

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

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To: Shane Bickford and Greg Mackey
From: Charlie Snow and Charles Frady
Subj: November Hatchery and Natural Production Report
Date: 8 December 2016
Cc: Distribution list.

HATCHERY ACTIVITIES

All juvenile fish at the Wells and Methow hatcheries were held on 100% well water during the month of November.

2015 Twisp Spring Chinook Salmon

A total of 40,384 fish were on-station at the end of the month with three additional fish reported as mortalities. The WDFW hatchery reporting program (Fishbooks) list these fish as having a mean fork length of 125.1 mm. They are currently at 24 fish per pound (FPP). The number of fish on-station that apply to HCP mitigation obligations are listed in Appendix A.

2015 Methow Composite Spring Chinook Salmon

A total of 202,425 fish were on-station at the end of the month with 87 additional fish reported as mortalities. Monthly Fishbooks reports list these fish as having a mean fork length of 125.1 mm. They are currently at 24 FPP. The number of fish on-station that apply to HCP mitigation obligations are listed in Appendix A.

2016 Twisp Spring Chinook Salmon

A total of 31,010 fry were on-station at the end of the month with no mortalities reported. Fry are scheduled to be ponded in the month of December. The number of fish on-station that apply to HCP mitigation obligations are listed in Appendix A.

2016 Methow Composite Spring Chinook Salmon

A total of 222,930 fry were on-station at the end of the month with no mortalities reported. Fry are scheduled to be ponded in the month of December. Approximately 70,000 and 29,000 WxW MetComp fry on-station are destined for the Chewuch (61,000 release target) and Goat Wall

(25,000 release target) acclimation ponds, respectively. The number of fish on-station that apply to HCP mitigation obligations are listed in Appendix A.

2015 Wells Summer Chinook Salmon

Wells Hatchery had 336,117 summer Chinook Salmon progeny for the yearling program on-station at the end of the month and no mortalities were reported. These fish had a mean fork length of 142 mm during the month and were at approximately 17 FPP. These fish are being reared to fulfill HCP mitigation obligations (Appendix A).

2016 Wells Summer Chinook Salmon

Spawning of the 2016 brood summer Chinook at Wells Hatchery's new Adult Handling Facility yielded an estimated 1.6 million eggs overall at an estimated fecundity of 4,300 eggs per female. An estimated 462,000 eggs were shipped to Yakama Nation facilities at the time of spawning, and an estimated 1,149,390 eggs remained on-station for Wells Hatchery programs. After removing dead eggs at the eyed-egg stage, Wells Hatchery had an estimated 583,000 eggs on-station for the subyearling program and 368,940 eggs on-station for the yearling program. An additional 60,500 eggs for the subyearling program were culled during the month to reduce overloading.

2016 Summer Steelhead

Wells Hatchery had a total of 446,483 steelhead parr on-station at the end of the month including an estimated 35,606 Omak WxW progeny, 60,603 Twisp progeny, and 350,274 progeny for Okanogan, Columbia, and Methow River release. Monthly mortality included 785 fish from the Omak WxW group, 124 fish from the Okanogan, Columbia, and Methow group, and 35 Twisp WxW fish. The Omak WxW population was adjusted upward by 1,854 fish during the month, and an additional 19,178 fish were planted into Wapato Lake during November to reduce overall loadings at the hatchery. Steelhead progeny are being reared to fulfill HCP mitigation obligations (Appendix A).

2017 Summer Steelhead

Trapping of 2017 brood summer steelhead began in August and finished during November with a total of 386 adults trapped from the Wells Dam fish ladders or the Wells Hatchery volunteer channel. A total of 163 of the hatchery-origin fish trapped were retained for broodstock. Wild fish (as determined from the lack of external marks) have totaled about 28% of the fish trapped, although scale sample confirmation of fish origin has not been completed to-date.

2015 Spokane Rainbow

Wells Hatchery had 32,897 rainbow trout on-station at the end of the month after subtracting 52 mortalities. About 2,500 of these fish are larger sized fish at about three FPP, with the remaining fish at about seven FPP. These fish are reared to fulfill the Off-License Settlement Agreement (Appendix B).

2016 White Sturgeon

Wells Hatchery had 10,458 sturgeon progeny on-station at the end of the month after subtracting 1,479 mortalities. 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), Lost River (LOR), Early Winters Creek (EWC), 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>

2016 Smolt Trapping

Favorable river conditions, and above average temperatures during November allowed traps at both the Methow and Twisp trap sites to operate every night of the month without interruption. During the month, sub yearling wild Chinook parr were the primary species captured at both the Methow and Twisp trap sites (Table 1). Biological data collected from trapped fish is detailed in Table 2. Methow River discharge for the period operated ranged from 28.1 to 43.9 m³s, providing expected trap efficiencies between 1.2 and 1.5 percent. Twisp River discharge for the period operated ranged from 3.5 to 7.5 m³s, providing expected trap efficiencies between 4.8 and 11.5 percent.

Table 1. Monthly salmonid captures at Methow Basin smolt traps in 2016. SHR = wild steelhead/rainbow. F-A = February through August total.

Species/origin	Methow				Twisp				Basin total
	F-A	Sept	Oct	Nov	F-A	Sept	Oct	Nov	
Yearling Chin/wild	487	0	0	0	403	0	0	0	890
Yearling Chin/hatch	3,339	0	0	0	2,177	0	0	0	5,516
Sub Chin/wild-parr	1,923	8	58	109	603	15	244	207	3,167
Sub Chin/wild-fry	4,587	0	0	0	195	0	0	0	4,782
SHR/wild-trans.	191	0	0	0	160	0	0	0	351
SHR/wild-parr	99	2	8	3	206	14	43	12	387
SHR/wild-fry	22	1	0	0	51	0	0	0	74
Steelhead/hatchery	473	0	0	0	2,097	1	2	0	2,573
Coho/wild-smolt	118	0	0	0	49	0	0	0	167
Coho/wild-parr	13	0	0	0	11	1	2	1	28
Coho/wild-fry	0	0	0	0	3	0	0	0	3
Coho/hatchery	98	0	0	0	0	0	0	0	98
Bull Trout	2	0	0	3	10	0	4	1	20
Cutthroat Trout	1	0	0	0	5	0	2	0	8
Sockeye/wild-fry	18	0	0	0	0	0	0	0	18
Total	11,371	11	66	115	5,970	31	297	221	18,082

Table 2. 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	97.7	8.7	109	10.4	3.1	109	1.1
Sub Chinook/wild/parr	Twisp	89.3	7.6	207	7.9	2.0	207	1.1
Steelhead/wild/parr	Methow	209.7	58.5	3	104.3	79.6	3	1.0
Steelhead/wild/parr	Twisp	111.3	44.0	12	19.3	17.7	12	1.0
Coho/wild/parr	Twisp	95.0	--	1	9.6	--	1	1.1
Bull Trout	Methow	197.0	58.3	3	79.7	58.6	3	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 '15	Jan '16	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov		
2014	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	71,878	71,862	71,847	71,821	--	--	--	--	--	--	--	--	--	71,812
2014	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	159,307	159,272	159,240	159,183	--	--	--	--	--	--	--	--	--	159,161
2014	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	34,591	34,583	34,576	34,564	--	--	--	--	--	--	--	--	--	34,559
2015	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	67,367	65,494	65,330	65,270	65,259	65,211	65,701	65,697	65,695	65,692	65,691	65,666	--	--
2015	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	149,310	145,158	144,794	144,664	144,638	144,531	145,618	145,610	145,604	145,600	145,595	145,541	--	--
2015	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	32,420	31,519	31,440	31,411	31,405	31,382	31,618	31,616	31,615	31,614	31,613	31,602	--	--
2016	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	--	--	--	--	--	--	--	--	--	--	68,677	68,677	--	--
2016	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	--	--	--	--	--	--	--	--	--	--	152,213	152,213	--	--
2016	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	--	--	--	--	--	--	--	--	--	--	33,050	33,050	--	--
2014	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	358,953	358,953	358,953	358,953	43,953	--	--	--	--	--	--	--	--	350,000
2015	Summer Chinook	Sub-yearling	DCPUD Fixed Hatchery Compensation	484,000 <i>released</i>	560,543	494,310	427,696	427,075	439,709	--	--	--	--	--	--	--	--	439,709
2015	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	350,845	350,845	350,845	348,172	345,069	344,395	344,121	343,198	336,304	336,117	336,117	336,117	--	--
2016	Summer Chinook	Sub-yearling	DCPUD Fixed Hatchery Compensation	484,000 <i>released</i>	--	--	--	--	--	--	--	--	--	--	--	583,000	--	--

Appendix A. Continued.

Brood year	Species	Life stage	Program	Target release No.	Month												Total released /transfer		
					Dec '15	Jan '16	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov			
2016	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	368,940	--	
2015	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	312,164	310,570	310,158	310,143	134,985	--	--	--	--	--	--	--	--	307,697	--
2015	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	8,324	8,282	8,270	8,270	3,599	--	--	--	--	--	--	--	--	8,205	--
2015	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	83,243	82,819	82,709	82,705	35,996	--	--	--	--	--	--	--	--	82,052	--
2016	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	--	--	--	--	--	--	358,776	371,024	373,452	337,536	331,315	317,688	--	--	
2016	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	--	--	--	--	--	--	9,567	9,893	9,958	9,001	8,835	8,471	--	--	
2016	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	--	--	--	--	--	--	95,673	98,939	99,587	90,009	88,350	84,716	--	--	
2016	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	--	--	--	--	--	--	34,627	34,010	34,716	34,616	34,616	35,606	--	--	

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	
					Dec '15	Jan '16	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		Nov
2014	Rainbow trout	Juv	WDFW sport fish	Number (pounds) released	33,670	33,647	33,617	13,732	10,709	3,037	--	--	--	--	--	--	50,717
					(8,598)	(9,861)	(11,566)	(6,638)	(4,951)	(1,380)	(740)	(--)	(--)	(--)	(--)	(--)	
2015	Rainbow trout	Juv	WDFW sport fish	Goal is 20,000 pounds annual combined	--	75,181	74,402	73,936	63,618	63,352	60,608	36,100	36,052	33,026	32,949	32,897	20,000
					(--)	(75)	(39)	(114)	(260)	(792)	(1,377)	(1,570)	(2,488)	(3,471)	(4,308)	(5,178)	(873)
2016	Lahontan cutthroat	Juv	WDFW sport fish	Goal is 20,000 pounds annual combined	--	--	--	--	200,000	161,503	156,757	--	--	--	--	--	150,000
					(--)	(--)	(--)	(--)	(200)	(161)	(156)	--	(--)	(--)	(--)	(--)	(200)

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 '15	Jan '16	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		Nov		
2015	White sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	Up to 5,000	7,665	7,416	7,405	5,203	5,198	5,153	--	--	--	--	--	--	--		
				Culled	--	--	--	--	--	--	--	--	--	--	--	--	--	1,462	
				Transferred	--	--	--	2,200	--	--	--	--	--	--	--	--	--	--	5,000
				Wells reservoir	--	--	--	--	--	--	--	5,288	--	--	--	--	--	--	5,288
2016	White sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	Up to 5,000	--	--	--	--	--	--	35,845	25,087	17,246	15,235	13,560	10,458			
				Culled	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
				Transferred	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Wells reservoir	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--