

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: Shane Bickford and Greg Mackey

From: Charlie Snow, Charles Frady, and David Grundy

Subj: September Hatchery and Natural Production Report

Date: 10 October 2019

Cc: Distribution list.

HATCHERY ACTIVITIES

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

2018 Twisp Spring Chinook Salmon

A total of 31,005 fish were on-station at the end of the month with eight additional fish reported as mortalities. These fish had a mean fork length of 110.1 mm (Table 1) and were approximately 30 fish per pound (FPP). The number of fish on-station that apply to Douglas PUD, Chelan PUD, and Grant PUD HCP mitigation obligations is listed in Appendix A.

2018 Methow Composite Spring Chinook Salmon

A total of 207,259 fish were on-station at the end of the month with 19 additional fish reported as mortalities. These fish had a mean fork length of 110.1 mm (Table 1) and were approximately 30 FPP. These fish will support releases from the Chewuch Acclimation Pond (CAP; release target = 61,000), Goat Wall Acclimation Pond (GWAP; release target = 25,000), and from Methow Hatchery (release target = 107,765). The number of fish on-station that apply to Douglas PUD, Chelan PUD, and Grant PUD HCP mitigation obligations is listed in Appendix A.

2019 Brood Spring Chinook Salmon

By the end of September, eggs were shocked and picked from the first four spawns at Methow Hatchery. Fecundities were calculated resulting in a total of 38,332 Twisp and 107,860 MetComp eggs (Table 1). Initial loss for these takes was 0.9% for Twisp program and 2.8% for MetComp program. The remaining take of MetComp eggs is scheduled to be picked 11 October. All Twisp females had ELISA values in the below-low category (< 0.099) while 56 of 57 MetComp females were below-low with one female in the high category (> 0.450). Eyed eggs from hatchery females (HxW crosses) in excess of program goals will be culled or transferred to WNFH depending on need. Four fish were trapped at the Methow Hatchery outfall trap on 3

September. Two of those fish were sent to WNFH and two were released upstream. The trap was shut down on 3 September.

Table 1. 2019 Methow Hatchery spring Chinook salmon broodstock spawning summary. Fish totals do not include one spawned-out female (W), two female pond morts (both wild), and one euthanized hatchery male.

Date	Males		Females		Crosses (females)		Egg take			
	H	W	H	W	MetComp	Twisp	MetComp		Twisp	
							Estimated	Actual	Estimated	Actual
6-Aug	1	3	4	0	2	2	7,394	7,106	8,076	8,046
13-Aug	0	11	3	8	9	2	37,163	37,873	10,586	10,569
20-Aug	0	15	4	13	16	1	63,839	62,221	3,663	3,470
27-Aug	1	24	5	24	25	4	103,513	101,805	16,422	16,247
4-Sep	0	0 ^a	3	2	5	0	13,134	--	0	0
Total	2	53 ^b	19	47	57	9	225,043	--	38,747	38,332

^a Males used 9/4 were previously used.

^b Seven Twisp males and 45 MetComp males were released between 8/27 and 9/4.

2018 Wells Summer Chinook Salmon

Wells Hatchery had a total of 357,235 yearling-program fry on-station at the end of the month after subtracting 547 mortalities. The overall population on-station also reflects an increase of 28,251 fish due to routine inventory assessments conducted during the month. These fish were at approximately 70 FPP by the end of the month. Summer Chinook are being reared to fulfill HCP mitigation obligations (Appendix A).

2019 Summer Chinook

Broodstock collection for the 2019 brood summer Chinook programs occurred primarily through the Wells Hatchery volunteer ladder between June and August. A total of 1,090 adult Chinook were retained for broodstock during this time, and pre-spawn mortalities have total 10 fish to-date (0.8%). A fish health exam of the collected adults indicated the presence of columnaris disease early in the collection process and the recommendation was made to treat the adult fish with Diquat dibromide (Reward®). Additional treatments over the holding period have included formalin, primarily to control external fungus (*Saprolegnia* sp.). Adult fish have remained healthy overall and spawning of the collected broodstock will commence in October.

2019 Summer Steelhead

Wells Hatchery had 532,654 steelhead progeny on-station at the end of the month, including 209,960 Columbia River safety-net progeny, 133,103 Methow safety-net progeny, 112,345 Okanogan safety-net progeny, and 20,795 Omak Creek conservation program progeny. Additionally, the hatchery had 26,851 Methow conservation and 28,373 Twisp conservation program fry on-station at the end of September. Mortality during the month totaled an additional 2,970 fish across all programs, primarily from the Columbia ($N = 818$) and Methow ($N = 1,227$)

safety-net programs. Steelhead progeny are being reared to fulfill Douglas PUD and Grant PUD HCP mitigation obligations.

2019 Kamloops Rainbow Trout

A total of 24,723 juvenile Kamloops Rainbow Trout were on-station at the end of the month after removing 49 mortalities. These fish were at approximately 6 FPP and will support fall 2019 plants into Okanogan County lakes. Additionally, the hatchery had 41,584 trout fry on-station at about 3,500 FPP to support fry plants in 2020. Kamloops Rainbow Trout are reared under the Off-License Settlement Agreement (Appendix B).

2018 Methow Coho

The Douglas PUD Coho mitigation program began with brood year 2018. Wells Hatchery had 43,372 Methow Coho fry on-station at the end of September after removing 65 mortalities during the month (Appendix A). These fish were at approximately 56 FPP and will be reared at Wells Hatchery until transfer to the Twisp Acclimation Pond as pre-smolts in spring 2020.

2019 White Sturgeon

Wells Hatchery had 1,066 White Sturgeon progeny on-station at the end of the month after removing 148 mortalities during the month. These fish were at approximately 30 – 200 FPP at the end of the month. White Sturgeon progeny are reared at Wells Hatchery under the 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>

2019 Spawning Ground Surveys

By the end of September, a total of 275 spring Chinook Salmon redds were found in the Methow River Basin, including 31 redds counted by USFWS in M8, M7, M6, M5 and WN1. Of the basin-wide redd count, 148 (53.8%) were found in the upper Methow subbasin, 77 (28.0%) were found in the Chewuch subbasin, and 50 (18.2%) were found in the Twisp subbasin.

2019 Smolt Trapping

River conditions were favorable for trapping at both the Methow and Twisp sites during the month of September, and traps at both locations operated for the entire month with no interruptions. During the month, subyearling wild Chinook parr were the primary species captured at both the Methow and Twisp trap sites (Table 2). Biological data collected from trapped fish is detailed in Table 3. Methow River discharge for the period operated ranged from 7.3 to 15.5 m³s, providing expected trap efficiencies greater than 1.5 percent. Twisp River discharge for the period operated ranged from 1.0 to 2.3 m³s, providing expected trap efficiencies greater than 21.1 percent.

Table 2. Monthly salmonid captures at Methow Basin smolt traps in 2019. SHR = wild steelhead/rainbow.

Species/origin	Methow			Twisp			Basin total
	Mar-July	Aug	Sept	Mar-July	Aug	Sept	
Precocial Chin/wild	0	0	0	0	3	2	5
Precocial Chin/hatch	0	0	0	0	3	10	13
Yearling Chin/wild	188	0	0	359	0	0	547
Yearling Chin/hatch	19,041	0	0	3,512	0	0	22,553
Sub Chin/wild-parr	1,720	2	4	85	59	196	2,066
Sub Chin/wild-fry	3,133	0	0	175	0	0	3,308
SHR/wild-transitional	345	0	0	431	0	0	776
SHR/wild-parr	36	2	2	235	35	169	479
SHR/wild-fry	64	0	0	63	9	5	141
Steelhead/hatchery	3,501	0	0	3,514	6	0	7,021
Coho/wild-smolt	104	0	0	25	0	0	129
Coho/wild-parr	39	0	0	15	18	23	95
Coho/wild-fry	24	0	0	38	0	0	62
Coho/hatchery	11,873	0	0	5,974	0	0	17,847
Bull Trout	3	0	0	15	1	2	21
Cutthroat Trout	2	0	0	7	5	1	15
Sockeye/wild-fry	30	0	0	0	0	0	30
Total	40,103	4	6	14,448	139	408	55,108

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	<i>N</i>	Mean	SD	<i>N</i>	
Precocial Chinook/wild	Twisp	135.5	9.2	2	26.8	6.1	2	1.1
Precocial Chinook/hatch.	Twisp	175.9	12.3	10	63.5	15.9	10	1.1
Sub Chinook/wild/parr	Methow	88.5	15.2	4	8.6	5.0	4	1.1
Sub Chinook/wild/parr	Twisp	89.5	8.9	196	8.5	2.4	196	1.2
Steelhead/wild/parr	Methow	181.5	40.3	2	64.5	39.0	2	1.0
Steelhead/wild/parr	Twisp	139.7	41.9	169	35.7	33.7	169	1.1
Steelhead/wild/fry	Twisp	43.6	3.2	5	--	--	--	--
Coho/wild/parr	Twisp	87.7	11.6	23	8.4	3.5	23	1.2
Bull Trout	Twisp	239.5	4.9	2	138.6	6.2	2	1.0
Cutthroat Trout	Twisp	202.0	--	1	81.7	--	1	1.0

Appendix A. Number of fish reared at Wells and Methow hatcheries to meet Douglas County PUD 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 '18	Nov	Dec	Jan '19	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
2017	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	69,496	69,493	69,481	69,456	69,272	69,248	--	--	--	--	--	--	69,136
2017	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	154,029	154,023	153,995	153,941	153,532	153,480	--	--	--	--	--	--	153,232
2017	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	33,445	33,443	33,437	33,425	33,337	33,325	--	--	--	--	--	--	33,271
2018	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	64,178	64,178	63,905	63,761	63,724	63,716	63,710	64,466	64,460	64,449	64,444	64,437	--
2018	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	142,243	142,243	141,639	141,317	141,237	141,218	141,206	142,881	142,867	142,844	142,833	142,817	--
2018	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	30,886	30,886	30,754	30,685	30,667	30,663	30,660	31,024	31,021	31,016	31,014	31,010	--
2017	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	297,228	295,363	290,763	290,763	290,763	290,612	--	--	--	--	--	--	289,159
2018	Summer Chinook	Sub-yearling	DCPUD Fixed Hatchery Compensation	484,000 <i>released</i>	--	--	--	551,505	547,189	544,876	544,149	--	--	--	--	--	531,921
2018	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	--	--	--	398,353	398,353	398,353	398,353	331,534	330,179	330,077	328,984	357,235	--
2018	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	352,434	349,045	347,112	346,916	334,926	327,063	--	--	--	--	--	--	304,610
2018	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	9,398	9,308	9,256	9,251	8,931	8,722	--	--	--	--	--	--	8,123
2018	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	93,982	93,079	92,563	92,511	89,314	87,217	--	--	--	--	--	--	81,229

Appendix A. Continued.

Brood year	Species	Life stage	Program	Target release No.	Month												Total released /transfer
					Oct '18	Nov	Dec	Jan '19	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
2018	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	18,859	18,269	18,249	18,189	18,219	9,096	--	--	--	--	--	--	18,240
2019	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	--	--	--	--	--	--	--	--	413,950	398,116	397,024	395,767	--
2019	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	--	--	--	--	--	--	--	--	11,039	10,616	10,587	10,554	--
2019	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	--	--	--	--	--	--	--	--	110,387	106,164	105,873	105,538	--
2019	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	--	--	--	--	--	--	--	--	21,211	20,864	20,824	20,795	--
2018	Methow Coho	Yearling smolt	DCPUD Mitigation	37,000 <i>released</i>	--	--	43,493	43,170	48,648	48,595	48,581	45,505	45,671	43,516	43,437	43,372	--

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
					Oct '18	Nov	Dec	Jan '19	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
2018	Kamloops Rainbow trout	Juv.	WDFW sport fish	Number (pounds) released	42,050	41,663	41,640	31,429	31,411	31,384	4,983	974	--	--	--	--	59,364
				Goal is 20,000 pounds annual combined	--	--	--	--	--	--	29,770	4,700	974	--	--	--	--
2019	Kamloops Rainbow trout	Juv.	WDFW sport fish	Number (pounds) released	--	--	--	--	--	--	25,602	24,802	24,725	24,808	68,449	66,307	59,364
				Goal is 20,000 pounds annual combined	--	--	--	--	--	--	(7)	(29)	(96)	(349)	(1,695)	(4,349)	--

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

Brood year	Species	Life stage	Program	Target disposition	Month												Total released/culled /transferred			
					Oct '18	Nov	Dec	Jan '19	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep				
2018	White Sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	<i>Up to 325</i>	103	102	101	101	99	99	99	--	--	--	--	--				
				<i>Culled</i>	--	--	--	--	--	--	--	--	--	--	--	--				
				<i>Transferred</i>	--	--	--	--	--	--	--	--	--	--	--	--	--			
				<i>Wells reservoir</i>	--	--	--	--	--	--	--	99	--	--	--	--	--		99	
2019	White Sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	<i>Up to 325</i>	--	--	--	--	--	--	--	--	--	1,504	1,214	1,066				
				<i>Culled</i>	--	--	--	--	--	--	--	--	--	--	--	--	--			
				<i>Transferred</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
				<i>Wells reservoir</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--