

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

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To: Shane Bickford and Greg Mackey
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Subj: September Hatchery and Natural Production Report
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Cc: Distribution list.

HATCHERY ACTIVITIES

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

2015 Twisp Spring Chinook Salmon

A total of 40,390 fish were on-station at the end of the month with three additional fish reported as mortalities. These fish were on average 105.4 mm and were at 40 fish per pound (FPP) during the month. 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 202,516 fish were on-station at the end of the month with five additional fish reported as mortalities. These fish were on average 105.4 mm and were at 40 FPP during the month. The number of fish on-station that apply to HCP mitigation obligations are listed in Appendix A.

2016 Brood Spring Chinook Salmon

A total of 31,850 Twisp and 279,786 Methow Composite eggs were picked by 7 September; eggs from six Methow Composite females remain unpicked. Initial loss for the Twisp program was 2.6% ($N = 840$). Initial loss for the Methow Composite program was 3.1% ($N = 8,667$). Approximately 69,000 and 29,000 green WxW MetComp eggs are destined for the Chewuch and Goat Wall releases, respectively. On-station releases will be approximately 75% WxW and 25% HxW progeny. Eyed eggs from hatchery females (HxW crosses; ~84,000) in excess of program goals will either be transferred to Winthrop NFH or be culled.

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 110 mm during the month and were at approximately 32 FPP. These fish are being reared to fulfill HCP mitigation obligations (Appendix A).

2016 Wells Summer Chinook Salmon

Wells Hatchery began collecting adult Chinook broodstock for the yearling and subyearling programs during July and retained a total of 797 fish by the end of August, with an additional 9 fish reported as pre-spawn mortalities (1.1%). These were the first fish to be collected and held in the new Adult Handling Facility at Wells Hatchery. An additional 554 surplus adipose fin-clipped adult Chinook were provided to the Spokane Tribe on 17 August.

2016 Summer Steelhead

Wells Hatchery had a total of 471,163 steelhead fry on-station at the end of the month including an estimated 34,616 Omak WxW progeny, 61,435 Twisp progeny, and 375,112 progeny for Okanogan, Columbia, and Methow River release. Mortality included 100 Omak fry and 1,367 fry from the Okanogan, Columbia, and Methow release programs. Additionally, 40,116 excess HxH fry were released in Alta Lake to reduce overloading at the hatchery. These 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 254 adults were trapped from the Wells Dam fish ladders or the Wells Hatchery volunteer channel by the end of September, with 94 hatchery-origin fish being retained for broodstock. Wild fish (as determined from external marks) have totaled about 33% of the fish trapped, although scale sample confirmation of fish origin has not been completed to-date.

2015 Spokane Rainbow

Wells Hatchery had 33,026 rainbow trout fry on-station at the end of the month after subtracting 1,026 mortalities. This population was adjusted downwards by 2,000 fish after a population inventory was conducted during the month. These fish were at about 10 FPP and were reared to fulfill the Off-License Settlement Agreement (Appendix B).

2016 White Sturgeon

Wells Hatchery had 15,235 sturgeon progeny on-station at the end of the month after subtracting 2,011 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>

Spawning Ground Surveys

By the end of September, a total of 358 spring Chinook Salmon redds were found in the Methow River Basin, including 66 redds counted by USFWS in sections M8, M7, M6 and WN1. Of the basin-wide redd count, 230 (64.3%) were found in the upper Methow subbasin, 82 (22.9%) were found in Chewuch subbasin, and 46 (12.8%) were found in the Twisp subbasin.

2016 Smolt Trapping

River conditions were favorable for trapping at the Methow site during the month and the trap operated without interruption. River discharge during the month of September was slightly above average at the Twisp site, but the trap operates intermittently at these low flows and the cone had stopped spinning on numerous site visits. 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 11.5 m³s, providing expected trap efficiencies greater than 1.5 percent. Twisp River discharge for the period operated ranged from 1.1 to 1.7 m³s, providing expected trap efficiencies greater than 20.0 percent.

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

Species/origin	Methow				Twisp				Basin total
	F-J	July	Aug	Sept	F-J	July	Aug	Sept	
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	1,678	236	9	8	296	240	67	15	2,549
Sub Chin/wild-fry	4,579	8	0	0	185	10	0	0	4,782
SHR/wild-trans.	191	0	0	0	160	0	0	0	351
SHR/wild-parr	96	0	3	2	149	17	40	14	321
SHR/wild-fry	2	18	2	1	0	44	7	0	74
Steelhead/hatchery	473	0	0	0	2,081	12	4	1	2,571
Coho/wild-smolt	118	0	0	0	49	0	0	0	167
Coho/wild-parr	13	0	0	0	8	3	0	1	25
Coho/wild-fry	0	0	0	0	2	1	0	0	3
Coho/hatchery	98	0	0	0	0	0	0	0	98
Bull Trout	2	0	0	0	9	0	1	0	12
Cutthroat Trout	0	1	0	0	1	3	1	0	6
Sockeye/wild-fry	18	0	0	0	0	0	0	0	18
Total	11,094	263	14	11	5,520	330	120	31	17,383

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

Species/stage	Location	Length (mm)			Weight (g)			Mean K-factor
		Mean	SD	N	Mean	SD	N	
Sub Chinook/wild/parr	Methow	94.1	4.7	8	10.1	2.1	8	1.2
Sub Chinook/wild/parr	Twisp	90.9	5.5	15	8.6	1.7	15	1.1
Steelhead/wild/parr	Methow	123.0	90.5	2	36.3	48.4	2	1.1
Steelhead/wild/parr	Twisp	82.6	45.6	14	12.9	26.4	14	1.2
Steelhead/wild/fry	Methow	44.0	--	1	--	--	--	--
Steelhead/hatchery/smolt	Twisp	240.0	--	1	155.5	--	1	1.1
Coho/wild/parr	Twisp	96.0	--	1	9.9	--	1	1.1

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	
					Oct '15	Nov	Dec	Jan '16	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
2014	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	71,930	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>	159,425	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>	34,616	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	67,531	67,367	65,494	65,330	65,270	65,259	65,211	65,701	65,697	65,695	65,692	--	--
2015	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	149,676	149,676	149,310	145,158	144,794	144,664	144,638	144,531	145,618	145,610	145,604	145,600	--	--
2015	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	32,499	32,499	32,420	31,519	31,440	31,411	31,405	31,382	31,618	31,616	31,615	31,614	--	--
2014	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	358,953	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	--	--
2015	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	339,722	312,263	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>	9,059	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>	90,592	83,270	83,243	82,819	82,709	82,705	35,996	--	--	--	--	--	--	82,052

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 A. Continued.

Brood year	Species	Life stage	Program	Target release No.	Month												Total released /transfer
					Oct '15	Nov	Dec	Jan '16	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
2016	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	--	--	--	--	--	--	--	--	358,776	371,024	373,452	337,536	--
2016	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	--	--	--	--	--	--	--	--	9,567	9,893	9,958	9,001	--
2016	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	--	--	--	--	--	--	--	--	95,673	98,939	99,587	90,009	--
2016	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	--	--	--	--	--	--	--	--	34,627	34,010	34,716	34,616	--

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
					Oct '15	Nov	Dec	Jan '16	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
2014	Rainbow trout	Juv	WDFW sport fish		33,778	33,728	33,670	33,647	33,617	13,732	10,709	3,037	--	--	--	--	
					(5,703)	(6,855)	(8,598)	(9,861)	(11,566)	(6,638)	(4,951)	(1,380)	(740)	(--)	(--)	(--)	
					20,075	--	--	--	--	19,850	2,180	7,162	1,700	--	--	--	50,717
2015	Rainbow trout	Juv	WDFW sport fish	Number (pounds) released	75,181	74,402	73,936	63,618	63,352	60,608	36,100	36,052	33,026	20,000			
					(--)	(--)	(--)	(75)	(39)	(114)	(260)	(792)	(1,377)	(1,570)	(2,488)	(3,471)	20,000
					--	--	--	--	--	--	--	--	--	20,000	--	--	--
2015	Lahontan cutthroat	Juv	WDFW sport fish	Goal is 20,000 pounds annual combined	--	--	--	--	--	--	--	--	--	--	--	--	
					(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	
					--	--	--	--	--	--	--	--	--	--	--	--	126,910
2016	Lahontan cutthroat	Juv	WDFW sport fish		--	--	--	--	--	--	200,000	161,503	156,757	--	--	--	
					(--)	(--)	(--)	(--)	(--)	(--)	(200)	(161)	(156)	--	(--)	(--)	150,000
					--	--	--	--	--	--	--	--	--	150,000	--	--	--
2015	Kokanee	Eyed-eggs	Palmer Lake		--	--	--	--	--	--	--	--	--	--	--	--	
					(329)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	
					329,576	--	--	--	--	--	--	--	--	--	--	--	--

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			
					Oct '15	Nov	Dec	Jan '16	Feb	Mar	Apr	May	Jun	Jul	Aug		Sep		
2015	White sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	<i>Up to 5,000</i>	11,728	8,638	7,665	7,416	7,405	5,203	5,198	5,153	--	--	--	--	--		
				<i>Culled</i>	--	1,462	--	--	--	--	--	--	--	--	--	--	--	1,462	
				<i>Transferred</i>	2,800	--	--	--	--	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	--		
				<i>Culled</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
				<i>Transferred</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				<i>Wells reservoir</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--