

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

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Subj: May Hatchery and Natural Production Report

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Cc: Distribution list.

HATCHERY ACTIVITIES

At Methow Hatchery, all 2016 brood fish were held on 100% well water during the month. At Wells Hatchery, the 2015 brood rainbow trout and 2016 brood safety-net steelhead were held on a mix of well and surface water containing 80% and 85% surface water, respectively. All other populations were held on 100% well water during the month.

2016 Twisp Spring Chinook Salmon

After a positive adjustment at tagging of 288 fish, a total of 30,722 fish were on-station at the end of the month with 41 additional fish reported as mortalities. The number of fish on-station that apply to HCP mitigation obligations are listed in Appendix A.

2016 Methow Composite Spring Chinook Salmon

After a negative adjustment at tagging of 819 fish, a total of 220,029 fish were on-station at the end of the month with 234 additional fish reported as mortalities. Approximately 67,000 and 29,000 of the WxW MetComp fry on-station are destined for the Chewuch (61,000 release target) and Goat Wall (25,000 release target) acclimation ponds, respectively. The number of fish on-station that apply to HCP mitigation obligations are listed in Appendix A.

2017 Brood Spring Chinook Salmon

By the end of May, a total of 81 spring Chinook salmon were trapped and sampled at Wells Dam. Of these, nine wild Methow Basin-origin fish were retained for broodstock. During the month of May, the Twisp River weir was operated for the Twisp River Steelhead Reproductive Success Study until high streamflow precluded trapping operations. Trapping for Methow Hatchery spring Chinook broodstock resumed in part in early June and operations should become more efficient as streamflow recedes. Trapping at Wells Dam, MH outfall, and the Twisp River weir will continue through June, or until adequate broodstock are collected.

2016 Wells Summer Chinook Salmon

Wells Hatchery had an estimated 470,247 parr on-station for the subyearling program at the beginning of the month and started a volitional release of those fish on 24 May. Approximately half of the population had emigrated by the end of the month. The hatchery also had 361,696 fry on-station for the yearling program. A total of 827 subyearling program progeny and 605 yearling program progeny were listed as mortalities during the month of May. Subyearling and yearling program fish were at approximately 59 and 237 fish per pound (FPP) at the end of the month, respectively. These progeny are being reared to fulfill HCP mitigation obligations (Appendix A).

2016 Summer Steelhead

Wells Hatchery released the remaining populations of steelhead during the month of May. Overall, the hatchery planted 48,013 Twisp WxW progeny into the Twisp River, 26,054 Omak WxW progeny into Omak Creek, and 69,265 Okanogan HxH progeny into other Okanogan Basin tributaries including the Similkameen River (29,267) and Salmon Creek (39,998). Twisp fish were truck (drop) planted at Buttermilk Bridge, as directed by the HCP Hatchery Committee. In addition to these releases, the Winthrop National Fish Hatchery (WNFH) released 11,214 Methow conservation program progeny into the Twisp River at Buttermilk Bridge between 21 and 25 April. An estimated 101,345 Methow safety-net fish were released from the Methow Hatchery and 165,550 Columbia River safety-net fish were released into the Columbia River in May. 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 finished during November 2016 with a total of 386 adults trapped from the Wells Dam fish ladders or the Wells Hatchery volunteer channel. A total of 163 of the hatchery-origin fish trapped were retained for broodstock and pre-spawn mortality totaled six fish for the season (4%). Spawning of the broodstock began on 4 January 2017, and was completed on 17 April with a total of 149 fish spawned for Wells Hatchery programs. For the Twisp River conservation program, 10 wild steelhead (7 female, 3 male) were collected at the Twisp River Weir and transferred to the WNFH for assimilation with the Methow conservation program at that facility, as per HCP Hatchery Committee direction. At the eyed-egg stage, a representative portion of the Methow conservation program will be transferred to Wells Complex facilities for rearing to the smolt stage and released into the Twisp River.

2015 Spokane Rainbow

Wells Hatchery had 5,398 rainbow trout on-station at the end of the month after subtracting 20 mortalities. About 935 of these fish are larger (jumbo) sized fish at about 1 FPP, with the remaining fish (catchable size) at about 2.5 FPP. The hatchery also planted 700 jumbo-sized and 14,190 catchable-sized trout into Okanogan County lakes during the month of May. These fish are reared to fulfill the Off-License Settlement Agreement (Appendix B).

2016 Spokane Rainbow

Wells Hatchery had 61,612 fry from the 2016 brood on-station at the end of the month after subtracting 315 mortalities. These fish were at 89 FPP and are reared to fulfill the Off-License Settlement Agreement (Appendix B).

2016 White Sturgeon

Wells Hatchery had 5,090 sturgeon progeny on-station at the end of the month and 169 additional fish were reported as mortalities during May. In addition, Wells Hatchery planted 1,362 progeny into Lake Rufus Woods on 10 May. White sturgeon progeny are reared at Wells Hatchery under the Aquatic Settlement Agreement (Appendix C).

2017 Lahontan Cutthroat

Wells Hatchery ponded 178,526 Lahontan Cutthroat Trout progeny from broodstock spawned at Lake Lenore (Grant County). Mortality during the month totaled an additional 26,474 fish. These fish are reared 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 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>

Steelhead Spawning Ground Surveys

Steelhead spawning ground surveys were initiated in March and continued through May as environmental conditions permitted. By the end of the month, a total of 38 redds were found within mainstem Methow River index reaches between the Winthrop PIT tag array (MRW) and the town of Pateros. Fifteen additional redds were found in the Methow Hatchery outfall and a single redd was found in both the Fender Mill and 1890's side channels. USFWS personnel found a total of 56 redds in the WNFH outfall by the end of the month, and a total of 27 redds were found in the Twisp River by the end of May. Detections of PIT-tagged steelhead will be used at multiple sites throughout the Methow basin in conjunction with mainstem redd surveys to estimate overall spawning abundance and distribution of HOR and NOR steelhead.

2017 Smolt Trapping

River discharge at both the Methow and Twisp trapping locations reached the highest levels since May of 2006, which caused disruptions in trap operation at both trapping sites. The Twisp trap did not operate from 6 May through the end of the month. The trap was removed from the river during this time to minimize the chance of damage due to large debris. The Methow trap did not operate between 6 and 15 May, or after 22 May due to high river discharge. During May, sub yearling wild Chinook fry and hatchery steelhead were the primary species captured at the Methow and Twisp trap sites respectively (Table 1). Biological data collected from trapped fish is detailed in Table 2. Methow River discharge for the period operated ranged from 96.0 to 247.2 m³s, providing expected trap efficiencies below 3.1 percent. Twisp River discharge for the period operated ranged from 13.7 to 39.1 m³s, providing expected trap efficiencies below 5.3 percent.

Table 1. Monthly salmonid captures at Methow Basin smolt traps in 2017. SHR = wild steelhead/rainbow.

Species/origin	Methow			Twisp			Basin total
	March	April	May	March	April	May	
Yearling Chin/wild	47	426	15	141	621	34	1,284
Yearling Chin/hatch	0	13,299	26	0	3,826	1	17,152
Sub Chin/wild-parr	0	8	24	0	0	0	32
Sub Chin/wild-fry	773	1,896	914	17	143	16	3,759
SHR/wild-transitional	0	312	61	0	163	64	600
SHR/wild-parr	1	31	5	7	120	21	185
Steelhead/hatchery	0	1,913	776	0	2,403	194	5,286
Coho/wild-smolt	0	4	1	0	3	1	9
Coho/wild-fry	0	0	1	0	0	0	1
Coho/hatchery	0	1,715	506	0	0	0	2,221
Bull Trout	0	0	2	1	2	0	5
Sockeye/wild-fry	187	71	0	0	0	0	258
Total	1,008	19,675	2,331	166	7,281	331	30,792

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

Species/stage	Location	Length (mm)			Weight (g)			Mean K-factor
		Mean	SD	<i>N</i>	Mean	SD	<i>N</i>	
Yearling Chinook/wild	Methow	100.3	9.1	15	11.0	2.8	15	1.1
Yearling Chinook/wild	Twisp	93.8	8.1	34	9.2	2.9	34	1.1
Sub Chinook/wild/parr	Methow	57.2	4.4	13	1.8	0.6	12	0.9
Sub Chinook/wild/fry	Methow	40.1	2.9	80	--	--	--	--
Sub Chinook/wild/fry	Twisp	36.0	1.4	2	--	--	--	--
Steelhead/wild/transitional	Methow	168.6	21.5	61	48.4	20.4	61	1.0
Steelhead/wild/transitional	Twisp	166.0	16.0	64	44.3	12.0	64	0.9
Steelhead/wild/parr	Methow	108.0	16.7	5	14.5	7.0	5	1.1
Steelhead/wild/parr	Twisp	90.3	13.4	21	8.3	4.0	21	1.1
Steelhead/hatchery/smolt	Methow	210.9	17.3	67	98.8	27.9	67	1.0
Steelhead/hatchery/smolt	Twisp	167.5	10.7	17	45.9	9.7	17	1.0
Coho/wild/smolt	Methow	130.0	--	1	21.2	--	1	1.0
Coho/wild/smolt	Twisp	100.0	--	1	10.5	--	1	1.1
Coho/wild/fry	Methow	39.0	--	1	--	--	--	--
Coho/hatchery/smolt	Methow	137.3	7.6	24	27.7	4.6	24	1.1
Bull Trout	Methow	134.0	11.3	2	26.0	4.0	2	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		
					Jun '16	Jul	Aug	Sep	Oct	Nov	Dec	Jan '17	Feb	Mar	Apr	May			
2015	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	65,701	65,697	65,695	65,692	65,691	65,666	65,638	65,618	65,608	51,720	--	--	51,697	51,697	
2015	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	145,618	145,610	145,604	145,600	145,595	145,541	145,478	145,435	145,413	114,630	--	--	114,579	114,579	
2015	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	31,618	31,616	31,615	31,614	31,613	31,602	31,588	31,578	31,574	24,890	--	--	24,879	24,879	
2016	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	--	--	--	--	68,677	68,677	68,677	68,677	68,594	68,032	68,032	67,814	--	--	
2016	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	--	--	--	--	152,213	152,213	152,213	152,213	152,030	150,785	150,785	150,302	--	--	
2016	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	--	--	--	--	33,050	33,050	33,050	33,050	33,011	32,740	32,740	32,635	--	--	
2015	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	344,121	343,198	336,304	336,117	336,117	336,117	336,117	336,117	335,239	333,462	--	--	329,809	329,809	
2016	Summer Chinook	Sub-yearling	DCPUD Fixed Hatchery Compensation	484,000 <i>released</i>	--	--	--	--	--	583,000	583,000	513,238	444,000	443,117	470,247	234,710	234,710	234,710	
2016	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	--	--	--	--	--	368,940	372,107	372,107	372,107	366,490	362,301	361,696	--	--	
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	317,688	314,795	314,694	314,555	314,262	217,219	--	90,679	206,362	297,041
2016	Summer steelhead	Yearling smolt	DCPUD Wells NNI ¹	8,000 <i>released</i>	9,567	9,893	9,958	9,001	8,835	8,471	8,395	8,392	8,388	8,380	5,793	--	2,418	5,503	7,921
2016	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	95,673	98,939	99,587	90,009	88,350	84,716	83,945	83,918	83,881	83,803	57,925	--	24,181	55,030	79,211
2016	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	34,627	34,010	34,716	34,616	34,616	35,606	34,542	34,542	33,461	32,868	--	--	26,054	--	26,054

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	
					Jun '16	Jul	Aug	Sep	Oct	Nov	Dec	Jan '17	Feb	Mar	Apr	May		
2014	Rainbow trout	Juv	WDFW sport fish		--	--	--	--	--	--	--	--	--	--	--	--	--	
					(740)	--	--	--	--	--	--	--	--	--	--	--	--	
					1,700	--	--	--	--	--	--	--	--	--	--	--	--	50,717
2015	Rainbow trout	Juv	WDFW sport fish	Number (pounds) released	60,608	36,100	36,052	33,026	32,949	32,897	32,975	33,741	33,652	33,280	20,308	5,398		
					(1,377)	(1,570)	(2,488)	(3,471)	(4,308)	(5,178)	(7,516)	(8,656)	(8,288)	(11,110)	(9,104)	(2,720)	47,790	
					--	20,000	--	--	--	--	--	--	--	--	--	12,900	14,890	(9,263)
2016	Rainbow trout	Juv	WDFW sport fish	Goal is 20,000 pounds annual combined	--	--	--	--	--	--	72,878	68,293.	62,418	62,379	61,927	61,612		
					--	--	--	--	--	--	(73)	(20)	(65)	(142)	(405)	(692)		
					--	--	--	--	--	--	--	--	--	--	--	--	--	--
2016	Lahontan cutthroat	Juv	WDFW sport fish		156,757	--	--	--	--	--	--	--	--	--	--	--		
					(156)	--	--	--	--	--	--	--	--	--	--	--	--	150,000
						150,000	--	--	--	--	--	--	--	--	--	--	--	(200)
2017	Lahontan cutthroat	Juv	WDFW sport fish		--	--	--	--	--	--	--	--	--	--	--	178,526		
					--	--	--	--	--	--	--	--	--	--	--	(178)		
					--	--	--	--	--	--	--	--	--	--	--	--	--	--

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	
					Jun '16	Jul	Aug	Sep	Oct	Nov	Dec	Jan '17	Feb	Mar	Apr	May		
2015	White sturgeon	Juvenile rearing	Wells White Sturgeon Supple-mentation	Up to 5,000	--	--	--	--	--	--	--	--	--	--	--	--		
				Culled	--	--	--	--	--	--	--	--	--	--	--	--	1,462	
				Transferred	--	--	--	--	--	--	--	--	--	--	--	--	5,000	
				Wells reservoir	5,288	--	--	--	--	--	--	--	--	--	--	--	5,288	
2016	White sturgeon	Juvenile rearing	Wells White Sturgeon Supple-mentation	Up to 5,000	35,845	25,087	17,246	15,235	13,560	10,458	9,343	9,495	6,690	6,654	6,654	5,090		
				Culled	--	--	--	--	--	--	--	--	--	--	--	--	--	
				Transferred	--	--	--	--	--	--	--	2,293	--	--	--	--	1,362	3,655
				Wells reservoir	--	--	--	--	--	--	--	--	--	--	--	--	--	--