

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

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To: Andrew Gingerich and Tom Kahler
From: Charlie Snow, David Grundy, and Ben Goodman
Subject: August Hatchery and Natural Production Report
Date: 8 September 2022
Cc: Distribution list.

HATCHERY ACTIVITIES

All fish at the Wells and Methow hatcheries were held on 100% well water during the month.

2021 Twisp Spring Chinook Salmon

A total of 29,242 fish were on-station at Methow Hatchery at the end of the month after subtracting a single mortality. These fish had mean fork lengths during the month between 99 and 102 mm (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.

2021 Methow Composite Spring Chinook Salmon

Methow Hatchery had a total of 212,104 fish on-station at the end of the month after removing 48 mortalities. This population includes an estimated 26,745 fish for release at the Goat Wall Acclimation Pond, 65,925 fish for release from the Chewuch Acclimation Pond, and 119,434 fish for release from Methow Hatchery. Methow Composite populations had mean fork lengths between 92 and 101 mm during the month (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.

2022 Brood Spring Chinook Spawning

Spawning of the collected 2022 spring Chinook broodstock began on 2 August and continued weekly through 7 September. Spawning included a total of 58 female spring Chinook for the Methow Composite programs, and 7 female spring Chinook for the Twisp River program. Most male salmon were live-spawned, and genetic crossing targeted a factorial spawning regime where the eggs from each female were divided in two then crossed with a separate male. Excess wild males will be released after spawning.

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

Raceway	Brood year	Stock-release	Fork length (mm)				FPP
			Mean	<i>N</i>	SD	CV	
1	2021	Twisp	99.6	103	7.9	8.0	40.1
2	2021	Twisp	101.2	101	10.0	9.9	37.7
3	2021	MC-Goat Wall	100.1	106	7.6	7.5	39.2
4	2021	MC-Goat Wall	95.0	102	7.8	8.2	45.3
5	2021	MC-Chewuch	93.9	101	8.9	9.5	46.4
6	2021	MC-Chewuch	89.9	104	7.7	8.6	53.7
7	2021	MC-Chewuch	93.5	103	9.7	10.4	48.2
8	2021	MC-Methow	95.1	104	7.0	7.4	46.3
9	2021	MC-Methow	93.1	103	7.7	8.3	49.8
10	2021	MC-Methow	92.6	105	6.3	6.8	51.7
11	2021	MC-Methow	92.7	101	9.0	9.7	51.0
12	2021	MC-Methow	99.9	101	8.0	8.0	39.9

2021 Summer Chinook

Wells Hatchery had an estimated 351,469 fry for the HCP Inundation yearling program on-station after subtracting 747 mortalities in August and adjusting the population by 12,557 fish during the month due to routine inventory assessments. These fish had a mean length of 99 mm and were at approximately 56 fish per pound (FPP) during the month. Summer Chinook are being reared to fulfill Wells HCP mitigation obligations (Appendix A).

2022 Summer Steelhead

Wells Hatchery had an estimated 99,821 fry on-station for the Methow safety-net program (MSN), 158,519 fry for the Columbia safety-net program (CSN), 82,692 fry for the Okanogan safety-net program (OSN), and 18,684 fry for the Omak Creek conservation (OCC) program on-station at the end of August. These fry experienced losses during the month of 588 MSN progeny, 888 CSN progeny, 714 OSN progeny, and 14 OCC progeny. A fish health examination attributed elevated losses to bacterial coldwater disease and early life stage fallout. Low-level mortality has persisted in this population despite therapeutic intervention; further treatment options are being considered for early September.

Wells Hatchery also had 19,605 Twisp and 20,052 Methow conservation program progeny on-station at the end of the month after removing 231 and 100 mortalities, respectively. Steelhead progeny are being reared to fulfill Douglas PUD Wells HCP mitigation obligations and to fulfill Grant PUD SSSA mitigation obligations.

2021 Kamloops Rainbow Trout

Wells Hatchery had 1,627 trout on-station at the end of the month after subtracting a single mortality. These progeny were at approximately 0.56 FPP at the end of August. Kamloops Rainbow Trout are reared under the Off-License Settlement Agreement between Douglas PUD and WDFW (Appendix C).

2022 Riverence Rainbow Trout

Wells Hatchery had 65,447 trout progeny on-station at the end of August after removing 4,330 mortalities. Approximately 26,407 of these progeny will be released as fall plants in 2022, with the remainder (~ 39,040) released as catchable trout in spring 2023. Riverence Rainbow Trout are reared under the Off-License Settlement Agreement between Douglas PUD and WDFW (Appendix C).

2021 Methow Coho

Wells Hatchery had 25,612 Methow Coho on-station at the end of the month. This population experienced 28 additional mortalities during the month of August and were at approximately 65 FPP. These fish are reared to meet Wells HCP mitigation obligations (Appendix A).

2022 White Sturgeon

Wells Hatchery had 6,004 White Sturgeon progeny on-station at the end of the month after subtracting 441 mortalities. These fish were at approximately 81 FPP at the end of the month. White Sturgeon progeny 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>

2022 Spring Chinook Spawning Ground Surveys

Spring Chinook spawning ground surveys began on 1 August throughout the Methow Basin. Through the first week of September, surveyors counted 60 redds in the Chewuch subbasin, 219 redds in the Methow subbasin, and 119 redds in the Twisp subbasin. A total of 162 carcasses have been sampled to-date, most of which have been wild Twisp origin fish (63 of 91 wild fish sampled). However, these data are preliminary, as redd counts and carcass sampling are still on-going and expected to increase, especially in the Chewuch subbasin.

2022 Smolt Trapping

River conditions were favorable for trapping at both the Methow and Twisp sites during the month of August, and traps at both locations operated for the entire month with no interruptions. During the month, subyearling wild Chinook parr and wild Coho 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 11.0 to 29.4 m³s, providing expected trap efficiencies greater than 1.5 percent. Twisp River discharge for the period operated ranged from 1.6 to 5.8 m³s, providing expected trap efficiencies between 17.5 and 20.5 percent.

Table 2. Monthly salmonid captures at Methow Basin smolt traps in 2022. SHR = wild steelhead/rainbow.

Species/origin	Methow			Twisp			Basin total
	Feb-June	July	Aug	Mar-June	July	Aug	
Precocial Chin/wild	0	0	0	0	1	0	1
Yearling Chin/wild	108	0	0	282	0	0	390
Yearling Chin/hatch	2,914	0	0	3,499	0	0	6,413
Sub Chin/wild-parr	521	490	54	19	114	31	1,229
Sub Chin/wild-fry	10,994	111	0	419	21	0	11,545
SHR/wild-transitional	307	0	0	235	0	0	542
SHR/wild-parr	59	4	4	219	16	21	323
SHR/wild-fry	74	76	1	2	7	2	162
Steelhead/hatchery	1,349	3	0	1,909	9	1	3,271
Coho/wild-smolt	185	0	0	427	0	0	612
Coho/wild-parr	38	38	1	13	43	33	166
Coho/wild-fry	357	17	1	522	133	2	1,032
Coho/hatchery	3,004	0	0	8,223	0	0	11,227
Bull Trout	1	0	0	13	0	0	14
Cutthroat Trout	1	1	1	11	5	7	26
Rainbow Trout	0	0	0	1	0	0	1
Sockeye/wild-fry	32	0	0	3	0	0	35
Total	19,944	740	62	15,797	349	97	36,989

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

Species/stage	Location	Length (mm)			Weight (g)			Mean K-factor
		Mean	SD	<i>N</i>	Mean	SD	<i>N</i>	
Sub Chinook/wild/parr	Methow	89.7	8.8	53	8.4	2.2	53	1.14
Sub Chinook/wild/parr	Twisp	91.5	8.5	31	9.5	2.2	31	1.21
Steelhead/wild/parr	Methow	135.3	49.5	4	34.2	27.4	4	1.06
Steelhead/wild/parr	Twisp	150.4	43.3	21	45.0	24.7	21	1.09
Steelhead/wild/fry	Methow	28.0	--	1	--	--	--	--
Steelhead/wild/fry	Twisp	31.0	4.2	2	--	--	--	--
Steelhead/hatchery	Twisp	195.0	--	1	71.1	--	1	0.96
Coho/wild/parr	Methow	67.0	--	1	4.0	--	1	1.33
Coho/wild/parr	Twisp	77.7	14.9	33	6.6	3.4	33	1.27
Coho/wild/fry	Methow	45.0	--	1	--	--	--	--
Coho/wild/fry	Twisp	47.0	2.8	2	--	--	--	--
Cutthroat Trout	Methow	184.0	--	1	65.3	--	1	1.05
Cutthroat Trout	Twisp	220.6	30.5	7	121.2	56.1	7	1.06

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		
					Sep '21	Oct	Nov	Dec	Jan '22	Feb	Mar	Apr	May	Jun	Jul	Aug			
2020	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	64,063	64,050	63,999	63,969	63,908	63,898	63,878	63,814	--	--	--	--	63,734	63,734	
2020	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	141,988	141,959	141,845	141,780	141,645	141,622	141,578	141,495	--	--	--	--	141,259	141,259	
2020	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	30,830	30,824	30,799	30,785	30,756	30,751	30,741	30,723	--	--	--	--	30,672	30,672	
2021	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	--	--	--	65,233	64,758	64,663	64,635	64,629	65,297	65,291	65,284	65,271	--	--	
2021	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	--	--	--	144,580	143,528	143,318	143,255	143,242	144,724	144,710	144,694	144,664	--	--	
2021	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	--	--	--	31,393	31,165	31,119	31,105	31,102	31,242	31,421	31,418	31,411	--	--	
2020	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	355,327	355,327	355,320	355,320	355,320	355,320	355,320	--	--	--	--	--	351,766	351,766	
2021	Summer Chinook	Sub-yearling	DCPUD Fixed Hatchery Compensation	484,000 <i>released</i>	--	--	--	--	--	--	--	507,990	--	--	--	--	501,100	501,100	
2021	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	--	--	--	--	--	--	--	--	371,729	371,034	364,773	351,469	--	--	
2021	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	328,786	313,463	314,244	314,115	314,058	314,006	313,948	--	--	--	--	--	311,923	311,923	
2021	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	8,768	8,359	8,380	8,376	8,375	8,374	8,372	--	--	--	--	--	8,381	8,381	
2021	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	87,676	83,590	83,798	83,764	83,749	83,735	83,720	--	--	--	--	--	83,179	83,179	
2021	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	23,889	24,885	24,876	24,865	24,858	24,847	12,147	--	--	--	--	--	12,683	12,114	24,827

Appendix A. Continued.

Brood year	Species	Life stage	Program	Target release No.	Month												Total released /transfer
					Sep '21	Oct	Nov	Dec	Jan '22	Feb	Mar	Apr	May	Jun	Jul	Aug	
2022	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	--	--	--	--	--	--	--	--	--	304,685	296,296	294,347	--
2022	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	--	--	--	--	--	--	--	--	--	8,125	7,901	7,849	--
2022	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	--	--	--	--	--	--	--	--	--	81,249	79,013	78,493	--
2022	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	--	--	--	--	--	--	--	--	--	19,191	18,698	18,684	--
2020	Methow Coho	Yearling smolt	DCPUD Mitigation	25,900 <i>released</i>	26,040	26,035	26,027	26,012	26,006	26,002	--	--	--	--	--	--	25,999
2021	Methow Coho	Yearling smolt	DCPUD Mitigation	27,720 <i>released</i>	--	--	--	--	--	--	26,082	25,969	25,940	25,882	25,859	25,612	--

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
					Sep '21	Oct	Nov	Dec	Jan '22	Feb	Mar	Apr	May	Jun	Jul	Aug	
2021	Summer Chinook	Sub-yearling	Orca/PST	1,000,000 <i>released</i>	--	--	--	--	--	1,039,478	1,037,048	1,049,565	--	--	--	--	1,035,331

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
					Sep '21	Oct	Nov	Dec	Jan '22	Feb	Mar	Apr	May	Jun	Jul	Aug	
2021	Kamloops Rainbow trout	Juv.	WDFW sport fish	Number (Pounds) released	63,037	36,672	36,608	36,437	36,301	33,000	33,000	2,662	2,657	1,630	1,628	1,627	49,158
				Goal is 20,000 pounds annual combined	(5,131)	(18)	(84)	(499)	(1,911)	(3,300)	(9,428)	(1,331)	(2,657)	(1,630)	(2,171)	(2,905)	
2022	Riverence Rainbow trout	Juv.	WDFW sport fish	Number (Pounds) released	--	--	--	--	--	--	--	--	26,785	26,059	26,469	65,447	--
				Goal is 20,000 pounds annual combined	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(21)	(63)	(212)	(699)	

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
					Sep '21	Oct	Nov	Dec	Jan '22	Feb	Mar	Apr	May	Jun	Jul	Aug	
2021	White Sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	Up to 325	2,117	2,107	2,092	291	290	289	288	287	239	--	--	--	3
				Culled	--	--	--	--	--	--	--	--	3	--	--	--	
				Transferred	--	--	--	--	--	--	--	--	--	--	--	--	
				Wells reservoir	--	--	--	--	--	--	--	--	332	--	--	--	
2021	White Sturgeon	Juvenile rearing	Chelan White Sturgeon Supplementation	Up to 2,000	--	--	--	1,790	1,784	1,780	1,770	1,768	1,417	--	--	--	17
				Culled	--	--	--	--	--	--	--	--	17	--	--	--	
				Transferred	--	--	--	--	--	--	--	--	--	1,346	--	--	
				Chelan PUD	--	--	--	--	--	--	--	--	--	--	--	--	
2022	White Sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	Up to 325	--	--	--	--	--	--	--	--	--	--	901	607	--
				Culled	--	--	--	--	--	--	--	--	--	--	--	--	
				Transferred	--	--	--	--	--	--	--	--	--	--	--	--	
				Wells reservoir	--	--	--	--	--	--	--	--	--	--	--	--	
2022	White Sturgeon	Juvenile rearing	Chelan White Sturgeon Supplementation	Up to 2,000	--	--	--	--	--	--	--	--	--	--	5,544	5,397	--
				Culled	--	--	--	--	--	--	--	--	--	--	--	--	
				Transferred	--	--	--	--	--	--	--	--	--	--	--	--	
				Chelan PUD	--	--	--	--	--	--	--	--	--	--	--	--	