

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: December Hatchery and Natural Production Report

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Cc: Distribution list.

HATCHERY ACTIVITIES

All 2016 brood fish at Methow Hatchery were switched to a mix of 93% surface and 7% well water on 1 December, and all 2017 brood fish were reared on 100% well water during the month. At Wells Hatchery, the yearling Chinook in dirt-pond 1 and the steelhead in dirt-pond 3 were switched to 100% surface water during December, all other populations remained on 100% well water during the month.

2016 Twisp Spring Chinook Salmon

A total of 30,672 fish were on-station at the end of the month with 12 additional fish reported as mortalities. These fish had a mean fork length of 110 mm during the month and were at approximately 23 fish per pound (FPP). The number of fish on-station that apply to Douglas PUD, Chelan PUD, and Grant PUD HCP mitigation obligations are listed in Appendix A.

2016 Methow Composite Spring Chinook Salmon

A total of 219,087 fish were on-station at the end of the month with 293 additional fish reported as mortalities. Approximately 66,000 and 29,000 of the WxW MetComp fry on-station are destined for the Chewuch (61,000 release target) and Goat Wall (25,000 release target) acclimation ponds, respectively. These fish had a mean fork length of 110 mm during the month and were at approximately 23 FPP. The number of fish on-station that apply to Douglas PUD, Chelan PUD, and Grant PUD HCP mitigation obligations are listed in Appendix A.

2017 Twisp Spring Chinook Salmon

A total of 28,773 fry were ponded during the month of December with an additional 128 fry reported as mortalities. The number of fish on-station that apply to Douglas PUD, Chelan PUD, and Grant PUD HCP mitigation obligations are listed in Appendix A.

2017 Methow Composite Spring Chinook Salmon

A total of 215,490 fry were ponded by the end of December with an additional 10,070 fry reported as mortalities. These fish will support releases from the Chewuch Acclimation Pond (release target = 60,516), Goat Wall Acclimation Pond (release target = 25,000), and from Methow Hatchery (release target = 108,249). The number of fish on-station that apply to Douglas PUD, Chelan PUD, and Grant PUD HCP mitigation obligations are listed in Appendix A.

2016 Wells Summer Chinook Salmon

Wells Hatchery had 356,240 fry on-station for the yearling program, and 100 additional fish were reported as mortalities during December. These fish were at approximately 18 FPP at the end of the month and are being reared to fulfill HCP mitigation obligations (Appendix A).

2017 Wells Summer Chinook Salmon

Spawning of the 2017 brood of summer Chinook Salmon at Wells Hatchery produced an estimated 332,000 eyed eggs for the yearling program and 469,806 eyed eggs for the subyearling program. These progeny were still in incubation during December, and losses to the eyed stage totaled about 16% of the green eggs collected for each program. These fish are being reared to fulfill HCP mitigation obligations (Appendix A).

2017 Summer Steelhead

Wells Hatchery had 316,202 steelhead progeny for releases into the Methow, Columbia, and Okanogan (MCO) rivers. The hatchery also had 33,426 Omak WxW progeny and 54,358 progeny from the Winthrop National Fish Hatchery (WNFH) conservation program, which includes progeny from Twisp River broodstock collections, on-station at the end of December. Mortality during the month totaled an additional 181 Omak WxW progeny, 52 WNFH conservation progeny, and 89 MCO progeny during the month. Steelhead progeny are being reared to fulfill Douglas PUD HCP and Grant PUD mitigation obligations (Appendix A).

2018 Summer Steelhead

Wells Hatchery had 163 adult steelhead for 2018 broodstock on-station at the beginning of December. Mortality has totaled 13 additional fish by the end of December (7.8%), including three fish that died during trapping. Spawning of the 2018 brood began on 26 December, with a total of four females spawned, leaving a total of 152 fish on-station at the end of the month. Spawning is expected to continue weekly until production goals have been met. Steelhead progeny are being reared to fulfill Douglas PUD and Grant PUD HCP mitigation obligations.

2016 Spokane Rainbow

Wells Hatchery had 35,784 rainbow trout from the 2016 brood on-station at the end of the month and an additional 167 fish were reported as mortalities during the month. These fish were at about four FPP and are reared to fulfill the Off-License Settlement Agreement (Appendix B).

2017 White Sturgeon

Wells Hatchery had 1,262 White Sturgeon progeny on-station at the end of the month with 37 additional fish reported as mortalities during December. White Sturgeon progeny were at approximately 21 FPP during the month and 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>

2017 Smolt Trapping

Freezing temperatures and ice accumulation necessitated the removal of the Twisp and Methow smolt traps on 4 and 6 December, respectively. Subyearling wild Chinook parr were the primary species captured at both trap sites during the month (Table 1). Biological data collected from trapped fish is detailed in Table 2. Methow River discharge for the period operated ranged from 25.3 to 33.7 m³s, providing expected trap efficiencies greater than 1.4 percent. Twisp River discharge for the period operated ranged from 4.2 to 5.3 m³s, providing expected trap efficiencies between 6.1 and 7.8 percent.

Table 1. Monthly salmonid captures at Methow Basin smolt traps in 2017. SHR = wild steelhead/rainbow. M-S=March through September total.

Species/origin	Methow				Twisp				Basin total
	M-S	Oct	Nov	Dec	M-S	Oct	Nov	Dec	
Precocial Chin/wild	0	0	0	0	68	0	0	0	68
Precocial Chin/hat.	0	0	0	0	16	0	0	0	16
Yearling Chin/wild	490	0	0	0	809	0	0	0	1,299
Yearling Chin/hatch	13,325	0	0	0	3,827	0	0	0	17,152
Sub Chin/wild-parr	582	13	143	16	182	147	454	16	1,553
Sub Chin/wild-fry	3,842	0	0	0	210	0	0	0	4,052
SHR/wild-trans.	373	0	0	0	236	0	0	0	609
SHR/wild-parr	41	1	10	0	245	29	236	14	576
SHR/wild-fry	6	0	0	0	22	1	0	0	29
Steelhead/hatchery	2,699	1	0	0	2,629	4	5	0	5,338
Coho/wild-smolt	5	0	0	0	4	0	0	0	9
Coho/wild-parr	1	0	0	0	1	2	3	0	7
Coho/wild-fry	2	0	0	0	0	0	0	0	2
Coho/hatchery	2,221	0	0	0	0	0	0	0	2,221
Bull trout	2	2	0	0	5	4	8	0	21
Cutthroat Trout	1	0	0	0	6	0	0	0	7
Sockeye/wild-fry	261	0	0	0	2	0	0	0	263
Total	23,851	17	153	16	8,262	187	706	30	33,222

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

Species/stage	Location	Length (mm)			Weight (g)			Mean K-factor
		Mean	SD	N	Mean	SD	N	
Sub Chinook/wild/parr	Methow	92.4	9.5	16	8.3	2.7	16	1.0
Sub Chinook/wild/parr	Twisp	90.6	10.2	16	8.0	2.8	16	1.0
Steelhead/wild/parr	Twisp	99.6	31.7	14	12.4	11.0	14	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	
					Jan '17	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
2015	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	65,618	65,608	51,720	--	--	--	--	--	--	--	--	--	--	51,697
2015	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	145,435	145,413	114,630	--	--	--	--	--	--	--	--	--	--	114,579
2015	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	31,578	31,574	24,890	--	--	--	--	--	--	--	--	--	--	24,879
2016	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	68,677	68,594	68,032	68,032	67,814	67,806	67,792	67,783	67,765	67,700	67,628	67,546	--	--
2016	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	152,213	152,030	150,785	150,785	150,302	150,284	150,253	150,234	150,192	150,049	149,890	149,707	--	--
2016	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	33,050	33,011	32,740	32,740	32,635	32,631	32,625	32,620	32,611	32,580	32,546	32,506	--	--
2017	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	--	--	--	--	--	--	--	--	--	68,820	68,817	66,059	--	--
2017	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	--	--	--	--	--	--	--	--	--	152,530	152,526	146,413	--	--
2017	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	--	--	--	--	--	--	--	--	--	33,119	33,118	31,791	--	--
2015	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	336,117	335,239	333,462	--	--	--	--	--	--	--	--	--	--	329,809
2016	Summer Chinook	Sub-yearling	DCPUD Fixed Hatchery Compensation	484,000 <i>released</i>	513,238	444,000	443,117	470,247	234,710	--	--	--	--	--	--	--	--	234,710
2016	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	372,107	372,107	366,490	362,301	361,696	359,464	359,127	356,640	356,340	356,340	356,340	356,240	--	--
2016	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	314,694	314,555	314,262	217,219	--	--	--	--	--	--	--	--	--	90,679
2016	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	8,392	8,388	8,380	5,793	--	--	--	--	--	--	--	--	--	2,418
								5,503	--	--	--	--	--	--	--	--	--	7,921

Appendix A. Continued.

Brood year	Species	Life stage	Program	Target release No.	Month												Total released /transfer
					Jan '17	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2016	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	83,918	83,881	83,803	57,925	--	--	--	--	--	--	--	--	79,211
2016	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	34,542	33,461	32,868	--	--	--	--	--	--	--	--	--	26,054
2017	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	--	--	--	--	--	329,265	324,326	354,002	357,470	343,318	314,831	286,515	--
2017	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	--	--	--	--	--	8,780	8,649	9,440	9,533	9,155	8,395	7,640	--
2017	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	--	--	--	--	--	87,840	86,487	94,400	95,325	91,551	83,955	76,404	--
2017	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	--	--	--	--	--	--	33,977	31,787	31,787	31,755	33,962	33,426	--

¹40,000 Inundation steelhead to be released in the Twisp 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
					Jan '17	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2015	Rainbow trout	Juv	WDFW sport fish	Number (pounds) released	33,741	33,652	33,280	20,308	5,398	--	--	--	--	--	--	--	51,384
					(8,656)	(8,288)	(11,110)	(9,104)	(2,720)	(1,854)	(--)	(--)	(--)	(--)	(--)	(--)	
2016	Rainbow trout	Juv	WDFW sport fish	Goal is 20,000 pounds annual combined	68,293.	62,418	62,379	61,927	61,612	59,120	57,374	57,001	57,001	37,001	35,951	35,784	25,301
					(20)	(65)	(142)	(405)	(692)	(1,056)	(1,739)	(3,563)	(6,333)	(7,400)	(8,988)	(8,750)	
2017	Lahontan cutthroat	Juv	WDFW sport fish	Goal is 20,000 pounds annual combined	--	--	--	--	178,526	169,589	169,589	3,768	5,541	5,533	--	--	177,288
					(--)	(--)	(--)	(--)	(178)	(169)	(242)	(5)	(32)	(56)	(64)	(--)	
					--	--	--	--	--	--	--	171,747	--	--	5,541	--	(314)

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	
					Jan '17	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
2016	White sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	<i>Up to 5,000</i>	9,495	6,690	6,654	6,654	5,090	--	--	--	--	--	--	--	--	
				<i>Culled</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	
				<i>Transferred</i>	2,293	--	--	--	1,362	--	--	--	--	--	--	--	--	3,655
				<i>Wells reservoir</i>	--	--	--	--	--	5,125	--	--	--	--	--	--	--	5,125
2017	White sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	<i>Up to 325</i>	--	--	--	--	--	--	2,053	1,581	1,461	1,440	1,299	1,262		
				<i>Culled</i>	--	--	--	--	--	--	--	--	--	--	--	--		
				<i>Transferred</i>	--	--	--	--	--	--	--	--	--	--	--	--		
				<i>Wells reservoir</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	