

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

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To: Andrew Gingerich and John Rohrback
From: Charlie Snow and Ben Goodman
Subject: September Hatchery and Natural Production Report
Date: 9 October 2023
Cc: Distribution list.

HATCHERY ACTIVITIES

At Methow Hatchery, all 2022 brood progeny were reared on 100% well water during September. At Wells Hatchery, all populations on-station at the end of the month were reared on 100% well water.

2022 Twisp Spring Chinook Salmon

A total of 25,391 Twisp parr from the 2022 brood were on-station at Methow Hatchery at the end of the month and five additional mortalities were identified. Twisp program parr had a mean fork length of 100 mm during September and were at 34-35 FPP (Table 1). The number of fish on-station that apply to Douglas PUD HCP and Grant PUD SSSA mitigation obligations is listed in Appendix A.

2022 Methow Composite Spring Chinook Salmon

Methow Hatchery had a total of 200,374 Methow Composite parr from the 2022 brood on-station at the end of the month after accounting for 91 mortalities during September. This population includes an estimated 63,990 parr for release from the Chewuch Acclimation Pond, and 136,384 parr for release from Methow Hatchery. Chewuch-release and Methow-release fish had mean fork lengths of 99-103 mm, and 100-104 mm, respectively, and were between 30-36 FPP overall (Table 1). The number of fish on-station that apply to Douglas PUD HCP, Chelan PUD HCP, and Grant PUD SSSA mitigation obligations is listed in Appendix A.

Table 1. Spring Chinook Salmon length and weight sampling at Methow Hatchery during the month of September. MC = MetComp, FPP = fish per pound.

Raceway	Brood year	Stock-release	Fork length (mm)				FPP
			Mean	N	SD	CV	
1	2022	Twisp	100.3	114	6.3	6.3	35.6
2	2022	Twisp	100.8	104	8.4	8.3	34.2
3	2022	MC-Chewuch	103.5	108	6.8	6.6	34.1
4	2022	MC-Chewuch	101.1	104	7.4	7.3	35.9
5	2022	MC-Chewuch	99.8	105	6.6	6.6	36.7
7	2022	MC-Methow	101.1	112	6.7	6.6	34.5
8	2022	MC-Methow	104.1	109	8.6	8.2	30.3
9	2022	MC-Methow	101.9	102	8.4	8.3	35.2
10	2022	MC-Methow	102.6	101	6.6	6.4	35.7
11	2022	MC-Methow	102.0	103	7.9	7.7	34.7
12	2022	MC-Methow	100.2	102	8.5	8.5	36.8

2022 Summer Chinook

Wells Hatchery had an estimated 306,632 parr for the yearling program, and 37,737 for the Methow conservation (MEOK) program on-station at the end of September. These programs experienced monthly losses of 17 and 245 fish, respectively. The hatchery also had 168,198 summer Chinook progeny from the Entiat National Fish Hatchery on-station at the end of September that will be used to support reintroduction of summer Chinook into the Columbia River upstream of Chief Joseph Dam. This population experienced 952 mortalities during the month. Recent low-level mortality has been attributed to PIT tagging that occurred a few weeks ago. No therapeutic intervention is planned at this time. This population will continue to be monitored. Summer Chinook are being reared to fulfill Wells HCP mitigation obligations (yearling and MEOK programs; Appendix A) and the Southern Resident Killer Whale and Pacific Salmon Treaty subyearling production contract with WDFW (Appendix B).

2023 Summer Steelhead

Wells Hatchery had 85,518 Methow safety-net (MSN), 212,841 Columbia safety-net (CSN), and 93,449 Okanogan safety-net (OSN) progeny on-station at the end of the month. These populations experienced 149 additional MSN mortalities, 321 CSN mortalities, and 91 OSN mortalities during the month of September. The CSN and MSN programs were further adjusted by +6,814 and -2,728 fish during the month respectively, due to routine inventory assessments related to fish marking activities. The hatchery also had 20,035 fry for the Omak conservation program on-station at the end of September after accounting for mortalities (164) and marking adjustments (-819) during the month.

Wells Hatchery also had a total of 20,980 Methow conservation program progeny and 22,769 Twisp conservation program progeny on-station at the end of September. These populations experienced mortalities of 27 and 21 fish, respectively.

2023 Riverence Rainbow Trout

Wells Hatchery had 22,885 Riverence Rainbow Trout on-station at the end of September after removing 77 mortalities during the month. These fish will be used for 2024 spring plants and are reared under the Off-License Settlement Agreement between Douglas PUD and WDFW (Appendix C).

2022 Methow Coho

Wells Hatchery had 26,584 Methow Coho fry from the 2022 brood on-station at the end of September and 14 additional fish were identified as mortalities during the month. These fish are reared to meet Wells HCP mitigation obligations (Appendix A).

2023 White Sturgeon

Wells Hatchery had 2,848 White Sturgeon progeny from the 2023 brood on-station after removing 497 additional mortalities during the month of September. Mortalities have slowly decreased over the last few weeks; it is believed this population is beginning to recover from the chronic low-level drop out experienced during the beginning of August and early September. White Sturgeon are reared at Wells Hatchery under the Wells Aquatic Settlement Agreement and under agreement with Chelan PUD (Appendix D).

NATURAL PRODUCTION ACTIVITIES

PIT Tag Antenna Arrays

Data collected at all Methow basin PIT tag interrogation sites operated under this program, including Twisp (TWR), lower Methow (LMR), Lower Chewuch (CRW), Gold Creek (GLC), Libby Creek (LBC), and Wolf Creek (WFC) are uploaded to the PTAGIS database regularly, and can be viewed at the following website: <http://www.ptagis.org/data/quick-reports/small-scale-site-detections>

2023 Spring Chinook Salmon Spawning Ground Surveys

Spring Chinook Salmon spawning ground surveys began the first week of August and continued into the month of September. To-date, a total of 291 redds have been identified, of which, most were found in the Methow River and tributaries ($N = 185$), Chewuch River ($N = 62$), and Twisp River ($N = 44$). Redd totals do not include mainstem Methow River sections surveyed by USFWS personnel, or the Winthrop National Fish Hatchery outfall. Carcass recoveries totaled 167 fish from the estimated spawning population of 582 fish (preliminary, based on 2 fish-per-redd). Natural-origin carcasses totaled 71 of the 167 carcasses recovered (43%) although these values should be considered preliminary pending scale and CWT analysis.

2023 Smolt Trapping

River conditions were favorable for trapping at the Methow site during the month of September, and that trap operated for the entire month with no interruptions. The Twisp trap only operated for six days during the month when there were brief increases in river discharge due to rain events. The Twisp trap did not operate due to low river discharge for the remaining 24 days in

September. The U.S. Geological Survey gauge in the lower Twisp River logged the lowest daily gauge height readings in recorded history for almost half of the month. During the month, wild steelhead parr and subyearling wild Chinook parr were the primary species captured at the Methow and Twisp trap sites, respectively (Table 2). Biological data collected from trapped fish is detailed in Table 3. Methow River discharge for the period operated ranged from 7.9 to 11.2 m³s, providing expected trap efficiencies greater than 1.5 percent. Twisp River discharge for the period operated ranged from 0.6 to 1.0 m³s, providing expected trap efficiencies greater than 20.5 percent.

Table 2. Monthly salmonid captures at Methow Basin smolt traps in 2023. SHR = wild steelhead/rainbow.

Species/origin	Methow			Twisp			Basin total
	Mar-July	Aug	Sept	Mar-July	Aug	Sept	
Precocial Chin/wild	0	1	0	0	0	1	2
Yearling Chin/wild	109	0	0	969	0	0	1,078
Yearling Chin/hatch	1,861	0	0	4,197	0	0	6,058
Sub Chin/wild-parr	925	63	22	307	49	9	1,375
Sub Chin/wild-fry	5,191	0	0	892	0	0	6,083
SHR/wild-transitional	142	0	0	490	0	0	632
SHR/wild-parr	21	28	41	355	17	5	467
SHR/wild-fry	81	1	0	20	2	0	104
Steelhead/hatchery	645	0	0	2,116	0	0	2,761
Coho/wild-smolt	211	0	0	538	0	0	749
Coho/wild-parr	12	0	0	2	1	0	15
Coho/wild-fry	34	0	0	4	0	0	38
Coho/hatchery	1,355	0	0	6,928	0	0	8,283
Bull Trout	2	0	1	12	0	0	15
Cutthroat Trout	1	7	10	12	1	0	31
Brook Trout	0	0	0	1	0	0	1
Sockeye/wild-fry	45	0	0	0	0	0	45
Total	10,635	100	74	16,843	70	15	27,737

Table 3. Biological sampling of juvenile salmonids captured at Methow Basin smolt traps during September.

Species/stage	Location	Length (mm)			Weight (g)			Mean K-factor
		Mean	SD	N	Mean	SD	N	
Precocial Chinook/wild	Twisp	142.0	--	1	30.0	--	1	1.05
Sub Chinook/wild/parr	Methow	96.1	8.9	22	9.6	2.6	22	1.06
Sub Chinook/wild/parr	Twisp	85.9	9.3	9	7.7	2.8	9	1.17
Steelhead/wild/parr	Methow	173.4	34.8	40	59.0	26.0	40	1.02
Steelhead/wild/parr	Twisp	137.8	33.2	5	30.4	14.9	5	1.04
Bull Trout	Methow	268.0	--	1	162.7	--	1	0.85
Cutthroat Trout	Methow	208.9	23.7	10	91.7	28.7	10	0.97

Appendix A. Number of fish reared at Wells and Methow hatcheries to meet Douglas County PUD’s Wells Habitat Conservation Plan mitigation objectives and other hatchery rearing agreements. Values are derived by applying fixed mitigation levels to the entire population on-station, and do not necessarily reflect separate rearing or release strategies.

Brood year	Species	Life stage	Program	Target release No.	Month												Total released /transfer		
					Oct '22	Nov	Dec	Jan '23	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep			
2021	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	65,213	65,199	65,187	65,166	65,109	65,057	--	--	--	--	--	--	64,928	64,928	
2021	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	144,537	144,506	144,479	144,432	144,306	144,191	--	--	--	--	--	--	143,905	143,905	
2021	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	31,383	31,377	31,371	31,361	31,333	31,308	--	--	--	--	--	--	31,246	31,246	
2022	Spring Chinook	Yearling smolt	CCPUD NNI	61,000 <i>released</i>	--	--	61,268	62,373	62,315	62,271	62,256	62,760	62,750	62,736	62,703	62,676	--	--	
2022	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,000 <i>released</i>	--	--	134,588	137,016	136,889	136,793	136,759	137,866	137,845	137,813	137,740	137,682	--	--	
2022	Spring Chinook	Yearling smolt	DCPUD Wells NNI	24,728 <i>released</i>	--	--	24,836	25,285	25,261	25,243	22,237	25,441	25,438	25,432	25,418	25,396	--	--	
2021	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	351,469	351,469	351,469	351,421	351,378	351,273	--	--	--	--	--	--	350,893	350,893	
2022	Summer Chinook	Sub-yearling	DCPUD Fixed Hatchery Compensation	484,000 <i>released</i>	--	--	561,715	546,764	523,864	516,342	497,615	--	--	--	--	--	490,926	490,926	
2022	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	--	--	360,000	356,568	356,568	356,568	356,568	332,541	331,050	330,125	306,649	306,632	--	--	
2022	Summer Chinook	Yearling smolt	DCPUD Wells NNI (Methow release)	35,437 <i>released</i>	--	--	--	41,264	41,264	41,264	41,264	39,136	38,990	38,033	37,982	37,737	--	--	
2022	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	298,042	301,150	300,862	300,784	300,725	300,650	79,458	--	--	--	--	--	221,040	79,458	300,498
2022	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	7,948	8,031	8,023	8,021	8,020	8,018	2,119	--	--	--	--	--	5,895	2,119	8,014
2022	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	79,478	80,307	80,307	80,209	80,194	80,174	21,189	--	--	--	--	--	58,944	21,189	80,133

Appendix A. Continued.

Brood year	Species	Life stage	Program	Target release No.	Month												Total released /transfer
					Oct '22	Nov	Dec	Jan '23	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
2022	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000	25,399	25,374	25,355	25,345	25,338	12,648	--	--	--	--	--	--	25,329
				<i>transferred</i>	--	--	--	--	--	12,686	12,643	--	--	--	--	--	
2023	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000	--	--	--	--	--	--	--	--	338,682	336,267	334,083	336,771	--
				<i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	
2023	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000	--	--	--	--	--	--	--	--	9,032	8,967	8,909	8,981	--
				<i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	
2023	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000	--	--	--	--	--	--	--	--	90,315	89,671	89,089	89,806	--
				<i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	
2023	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000	--	--	--	--	--	--	--	--	21,078	21,056	21,018	20,035	--
				<i>transferred</i>	--	--	--	--	--	--	--	--	--	--	--	--	
2021	Methow Coho	Yearling smolt	DCPUD Mitigation	27,720	25,570	25,557	25,550	25,539	25,539	25,525	--	--	--	--	--	--	24,788
				<i>released</i>	--	--	--	--	--	--	--	24,788	--	--	--	--	
2022	Methow Coho	Yearling smolt	DCPUD Mitigation	27,909	--	--	27,426	26,927	26,827	26,827	26,511	26,488	26,409	26,617	26,598	26,584	--
				<i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	

¹40,000 Inundation steelhead to be released in the Twisp or Methow with 8,000 NNI fish to total 48,000. 100,000 inundation steelhead to be released in the Methow as a safety net program. 160,000 inundation steelhead to be released directly to the Columbia.

Appendix B. Fish reared at Wells Hatchery pursuant to the Southern Resident Killer Whale and Pacific Salmon Treaty production contract with WFDW.

Brood year	Species	Life stage	Program	Target release No.	Month												Total released /transfer
					Oct '22	Nov	Dec	Jan '23	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
2022	Summer Chinook	Sub-yearling	Orca/PST	1,000,000	--	--	1,160,567	1,129,678	1,082,364	1,066,822	1,028,129	--	--	--	--	--	1,021,947
				<i>released</i>	--	--	--	--	--	--	--	--	1,021,947	--	--	--	

Appendix C. Fish reared at Wells or Methow hatcheries under the Off-License Settlement Agreement.

Brood year	Species	Life stage	Program	Target (pounds) disposition	Month											Total released /transfer		
					Oct '22	Nov	Dec	Jan '23	Feb	Mar	Apr	May	Jun	Jul	Aug		Sep	
2021	Kamloops Rainbow trout	Juv.	WDFW sport fish	Number (Pounds) released	--	--	--	--	--	--	--	--	--	--	--	--	--	50,779
					(4,266)	--	--	--	--	--	--	--	--	--	--	--	--	
2022	Riverence Rainbow trout	Juv.	WDFW sport fish	Goal is 20,000 pounds annual combined	1,621	--	--	--	--	--	--	--	--	--	--	--	--	(24,542)
					22,083	22,065	22,051	22,005	21,910	21,870	2,579	469	--	--	--	--	--	58,859
					(2,453)	(3,678)	(4,410)	(6,568)	(11,532)	(16,823)	(3,352)	(610)	--	--	--	--	--	--
2023	Riverence Rainbow trout	Juv.	WDFW sport fish	Goal is 20,000 pounds annual combined	38,103	--	--	--	--	--	18,178	2,109	469	--	--	--	--	(27,070)
					--	--	--	--	--	--	--	25,536	25,271	25,255	22,962	22,885	--	--
					--	--	--	--	--	--	--	(16)	(16)	(90)	(81)	(738)	--	--

Appendix D. Fish reared at Wells Hatchery pursuant to the Wells Aquatic Settlement Agreement – White Sturgeon Management Plan.

Brood year	Species	Life stage	Program	Target disposition	Month											Total released/culled /transferred			
					Oct '22	Nov	Dec	Jan '23	Feb	Mar	Apr	May	Jun	Jul	Aug		Sep		
2022	White Sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	Up to 325	403	367	358	354	343	337	336	287	--	--	--	--	--		
				Culled	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
				Transferred	--	--	--	--	--	--	--	--	--	3	--	--	--	--	304
				Wells reservoir	--	--	--	--	--	--	--	--	328	--	--	--	--	--	328
2022	White Sturgeon	Juvenile rearing	Chelan White Sturgeon Supplementation	Up to 2,000	2,481	2,260	2,201	2,178	2,110	2,075	2,068	1,764	--	--	--	--	--		
				Culled	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
				Transferred	--	--	--	--	--	--	--	--	--	2,048	--	--	--	--	3,899
				Chelan PUD	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2023	White Sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	Up to 325	--	--	--	--	--	--	--	--	477	750	468	398	--		
				Culled	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
				Transferred	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Wells reservoir	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2023	White Sturgeon	Juvenile rearing	Chelan White Sturgeon Supplementation	Up to 2,000	--	--	--	--	--	--	--	--	2,937	4,618	2,877	2,449	--		
				Culled	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
				Transferred	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Chelan PUD	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--