

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

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Subj: December Hatchery and Natural Production Report

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Cc: Distribution list.

HATCHERY ACTIVITIES

All 2012 brood fish at Methow Hatchery were switched to 20% surface and 80% well water on 2 December. On 13 December, these proportions were adjusted to 17% surface and 83% well water. All 2013 brood fish remained on 100% well water. At Wells Hatchery, 2012 brood Chinook and the “catchable” sized rainbow were held on 100% surface water during the month. The 2013 brood steelhead held in the dirt-ponds were supplied with a mixed water source containing 40% surface water. All other fish at the hatchery were held on 100% well water during December.

2012 Twisp Spring Chinook Salmon

A total of 49,130 parr were on-station at the end of the month with five additional fish reported as mortalities. Fish from raceway 14 had a mean fork length of 105.2 mm, and were at 31 fish per pound (FPP) during the month (Table 1). The number of fish on-station that apply to HCP mitigation obligations are listed in Appendix A.

2012 Methow Composite Spring Chinook Salmon

A total of 203,249 fish were on-station at the end of the month with 15 additional fish reported as mortalities. These fish had mean fork lengths between 94.1 mm and 100.5 mm, and were between 35 and 43 FPP during the month. The number of fish on-station that apply to HCP mitigation obligations are listed in Appendix A.

2013 Twisp Spring Chinook Salmon

A total of 29,514 fry were ponded by 3 January, with 56 additional fish reported as mortalities; approximately 1,727 fry remained in incubation at the end of 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 132,194 fry were ponded by 3 January with 589 additional fish reported as mortalities; approximately 27,210 fry remained in incubation at the end of the month. The number of fish on-station that apply to HCP mitigation obligations are listed in Appendix A.

Table 1. 2012 brood spring Chinook salmon length and weight sampling at Methow Hatchery during the month of December.

Raceway	Stock	Fork length (mm)				FPP
		Mean	N	SD	CV	
3	MetComp	99.9	100	10.8	10.9	35
4	MetComp	94.1	100	11.7	12.4	43
7	MetComp	99.9	100	8.3	8.3	37
13	MetComp	100.5	130	6.4	6.4	35
14	Twisp	105.2	100	7.7	7.3	31

2012 Wells Summer Chinook Salmon

Approximately 318,902 yearling-program progeny were on-station at the end of December at Wells Hatchery and no mortalities were reported during the month. Additionally, 44,085 juvenile Chinook that were transferred in October (44,836) to the Chief Joseph Hatchery were on-station at the end of December at the Chief Joseph Hatchery facilities as part of the Wells HCP NNI start-up program for Chief Joseph Hatchery. The number of fish being held to fulfill HCP mitigation obligations during December at both hatcheries can be found in Appendix A. A fish health exam at Wells Hatchery during the month noted low levels of immature Ich on sampled fish from dirt-pond 2. The recommendation was made to initiate a formalin treatment in early January to control the parasite.

2013 Wells Summer Chinook Salmon

Wells Hatchery had an estimated 392,030 eggs for the yearling program and 594,000 eggs for the subyearling program on-station at the end of the month. Egg losses in December totaled an additional 23,370 yearling programs and 9,025 subyearling program eggs. Additionally, 162,097 triploid Chinook eggs for Lake Chelan sport fishing enhancement were transferred to Chelan Hatchery on 2 December as part of the Off-License Settlement Agreement (Appendix B).

2013 Summer Steelhead

Wells Hatchery had a total of 593,093 steelhead progeny on-station at the end of the month. These fish were held to fulfill the Wells program (Methow, Okanogan, and Columbia releases; 514,628), Twisp WxW program (52,427), and the Omak Creek program (26,038). Monthly mortality for the Wells and Omak programs totaled 13 and 24 fish, respectively. Mortality for the Twisp program totaled 93 fish during the month. The number of fish on-station from these groups that apply to HCP mitigation obligations are listed in Appendix A. A fish health exam

during the month found moderate levels of Ambiphyra on gills and skin of steelhead in dirt-pond 4 but did not find any external parasites on fish sampled from dirt-pond 3. It was noted that duck and heron activity was high in the earthen rearing ponds and may be a likely vector of parasite introduction to these and other ponds at the hatchery.

2014 Summer Steelhead

Wells Hatchery had 44 adult steelhead broodstock on-station at the end of December, 16 of which were adult fish received from Ringold Hatchery on 6 December. Pre-spawn mortality has totaled 79.8% by the end of the month, all of which was attributed to a single event in November when 174 fish died in the adult holding pond (see the November 2013 Monthly Report). All fish were Wells stock hatchery-origin returns. A multi-pronged strategy has been developed to attempt to replenish the broodstock. This includes potential transfers from Ringold Hatchery (fish of Wells stock descent), trapping late winter and spring returns to the Wells Hatchery volunteer channel and Wells Dam, and collecting surplus hatchery-origin returns at the Twisp Weir, WNFH, and Methow Hatchery. Capture through angling by WDFW and Douglas PUD staff will also occur and be coordinated with similar tasks by WNFH personnel when efforts are concurrent. Spawning of the broodstock is scheduled to commence on 7 January and will continue weekly until all fish are spawned.

2012 Spokane Rainbow

Wells Hatchery had 36,360 rainbow trout on-station at the end of December with 58 additional fish reported as mortalities during the month. These fish were at approximately four FPP during the month and are reared to fulfill the Off-License Settlement Agreement (Appendix B).

2013 White Sturgeon

Wells Hatchery had 7,158 white sturgeon progeny on-station at the end of the month with an additional 111 fish reported as mortalities during December. The fish on-station are reared at Wells Hatchery under the Aquatic Settlement Agreement (Appendix C). A fish health exam during the month noted that fin snips were collected and shipped to a lab in Idaho for examination. It was also noted that mortalities have generally been low and that the Roosevelt lot was between about 15-65 FPP and the Marion Drain lot was between about 13-18 FPP at the time of the exam.

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), and Early Winters Creek (EWC) is 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>

2013 Smolt Trapping

During the month, hatchery Chinook parr and wild Chinook parr were the primary species captured at the Methow and Twisp trap sites respectively (Table 2). The Methow trap was operated on 1-2 December then removed from the river due to ice formation. The Twisp trap was operated on 2-3 December then removed from the river due to ice formation. Biological data collected from trapped fish is detailed in Table 3. Mark recapture trials conducted in April and May yielded observed trap efficiencies between 3.2 and 6.6 percent at the Methow trap and between 8.3 and 13.5 percent at the Twisp trap. These trials were conducted at river discharges between 51.9 and 92.9 m³s at the Methow trap and between 7.9 and 13.4 m³s at the Twisp trap.

Table 2. Monthly salmonid captures at Methow Basin smolt traps in 2013. SHR = wild steelhead/rainbow.

Species/origin	Methow				Twisp			Basin total
	Feb-Aug	Oct	Nov	Dec	Mar-Sep	Nov	Dec	
Yearling Chin/wild	771	0	0	0	443	0	0	1,214
Yearling Chin/hatch	81,386	0	0	0	3,285	0	0	84,671
Sub Chin/wild-parr	787	123	55	1	627	37	8	1,638
Sub Chin/hatch	15	67	47	2	0	0	0	131
Sub Chin/wild-fry	6,118	0	0	0	1,116	0	0	7,234
SHR/wild-fry	182	0	0	0	171	0	0	353
SHR/wild-parr	252	15	2	0	464	2	0	735
SHR/wild-trans.	449	0	0	0	249	0	0	698
SHR/wild-smolt	0	0	0	0	0	0	0	0
Hatchery steelhead	2,887	0	0	0	3,863	0	0	6,750
Coho/wild-smolt	79	0	0	0	0	0	0	79
Coho/wild-parr	9	3	0	0	77	0	0	89
Coho/hatchery	4,087	0	0	0	0	0	0	4,087
Coho/wild-fry	19	0	0	0	41	0	0	60
Bull trout	5	0	0	0	11	0	0	16
Cutthroat trout	2	1	0	0	2	1	0	6
Total	97,048	209	104	3	10,349	40	8	107,761

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

Species/stage	Location	Length (mm)			Weight (g)			K-factor
		Mean	SD	N	Mean	SD	N	
Sub Chinook/wild/parr	Methow	97.0	--	1	10.2	--	1	1.1
Sub Chinook/hatch/parr	Methow	93.5	13.4	2	9.2	3.7	2	1.1
Sub Chinook/wild/parr	Twisp	86.6	7.8	8	9.4	2.7	2	1.4

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.
					Jan '13	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2011	Spring Chinook	Yearling smolt	DCPUD for CCPUD NNI	288,000 <i>released</i>	266,612 0	266,575 0	266,521 0	-- 266,007	--	--	--	--	--	--	--	--	266,007
2011	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	201,000 <i>released</i>	185,712 0	185,687 0	185,650 0	-- 185,291	--	--	--	--	--	--	--	--	185,291
2011	Spring Chinook	Yearling smolt	DCPUD Wells NNI	59,464 <i>released</i>	56,477 0	56,469 0	56,458 0	-- 56,439	--	--	--	--	--	--	--	--	56,439
2012	Spring Chinook	Yearling smolt	DCPUD for CCPUD NNI	60,516 <i>released</i>	65,972 0	65,884 0	65,839 0	65,795 0	65,775 0	68,599 0	68,541 0	68,285 0	68,273 0	68,267 0	68,260 0	68,254 0	0
2012	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	146,222 0	146,025 0	145,927 0	145,828 0	145,785 0	152,042 0	151,914 0	151,345 0	151,317 0	151,306 0	151,289 0	151,278 0	0
2012	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	31,749 0	31,707 0	31,685 0	31,664 0	31,655 0	33,013 0	32,985 0	32,862 0	32,856 0	32,853 0	32,850 0	32,847 0	0
2013	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	--	--	--	--	--	--	--	--	--	157,165	157,165	156,635	0
2013	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	--	--	--	--	--	--	--	--	--	34,125	34,125	34,010	0
2011	Summer Chinook	Yearling smolt	DCPUD Wells NNI Carlton Pond	105,714 <i>released</i>	115,551 --	115,548 --	115,421 --	-- 115,253	--	--	--	--	--	--	--	--	115,253
2011	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	289,998 --	289,995 --	289,955 --	289,995 --	-- 289,995	--	--	--	--	--	--	--	289,995
2012	Summer Chinook	Sub-yearling	DCPUD Fixed Hatchery Compensation	484,000 <i>released</i>	622,798 --	588,302 --	586,261 --	563,364 --	-- 526,614 ^a	--	--	--	--	--	--	--	526,614
2012	Summer Chinook	Yearling Smolt	DCPUD NNI start-up for CJH Hatchery	<i>Transfer to CJH Hatchery</i>	48,401 --	48,401 --	48,401 --	47,074 --	47,516 --	46,902 --	46,783 --	44,853 --	44,837 --	-- 44,836	44,121 ^b --	44,085 ^b --	44,836
2012	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	330,413 --	330,413 --	330,413 --	336,802 --	336,046 --	319,316 --	319,078 --	318,906 --	318,906 --	318,906 --	318,902 --	318,902 --	0

^a Includes 63,199 fry shipped to the Yakama Nation's Prosser Hatchery.

^b Rearing occurring at Chief Joseph Hatchery facilities.

Appendix A, continued.

Brood year	Species	Life stage	Program	Target release No.	Month												Total released /trans.
					Jan '13	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2012	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	307,494	307,491	303,940	256,741	--	--	--	--	--	--	--	--	212,890
2012	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	8,200	8,200	8,200	8,105	6,847	--	--	--	--	--	--	--	5,677
2012	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	82,003	81,999	81,998	81,051	68,464	--	--	--	--	--	--	--	56,770
2012	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI (Omak)	20,000 <i>transferred</i>	9,651	9,639	--	--	--	--	--	--	--	--	--	--	9,200
2013	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000 <i>released</i>	--	--	--	--	479,519	459,942	443,176	441,224	434,124	438,688	438,527	438,444	0
2013	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	--	--	--	--	12,787	12,247	11,818	11,766	11,577	11,698	11,694	11,691	0
2013	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	--	--	--	--	127,872	122,479	118,180	117,660	115,766	116,984	116,940	116,917	0
2013	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI (Omak)	20,000 <i>transferred</i>	--	--	--	33,000	28,778	25,780	24,901	24,883	24,830	26,095	26,062	26,038	0
2013	Summer steelhead	Eyed egg	WDFW Ringold Hatchery	<i>as available transferred</i>	--	--	--	--	--	--	--	--	--	--	--	--	187,504
2010	Coho	Yearling smolt	Yakama N. Upper Col. Reintro.	N/A <i>released</i>	--	--	99,013	99,013	--	--	--	--	--	--	--	--	98,954

¹ 40,000 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 '13	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2011	Rainbow trout	Juv	WDFW sport fish		35,621	35,569	35,507	15,923	700	0	--	--	--	--	--	--	93,488
					(8,295)	(9,423)	(10,264)	(6,260)	(1,820)	(1,560)	(--)	(--)	(--)	(--)	(--)	(--)	
					--	--	--	19,537	13,252	699	--	--	--	--	--	--	
2012	Rainbow trout	Juv	WDFW sport fish	Number (pounds) released	91,873	90,548	79,112	79,009	78,790	78,381	64,564	64,465	64,408	36,465	36,418	36,360	20,000
					(20)	(30)	(171)	(384)	(1,212)	(2,010)	(3,397)	(6,786)	(9,909)	(7,293)	(8,093)	(9,179)	
					--	--	--	--	--	--	--	--	--	20,000	--	--	
2013	Lahontan cutthroat	Juv	WDFW sport fish	Goal is 20,000 pounds annual combined	--	--	--	164,500	157,284	152,030	0	--	--	--	--	--	127,902
					(--)	(--)	(--)	(165)	(52)	(132)	(184)	(--)	(--)	(--)	(--)	(--)	
					--	--	--	--	--	--	127,902	--	--	--	--	--	
2013	Kokanee	Eyed-eggs	Palmer Lake		--	--	--	--	--	--	--	--	--	131,750	--	--	314,500
					--	--	--	--	--	--	--	--	--	182,750	131,750	(--)	
					--	--	--	--	--	--	--	--	--	131,750	--	--	
2013	Summer Chinook	Eyed-eggs	Lake Chelan		--	--	--	--	--	--	--	--	--	--	162,097	--	162,097
					--	--	--	--	--	--	--	--	--	--	--	(162)	
					--	--	--	--	--	--	--	--	--	--	--	162,097	

Appendix C. Fish reared at Wells pursuant to the Aquatic Settlement Agreement – White Sturgeon Management Plan.

Brood year	Species	Life stage	Program	Target disposition	Month												Total released /transferred
					Jan '13	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2013	White sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	<i>Up to 5,000</i>	--	--	--	--	62,500	71,442	55,636	46,989	12,580	8,804	7,269	7,158	
				<i>Wells reservoir</i>	--	--	--	--	--	--	--	--	--	3,963	--	--	--