

# WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

## Fish Program/Science Division/Methow Field Office

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**To:** Shane Bickford and Greg Mackey  
**From:** Charlie Snow, Charles Frady, and David Grundy  
**Subj:** July Hatchery and Natural Production Report  
**Date:** 10 August 2018  
**Cc:** Distribution list.

### **HATCHERY ACTIVITIES**

All fish at the Methow and Wells hatcheries were reared on 100% well water during the month.

#### **2017 Twisp Spring Chinook Salmon**

A total of 29,403 fish were on-station at the end of the month with five additional fish reported as mortalities. These fish had a mean fork length of 96 mm during the month and were at approximately 46 fish per pound (FPP). The number of fish on-station that apply to Douglas PUD, Chelan PUD, and Grant PUD HCP mitigation obligations are listed in Appendix A.

#### **2017 Methow Composite Spring Chinook Salmon**

A total of 227,615 fish were on-station at the end of the month with 26 additional fish reported as mortalities. These fish will support releases from the Chewuch Acclimation Pond (CAP; release target = 61,000), Goat Wall Acclimation Pond (GWAP; release target = 25,000), and from Methow Hatchery (release target = 107,765). These fish had a mean fork length of 96 mm during the month and were at approximately 46 FPP. The number of fish on-station that applies to Douglas PUD, Chelan PUD, and Grant PUD HCP mitigation obligations are listed in Appendix A.

#### **2018 Brood Spring Chinook Salmon**

By the end of July, there was only one pond mort from the 2018 brood (unmarked hatchery-origin female) and formalin treatments replaced those of just salt to control for Saprolegniasis. A total of 75 adults and 66 jacks were transferred to WNFH to fulfill broodstock collection goals or to be removed as surplus. Six hatchery females were retained at Methow to ensure the MetComp egg-take goal is achieved, resulting in a total of 129 fish on-station at the end of the month after accounting for mortalities and transfers. Spawning of these fish will begin in early August and gametes for the egg-to-fry survival study and egg treatment study (for Saprolegnia control) will be collected at WNFH.

### **2017 Wells Summer Chinook Salmon**

Wells Hatchery had an estimated 315,852 fry for the yearling program on-station at the end of July and an additional 1,316 fry were reported as mortality during the month (definitive diagnosis is pending further laboratory tests). These fish were at approximately 180 FPP during the month and had a mean fork length of 72 mm. Summer Chinook are being reared to fulfill HCP mitigation obligations (Appendix A).

### **2018 Wells Summer Chinook Salmon**

A total of 988 adult summer Chinook adults were on-station at Wells Hatchery at the end of July, with an additional 23 fish reported as mortalities during the collection period (2.3%). These fish were collected from the Wells Hatchery volunteer channel and will support releases for the Wells subyearling and yearling programs, the Yakima River reintroduction program, and the Chelan Falls yearling program if necessary. Additional adult salmon may be collected if available and donated to local tribes. Fish health examinations of the 2018 broodstock collected thus far have noted signs of columnaris disease in some mortalities and treatments of Diquat dibromide (Reward®) were initiated. Regular formalin treatments also commenced to control for Saprolegniasis (external “fungus”).

### **2018 Summer Steelhead**

Wells Hatchery had 550,504 steelhead progeny on-station at the end of the month. These progeny include 125,899 Methow safety-net, 230,242 Columbia safety-net, 28,849 Twisp Conservation, and 25,828 Methow Conservation program progeny. Okanogan Basin fish on-station included 42,320 HxH progeny from Wells broodstock spawning, 78,348 HxH progeny from Omak Creek broodstock spawning, and 19,018 WxW progeny from Omak Creek broodstock spawning. Mortality during the month totaled an additional 4,252 progeny over all programs, most of which were from the Methow safety-net ( $N = 1,379$ ) and Omak Creek HxH ( $N = 1,079$ ) programs. Steelhead progeny are being reared to fulfill Douglas PUD and Grant PUD HCP mitigation obligations (Appendix A).

### **2018 Kamloops Rainbow Trout**

Wells Hatchery had 63,664 Kamloops Rainbow Trout on-station at the end of the month and an additional 1,070 mortalities were reported in July. These fish are reared under the Off-License Settlement Agreement (Appendix B).

### **2018 White Sturgeon**

Wells Hatchery received 2,300 wild-captured larval sturgeon from the Colville Tribe during the month and had 969 fish on-station at the end of the month after subtracting 1,331 mortalities. White Sturgeon progeny were 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), Lower Chewuch (CRW), 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>

### 2018 Smolt Trapping

River conditions were favorable for trapping at both the Methow and Twisp sites during the month of July, and traps at both locations operated for the entire month with no interruptions. Decreasing river discharge at the Methow site required us to switch to trapping with the 1.5 m diameter cone in the lower position starting on 6 July. 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 20.4 to 60.0 m<sup>3</sup>s. The discharge when the trap operated in the low position ranged from 20.4 to 49.3 m<sup>3</sup>s, providing expected trap efficiencies between 1.1 and 1.5 percent. The discharge when the trap operated in the upper position (prior to 6 July) ranged from 48.7 to 60.0 m<sup>3</sup>s, providing expected trap efficiencies between 3.2 and 3.4 percent. Twisp River discharge for the period operated ranged from 3.0 to 9.9 m<sup>3</sup>s, providing expected trap efficiencies between 11.1 and 18.4 percent.

Table 1. Monthly salmonid captures at Methow Basin smolt traps in 2018. SHR = wild steelhead/rainbow.

Species/origin	Methow			Twisp			Basin total
	Mar-May	June	July	Mar-May	June	July	
Yearling Chin/wild	261	4	0	488	4	0	757
Yearling Chin/hatch	17,425	1	0	3,401	0	0	20,827
Sub Chin/wild-parr	37	628	178	0	14	23	880
Sub Chin/wild-fry	2,422	708	5	19	24	1	3,179
SHR/wild-transitional	436	0	0	299	6	0	741
SHR/wild-parr	20	8	2	122	62	9	223
SHR/wild-fry	0	1	3	0	0	4	8
Steelhead/hatchery	1,370	5	0	8,195	18	6	9,594
Coho/wild-smolt	13	0	0	0	0	0	13
Coho/wild-parr	7	26	16	0	1	0	50
Coho/wild-fry	208	3	0	14	1	0	226
Coho/hatchery	2,922	0	0	0	0	0	2,922
Cutthroat Trout	0	0	0	1	1	4	6
Bull trout	1	0	0	9	6	0	16
Sockeye/wild-fry	48	0	0	0	0	0	48
<b>Total</b>	<b>25,170</b>	<b>1,384</b>	<b>204</b>	<b>12,548</b>	<b>137</b>	<b>47</b>	<b>39,490</b>

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

Species/stage	Location	Length (mm)			Weight (g)			Mean K-factor
		Mean	SD	<i>N</i>	Mean	SD	<i>N</i>	
Sub Chinook/wild/parr	Methow	72.4	13.6	135	4.9	2.8	133	1.2
Sub Chinook/wild/parr	Twisp	57.7	5.9	23	2.2	0.8	23	1.1
Sub Chinook/wild/fry	Methow	46.2	3.0	5	--	--	--	--
Sub Chinook/wild/fry	Twisp	48.0	--	1	--	--	--	--
Steelhead/wild/parr	Methow	128.5	57.3	2	32.2	34.2	2	1.2
Steelhead/wild/parr	Twisp	135.7	36.7	9	34.8	21.9	9	1.2
Steelhead/wild/fry	Methow	26.3	2.5	3	--	--	--	--
Steelhead/wild/fry	Twisp	27.0	1.4	4	--	--	--	--
Steelhead/hatchery/parr	Twisp	194.5	23.5	6	80.8	29.9	6	1.1
Coho/wild/parr	Methow	80.3	18.6	16	6.9	4.5	16	1.2
Cutthroat Trout	Twisp	205.5	33.2	4	94.5	48.6	4	1.0

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	
					Aug '17	Sep	Oct	Nov	Dec	Jan '18	Feb	Mar	Apr	May	Jun	Jul		
2016	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	67,783	67,765	67,700	67,628	67,546	67,437	67,400	67,333	--	--	--	--	67,075	67,075
2016	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	150,234	150,192	150,049	149,890	149,707	149,464	149,384	149,236	--	--	--	--	148,664	148,664
2016	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	32,620	32,611	32,580	32,546	32,506	32,454	32,436	32,404	--	--	--	--	32,280	32,280
2017	Spring Chinook	Yearling smolt	CCPUD NNI	60,516 <i>released</i>	--	--	68,820	68,817	66,059	68,269	68,226	68,208	68,178	69,533	69,517	69,509	--	--
2017	Spring Chinook	Yearling smolt	GCPUD Priest Rapids NNI	134,126 <i>released</i>	--	--	152,530	152,526	146,413	151,310	151,214	151,176	151,107	154,112	154,077	154,058	--	--
2017	Spring Chinook	Yearling smolt	DCPUD Wells NNI	29,123 <i>released</i>	--	--	33,119	33,118	32,915	32,854	32,833	32,825	32,810	33,463	33,455	33,451	--	--
2016	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	356,640	356,340	356,340	356,340	356,240	356,240	356,240	356,240	--	--	--	--	356,240	356,240
2017	Summer Chinook	Sub-yearling	DCPUD Fixed Hatchery Compensation	484,000 <i>released</i>	--	--	--	--	--	468,729	447,267	431,642	419,498	--	--	--	417,000	417,000
2017	Summer Chinook	Yearling smolt	DCPUD Fixed Hatchery Compensation	320,000 <i>released</i>	--	--	--	--	--	332,000	332,000	332,000	332,000	332,000	317,168	315,852	--	--
2017	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation <sup>1</sup>	300,000 <i>released</i>	354,002	357,470	343,318	314,831	286,515	313,570	313,530	313,447	--	--	--	--	313,429	313,429
2017	Summer steelhead	Yearling smolt	DCPUD Wells NNI <sup>1</sup>	8,000 <i>released</i>	9,440	9,533	9,155	8,395	7,640	8,362	8,316	8,359	--	--	--	--	8,358	8,358

Appendix A. Continued.

Brood year	Species	Life stage	Program	Target release No.	Month												Total released /transfer		
					Aug '17	Sep	Oct	Nov	Dec	Jan '18	Feb	Mar	Apr	May	Jun	Jul			
2017	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	94,400	95,325	91,551	83,955	76,404	83,619	83,608	83,586	--	--	--	--	83,581	83,581	
2017	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	31,787	31,787	31,755	33,962	33,426	33,415	33,396	22,242	--	--	--	--	11,320	22,225	33,545
2018	Summer steelhead	Yearling smolt	DCPUD Fixed Hatchery Compensation <sup>1</sup>	300,000 <i>released</i>	--	--	--	--	--	--	--	--	--	--	394,887	410,943	--	--	
2018	Summer steelhead	Yearling smolt	DCPUD Wells NNI <sup>1</sup>	8,000 <i>released</i>	--	--	--	--	--	--	--	--	--	--	10,530	10,958	--	--	
2018	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	80,000 <i>released</i>	--	--	--	--	--	--	--	--	--	--	105,303	109,585	--	--	
2018	Summer steelhead	Yearling smolt	GCPUD Priest Rapids NNI	20,000 <i>transferred</i>	--	--	--	--	--	--	--	--	--	--	42,336	19,018	--	--	

<sup>1</sup>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
					Aug '17	Sep	Oct	Nov	Dec	Jan '18	Feb	Mar	Apr	May	Jun	Jul	
2016	Rainbow trout	Juv	WDFW sport fish	Number (pounds) released	57,001	57,001	37,001	35,951	35,784	35,566	35,511	35,475	5,700	1,085	--	--	61,461
					(3,563)	(6,333)	(7,400)	(8,988)	(8,750)	(12,454)	(14,869)	(14,853)	(2,509)	(1,850)	(1,955)	(--)	(--)
2017	Lahontan cutthroat	Juv	WDFW sport fish	Goal is 20,000 pounds annual combined	3,768	5,541	5,533	--	--	--	--	--	--	--	--	--	177,288
					(5)	(32)	(56)	(64)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)
2018	Kamloops Rainbow trout	Juv.	WDFW sport fish	Goal is 20,000 pounds annual combined	171,747	--	--	5,541	--	--	--	--	--	--	--	--	--
					--	--	--	--	--	26,199	24,819	33,803	24,360	24,360	64,734	63,664	--
					(--)	(--)	(--)	(--)	(--)	(26)	(11)	(66)	(115)	(312)	(617)	(984)	--
					--	--	--	--	--	--	--	--	--	--	--	--	--

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
					Aug '17	Sep	Oct	Nov	Dec	Jan '18	Feb	Mar	Apr	May	Jun	Jul	
2017	White Sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	<i>Up to 325</i>	1,581	1,461	1,440	1,299	1,262	1,182	1,175	1,135	340	--	--	--	338
				<i>Culled</i>	--	--	--	--	--	--	--	--	36	--	--	--	
				<i>Transferred</i>	--	--	--	--	--	--	--	--	853	--	--	--	
				<i>Wells reservoir</i>	--	--	--	--	--	--	--	--	--	338	--	--	
2018	White Sturgeon	Juvenile rearing	Wells White Sturgeon Supplementation	<i>Up to 325</i>	--	--	--	--	--	--	--	--	--	--	--	969	--
				<i>Culled</i>	--	--	--	--	--	--	--	--	--	--	--	--	
				<i>Transferred</i>	--	--	--	--	--	--	--	--	--	--	--	--	
				<i>Wells reservoir</i>	--	--	--	--	--	--	--	--	--	--	--	--	