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Subj: February Hatchery and Natural Production Report

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Cc: Distribution list.

HATCHERY ACTIVITIES

At Wells Hatchery, the 2018 brood summer Chinook yearlings (production group) were reared on a mix of 25% well and 75% surface water during February. The 2018 brood Coho, the 2018 brood summer Chinook survival study yearlings, and the 2019 brood CSN, MSN, Omak, and Okanogan steelhead were reared on a 50/50, well/surface water mix during the month. 2019 brood summer Chinook and 2019 brood Methow Conservation and Twisp program steelhead were reared on 100% well water during the month. The 2018 brood spring Chinook at Methow Hatchery were reared on 100% surface water during the month of February. The 2019 brood remained on 100% well water.

2018 Twisp Spring Chinook Salmon

A total of 30,979 fish were on-station at the end of the month with eight additional fish reported as mortalities. These fish had mean fork lengths, by raceway, between 120.5 and 122.5 mm (Table 1) and were approximately 20-21 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 206,947 fish were on-station at the end of the month with 132 additional fish reported as mortalities. These fish had mean fork lengths, by raceway, between 120.6 and 124.7 mm (Table 1) and were approximately 19-20 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 Twisp Spring Chinook Salmon

A total of 37,664 fry were on station at the end of January with 95 additional fish reported as mortalities. These fish were approximately 260 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.

2019 Methow Composite Spring Chinook Salmon

A total of 205,773 fry were on-station the end of January, with 208 additional fish reported as mortalities. These fish were approximately 260 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.

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

Raceway	Stock-release	Fork length (mm)				FPP
		Mean	<i>N</i>	SD	CV	
1	MC-Chewuch	123.1	154	11.6	9.4	20
2	MC-Chewuch	124.4	142	9.3	7.5	19
3	MC-Chewuch	124.4	211	12.0	9.6	19
4	MC-Goat Wall	120.6	241	13.5	11.2	20
5	Twisp	122.5	210	10.9	8.9	20
6	Twisp	120.5	217	10.3	8.5	21
13	MC-On-Station	124.7	188	13.0	10.4	19

2018 Wells Summer Chinook Salmon

Wells Hatchery had a total of 352,104 yearling program fingerlings on-station at the end of the month after subtracting 205 mortalities. A fish health examination of fish in dirt pond 1 revealed the presence of various external parasites (mostly protozoa) and bacteria associated with external coldwater disease and bacterial gill disease. Flow to the pond was increased to help flush out debris and improve water quality. Loss has remained low and no therapeutic intervention is scheduled to occur. This population includes an estimated 109,086 progeny for survival studies in 2020. These fish overall were approximately 16 FPP by the end of the month. Summer Chinook are being reared to fulfill HCP mitigation obligations (Appendix A).

2019 Summer Chinook

Wells Hatchery had an estimated 400,000 fry for the yearling program and 1,145,344 fry for subyearling programs on-station at the end of February. A fish health examination, prompted by the observance of consistent low-level mortality, resulted in the diagnosis of systemic fungal disease (phaeohyphomycosis) in above-ground 21. No treatments are currently available for this

pathogen in aquatic species; the affected raceways will be continually monitored. Subyearling program progeny include extra production to supplement Orca food sources in the marine environment (500,000 subyearling program for Orca recovery funded by the State of Washington). Summer Chinook are being reared to fulfill HCP mitigation obligations (Appendix A).

2019 Summer Steelhead

Wells Hatchery had 437,515 steelhead progeny on-station at the end of the month, including 173,087 Columbia River safety-net progeny, 109,571 Methow safety-net progeny, 80,452 Okanogan safety-net progeny, and 19,680 Omak Creek conservation program progeny. Additionally, the hatchery had 27,149 Methow conservation and 27,576 Twisp conservation program parr on-station at the end of February. Mortality during the month totaled an additional 320 fish across all programs, primarily from the Columbia ($N = 100$) and Methow ($N = 75$) safety-net programs. Steelhead progeny are being reared to fulfill Douglas PUD and Grant PUD HCP mitigation obligations.

2019 Kamloops Rainbow Trout

Wells Hatchery had 34,702 trout fry remaining on-station at the end of the month at about eight FPP to support lake plants in 2020. A fish health examination conducted in late February resulted in the diagnosis of systemic bacterial coldwater disease and various parasite infestations (mostly protozoa). These fish were treated with formalin and florfenicol medicated feed and have responded well; daily mortality rates have decreased over time. 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 43,180 Methow Coho on-station at the end of February after removing 29 mortalities during the month (Appendix A). These fish were at approximately 30 FPP and will be reared at Wells Hatchery until transfer to the Twisp Acclimation Pond as pre-smolts in spring 2020.

2019 Methow Coho

Wells Hatchery had 41,739 Methow Coho fry on-station at the end of February, and no mortalities were reported during the month (Appendix A). These fish will be reared at Wells Hatchery until transfer to the Twisp Acclimation Pond as pre-smolts in spring 2021.

2019 White Sturgeon

Wells Hatchery had 571 White Sturgeon progeny on-station at the end of February, and no mortalities were reported during the month. These fish were between 1.5–6.0 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>

2020 Smolt Trapping

The Methow River trap was installed on 19 February, and the Twisp River trap first operated on 28 February. Traps at both sites operated through the end of the 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 12.4 to 13.7 m³s, providing expected trap efficiencies greater than 1.5 percent. Twisp River discharge for the period operated ranged from 2.7 to 2.9 m³s, providing expected trap efficiencies between 20.5 and 20.7 percent.

Table 2. Monthly salmonid captures at Methow Basin smolt traps in 2020. SHR = wild steelhead/rainbow.

Species/origin	Methow	Twisp	Basin total
	February	February	
Yearling Chin/wild	4	6	10
Sub Chin/wild/fry	202	0	202
SHR/wild/parr	0	1	1
Coho/wild/fry	1	0	1
Total	207	7	214

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

Species/stage	Location	Length (mm)			Weight (g)			Mean K-factor
		Mean	SD	N	Mean	SD	N	
Yearling Chinook/wild	Methow	101.5	6.6	4	11.1	1.1	4	1.1
Yearling Chinook/wild	Twisp	94.0	10.9	6	8.4	3.2	6	1.0
Sub Chinook/wild/fry	Methow	38.5	1.7	201	--	--	--	--
Steelhead/wild/parr	Twisp	112.0	--	1	12.9	--	1	0.9
Coho/wild/fry	Methow	33.0	--	1	--	--	--	--

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
					Mar '19	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan '20	Feb	
2017	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	69,248	--	--	--	--	--	--	--	--	--	--	--	69,136
2017	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	153,480	--	--	--	--	--	--	--	--	--	--	--	153,232
2017	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	33,325	--	--	--	--	--	--	--	--	--	--	--	33,271
2018	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	63,716	63,710	64,466	64,460	64,449	64,444	64,437	64,432	64,423	64,410	64,384	64,346	--
2018	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	141,218	141,206	142,881	142,867	142,844	142,833	142,817	142,806	142,786	142,757	142,698	142,614	--
2018	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	30,663	30,660	31,024	31,021	31,016	31,014	31,010	31,008	31,003	30,997	30,984	30,966	--
2019	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	--	--	--	--	--	--	--	66,257	66,257	66,051	65,918	65,836	--
2019	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	--	--	--	--	--	--	--	146,850	146,850	146,394	146,098	146,918	--
2019	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	--	--	--	--	--	--	--	31,886	31,886	31,787	31,723	31,683	--
2017	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	290,612	--	--	--	--	--	--	--	--	--	--	--	289,159
2018	Summer Chinook	Sub-yearling	DCPUD Fixed Hatchery Compensation	484,000 <i>released</i>	544,876	544,149	--	--	--	--	--	--	--	--	--	--	531,921
2018	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	398,353	398,353	331,534	330,179	330,077	328,984	357,235	357,089	356,733	352,886	352,313	352,104	--
2019	Summer Chinook	Sub-yearling	DCPUD Fixed Hatchery Compensation	484,000 <i>released</i>	--	--	--	--	--	--	--	--	--	502,857	563,508	561,522	--

Appendix A. Continued.

Brood year	Species	Life stage	Program	Target release No.	Month												Total released /transfer
					Mar '19	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan '20	Feb	
2019	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	--	--	--	--	--	--	--	--	--	450,402	400,000	400,000	--
2018	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	327,063	--	--	--	--	--	--	--	--	--	--	--	304,610
2018	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	8,722	--	--	--	--	--	--	--	--	--	--	--	8,123
2018	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	87,217	--	--	--	--	--	--	--	--	--	--	--	81,229
2018	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	9,096	--	--	--	--	--	--	--	--	--	--	--	18,240
					9,173	9,067	--	--	--	--	--	--	--	--	--	--	
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	323,833	323,307	323,068	--
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	8,636	8,622	8,615	--
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	86,355	86,215	86,152	--
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	19,710	19,691	19,680	--
2018	Methow Coho	Yearling smolt	DCPUD Mitigation	37,000 <i>released</i>	48,595	48,581	45,505	45,671	43,516	43,437	43,372	43,302	43,279	43,243	43,209	43,180	--
2019	Methow Coho	Yearling smolt	DCPUD Mitigation	37,000 <i>released</i>	--	--	--	--	--	--	--	--	--	--	--	41,739	41,739

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	
					Mar '19	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan '20	Feb		
2018	Kamloops Rainbow trout	Juv.	WDFW sport fish	Number (pounds) released	31,384	4,983	974	--	--	--	--	--	--	--	--	--	--	59,364
				Goal is 20,000 pounds annual combined	(11,012)	(3,322)	(487)	(487)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	
2019	Kamloops Rainbow trout	Juv.	WDFW sport fish	Number (pounds) released	--	29,770	4,700	974	--	--	--	--	--	--	--	--	--	21,520
				Goal is 20,000 pounds annual combined	(--)	(7)	(29)	(96)	(349)	(1,695)	(4,349)	(57)	(148)	(965)	(1,742)	(4,338)	(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	
					Mar '19	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan '20	Feb		
2018	White Sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	Up to 325	99	99	--	--	--	--	--	--	--	--	--	--	--	99
				Culled	--	--	--	--	--	--	--	--	--	--	--	--	--	
				Transferred	--	--	--	--	--	--	--	--	--	--	--	--	--	
				Wells reservoir	--	--	99	--	--	--	--	--	--	--	--	--	--	
2019	White Sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	Up to 325	--	--	--	--	1,504	1,214	1,066	580	575	575	571	571	365	
				Culled	--	--	--	--	--	--	--	--	--	--	--	--		--
				Transferred	--	--	--	--	--	--	--	365	--	--	--	--		--
				Wells reservoir	--	--	--	--	--	--	--	--	--	--	--	--		--