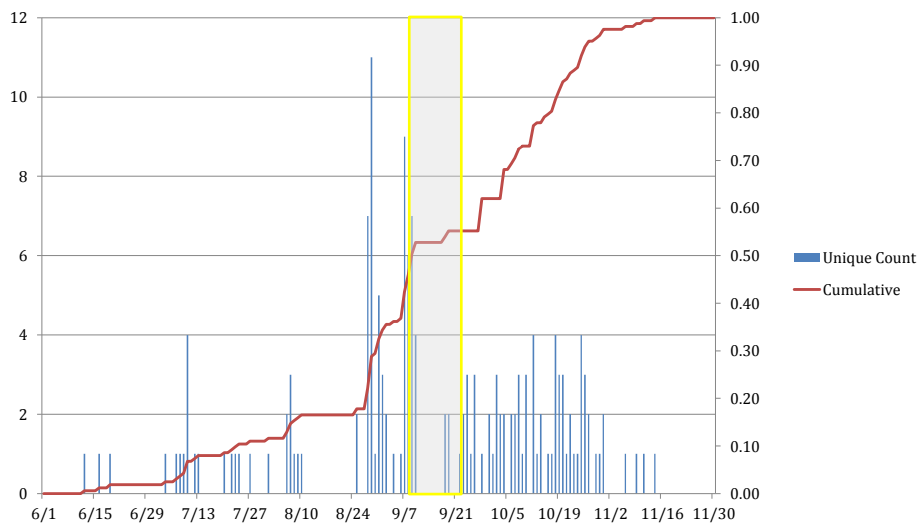
OKL Array 2022



Last Detection Site



Last Detection OKL



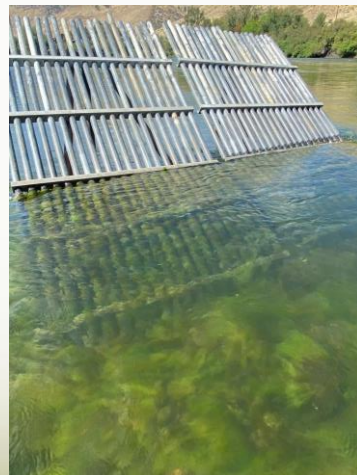
Trapping Operations

- Trapping began on September 8th, ended on Sept. 22nd
- 72 adult summer Chinook
 - 42 NOR brood
 - 14 HOR brood
 - 14 HOR removed
 - 2 NOR released
 - 2 jacks
- 9 adult sockeye (all in first week)
- 4 steelhead (all HOR)

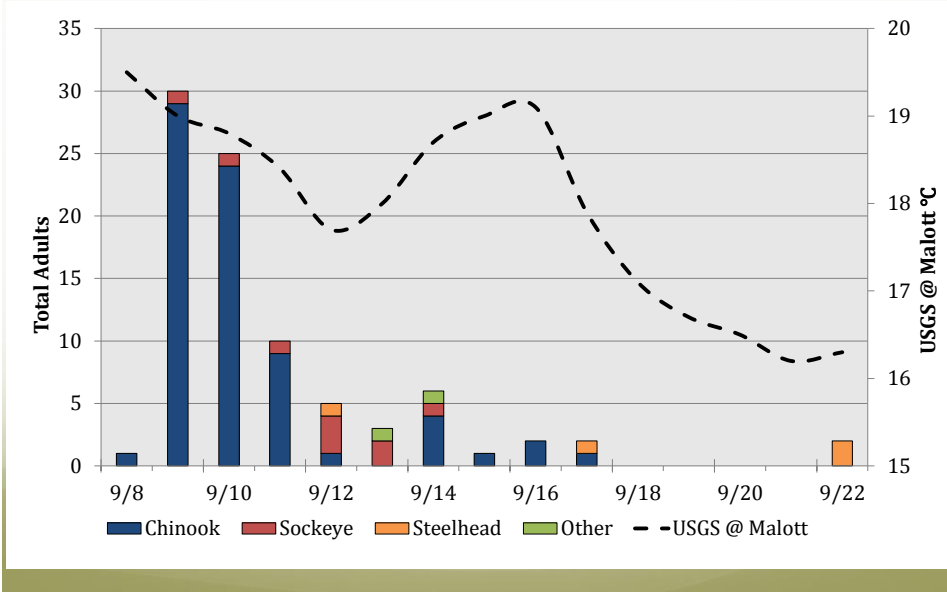


Environmental Conditions

- Similar to 2020 and 2021, algae was a major obstacle we had to overcome in August and early September
 - We could have installed in early August with discharge below 2600 cfs
 - Temps still above 22.5 till August 28th
- If conditions continue annually then will continue to limit our ability to trap and collect fish

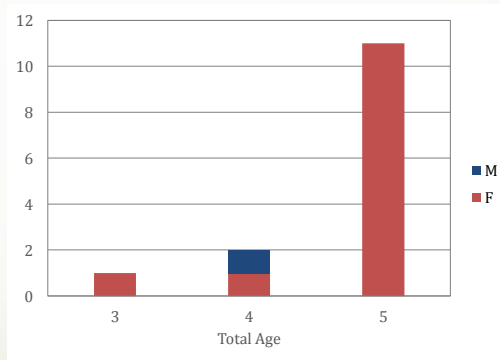


Daily Trapped



CWT Results- Weir Surplus

- 14 HOR surplused
- 14 CWTs extracted and read
- 12 Recoveries from integrated summer releases (86%)
 - Omak Pond
- 2 recoveries from Lyons Ferry Hatchery (late-fall)



Survey Year	Chinook Adults Encountered in the Weir Trap		Chinook Spawning Escapement Estimates ^{c,d}		Weir Metrics	
	Natural Origin (NOR)	Hatchery Origin (HOR)	Natural Origin (NOS)	Hatchery Origin (HOS)	Weir Efficiency ^a	Weir Effectiveness ^b
	2013	73	18	5,627	2,567	0.010
2014	2,006	318	10,407	1,756	0.147	0.140
2015	35	19	10,439	3,308	0.004	0.005
2016	135	34	8,700	1,905	0.014	0.016
2017	344	103	5,429	1,139	0.058	0.075
2018	32	16	3,266	1,594	0.009	0.009
2019	82	24	2,604	2,849	0.017	0.008
2020	709	161	7,957	3,061	0.066	0.045
2021	37	9	4,525	2,521	0.006	0.003
2022	43	27	2,002	2,390	0.014	0.010

^a Estimates for weir efficiency are adjusted for prespawn mortality and include Chinook adults that are harvested, released, and collected for brood.

^b Estimates for weir effectiveness are adjusted for prespawn mortality and include Chinook adults that are harvested or removed for pHOS management.

^c Estimates do not include Chinook Zosel Dam counts.

^d NOS and HOS estimates determined by 'reach-weighted' pHOS calculations

2022 Conclusions

- Flow was an issue for deployment in August- Installed in early- September at 1,080 cfs
- Did not meet NOR brood goal for 15% component of total, collected 9%
- 86% of hatchery recoveries in the trap were from the integrated program
- Use similar trap location in 2023 with Whooshh system
- Algae was an obstacle for the third year in a row that limited trapping operations for 10 days in late August and early September

