

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

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To: Shane Bickford and Greg Mackey
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Subj: October Hatchery and Natural Production Report
Date: 9 November 2014
Cc: Distribution list.

HATCHERY ACTIVITIES

All populations at Wells and Methow hatcheries were held on 100% well water during the month of October.

2013 Twisp Spring Chinook Salmon

A total of 31,418 fish were on-station at the end of the month with no additional fish reported as mortalities. These fish were at 28 FPP during the month. The number of fish on-station that apply to HCP mitigation obligations are listed in Appendix A.

2013 Methow Composite Spring Chinook Salmon

A total of 161,347 fish were on-station at the end of the month with eight additional fish reported as mortalities. These fish were at 28 FPP during the month. The number of fish on-station that apply to HCP mitigation obligations are listed in Appendix A.

2014 Brood Spring Chinook Salmon

A total of 205,132 MetComp and 36,237 Twisp eggs were collected from the 2014 spring Chinook broodstock. Initial loss for the MetComp program totaled 4,341 eggs. Initial loss for the Twisp program totaled 3,162 eggs. After initial loss, a total of 200,791 MetComp and 33,075 Twisp eggs were on station at the end of the month. All but one female had ELISA results in the Below-Low category; the remaining female was Low (0.135). The number of fish on-station that apply to HCP mitigation obligations are listed in Appendix A.

2013 Wells Summer Chinook Salmon

Wells Hatchery had an estimated 349,680 fish for the yearling program on-station at the end of the month. These fish were at approximately 17 FPP and an additional 18 fish were reported as mortalities during October. These fish were being held to fulfill HCP mitigation obligations (Appendix A).

2014 Wells Summer Chinook Salmon

Spawning of the 2014 brood summer Chinook was completed during the month of October with a total of 668 fish spawned (Table 1). Fifty eight additional fish were lethally sampled after the last spawning on 22 October, and pre-spawn mortality totaled 15 fish overall (2.0%).

Table 1. Spawning of the 2014 brood Wells Hatchery summer Chinook Salmon by date, sex, and origin.

Date	Wild		Hatchery		Grand total
	Male	Female	Male	Female	
10/1/2014	0	0	30	29	59
10/8/2014	6	1	109	118	234
10/15/2014	9	1	108	136	254
10/22/2014	5	2	45	69	121
Total mortality	--	--	--	--	15
Surplus	1	4	22	31	58
Total	21	8	316	385	741

2014 Summer Steelhead

Wells Hatchery had an estimated 439,104 steelhead progeny on-station at the end of the month, and shipped 84,600 progeny to Ringold Hatchery during October. Some progeny for Ringold Hatchery remain on-station, and the other fish will be used to fulfill Methow River (29% of total), Columbia River (47%), and Okanogan River (24%) releases. Approximately 22,856 of the fish on-station were progeny of Omak Creek WxW crosses. Overall, mortality totaled 338 fish during the month, 25 of which were from the Omak group. Additionally, Methow Hatchery shipped 56,332 steelhead progeny from spawning of wild Twisp River steelhead to Wells Hatchery on 1 October and an additional 132 of these fry were listed as mortalities at Wells Hatchery during the month. Steelhead were being reared at both hatcheries to fulfill HCP mitigation obligations (Appendix A).

2013 Spokane Rainbow

Wells Hatchery had 35,728 rainbow trout on-station at the end of October with an additional 70 fish reported as mortalities during the month. Wells Hatchery planted an additional 20,000 catchable-sized trout into Conconully Lake and reservoir during October. The fish remaining

on-station were at approximately 6 FPP and were reared to fulfill the Off-License Settlement Agreement (Appendix B).

2014 White Sturgeon

Wells Hatchery had 33,711 white sturgeon fry on-station at the end of the month after subtracting 985 mortalities. The fish on-station were from two sources; Marion Drain ($N = 24,281$) and Lake Roosevelt ($N = 9,430$). An additional 84,287 progeny from the Marion Drain population were culled during the month, and both populations of fish were at 125 FPP. White sturgeon progeny are reared at Wells Hatchery under the Aquatic Settlement Agreement (Appendix C).

2014 Palmer Lake Kokanee

Wells Hatchery shipped its entire population of 400,000 Palmer Lake kokanee eggs to Omak Hatchery during October. These fish were reared to the eyed-stage to fulfill the Off-License Settlement Agreement (Appendix B).

NATURAL PRODUCTION ACTIVITIES

PIT Tag Antenna Arrays

Data collected at all Methow basin PIT tag interrogation sites, 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>

2014 Smolt Trapping

During the month, wild Chinook parr were the primary species captured at both the Methow and Twisp trap sites. A summary of all salmonid species captured are presented in Table 2. The Twisp trap was not operated between 1 and 22 October due to low river discharge. Precipitation in the later portion of October substantially increased river discharge and allowed us to operate the Twisp trap for the remainder of the month. Twisp river discharge for this period ranged from 2.5 to 3.7 m³s, providing trap efficiencies between 12.9 and 16.1 percent based on a discharge/trap efficiency model from 11 mark/recapture trials conducted with juvenile Chinook parr. The Methow trap operated in the low position every night in October. Methow River discharge for this period ranged from 10.8 to 22.9 m³s, providing trap efficiencies between 1.9 and 2.1 percent, based on a discharge/trap efficiency model from 13 mark/recapture trials conducted with juvenile Chinook parr. Biological data collected from trapped fish is detailed in Table 3.

Table 2. Monthly salmonid captures at Methow Basin smolt traps in 2014. SHR = wild steelhead/rainbow.

Species/origin	Methow				Twisp				Basin total
	Feb-Jul	Aug	Sep	Oct	Mar-Jun	Jul	Aug	Oct	
Yearling Chin/wild	893	0	0	0	669	0	0	0	1,562
Yearling Chin/hatch	24,172	0	0	0	4,014	1	1	0	28,188
Sub Chin/wild-parr	905	78	5	23	29	182	52	138	1,412
Sub Chin/hatch	0	0	0	0	0	0	0	0	0
Sub Chin/wild-fry	4,598	0	0	0	345	110	1	0	5,054
SHR/wild-fry	51	21	2	0	6	216	20	0	316
SHR/wild-parr	77	19	0	2	175	6	29	6	314
SHR/wild-trans.	598	0	0	0	330	0	0	0	928
SHR/wild-smolt	0	0	0	0	0	0	0	0	0
Hatchery steelhead	5,087	0	0	0	3,447	11	0	0	8,545
Coho/wild-smolt	40	0	0	0	116	0	0	0	156
Coho/wild-parr	2	0	1	1	2	3	2	0	11
Coho/hatchery	6,934	0	0	0	2	0	0	0	6,936
Coho/wild-fry	2	0	0	0	5	4	0	0	11
Bull trout	3	0	0	1	9	0	0	2	15
Cutthroat trout	5	0	0	0	2	1	2	0	10
Total	43,367	118	8	27	9,151	534	107	146	53,458

Table 3. Biological sampling of juvenile salmonids captured at Methow Basin smolt traps during October.

Species/stage	Location	Length (mm)			Weight (g)			K-factor
		Mean	SD	N	Mean	SD	N	
Sub Chinook/wild/parr	Methow	91.3	10.1	23	9.2	3.5	23	1.2
Sub Chinook/wild/parr	Twisp	84.3	7.2	138	6.7	1.7	138	1.1
Steelhead/wild/parr	Methow	182.0	18.4	2	61.8	17.7	2	1.0
Steelhead/wild/parr	Twisp	86.5	25.7	6	8.7	7.9	6	1.3
Coho/wild/parr	Methow	103.0	--	1	13.2	--	1	1.2
Bull trout	Methow	283.0	--	1	208.5	--	1	0.9
Bull trout	Twisp	230.5	44.5	2	136.9	76.3	2	1.1

Appendix A. Number of fish reared at Wells, Methow, and Chief Joseph (CJH) 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 /trans.		
					Nov	Dec	Jan '14	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		Oct	
2012	Spring Chinook	Yearling smolt	DCPUD for CCPUD NNI	60,516 <i>released</i>	68,260	68,254	68,236	68,202	68,172	68,145	--	--	--	--	--	--	--	68,145
2012	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	151,289	151,278	151,236	151,162	151,094	151,035	--	--	--	--	--	--	--	151,035
2012	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	32,850	32,847	32,838	32,822	32,807	32,794	--	--	--	--	--	--	--	32,794
2013	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	157,165	156,635	155,738	155,211	155,159	155,134	155,092	158,719	158,433	158,399	158,383	158,376	--	--
2013	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	34,125	34,010	33,816	33,701	33,690	33,685	33,675	34,463	34,401	34,394	34,390	34,389	--	--
2014	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	--	--	--	--	--	--	--	--	--	--	--	192,145	--	--
2014	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	--	--	--	--	--	--	--	--	--	--	--	41,721	--	--
2012	Summer Chinook	Yearling Smolt	DCPUD NNI start-up for CJH Hatchery	<i>Transfer to CJH Hatchery</i>	44,121 ^a	44,085 ^a	44,301 ^a	44,281 ^a	44,267 ^a	--	--	--	--	--	--	--	--	44,267
2012	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	318,902	318,902	318,902	318,902	318,902	50,000	--	--	--	--	--	--	--	318,902
2013	Summer Chinook	Sub-yearling	DCPUD Fixed Hatchery Compensation	484,000 <i>released</i>	--	--	514,237	471,269	448,837	445,410	--	--	--	--	--	--	--	443,636
2013	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	--	--	392,030	392,030	392,030	386,456	372,365	363,416	349,774	349,739	349,698	349,680	--	--
2013	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	438,527	438,444	438,391	438,369	437,161	334,835	--	--	--	--	--	--	--	273,140
2013	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	11,694	11,691	11,690	11,690	11,658	8,929	--	--	--	--	--	--	--	7,284
2013	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	116,940	116,917	116,904	116,898	116,576	78,844	--	--	--	--	--	--	--	83,282

Appendix A. Continued.

Brood year	Species	Life stage	Program	Target release No.	Month												Total released /trans.
					Nov	Dec	Jan '14	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
2013	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI (Omak)	20,000 <i>transferred</i>	26,062	26,038	26,016	26,012	--	--	--	--	--	--	--	--	25,632
2014	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	--	--	--	--	--	--	--	--	--	422,658	416,145	365,389	--
2014	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	--	--	--	--	--	--	--	--	--	11,271	11,097	9,744	--
2014	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	--	--	--	--	--	--	--	--	--	112,709	110,972	97,437	--
2014	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI (Omak)	20,000 <i>transferred</i>	--	--	--	--	--	--	--	--	--	22,916	22,881	22,856	--

^aRearing or release occurring at Chief Joseph Hatchery facilities.

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	Dec	Jan '14	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
2012	Rainbow trout	Juv	WDFW sport fish		36,418	36,360	34,240	34,188	34,144	20,455	1,250	200	100	100	--	--	52,500
					(8,093)	(9,179)	(9,818)	(10,727)	(12,067)	(9,048)	(2,750)	(200)	(100)	(100)	(100)	(--)	
					--	--	--	--	--	13,550	17,700	1,050	--	--	100	--	
2013	Rainbow trout	Juv	WDFW sport fish		--	--	77,188	62,045	58,347	58,227	57,826	56,033	55,915	55,862	55,797	35,728	20,000
					(--)	(--)	(31)	(25)	(120)	(431)	(850)	(1,514)	(2,663)	(4,866)	(6,710)	(6,137)	
					--	--	--	--	--	--	--	--	--	--	--	(4,000)	
2014	Lahontan cutthroat	Juv	WDFW sport fish	Number (pounds) released	--	--	--	--	--	269,149	254,510	182,140	--	--	--	--	150,000
					(--)	(--)	(--)	(--)	(--)	(269)	(255)	(73)	150,000	(--)	(--)	(--)	
					--	--	--	--	--	--	--	--	(182)	--	--	--	
2013	Kokanee	Eyed-eggs	Palmer Lake	Goal is 20,000 pounds annual combined	--	--	--	--	--	--	--	--	--	--	--	--	314,500
					131,750	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	
					--	--	--	--	--	--	--	--	--	--	--	--	
2014	Kokanee	Eyed-eggs	Palmer Lake		--	--	--	--	--	--	--	--	--	--	400,000	--	400,000
					(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(400)	400,000	
					--	--	--	--	--	--	--	--	--	--	--	(400)	
2013	Summer Chinook	Eyed-eggs	Lake Chelan		162,097	--	--	--	--	--	--	--	--	--	--	--	162,097
					(--)	(162)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	
					--	162,097	--	--	--	--	--	--	--	--	--	--	

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	Dec	Jan '14	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
2013	White sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	<i>Up to 5,000</i>	7,269	7,158	6,799	5,034	5,034	2,108	2,107	--	--	--	--	--			
				<i>Culled</i>	--	747	329	1,734	--	--	--	--	--	--	--	--	--	28,369	
				<i>Transferred to Other Stations</i>	1,512	--	--	--	--	--	--	--	--	--	--	--	--	--	5,475
				<i>Wells reservoir</i>	--	--	17	--	--	2,108	--	2,107	--	--	--	--	--	--	4,232
2014	White sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	<i>Up to 5,000</i>	--	--	--	--	--	--	--	146,403	134,964	123,587	118,983	33,711			
				<i>Culled</i>	--	--	--	--	--	--	--	--	--	--	--	--	84,287	84,287	
				<i>Transferred to Other Stations</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				<i>Wells reservoir</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--