

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

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Subj: October Hatchery and Natural Production Report

Date: 2 November 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 October.

2015 Twisp Spring Chinook Salmon

A total of 40,387 fish were on-station at the end of the month with three additional fish reported as mortalities. Hatchery data reports list these fish as having a mean fork length of 118.3 mm. They are currently at 28 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 202,512 fish were on-station at the end of the month with four additional fish reported as mortalities. Hatchery data reports list these fish as having a mean fork length of 118.3 mm. They are currently at 28 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. 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 302,162 eggs were picked by the end of the month. Initial loss for the Methow Composite program was 3.1% ($N = 9,286$). A total of 69,946 eggs from hatchery-origin females were culled by the end of the month. A total of 222,930 fry were on-station at the end of the month with no mortalities reported. 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 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 mortality was reported. These fish had a mean fork length of 129 mm during the month and were at approximately 23 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 was completed during the month of October with a total of 759 viable fish spawned on four spawn days (Table 1). An additional 13 fish were not viable at spawning or were in excess of broodstock needs. Pre-spawn mortality totaled 24 of the 796 fish initially retained for broodstock (3.0%). Spawning yielded an estimated 1.6 million eggs overall at an estimated fecundity of 4,300 eggs per female, however actual fecundity values have yet to be measured. Spawning was conducted in the new Adult Handling Facility.

Table 1. Spawning and mortality of the 2016 brood adult summer Chinook at Wells Hatchery.

Spawn date	Wild		Hatchery		Grand total
	Male	Female	Male	Female	
10/5/2016	0	0	40	41	81
10/12/2016	20	10	128	141	299
10/19/2016	14	23	130	121	288
10/25/2016	3	6	42	40	91
Not-viable at spawning	0	1	0	7	8
Pre-spawn mortality	2	3	10	9	24
Post-spawn excess	0	2	0	3	5
Total	39	45	350	362	796

2016 Summer Steelhead

Wells Hatchery had a total of 463,117 steelhead parr on-station at the end of the month including an estimated 34,616 Omak WxW progeny, 60,714 Twisp progeny, and 367,787 progeny for Okanogan, Columbia, and Methow River release. Mortality included 499 fish from the Okanogan, Columbia, and Methow release program, and the population was further adjusted downward by 6,826 fish after marking. 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 a total of 353 adults were trapped from the Wells Dam fish ladders or the Wells Hatchery volunteer channel by the end of October, with 131 hatchery-origin fish 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 32,949 rainbow trout on-station at the end of the month after subtracting 77 mortalities. These fish were at about eight FPP and were reared to fulfill the Off-License Settlement Agreement (Appendix B).

2016 White Sturgeon

Wells Hatchery had 13,560 sturgeon progeny on-station at the end of the month after subtracting 746 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

River conditions were favorable for trapping at both the Methow and Twisp sites during the majority of October. The Methow trap operated every night without interruption, and the Twisp trap operated most of the month except for a few days of intermittent cone-stopping at the beginning of the month due to low river discharge. 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 9.6 to 31.1 m³s, providing expected trap efficiencies greater than 1.4 percent. Twisp River discharge for the period operated ranged from 1.1 to 4.7 m³s, providing expected trap efficiencies between 3.2 and 6.9 percent.

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

Species/origin	Methow				Twisp				Basin total
	F-J	Aug	Sept	Oct	F-J	Aug	Sept	Oct	
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	1,914	9	8	58	536	67	15	244	2,851
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	96	3	2	8	166	40	14	43	372
SHR/wild-fry	20	2	1	0	44	7	0	0	74
Steelhead/hatchery	473	0	0	0	2,093	4	1	2	2,573
Coho/wild-smolt	118	0	0	0	49	0	0	0	167
Coho/wild-parr	13	0	0	0	11	0	1	2	27
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	0	9	1	0	4	16
Cutthroat Trout	1	0	0	0	4	1	0	2	8
Sockeye/wild-fry	18	0	0	0	0	0	0	0	18
Total	11,357	14	11	66	5,850	120	31	297	17,746

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

Species/stage	Location	Length (mm)			Weight (g)			Mean K-factor
		Mean	SD	<i>N</i>	Mean	SD	<i>N</i>	
Sub Chinook/wild/parr	Methow	92.7	8.1	58	9.1	2.4	58	1.1
Sub Chinook/wild/parr	Twisp	88.1	8.0	244	7.8	2.1	244	1.1
Steelhead/wild/parr	Methow	142.5	21.7	8	32.5	15.6	8	1.1
Steelhead/wild/parr	Twisp	110.6	38.8	43	18.3	16.9	43	1.1
Steelhead/hatchery/parr	Twisp	244.5	3.5	2	160.5	2.3	2	1.1
Coho/wild/parr	Twisp	99.0	5.7	2	10.5	1.3	2	1.1
Bull Trout	Twisp	210.7	25.9	3	102.9	35.0	3	1.1
Cutthroat Trout	Twisp	192.5	44.5	2	80.3	53.7	2	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	
					Nov '15	Dec	Jan '16	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		
2014	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	71,892	71,878	71,862	71,847	71,821	--	--	--	--	--	--	--	--	71,812
2014	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	159,341	159,307	159,272	159,240	159,183	--	--	--	--	--	--	--	--	159,161
2014	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	34,598	34,591	34,583	34,576	34,564	--	--	--	--	--	--	--	--	34,559
2015	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	67,531	67,367	65,494	65,330	65,270	65,259	65,211	65,701	65,697	65,695	65,692	65,691	--	--
2015	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	149,676	149,310	145,158	144,794	144,664	144,638	144,531	145,618	145,610	145,604	145,600	145,595	--	--
2015	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	32,499	32,420	31,519	31,440	31,411	31,405	31,382	31,618	31,616	31,615	31,614	31,613	--	--
2016	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	--	--	--	--	--	--	--	--	--	--	--	68,677	--	--
2016	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	--	--	--	--	--	--	--	--	--	--	--	152,213	--	--
2016	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	--	--	--	--	--	--	--	--	--	--	--	33,050	--	--
2014	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	358,953	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	--	--
2015	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	312,263	312,164	310,570	310,158	310,143	134,985	--	--	--	--	--	--	--	307,697

Appendix A. Continued.

Brood year	Species	Life stage	Program	Target release No.	Month												Total released /transfer	
					Nov '15	Dec	Jan '16	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		
2015	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	8,327	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>	83,270	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	--	--
2016	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	--	--	--	--	--	--	--	9,567	9,893	9,958	9,001	8,835	--	--
2016	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	--	--	--	--	--	--	--	95,673	98,939	99,587	90,009	88,350	--	--
2016	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	--	--	--	--	--	--	--	34,627	34,010	34,716	34,616	34,616	--	--

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	
					Nov '15	Dec	Jan '16	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		
2014	Rainbow trout	Juv	WDFW sport fish	Number (pounds) released	33,728 (6,855)	33,670 (8,598)	33,647 (9,861)	33,617 (11,566)	13,732 (6,638)	10,709 (4,951)	3,037 (1,380)	-- (740)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	50,717
2015	Rainbow trout	Juv	WDFW sport fish	Goal is 20,000 pounds annual combined	-- (--)	-- (--)	75,181 (75)	74,402 (39)	73,936 (114)	63,618 (260)	63,352 (792)	60,608 (1,377)	36,100 (1,570)	36,052 (2,488)	33,026 (3,471)	32,949 (4,308)	--	20,000 (873)
2016	Lahontan cutthroat	Juv	WDFW sport fish	Goal is 20,000 pounds annual combined	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	200,000 (200)	161,503 (161)	156,757 (156)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	150,000 (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		
					Nov '15	Dec	Jan '16	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
2015	White sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	<i>Up to 5,000</i>	8,638	7,665	7,416	7,405	5,203	5,198	5,153	--	--	--	--	--	--		
				<i>Culled</i>	1,462	--	--	--	--	--	--	--	--	--	--	--	--	1,462	
				<i>Transferred</i>	--	--	--	--	2,200	--	--	--	--	--	--	--	--	--	5,000
				<i>Wells reservoir</i>	--	--	--	--	--	--	--	--	--	5,288	--	--	--	--	5,288
2016	White sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	<i>Up to 5,000</i>	--	--	--	--	--	--	--	35,845	25,087	17,246	15,235	13,560			
				<i>Culled</i>	--	--	--	--	--	--	--	--	--	--	--	--	--		
				<i>Transferred</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
				<i>Wells reservoir</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--