

# WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

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**To:** Andrew Gingerich and Greg Mackey

**From:** Charlie Snow and David Grundy

**Subject:** March Hatchery and Natural Production Report

**Date:** 15 April 2022

**Cc:** Distribution list.

### **HATCHERY ACTIVITIES**

The 2020 brood spring Chinook Salmon at Methow Hatchery were held on a mixed water source containing 93% surface water and 7% well water during the month, except for fish transferred off-station. Fish transferred off-station were held on 100% surface water at acclimation ponds. All 2021 brood fish were held on 100% well water during March. At Wells Hatchery, the yearling summer Chinook were held on a mix of 25% well water and 75% surface water during the month. The safety-net steelhead and Okanogan Basin steelhead programs were held on a mixed water source of 50% well water and 50% surface water. All other populations were held on 100% well water during the month.

#### **2020 Twisp Spring Chinook Salmon**

Methow Hatchery transferred 23,805 fish to the Twisp Acclimation Pond on 14 March. After subtracting 20 mortalities, a total of 23,785 fish were in the pond at the end of the month. The number of fish on-station that apply to Douglas PUD HCP, Chelan PUD HCP, and Grant PUD Salmon and Steelhead Settlement Agreement (SSSA) mitigation obligations is listed in Appendix A.

#### **2020 Methow Composite Spring Chinook Salmon**

Methow Hatchery had a total of 122,464 fish on-station for Methow River release at the end of the month with 24 additional fish reported as mortalities. These fish had a mean fork length of 124.8 mm and were at 19.8 FPP at the end of the month (Table 1). Methow Hatchery transferred an additional 65,307 fish to the Chewuch Acclimation Pond on 15 March (release target = 60,516), and 24,642 fish to the Goat Wall Acclimation Pond (release target = 25,000) on 21 March. 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. A fish examination conducted early in the month revealed that approximately 5% of the population was affected by various pectoral fin and gill plate deformities that inhibit mobility. It is not known whether these anomalies are congenital or developmental in origin.

### **2021 Twisp Spring Chinook Salmon**

A total of 28,892 fish were on-station at Methow Hatchery at the end of the month after removing four mortalities. These fry had a mean fork length of 60.8 mm during the month of March (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 210,103 fish on-station at the end of the month after removing 101 mortalities. These fish had mean fork lengths between 61 and 62 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.

Table 1. Spring Chinook Salmon length and weight sampling at Methow Hatchery during the month of March. MC = MetComp.

Raceway	Brood year	Stock-release	Fork length (mm)				FPP
			Mean	<i>N</i>	SD	CV	
13	2020	MC-Methow	124.8	205	8.5	6.8	19.8
9	2021	MC-Methow	61.8	103	3.3	5.4	159.4
10	2021	MC-Methow	61.2	103	3.2	5.3	172.6
11	2021	MC-Chewuch	61.5	107	3.2	5.2	178.6
12A	2021	Twisp	60.8	103	3.4	5.6	180.0
12B	2021	MC-Goat Wall	62.4	104	3.7	6.0	160.8

### **2020 Summer Chinook**

Wells Hatchery had a total of 355,320 parr for the HCP Inundation yearling program on-station at the end of the month and no mortalities were reported in March. These fish were at approximately 11 FPP. Summer Chinook are being reared to fulfill Wells HCP mitigation obligations (Appendix A).

### **2021 Summer Chinook**

Wells Hatchery had an estimated 374,061 eggs for the HCP Inundation yearling program on-station, and 1,638,511 fry for subyearling programs after removing 2,993 mortalities during the month. Subyearling programs include releases for the Douglas PUD inundation compensation program, the State of Washington Orca program, and the Pacific Salmon Treaty program (Appendices A and B).

### **2021 Summer Steelhead**

Wells Hatchery had 174,844 fish for the Columbia safety-net program, 102,870 fish for the Methow safety-net program, 23,470 fish for the Methow conservation program and 27,188 fish for the Twisp conservation program on-station during March. Mortalities totaled seven fish for the Methow conservation program and six fish for the Twisp conservation program. The hatchery also had 77,668 Okanogan hatchery progeny and 12,147 Omak Creek conservation

program progeny on-station at the end of March and these populations experienced monthly mortality of 62 and 17 fish respectively. An additional 12,683 Omak Creek conservation program fish were transferred to the St Mary's Acclimation Pond on 16 March. Steelhead progeny are being reared to fulfill Douglas PUD Wells HCP mitigation obligations and to fulfill Grant PUD SSSA mitigation obligations (Appendix A).

### **2022 Summer Steelhead**

Spawning of the 2022 brood summer steelhead was initiated on 22 March and continued weekly throughout the month. By 6 April, a total of 159 steelhead were spawned for safety-net or Omak Creek conservation programs, and pre-spawn mortality has been low (1.1%). An estimated 20 fish remained on-station at the hatchery after 6 April and spawning will continue until program egg collection requirements are met (Appendix A). In addition, a total of 45 female and 41 male steelhead were removed from the Wells Volunteer Channel in March and April and transferred to Ringold Hatchery for broodstock.

The Twisp River weir began operating on 8 March with the first steelhead captured on 27 March. Overall steelhead captures were low during March ( $N = 9$ ) and no fish were retained for broodstock during the month. Trapping at the weir will continue throughout the spring and will target up to six pairs of wild fish for broodstock as necessary to meet Twisp conservation program requirements (Appendix A).

### **2021 Kamloops Rainbow Trout**

Wells Hatchery had 33,000 fry on-station at the end of the month. These progeny were at approximately 4 FPP and will be released as catchable trout in 2022. A fish health examination early in the month revealed that some trout were experiencing symptoms consistent with gill inflammation and general parasitism; treatment was not pursued because any associated mortality was still insignificant. This population will continue to be monitored before release. Kamloops Rainbow Trout are reared under the Off-License Settlement Agreement between Douglas PUD and WDFW (Appendix C).

### **2020 Methow Coho**

Wells Hatchery transferred the entire population ( $N = 25,999$ ) of 2020 brood Methow Coho to the Twisp Acclimation Pond on 17 March. These fish were at approximately 23 FPP, and three additional fish were reported as mortalities during the month. These fish are reared to meet Wells HCP mitigation obligations (Appendix A).

### **2021 Methow Coho**

Wells Hatchery ponded 26,082 Methow Coho on 17 March. These progeny hatched in February and experienced an additional 415 mortalities during the month of March. These fish are reared to meet Wells HCP mitigation obligations (Appendix A).

## **2021 White Sturgeon**

Wells Hatchery had 1,770 juvenile White Sturgeon on-station at the end of March. These fish were between 1.25 and 20 FPP and an additional 12 fish were reported as mortalities during 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 Steelhead Redd Surveys**

Steelhead redd surveys were conducted in the mainstem Methow River beginning in early March. To-date, a total of eight redds have been identified in mainstem index areas, and peak surveys in non-index areas will likely be conducted in late April.

### **2022 Smolt Trapping**

River conditions were favorable for trapping at both the Methow and Twisp sites during the month of March. The Twisp trap was installed on 1 March and operated continuously for the remainder of the month. The Methow trap operated the entire month with no interruptions. During the month, subyearling wild Chinook fry and yearling wild Chinook 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 19.9 to 52.1 m<sup>3</sup>s, providing expected trap efficiencies between 1.1 and 1.5 percent. Twisp River discharge for the period operated ranged from 4.0 to 11.8 m<sup>3</sup>s, providing expected trap efficiencies between 12.7 and 18.9 percent.

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

Species/origin	Methow		Twisp	Basin total
	February	March	March	
Yearling Chinook/wild	4	38	103	145
Sub Chinook/wild-fry	114	897	26	1,037
SHR/wild-transitional	0	1	7	8
SHR/wild-parr	0	11	34	45
Coho/wild-smolt	1	13	36	50
Coho/wild-parr	0	1	0	1
Coho/wild-fry	2	13	23	38
Bull Trout	1	0	0	1
Sockeye/wild-fry	0	9	0	9
Total	122	983	229	1,334

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

Species/stage	Location	Length (mm)			Weight (g)			Mean K-factor
		Mean	SD	<i>N</i>	Mean	SD	<i>N</i>	
Yearling Chinook/wild	Methow	103.2	8.4	38	11.9	3.0	38	1.06
Yearling Chinook/wild	Twisp	96.8	8.3	103	9.9	2.7	103	1.06
Sub Chinook/wild/fry	Methow	37.7	1.9	859	--	--	--	--
Sub Chinook/wild/fry	Twisp	36.7	1.0	26	--	--	--	--
Steelhead/wild/transitional	Methow	157.0	--	1	36.3	--	1	0.94
Steelhead/wild/transitional	Twisp	174.7	20.3	7	54.0	18.3	7	0.98
Steelhead/wild/parr	Methow	103.1	19.4	11	12.8	6.4	11	1.09
Steelhead/wild/parr	Twisp	86.2	16.3	34	7.3	4.5	34	1.04
Coho/wild/smolt	Methow	96.8	7.3	13	9.8	1.8	13	1.07
Coho/wild/smolt	Twisp	97.5	9.9	36	9.7	3.1	36	1.02
Coho/wild/parr	Methow	51.0	--	1	1.7	--	1	1.28
Coho/wild/fry	Methow	36.5	5.6	13	--	--	--	--
Coho/wild/fry	Twisp	34.5	1.3	23	--	--	--	--
Sockeye/wild/fry	Methow	26.3	1.9	9	--	--	--	--

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
					Apr '21	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan '22	Feb	Mar	
2019	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	63,562
2019	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	140,877
2019	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	30,589
2020	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	64,896	64,105	64,097	64,081	64,074	64,063	64,050	63,999	63,969	63,908	63,898	63,878	--
2020	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	143,835	142,082	142,064	142,027	142,011	141,988	141,959	141,845	141,780	141,645	141,622	141,578	--
2020	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	31,231	30,850	30,847	30,839	30,835	30,830	30,824	30,799	30,785	30,756	30,751	30,741	--
2021	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	--	--	--	--	--	--	--	--	65,233	64,758	64,663	64,635	--
2021	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	--	--	--	--	--	--	--	--	144,580	143,528	143,318	143,255	--
2021	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	--	--	--	--	--	--	--	--	31,393	31,165	31,119	31,105	--
2019	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	366,552
2020	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	373,967	372,146	359,214	358,932	355,327	355,327	355,327	355,320	355,320	355,320	355,320	355,320	--
2020	Summer Chinook	Sub-yearling	DCPUD Fixed Hatchery Compensation	484,000 <i>released</i>	491,048	--	--	--	--	--	--	--	--	--	--	--	436,532
2020	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation <sup>1</sup>	300,000 <i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	325,762

Appendix A. Continued.

Brood year	Species	Life stage	Program	Target release No.	Month												Total released /transfer
					Apr '21	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan '22	Feb	Mar	
2020	Summer steelhead	Yearling smolt	DCPUD Wells NNI <sup>1</sup>	8,000 <i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	8,687
2020	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	86,870	--	--	--	--	--	--	--	--	--	--	--	86,870
2021	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation <sup>1</sup>	300,000 <i>released</i>	--	--	328,751	326,403	325,601	328,786	313,463	314,244	314,115	314,058	314,006	313,948	--
2021	Summer steelhead	Yearling smolt	DCPUD Wells NNI <sup>1</sup>	8,000 <i>released</i>	--	--	8,767	8,704	8,683	8,768	8,359	8,380	8,376	8,375	8,374	8,372	--
2021	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	--	--	87,667	87,041	86,827	87,676	83,590	83,798	83,764	83,749	83,735	83,720	--
2021	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	--	--	24,221	23,910	23,898	23,889	24,885	24,876	24,865	24,858	24,847	12,147	12,683
2020	Methow Coho	Yearling smolt	DCPUD Mitigation	25,900 <i>released</i>	26,935	26,881	26,814	26,787	26,047	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	--

<sup>1</sup>40,000 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
					Apr '21	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan '22	Feb	Mar	
2020	Summer Chinook	Sub-yearling	Orca/PST	1,000,000 <i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	965,468
2021	Summer Chinook	Sub-yearling	Orca/PST	1,000,000 <i>released</i>	--	--	--	--	--	--	--	--	--	--	1,039,478	1,037,048	--

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		
					Apr '21	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan '22	Feb	Mar			
2020	Kamloops Rainbow trout	Juv.	WDFW sport fish	Number (Pounds) released	30,377	62	--	--	--	--	--	--	--	--	--	--	--	45,068 (20,845)	
					(16,914)	(62)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)		(--)
				Goal is 20,000 pounds annual combined	1,150	25,025	62	--	--	--	--	--	--	--	--	--	--		--
2021	Kamloops Rainbow trout	Juv.	WDFW sport fish	Number (Pounds) released	25,905	25,700	25,719	25,660	25,623	63,037	36,672	36,608	36,437	36,301	33,000	33,000		20,688 (5,591)	
					(9)	(31)	(214)	(467)	(1,601)	(5,131)	(18)	(84)	(499)	(1,911)	(3,300)	(9,428)			
				Goal is 20,000 pounds annual combined	--	--	--	--	--	--	20,688	--	--	--	--	--	--		--

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		
					Apr '21	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan '22	Feb	Mar			
2020	White Sturgeon	Juvenile rearing	Wells White Sturgeon Supple-mentation	Up to 325	336	--	--	--	--	--	--	--	--	--	--	--	--	1,083 338	
				Culled	--	--	--	--	--	--	--	--	--	--	--	--	--		--
				Transferred	--	--	--	--	--	--	--	--	--	--	--	--	--		--
				Wells reservoir	--	338	--	--	--	--	--	--	--	--	--	--	--		--
2021	White Sturgeon	Juvenile rearing	Wells White Sturgeon Supple-mentation	Up to 325	--	--	--	3,054	2,618	2,117	2,107	2,092	291	290	289	288		-- -- -- --	
				Culled	--	--	--	--	--	--	--	--	--	--	--	--	--		--
				Transferred	--	--	--	--	--	--	--	--	--	--	--	--	--		--
				Wells reservoir	--	--	--	--	--	--	--	--	--	--	--	--	--		--
2021	White Sturgeon	Juvenile rearing	Chelan White Sturgeon Supple-mentation	Up to 2,000	--	--	--	--	--	--	--	--	1,790	1,784	1,780	1,770		-- -- -- --	
				Culled	--	--	--	--	--	--	--	--	--	--	--	--	--		--
				Transferred	--	--	--	--	--	--	--	--	--	--	--	--	--		--
				Chelan PUD	--	--	--	--	--	--	--	--	--	--	--	--	--		--