

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

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Subj: February Hatchery and Natural Production Report

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Cc: Distribution list.

HATCHERY ACTIVITIES

All 2014 brood fish at Methow Hatchery were held on a 95% surface, 5% well water mix during the month of February while all 2015 brood fish were maintained on 100% well water. All fish populations at Wells Hatchery were held on 100% well water during the month of February except the 2014 brood Chinook yearlings (90% surface water), the 2014 brood rainbow (10% surface water) and the 2015 brood safety-net steelhead (75% surface water).

2014 Twisp Spring Chinook Salmon

A total of 36,349 fish were on-station at the end of the month with no additional fish reported as mortalities. These fish were reported to have a mean fork length of 132.6 mm and were at 20 fish per pound (FPP) during the month. A fish health exam during the month found the fish healthy with feeding activity increasing. The number of fish on-station that apply to HCP mitigation obligations are listed in Appendix A.

2014 Methow Composite Spring Chinook Salmon

A total 229,314 fish were on-station at the end of the month with 54 additional fish reported as mortalities. These fish were reported to have a mean fork length of 132.6 mm and were at 20 FPP during the month. A fish health exam during the month found the fish healthy with feeding activity increasing. The number of fish on-station that apply to HCP mitigation obligations are listed in Appendix A.

2015 Twisp Spring Chinook Salmon

A total of 40,170 fry were on-station at the end of the month with 52 additional fish reported as mortalities. These fish were reported to have a mean fork length of 48.1 mm and were at 360 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 201,394 fry were on-station at the end of the month with 555 additional fish reported as mortalities. These fish were reported to have a mean fork length of 48.1mm and were at 360 FPP during the month. The number of fish on-station that apply to HCP mitigation obligations are listed in Appendix A.

2014 Wells Summer Chinook Salmon

Wells Hatchery had an estimated 358,953 yearling program fish on-station and no mortalities were reported during February. These fish were at about 12 FPP at the end of the month, and are being reared to fulfill HCP mitigation obligations (Appendix A).

2015 Wells Summer Chinook Salmon

Wells Hatchery had 350,845 summer Chinook Salmon eggs for the yearling program and 427,696 fry for the subyearling program on-station at the end of the month. An additional 66,614 subyearling progeny were reported as mortality during the month. These progeny are being reared to fulfill HCP mitigation obligations (Appendix A).

2015 Summer Steelhead

Wells Hatchery had a total of 444,784 steelhead progeny on-station at the end of the month with 603 additional fish reported as mortalities. Of the fish remaining on-station, 43,646 were Omak Creek WxW progeny, 57,957 were Twisp WxW progeny, and 343,181 were HxH progeny for Methow, Columbia, and Okanogan river releases. The fish on-station are reared to fulfill Douglas HCP (Methow and Columbia releases) and Grant PUD (Okanogan releases) mitigation obligations (Appendix A). Fish health exams during the month noted external parasite infections in the Okanogan steelhead release group and a formalin treatment was initiated to control the infection.

2016 Summer Steelhead

Wells Hatchery collected a total of 212 hatchery-origin summer steelhead for broodstock in 2015 with two pre-spawn mortalities reported (0.9%). Broodstock spawning was initiated at the hatchery in January 2016 and a total of 129 fish were spawned by the end of February yielding an estimated 357,500 fertilized eggs (Table 1).

Table 1. Spawning of 2016 brood steelhead at Wells Hatchery by date. Egg estimates are based on an overall fecundity of 5,500 eggs per female and do not include females for which eggs were considered non-viable at spawning ($N = 3$).

Spawn date	Hatchery		Total	Est. eggs
	Male	Female		
January total	10	10	20	55,000
2/3/2016	13	13	26	71,500
2/10/2016	12	12	24	66,000
2/17/2016	21	21	42	115,500
2/24/2016	8	9	17	19,500
Total	64	65	129	357,500

2014 Spokane Rainbow

Wells Hatchery had 33,617 rainbow trout progeny from the 2014 brood on-station at about 2.9 FPP and an additional 30 fish were reported as mortalities during the month of February. These fish are reared to fulfill the Off-License Settlement Agreement (Appendix B). A fish health exam during the month noted the presence of external parasites (*gyrodactylus*) in skin scrapes of sampled fish and recommend the population be monitored and a formalin treatment be initiated if the infection appeared to be worsening.

2015 Spokane Rainbow

Wells Hatchery had 74,402 rainbow trout fry on-station at the end of the month after subtracting 779 mortalities. These fish are reared to fulfill the Off-License Settlement Agreement (Appendix B).

2015 White Sturgeon

Wells Hatchery had 7,405 sturgeon progeny originating from Lake Roosevelt on-station at the end of the month, with 11 additional fish reported as mortalities during the month. 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

The Methow River trap was installed on 19 February, and the Twisp River trap was installed on 27 February. Traps at both sites operated through the end of the month with no interruptions. During the month, sub yearling wild Chinook fry and yearling wild Chinook were the primary species captured at the Methow and Twisp trap sites, respectively (Table 2). Biological data collected from trapped fish is detailed in Table 3. River discharge was well above historical averages for this time period at both trapping locations. Minimal fish capture did not allow for efficiency trials at either trapping site, but trials conducted in previous years were used to estimate efficiencies. Methow river discharge for the period operated ranged from 22.3 to 24.5 m³s, providing expected trap efficiencies between 1.5 and 1.6 percent. Twisp river discharge for the period operated ranged from 4.4 to 5.2 m³s, providing expected trap efficiencies between 16.4 and 17.3 percent.

Table 2. Monthly salmonid captures at Methow Basin smolt traps in 2016. SHR = wild steelhead/rainbow.

Species/origin	Methow	Twisp	Basin total
	February	February	
Yearling Chin/wild	6	4	10
Sub Chin/wild-fry	69	3	72
SHR/wild-parr	2	0	2
Coho/wild-smolt	0	1	1
Coho/wild-parr	1	0	1
Sockeye/wild-fry	14	0	14
Total	92	8	100

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

Species/stage	Location	Length (mm)			Weight (g)			K-factor
		Mean	SD	N	Mean	SD	N	
Yearling Chinook/wild	Methow	93.2	8.9	6	9.0	2.6	6	1.1
Yearling Chinook/wild	Twisp	91.3	2.8	4	7.6	0.6	4	1.0
Sub Chinook/wild/fry	Methow	37.4	1.4	46	--	--	--	--
Sub Chinook/wild/fry	Twisp	36.0	0.0	3	--	--	--	--
Steelhead/wild/parr	Methow	109.0	32.5	2	15.1	10.2	2	1.2
Coho/wild/smolt	Twisp	95.0	--	1	10.0	--	1	1.2
Coho/wild/parr	Methow	79.0	--	1	4.9	--	1	1.0
Sockeye/wild/fry	Methow	25.5	0.9	14	--	--	--	--

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.	
					Mar '15	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan '16	Feb		
2013	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126	158,201	--	--	--	--	--	--	--	--	--	--	--	--	158,141
				<i>released</i>	--	158,141	--	--	--	--	--	--	--	--	--	--	--	
2013	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123	34,351	--	--	--	--	--	--	--	--	--	--	--	--	34,337
				<i>released</i>	--	34,337	--	--	--	--	--	--	--	--	--	--	--	
2014	Spring Chinook	Yearling smolt	CCPUD NNI	60,516	--	--	--	--	--	--	--	71,930	71,892	71,878	71,862	71,847	--	
				<i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2014	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126	183,934	183,906	183,868	181,980	180,905	180,840	180,827	159,425	159,341	159,307	159,272	159,240	--	
				<i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2014	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123	39,938	39,932	39,924	39,514	39,280	39,266	39,263	34,616	34,598	34,591	34,583	34,576	--	
				<i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2015	Spring Chinook	Yearling smolt	CCPUD NNI	60,516	--	--	--	--	--	--	--	67,531	67,531	67,367	65,494	65,330	--	
				<i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2015	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126	--	--	--	--	--	--	--	149,676	149,676	149,310	145,158	144,794	--	
				<i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2015	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123	--	--	--	--	--	--	--	32,499	32,499	32,420	31,519	31,440	--	
				<i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2013	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000	347,020	351,977	--	--	--	--	--	--	--	--	--	--	--	
				<i>released</i>	--	--	339,236	--	--	--	--	--	--	--	--	--	--	--
2014	Summer Chinook	Sub-yearling	DCPUD Fixed Hatchery Compensation	484,000	483,788	464,137	4,642	--	--	--	--	--	--	--	--	--	--	
				<i>released</i>	--	--	459,137	4,642	--	--	--	--	--	--	--	--	--	--
2014	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000	378,446	351,977	351,285	360,101	358,953	358,953	358,953	358,953	358,953	358,953	358,953	358,953	--	
				<i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2015	Summer Chinook	Sub-yearling	DCPUD Fixed Hatchery Compensation	484,000	--	--	--	--	--	--	--	--	--	560,543	494,310	427,696	--	
				<i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2015	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000	--	--	--	--	--	--	--	--	--	350,845	350,845	350,845	--	
				<i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Appendix A. Continued.

Brood year	Species	Life stage	Program	Target release No.	Month												Total released /trans.
					Mar '15	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan '16	Feb	
2014	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000	356,250	188,627	--	--	--	--	--	--	--	--	--	--	--
				<i>released</i>	--	157,287	152,424	--	--	--	--	--	--	--	--	--	--
2014	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000	9,500	5,030	--	--	--	--	--	--	--	--	--	--	--
				<i>released</i>	--	4,194	4,065	--	--	--	--	--	--	--	--	--	--
2014	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000	95,000	50,300	--	--	--	--	--	--	--	--	--	--	--
				<i>released</i>	--	41,943	40,646	--	--	--	--	--	--	--	--	--	--
2014	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI (Omak)	20,000	--	--	--	--	--	--	--	--	--	--	--	--	--
				<i>transferred</i>	26,625	--	--	--	--	--	--	--	--	--	--	--	--
2015	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation ¹	300,000	--	--	--	434,919	421,267	415,058	356,072	339,722	312,263	312,164	310,570	310,158	--
				<i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	--
2015	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000	--	--	--	11,598	11,234	11,068	9,494	9,059	8,327	8,324	8,282	8,270	--
				<i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	--
2015	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000	--	--	--	115,978	112,334	110,682	94,940	90,592	83,270	83,243	82,819	82,709	--
				<i>released</i>	--	--	--	--	--	--	--	--	--	--	--	--	--
2015	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI (Omak)	20,000	--	--	--	44,000	44,821	41,603	42,210	42,210	44,038	43,843	43,717	43,646	--
				<i>transferred</i>	--	--	--	--	--	--	--	--	--	--	--	--	--

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	
					Mar '15	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan '16	Feb		
2013	Rainbow trout	Juv	WDFW sport fish		35,090	21,734	10,691	--	--	--	--	--	--	--	--	--	52,924	
					(15,350)	(10,867)	(5,035)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)		(--)
					--	13,175	11,035	8,714	--	--	--	--	--	--	--	--		--
2014	Rainbow trout	Juv	WDFW sport fish	Number (pounds) released	64,727	65,548	65,374	64,645	62,884	54,160	54,078	33,778	33,728	33,670	33,647	33,617	20,075	
					(145)	(402)	(401)	(1,847)	(2,994)	(4,513)	(8,261)	(5,703)	(6,855)	(8,598)	(9,861)	(11,566)		
					--	--	--	--	--	--	--	20,075	--	--	--	--		--
2015	Rainbow trout	Juv	WDFW sport fish	Goal is 20,000 pounds annual combined	--	--	--	--	--	--	--	--	--	--	75,181	74,402	--	
					(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(75)	(39)		
					--	--	--	--	--	--	--	--	--	--	--	--		
2015	Lahontan cutthroat	Juv	WDFW sport fish		--	--	--	163,293	157,238	--	--	--	--	--	--	--	126,910	
					(--)	(--)	(--)	(74)	(209)	(183)	(--)	(--)	(--)	(--)	(--)	(--)		
					--	--	--	--	--	126,910	--	--	--	--	--	--		
2015	Kokanee	Eyed-eggs	Palmer Lake		--	--	--	--	--	--	420,000	--	--	--	--	--	329,576	
					(--)	(--)	(--)	(--)	(--)	(--)	(420)	(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
					Mar '15	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan '16	Feb	
2014	White sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	Up to 5,000	5,559	5,021	5,007	--	--	--	--	--	--	--	--	--	97,586
				Culled	499	--	--	--	--	--	--	--	--	--	--	--	
				Transferred to Other Stations	2,000	--	--	--	--	--	--	--	--	--	--	--	
				Wells reservoir	--	--	--	5,007	--	--	--	--	--	--	--	--	
2015	White sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	Up to 5,000	--	--	--	39,671	22,409	22,111	20,992	11,728	8,638	7,665	7,416	7,405	1,462
				Culled	--	--	--	--	--	--	--	--	1,462	--	--	--	
				Transferred to Other Stations	--	--	--	--	--	--	--	2,800	--	--	--	--	
				Wells reservoir	--	--	--	--	--	--	--	--	--	--	--	--	