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Subj: June Hatchery and Natural Production Report

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Cc: Distribution list.

HATCHERY ACTIVITIES

All 2018 brood fish at Methow Hatchery were reared on 100% well water during the month, and all populations at Wells Hatchery were also held on 100% well water during the month.

2018 Twisp Spring Chinook Salmon

A total of 31,018 fish were on-station at the end of the month with one additional fish reported as mortality. 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 207,330 fish were on-station at the end of the month with 22 additional fish reported as mortalities. 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

Through 30 June, a total of 2,082 spring Chinook salmon were trapped and sampled at Wells Dam. Of these, 175 potential wild fish were retained for processing of scales and DNA tissue samples. A total of 85 Methow Composite and 12 Twisp fish were retained for broodstock while the remaining 78 fish were released back to the river due to hatchery-origin scale patterns or undesirable DNA assignments. Between 4 and 12 June, 14 spring Chinook were trapped at the Twisp weir along with one Bridgelip sucker and one Mountain whitefish. One wild male and eight hatchery fish (5F, 3M) were retained for broodstock. The Twisp weir was decommissioned 12 June and passage opened. By the end of June, trapping at the Methow Hatchery outfall totaled 32 hatchery origin spring Chinook adults, 12 of which were retained for broodstock at

Methow Hatchery. Twenty fish were sent to Winthrop National Fish Hatchery for broodstock or adult management purposes.

2018 Wells Summer Chinook Salmon

Wells Hatchery had a total of 330,179 yearling-program fry on-station at the end of the month after subtracting 3,929 mortalities, and increasing the population by 2,574 due to routine population monitoring. Summer Chinook are being reared to fulfill HCP mitigation obligations (Appendix A).

2019 Summer Steelhead

Wells Hatchery had 556,586 steelhead progeny on-station at the end of the month. Most of these fish were ponded during the month of June and represent a variety of programs including 222,314 Columbia River safety-net progeny, 140,892 Methow safety-net progeny, 113,983 Okanogan safety-net progeny, and 21,211 Omak Creek conservation program progeny. Additionally, the hatchery received 27,748 Methow conservation and 30,438 Twisp conservation program eyed eggs from the Winthrop National Fish Hatchery in early June. Mortality during the month totaled an additional 21,565 fish across all programs, primarily from the Columbia ($N = 12,569$) and Methow ($N = 4,849$) safety-net programs. A fish health examination diagnosed the affected tanks with bacterial coldwater disease; mortality has been managed by salt treatments and, in the most severely impacted tanks, florfenicol medicated (antibiotic) feed. Steelhead progeny are being reared to fulfill Douglas PUD and Grant PUD HCP mitigation obligations.

2018 Kamloops Rainbow Trout

During June, Wells Hatchery personnel planted the remaining catchable-sized trout into Alta Lake ($N = 174$), and provided fish for fishing derbies in Bridgeport ($N = 400$) and at Bonaparte Lake ($N = 400$). Kamloops Rainbow Trout are reared under the Off-License Settlement Agreement (Appendix B).

2019 Kamloops Rainbow Trout

A total of 24,725 fish were on-station at the end of the month after removing 77 mortalities. These fish will support fall plants into Okanogan County lakes and are reared under the Off-License Settlement Agreement (Appendix B).

2018 Methow Coho

The Douglas PUD Coho mitigation program began with brood year 2018. After an adjustment increase of 251 fish, Wells Hatchery had 45,671 Methow Coho fry on-station at the end of June after removing 85 mortalities during the month (Appendix A). These fish were at approximately 87 FPP and will be reared at Wells Hatchery until transfer to the Twisp Acclimation Pond as pre-smolts in spring 2020.

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 month. Decreasing river discharge at the Methow site required us to switch to trapping with the 1.5 m diameter cone in the lower position starting on 22 June. During the month, sub yearling wild Chinook parr and fry were the primary species captured at the Methow and Twisp trap sites, respectively (Table 1). Biological data collected from trapped fish is detailed in Table 2. Methow River discharge for the period operated ranged from 34.5 to 157.2 m³s. The discharge when the trap operated in the low position ranged from 34.5 to 45.3 m³s, providing expected trap efficiencies between 1.2 and 1.4 percent. The discharge when the trap operated in the upper position (prior to 22 June) ranged from 45.6 to 157.2 m³s, providing expected trap efficiencies between 1.3 and 3.6 percent. Twisp River discharge for the period operated ranged from 5.2 to 28.1 m³s, providing expected trap efficiencies between 9.0 and 18.4 percent.

Table 1. Monthly salmonid captures at Methow Basin smolt traps in 2019. SHR = wild steelhead/rainbow.

Species/origin	Methow			Twisp			Basin total
	Mar-Apr	May	June	Mar-Apr	May	June	
Yearling Chin/wild	165	23	0	343	14	2	547
Yearling Chin/hatch	18,778	263	0	3,508	3	1	22,553
Sub Chin/wild-parr	74	228	1,374	0	1	42	1,719
Sub Chin/wild-fry	1,175	1,207	751	53	22	94	3,302
SHR/wild-transitional	284	59	2	361	66	4	776
SHR/wild-parr	24	10	2	156	43	19	254
SHR/wild-fry	0	1	35	0	0	18	54
Steelhead/hatchery	2,632	858	11	3,335	165	8	7,009
Coho/wild-smolt	79	16	9	14	11	0	129
Coho/wild-parr	2	8	29	0	0	5	44
Coho/wild-fry	8	6	10	3	2	29	58
Coho/hatchery	1,957	9,884	32	1,961	4,012	1	17,847
Bull Trout	2	0	1	12	2	0	17
Cutthroat Trout	1	0	1	1	1	0	4
Sockeye/wild-fry	26	4	0	0	0	0	30
Total	25,207	12,567	2,257	9,747	4,342	223	54,343

Table 2. Biological sampling of juvenile salmonids captured at Methow Basin smolt traps during June.

Species/stage	Location	Length (mm)			Weight (g)			Mean K-factor
		Mean	SD	<i>N</i>	Mean	SD	<i>N</i>	
Yearling Chinook/wild	Twisp	101.5	6.4	2	12.4	4.2	2	1.2
Yearling Chinook/hatchery	Twisp	123.0	--	1	18.7	--	1	1.0
Sub Chinook/wild/parr	Methow	61.9	10.5	580	3.1	1.9	492	1.2
Sub Chinook/wild/parr	Twisp	54.4	3.2	40	2.0	0.5	40	1.2
Sub Chinook/wild/fry	Methow	43.9	3.7	372	--	--	--	--
Sub Chinook/wild/fry	Twisp	44.7	3.3	89	--	--	--	--
Steelhead/wild/transitional	Methow	184.0	5.7	2	68.5	2.8	2	1.1
Steelhead/wild/transitional	Twisp	151.3	12.8	4	38.5	9.5	4	1.1
Steelhead/wild/parr	Methow	104.5	19.1	2	14.3	8.1	2	1.2
Steelhead/wild/parr	Twisp	100.5	14.9	19	12.5	5.7	19	1.2
Steelhead/wild/fry	Methow	29.5	4.4	34	--	--	--	--
Steelhead/wild/fry	Twisp	27.3	1.1	11	--	--	--	--
Steelhead/hatchery/smolt	Methow	199.1	18.2	10	83.4	22.9	10	1.0
Steelhead/hatchery/smolt	Twisp	184.0	5.9	6	63.1	7.9	6	1.0
Coho/wild/smolt	Methow	101.8	8.7	9	11.8	3.2	8	1.1
Coho/wild/parr	Methow	64.8	12.0	29	3.8	2.3	27	1.2
Coho/wild/parr	Twisp	60.8	7.3	5	2.9	1.1	4	1.1
Coho/wild/fry	Methow	45.4	1.8	9	--	--	--	--
Coho/wild/fry	Twisp	41.8	4.7	29	--	--	--	--
Coho/hatchery/smolt	Methow	132.0	10.2	28	25.7	6.9	28	1.1
Coho/hatchery/smolt	Twisp	134.0	--	1	24.2	--	1	1.0
Bull Trout	Methow	149.0	--	1	38.1	--	1	1.2
Cutthroat Trout	Methow	290.0	--	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	
					Jul '18	Aug	Sep	Oct	Nov	Dec	Jan '19	Feb	Mar	Apr	May	Jun		
2017	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	69,509	69,504	69,501	69,496	69,493	69,481	69,456	69,272	69,248	--	--	--	69,136	69,136
2017	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	154,058	154,046	154,039	154,029	154,023	153,995	153,941	153,532	153,480	--	--	--	153,232	153,232
2017	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	33,451	33,448	33,447	33,445	33,443	33,437	33,425	33,337	33,325	--	--	--	33,271	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	--	--
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	--	--
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	--	--
2017	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	315,852	297,425	297,425	297,228	295,363	290,763	290,763	290,763	290,612	--	--	--	289,159	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	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	--	--
2018	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	410,943	409,210	385,464	352,434	349,045	347,112	346,916	334,926	327,063	--	--	--	304,610	304,610
2018	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	10,958	10,912	10,279	9,398	9,308	9,256	9,251	8,931	8,722	--	--	--	8,123	8,123
2018	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	109,585	109,123	102,790	93,982	93,079	92,563	92,511	89,314	87,217	--	--	--	81,229	81,229

Appendix A. Continued.

Brood year	Species	Life stage	Program	Target release No.	Month												Total released /transfer
					Jul '18	Aug	Sep	Oct	Nov	Dec	Jan '19	Feb	Mar	Apr	May	Jun	
2018	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	19,018	18,930	18,876	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	--
2019	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	--	--	--	--	--	--	--	--	--	--	--	11,039	--
2019	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	--	--	--	--	--	--	--	--	--	--	--	110,387	--
2019	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	--	--	--	--	--	--	--	--	--	--	--	21,211	--
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	--

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
					Jul '18	Aug	Sep	Oct	Nov	Dec	Jan '19	Feb	Mar	Apr	May	Jun	
2018	Kamloops Rainbow trout	Juv.	WDFW sport fish	Number (pounds) released	63,664 (984)	66,408 (1,794)	66,348 (3,606)	42,050 (539)	41,663 (1,042)	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
				Goal is 20,000 pounds annual combined	--	--	--	--	--	--	--	--	--	29,770	4,700	974	(27,214)
2019	Kamloops Rainbow trout	Juv.	WDFW sport fish	Goal is 20,000 pounds annual combined	--	--	--	--	--	--	--	--	25,602	24,802	24,725	--	--
				Goal is 20,000 pounds annual combined	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(7)	(29)	(96)	--

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		
					Jul '18	Aug	Sep	Oct	Nov	Dec	Jan '19	Feb	Mar	Apr	May	Jun			
2018	White Sturgeon	Juvenile rearing	Wells White Sturgeon Supple- mentation	<i>Up to 325</i>	969	794	261	103	102	101	101	99	99	99	--	--			
				<i>Culled</i>	--	--	--	--	--	--	--	--	--	--	--	--	--		
				<i>Transferred</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
				<i>Wells reservoir</i>	--	--	--	--	--	--	--	--	--	--	--	--	99	--	99