

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

Fish Program/Science Division/Methow Field Office

20268 Hwy 20, Twisp WA, 98856

Phone: (509) 997-0048 and 997-0066

Fax: (509) 997-0072

To: Andrew Gingerich and Greg Mackey

From: Charlie Snow and David Grundy

Subj: October Hatchery and Natural Production Report

Date: 9 November 2021

Cc: Distribution list.

HATCHERY ACTIVITIES

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

2020 Twisp Spring Chinook Salmon

A total of 23,869 fish were on-station at the end of the month with three additional fish reported as mortalities. These fish had a mean fork length of 102 mm (Table 1) and were approximately 32 fish per pound (FPP). 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

A total of 212,964 fish were on-station at the end of the month with 45 additional fish reported as mortalities. These fish had mean fork lengths between 100.0 and 106.9 mm (Table 1) and were approximately 29-35 FPP. These fish will support releases from the Chewuch Acclimation Pond (CAP; release target = 60,516), Goat Wall Acclimation Pond (GWAP; release target = 25,000), and from Methow Hatchery (release target = 110,295). 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.

2021 Spring Chinook Salmon Brood Collection

By the end of October all progeny from each spawn day were inventoried and actual fecundities were similar to estimated values at spawning (Table 2). A total of 249,215 eggs were collected for Methow Composite releases and 29,632 eggs were collected for the Twisp program. At the end of October, the hatchery had 235,468 eyed eggs for Methow Composite releases and 29,245 eyed eggs for the Twisp program on-station.

Table 1. 2020 brood spring Chinook Salmon length and weight sampling at Methow Hatchery during the month of September. MC = MetComp.

Raceway	Brood year	Stock-release	Fork length (mm)				FPP
			Mean	N	SD	CV	
1	2020	Twisp	102.3	107	8.3	8.1	32.4
2	2020	Twisp	102.2	104	8.2	7.9	31.8
3	2020	MC-Goat Wall	103.6	106	7.6	7.4	32.2
4	2020	MC-Goat Wall	105.7	105	6.4	6.1	29.8
5	2020	MC-Chewuch	102.1	103	8.9	8.7	33.0
6	2020	MC-Chewuch	104.1	102	8.0	7.7	29.1
7	2020	MC-Chewuch	100.0	105	8.2	8.2	35.0
8	2020	MC-on-station	106.9	101	6.9	6.4	29.4
9	2020	MC-on-station	102.3	115	7.8	7.6	32.7
10	2020	MC-on-station	103.7	100	7.5	7.2	31.1
11	2020	MC-on-station	103.2	116	7.5	7.3	31.4
12	2020	MC-on-station	102.7	102	8.3	8.0	32.3

Table 2. 2021 Methow Hatchery spring Chinook salmon broodstock spawning summary.

Date	Males		Females		Crosses (females)		Egg take			
							MetComp		Twisp	
	H	W	H	W	MetComp	Twisp	Estimated	Actual	Estimated	Actual
3-Aug	0	4	3	1	2 ^d	1	7,412	7,492	4,297	4,171
10-Aug	0	10	3	6	8	1	30,737	32,526	4,961	5,619
17-Aug	0	24 ^a	6	21	23	4	91,778	94,943	17,720	15,885
24-Aug	0	13 ^b	1	19	19	1	77,076	80,674	3,663	3,957
31-Aug	0	0 ^c	0	8	8	0	29,889	33,580	0	0
Total	0	51	1	55	60 ^d	7	236,892	249,215	30,641	29,632

^a Does not include three males used a second time.

^b Does not include seven males used a second time.

^c Does not include eight males used a second time.

^d Does not include one non-viable (green) hatchery female.

2020 Summer Chinook

Wells Hatchery had a total of 355,327 parr for the yearling program on-station at the end of the month and no mortalities were reported during October. These fish were at approximately 19 FPP at the end of the month. Summer Chinook are being reared to fulfill Wells HCP mitigation obligations (Appendix A).

2021 Summer Chinook

Spawning of the 2021 brood summer Chinook Salmon at Wells Hatchery was initiated on 28 September and completed on 13 October with 930 fish spawned over all programs. Pre-spawn mortality totaled an additional 25 fish (2.4%) and 66 fish were either not viable at spawning ($N = 13$) or were excess to broodstock requirements and were surplused ($N = 53$). Spawning produced and estimated 456,000 eggs for the Wells yearling program, and 1,821,600 eggs for subyearling programs including releases for the Douglas PUD inundation compensation program, the State of Washington Orca program, and the Pacific Salmon Treaty program.

2021 Summer Steelhead

Wells Hatchery had 174,933 parr for the Columbia safety-net program, 87,849 parr for the Methow safety-net program, 23,539 parr for the Methow conservation program and 27,224 parr for the Twisp conservation program on-station during October. No mortalities were reported for the Columbia safety-net group, but the other populations experienced mortalities of 23,711 parr, 48 parr, and 18 parr during the month, respectively. The hatchery also had 91,867 Okanogan hatchery parr and 24,885 Omak Creek conservation program parr on-station in October and these populations experienced monthly mortality of 306 and 26 fish respectively.

Mortality of Methow safety-net progeny occurred during a short period when fish were able to escape their holding pond into a de-watered release structure through a small hole in the holding pond outlet screening. To mitigate for these losses, approximately 7,000 excess progeny from the Okanogan hatchery population will be transferred to the Columbia safety-net program, and an estimated 14,933 Columbia safety-net progeny will be transferred to the Methow safety-net program. After these transfers, each program is expected to include enough progeny to meet release targets without exceeding the 10% overage cap. 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 36,672 eggs on-station at the end of the month after accounting for 746 mortalities. These progeny will be released as catchable trout in 2022. During October, the hatchery planted 20,688 rainbow trout into Okanogan County lakes, and these fish were at approximately 3.7 FPP at release. Kamloops Rainbow Trout are reared under the Off-License Settlement Agreement between Douglas PUD and WDFW (Appendix B).

2020 Methow Coho

Wells Hatchery had 26,035 Methow Coho parr on-station at the end of October. These fish were at approximately 54 FPP, and an additional five parr were reported as mortalities during the month. The 2020 brood Coho will be reared at Wells Hatchery until transfer to the Twisp Acclimation Pond as pre-smolts in spring 2022. These fish were reared to meet Wells HCP mitigation obligations (Appendix A).

2021 White Sturgeon

Wells Hatchery had 2,107 juvenile White Sturgeon on-station at the end of October. These fish were between 10 and 65 FPP and an additional 10 fish were reported as mortalities during October. White Sturgeon progeny are reared at Wells Hatchery under the Wells Aquatic Settlement Agreement (Appendix C).

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>

2021 Smolt Trapping

River conditions were favorable for trapping at both the Methow and Twisp sites during the month of October, and traps at both locations operated for the entire month with no interruptions. Subyearling wild Chinook parr were the primary species captured at both the Methow and Twisp trap sites during October (Table 1). Biological data collected from trapped fish is detailed in Table 2. Methow River discharge for the period operated ranged from 8.2 to 19.7 m³s, providing expected trap efficiencies greater than 1.5 percent. Twisp River trap efficiencies between 3.9 and 10.3 percent.

Table 3. Monthly salmonid captures at Methow Basin smolt traps in 2021.

Species/origin	Methow			Twisp			Basin total
	Feb-Aug	Sept	Oct	Mar-Aug	Sept	Oct	
Precocial Chin/wild	0	0	0	7	0	0	7
Precocial Chin/hatch	0	0	0	1	0	0	1
Yearling Chin/wild	269	0	0	251	0	0	520
Yearling Chin/hatch	8,117	0	0	1,857	0	0	9,974
Sub Chin/wild-parr	509	2	31	109	16	463	1,130
Sub Chin/wild-fry	6,397	0	0	166	0	0	6,563
SHR/wild-transitional	312	0	0	297	0	0	609
SHR/wild-parr	166	4	12	251	40	114	587
SHR/wild-fry	510	0	1	19	0	0	530
Steelhead/hatchery	1,597	0	0	3,108	0	0	4,705
Coho/wild-smolt	40	0	0	43	0	0	83
Coho/wild-parr	88	0	0	115	59	61	323
Coho/wild-fry	234	0	0	163	0	0	397
Coho/hatchery	3,587	0	0	10,270	0	0	13,857
Bull Trout	1	0	0	12	0	3	16
Cutthroat Trout	0	0	0	4	0	1	5
Rainbow Trout	0	0	0	1	0	0	1
Sockeye/wild-fry	136	0	0	2	0	0	138
Total	21,963	6	44	16,676	115	642	39,446

Table 4. Biological sampling of juvenile salmonids captured at Methow Basin smolt traps during October.

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	87.6	9.7	31	7.4	2.6	31	1.06
Sub Chinook/wild/parr	Twisp	93.0	7.0	462	8.9	2.1	462	1.09
Steelhead/wild/parr	Methow	115.1	39.3	12	21.3	19.5	12	1.06
Steelhead/wild/parr	Twisp	98.3	38.1	114	14.8	18.4	114	1.05
Steelhead/wild/fry	Methow	45.0	--	1	--	--	--	--
Coho/wild/parr	Twisp	91.1	10.8	61	8.8	3.4	61	1.10
Bull Trout	Twisp	213.0	5.7	2	99.3	9.4	2	1.03
Cutthroat Trout	Twisp	294.0	--	1	269.6	--	1	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	
					Nov '20	Dec	Jan '21	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		
2019	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	64,984	64,820	64,647	64,514	64,311	--	--	--	--	--	--	--	63,562	63,562
2019	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	144,028	143,665	143,282	142,987	142,538	--	--	--	--	--	--	--	140,877	140,877
2019	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	31,273	31,194	31,111	31,047	30,950	--	--	--	--	--	--	--	30,589	30,589
2020	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	65,706	65,287	65,110	64,953	64,907	64,896	64,105	64,097	64,081	64,074	64,063	64,050	--	--
2020	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	145,629	144,700	144,308	143,959	143,859	143,835	142,082	142,064	142,027	142,011	141,988	141,959	--	--
2020	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	31,621	31,419	31,334	31,258	31,236	31,231	30,850	30,847	30,839	30,835	30,830	30,824	--	--
2019	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	367,777	367,527	367,277	367,027	366,682	--	--	--	--	--	--	--	366,552	366,552
2020	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	415,479	375,479	375,479	375,479	375,479	373,967	372,146	359,214	358,932	355,327	355,327	355,327	--	--
2020	Summer Chinook	Sub-yearling	DCPUD Fixed Hatchery Compensation	484,000 <i>released</i>	--	--	557,477	523,359	496,338	491,048	--	--	--	--	--	--	436,532	436,532
2020	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	326,821	326,589	326,325	326,093	325,870	--	--	--	--	--	--	--	325,762	325,762
2020	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	8,715	8,709	8,702	8,696	8,690	--	--	--	--	--	--	--	8,687	8,687
2020	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	87,152	87,091	87,020	86,958	86,899	--	--	--	--	--	--	--	86,870	86,870

Appendix A. Continued.

Brood year	Species	Life stage	Program	Target release No.	Month												Total released /transfer	
					Nov '20	Dec	Jan '21	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		
2020	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	12,178	12,168	12,160	12,156	--	--	--	--	--	--	--	--	--	12,155
2021	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	--	--	--	--	--	--	--	328,751	326,403	325,601	328,786	313,463	--	
2021	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	--	--	--	--	--	--	--	8,767	8,704	8,683	8,768	8,359	--	
2021	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	--	--	--	--	--	--	--	87,667	87,041	86,827	87,676	83,590	--	
2021	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	--	--	--	--	--	--	--	24,221	23,910	23,898	23,889	24,885	--	
2019	Methow Coho	Yearling smolt	DCPUD Mitigation	37,000 <i>released</i>	39,983	39,865	39,831	39,805	--	--	--	--	--	--	--	--	--	39,770
2020	Methow Coho	Yearling smolt	DCPUD Mitigation	37,000 <i>released</i>	--	--	--	--	--	26,935	26,881	26,814	26,787	26,047	26,040	26,035	--	

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 or Methow hatcheries under the Off-License Settlement Agreement.

Brood year	Species	Life stage	Program	Target (pounds) disposition	Month												Total released /transfer	
					Nov '20	Dec	Jan '21	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		
2019	Kamloops Rainbow trout	Juv.	WDFW sport fish	Number (pounds) released	--	--	--	--	--	--	--	--	--	--	--	--	--	--
					(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)
2020	Kamloops Rainbow trout	Juv.	WDFW sport fish	Goal is 20,000 pounds annual combined	34,998	34,979	32,879	34,967	34,778	30,377	62	--	--	--	--	--	--	--
					(318)	(921)	(3,653)	(8,742)	(17,389)	(16,914)	(62)	(--)	(--)	(--)	(--)	(--)	(--)	(--)
2021	Kamloops Rainbow trout	Juv.	WDFW sport fish	Goal is 20,000 pounds annual combined	--	--	--	--	--	25,905	25,700	25,719	25,660	25,623	63,037	36,672	--	
					(--)	(--)	(--)	(--)	(--)	(9)	(31)	(214)	(467)	(1,601)	(5,131)	(18)	(18)	20,688
					--	--	--	--	--	--	--	--	--	--	--	20,688	(5,591)	

Appendix C. 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					
					Nov '20	Dec	Jan '21	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		Oct				
2020	White Sturgeon	Juvenile rearing	Wells White Sturgeon Supple-mentation	<i>Up to 325</i>	350	350	336	336	336	336	--	--	--	--	--	--					
				<i>Culled</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
				<i>Transferred</i>	647	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,083	
				<i>Wells reservoir</i>	--	--	--	--	--	--	--	338	--	--	--	--	--	--	--	338	
2021	White Sturgeon	Juvenile rearing	Wells White Sturgeon Supple-mentation	<i>Up to 325</i>	--	--	--	--	--	--	--	--	--	3,054	2,618	2,117	2,107				
				<i>Culled</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
				<i>Transferred</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				<i>Wells reservoir</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--