

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

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Subj: November Hatchery and Natural Production Report

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Cc: Distribution list.

HATCHERY ACTIVITIES

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

2018 Twisp Spring Chinook Salmon

A total of 30,998 fish were on-station at the end of the month with three additional fish reported as mortalities. A total of 5,000 fish were PIT-tagged on 20 November. These fish were approximately 26 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 207,214 fish were on-station at the end of the month with 31 additional fish reported as mortalities. A total of 5,000 fish were PIT-tagged into both the Chewuch and on-station release groups on 20 November. These fish had mean fork lengths, by raceway, between 106.8 and 110.0 mm (Table 1) and were approximately 26-28 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

All eggs in both the Twisp and MetComp populations remained in incubation during the month of November. The number of fish on-station that apply to Douglas PUD, Chelan PUD, and Grant PUD HCP mitigation obligations is listed in Appendix A.

Table 1. 2018 brood spring Chinook salmon length and weight sampling at Methow Hatchery during the month of November. MC = MetComp.

Raceway	Stock-release	Fork length (mm)				FPP
		Mean	<i>N</i>	SD	CV	
8	MC-on-station	107.8	102	9.0	8.4	28
10	MC-on-station	109.6	102	10.5	9.6	26
11	MC-on-station	106.8	101	8.0	7.5	28
12	MC-on-station	110.0	100	9.2	8.4	26

2018 Wells Summer Chinook Salmon

Wells Hatchery had a total of 356,733 yearling-program fingerlings on-station at the end of the month after subtracting 356 mortalities. This population includes an estimated 109,291 progeny for survival studies in 2020. These fish overall were at approximately 34 FPP by the end of the month. Summer Chinook are being reared to fulfill HCP mitigation obligations (Appendix A).

2019 Summer Chinook

Spawning of the 2019 brood summer Chinook produced an estimated 521,360 eggs for the yearling program and 1,651,463 eggs for the subyearling program, which includes extra production to supplement Orca food sources in the marine environment (500,000 subyearling program for Orca recovery funded by the State of Washington). A study on the control of *Saprolegnia* sp. during egg incubation is also being conducted on approximately 171,000 eggs from the subyearling egg take, but independent from the production fish. At the end of November, eggs for the subyearling programs were picked and the hatchery had 672,259 eggs for subyearling production, 614,189 eggs for the Orca program, and 140,855 eggs for the incubation treatment study on-station with an additional 197,173 surplus eggs shipped to the Colville Confederated Tribes during the month. Eggs for yearling production remained in incubation during the month.

2019 Summer Steelhead

Wells Hatchery had 439,318 steelhead progeny on-station at the end of the month, including 173,937 Columbia River safety-net progeny, 110,116 Methow safety-net progeny, 80,617 Okanogan safety-net progeny, and 19,719 Omak Creek conservation program progeny. Additionally, the hatchery had 27,246 Methow conservation and 27,629 Twisp conservation program parr on-station at the end of November. Mortality during the month totaled an additional 795 fish across all programs, primarily from the Okanogan safety-net ($N = 325$) and Methow conservation ($N = 211$) programs. On 8 November, an additional 31,272 surplus safety-net program fish were planted into Spectacle Lake to enhance sport fisheries. Steelhead progeny are being reared to fulfill Douglas PUD and Grant PUD HCP mitigation obligations.

2019 Kamloops Rainbow Trout

Wells Hatchery had 40,604 trout fry remaining on-station at the end of the month at about 275 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 43,279 Methow Coho fry on-station at the end of November after removing 23 mortalities during the month (Appendix A). These fish were at approximately 33 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 575 White Sturgeon progeny on-station at the end of the month after removing five mortalities. These fish were between 7–20 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 Smolt Trapping

River conditions were favorable for trapping at both the Methow and Twisp sites during the majority of November. Freezing temperatures and ice accumulation necessitated the removal of the Twisp and Methow smolt traps on 26 and 27 November, respectively. During the month, sub yearling 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 15.1 to 23.2 m³s, providing expected trap efficiencies greater than 1.5 percent. Twisp River discharge for the period operated ranged from 2.8 to 4.4 m³s, providing expected trap efficiencies between 3.6 and 6.4 percent.

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

Species/origin	Methow			Twisp			Basin total
	Mar-Sept	Oct	Nov	Mar-Sept	Oct	Nov	
Precocial Chin/wild	0	4	0	5	0	0	9
Precocial Chin/hatch	0	0	0	13	0	0	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	1,726	69	28	340	805	177	3,145
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	40	10	1	439	142	21	653
SHR/wild-fry	64	0	0	77	0	0	141
Steelhead/hatchery	3,501	0	0	3,520	7	1	7,029
Coho/wild-smolt	104	0	0	25	0	0	129
Coho/wild-parr	39	4	0	56	35	7	141
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	18	17	7	45
Cutthroat Trout	2	2	0	13	1	1	19
Sockeye/wild-fry	30	0	0	0	0	0	30
Total	40,113	89	29	14,995	1,007	214	56,447

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

Species/stage	Location	Length (mm)			Weight (g)			Mean K-factor
		Mean	SD	N	Mean	SD	N	
Sub Chinook/wild/parr	Methow	95.8	8.1	28	9.5	2.5	28	1.1
Sub Chinook/wild/parr	Twisp	89.4	6.8	177	7.8	1.8	177	1.1
Steelhead/wild/parr	Methow	66.0	--	1	3.6	--	1	1.3
Steelhead/wild/parr	Twisp	96.3	32.4	21	12.0	14.4	21	1.0
Steelhead/hatchery	Twisp	231.0	--	1	119.8	--	1	1.0
Coho/wild/parr	Twisp	93.4	9.8	7	9.1	2.4	7	1.1
Bull Trout	Twisp	207.1	28.4	7	88.8	36.3	7	1.0
Cutthroat Trout	Twisp	171.0	--	1	47.0	--	1	0.9

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
					Dec	Jan '19	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
2017	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	69,481	69,456	69,272	69,248	--	--	--	--	--	--	--	--	69,136
2017	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	153,995	153,941	153,532	153,480	--	--	--	--	--	--	--	--	153,232
2017	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	33,437	33,425	33,337	33,325	--	--	--	--	--	--	--	--	33,271
2018	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	63,905	63,761	63,724	63,716	63,710	64,466	64,460	64,449	64,444	64,437	64,432	64,423	--
2018	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	141,639	141,317	141,237	141,218	141,206	142,881	142,867	142,844	142,833	142,817	142,806	142,786	--
2018	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	30,754	30,685	30,667	30,663	30,660	31,024	31,021	31,016	31,014	31,010	31,008	31,003	--
2019	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	--	--	--	--	--	--	--	--	--	--	65,335	65,335	--
2019	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	--	--	--	--	--	--	--	--	--	--	144,807	144,807	--
2019	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	--	--	--	--	--	--	--	--	--	--	31,442	31,442	--
2017	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	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	357,089	356,733	--
2018	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	347,112	346,916	334,926	327,063	--	--	--	--	--	--	--	--	304,610

Appendix A. Continued.

Brood year	Species	Life stage	Program	Target release No.	Month												Total released /transfer
					Dec	Jan '19	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
2018	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	9,256	9,251	8,931	8,722	--	--	--	--	--	--	--	--	8,123
2018	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	92,563	92,511	89,314	87,217	--	--	--	--	--	--	--	--	81,229
2018	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	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	348,991	324,432	--
2019	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	--	--	--	--	--	--	11,039	10,616	10,587	10,554	9,306	8,652	--
2019	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	--	--	--	--	--	--	110,387	106,164	105,873	105,538	93,064	86,515	--
2019	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	--	--	--	--	--	--	21,211	20,864	20,824	20,795	19,747	19,719	--
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	43,302	43,279	--

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
					Dec	Jan '19	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
2018	Kamloops Rainbow trout	Juv.	WDFW sport fish	Number (pounds) released	41,640 (2,449)	31,429 (4,135)	31,411 (7,479)	31,384 (11,012)	4,983 (3,322)	974 (487)	-- (487)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	59,364 (27,214)
				Goal is 20,000 pounds annual combined	-- (--)	-- (--)	-- (--)	-- (--)	25,602 (7)	24,802 (29)	24,725 (96)	24,808 (349)	68,449 (1,695)	66,307 (4,349)	40,818 (57)	40,604 (148)	21,520 (3,587)

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				
					Dec	Jan '19	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		Nov			
2018	White Sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	<i>Up to 325</i>	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	580	575				
				<i>Culled</i>	--	--	--	--	--	--	--	--	--	--	--	--	--			
				<i>Transferred</i>	--	--	--	--	--	--	--	--	--	--	--	--	365	--		365
				<i>Wells reservoir</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	