Klamath River Outmigrant Monitoring Summary — 2018

Synopsis: The outmigration of juvenile salmonids is monitored annually on the mainstem Klamath River by the USFWS Arcata Fish and Wildlife Office (AFWO) and the Karuk Tribe of California. The objectives of this collaborative project are to:

1. Estimate the weekly abundance of juvenile Chinook Salmon and collect pertinent biological data such as fork lengths and presence of clinical signs of disease at three selected locations on the mainstem Klamath River.
2. Collect, preserve, and deliver weekly-stratified, random samples of young-of-the-year (YOY) Chinook Salmon to the Service's California–Nevada Fish Health Center (CA–NV FHC) for conducting qPCR assays to estimate infection rates in the outmigrant population.
3. Collect relative abundance and biological data on Coho Salmon and steelhead at the three locations on the mainstem Klamath River.

Information generated by this study are used for a variety of purposes, including stock-recruitment analyses, to inform flow management decisions, to further refine a fish disease model, and to validate and calibrate the S^3 (Stream Salmonid Simulator) Chinook Salmon production model, among others.

Monitoring was conducted at three sites on the mainstem Klamath River between Iron Gate Dam (IGD; rkm 309.65) and the Scott River confluence (rkm 232.95). The upstream-most site (rkm 307.75), referred to as the "Bogus Trap Site", is located on the right bank downstream of the Bogus Creek confluence on Blue Heron RV Park property. The second location is the "I-5 Trap Site" (rkm 293.55), which is positioned on the left bank downstream of the Carson Creek confluence and upstream of the I-5 bridge river crossing. The site located furthest downriver is the "Kinsman Trap Site" (rkm 237.55) and is positioned in a side channel on the left bank just upstream of the Kinsman Creek confluence. Trapping at the Bogus Trap Site was conducted using a single 3.1-m wide and 1.6-m tall frame net. Sampling at the I-5 Trap Site was conducted using two in-line 8-ft diameter rotary screw traps (RST) and one 3.1-m by 1.6-m frame net. One 5-ft diameter RST and one 3.1-m by 1.6-m frame net was used to capture fish at the Kinsman Trap Site. Traps were typically operated four nights per week (Monday through Thursday) and checked once daily while in operation.

Trapping began February 22 [Calendar Week (CW) 8] at the Bogus site and February 21 (CW 8) at the I-5 and Kinsman sites. Trapping at the Bogus site concluded on May 25 following a drop in catch numbers and large amounts of aquatic vegetation growing at the site. Trapping at the I-5 site concluded on June 7, the day before the first release of Brood Year 2017 Chinook Salmon smolts from Iron Gate Hatchery. The last day of trapping at the Kinsman site was June 27, when most of the wild and hatchery-produced YOY Chinook Salmon have migrated downstream of that part of the river.

Supplemental migration timing and magnitude and fish size data were also collected by weekly depletion seining at the Klamathon (Copco-Ager) Bridge crossing ("Klamathon Seine Site", rkm 300.70). Seine catch numbers are not reported in this summary but fish sizes and disease observations are included.

This project summary provides total catch (Table 1) and mean catch per day by week (Table 2) of Chinook Salmon, Coho Salmon, and steelhead at each trap site. In addition, we provided weekly estimates of the mean fork length of YOY Chinook and Coho salmon from the each of the three trap sites and the Klamathon Seine Site (Table 3). Expansions to generate weekly-stratified abundance estimates are calculated after the end of the season and are not presented here. Trap efficiency, a measure of the proportion of fish moving past a trap site that are caught, varies weekly. *Therefore raw catch numbers are not representative of actual abundance and we advise against using weekly raw catch numbers to make inferences on temporal abundance*.

Notes: Operation of the Kinsman Frame Net was postponed starting Survey Week 6 due flows being too high for this particular trap. The I-5 Frame Net was not operated during Survey Weeks 8, 12, and 13 also due to high flows. Flawed sets of the Kinsman screw trap are the reason for no reportable catches in Survey Weeks 8 and 12.

Included in this project summary are clinical signs of disease observed in the catch for the trap and seine sites (Table 4). The percentage of live YOY Chinook Salmon in the trap and seine catches that exhibit distended bellies, gill fungus, and pale gills are presented separately for each site on a weekly basis. Note that these data are based on the visual presence of external symptoms of disease, which may not always be revealed by infected fish. Distended bellies may be a clinical sign of infection by the myxosporean parasites, *Ceratonova shasta* and *Parvicapsula minibicornis*. Gills of juvenile salmonids ≥45 mm FL were evaluated for color (red, pale/pink, white, or tan) and condition (normal, eroded, or fungal). Pale gills may be due to anemia associated with *P. minibicornis* infection. Gill fungus is likely *Saprolegnia* growing upon a columnaris (*Flavobacterium columnare*) infection.

To more accurately determine infection rates for the outmigrant juvenile Chinook Salmon population passing the Kinsman Trap Site, weekly-stratified random samples were collected, preserved, and delivered to the CA–NV FHC to process using qPCR assays. This season's sampling began the week of March 25. The CA–NV FHC investigates infection rates of *C. shasta*, *P. minibicornis* and other pathogens in juvenile salmonids in the Klamath River annually. The CA–NV FHC typically releases about two or three in-season updates (which are posted on the AFWO website) and a final report for each season.

Daily mean discharge below IGD (Figure 1) and at the Kinsman Trap Site (Figure 2) from late February through July 2000–2017 were included to help portray pertinent flow conditions. Flow at the Bogus and I-5 trap sites were represented by USGS Gauging Station 11516530 (Klamath River below IGD, California). Discharge at USGS 11520500 (Klamath River near Seiad Valley, California) minus discharge at USGS 11519500 (Scott River near Fort Jones, California) was used as a surrogate flow for the Kinsman Trap Site.

If you have any questions regarding this summary, please contact Steve Gough at (707)825-5197 or Bill Pinnix, (707)825-5129.

Table 1. In-season summary of the total catch by week of adipose fin-clipped (AD Clip) and non adipose fin-clipped (No Clip) Chinook Salmon and steelhead and left maxillary-clipped (LM Clip) and non-maxillary clipped (No Clip) Coho Salmon by trap at the Bogus, I-5, and Kinsman trap sites on the mainstem Klamath River, 2018. Note that RST = rotary screw trap, UPS = upstream, DNS = downstream, and YOY = young-of-the-year.

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								Chinook (*O. tshawytscha*)			Coho (*O. kisutch*)			Steelhead (*O. mykiss*)		
								YOY			YOY	Age 1 +		YOY	Age 1 +	
Trap	Survey week	Sample dates	Q (cfs) [a] Min	Q (cfs) [a] Max	Water temp. (F) [b] Min	Water temp. (F) [b] Max	Trapping days	No clip	AD clip	Age 1+		No clip	LM clip		No clip	AD clip
Bogus Frame Net	2	2/27-3/1	945	965	45.6	46.0	3	178	0	0	0	0	0	0	1	0
	3	3/6-3/9	987	1000	45.8	46.4	3	461	0	0	0	0	0	0	0	0
	4	3/13-3/16	983	1320	44.0	46.9	4	2625	0	0	0	0	0	0	3	0
	5	3/20-3/23	1150	1480	44.2	45.1	4	1530	0	0	0	0	1	7	0	0
	6	3/27-3/29	1470	1600	45.6	46.9	3	399	0	0	0	0	0	99	0	0
	7	4/3-4/6	1780	3890	48.3	49.2	4	2464	0	0	0	0	0	20	0	0
	8	4/11-4/13	2400	3050	51.0	51.2	3	237	0	0	34	0	0	4	0	0
	9	4/17-4/20	1790	2030	52.1	52.8	4	740	0	0	104	2	0	87	1	0
	10	4/24-4/27	1580	1740	53.4	55.4	4	309	0	0	7	0	0	107	0	0
	11	5/1-5/4	1270	1370	55.0	57.3	4	102	0	0	0	1	0	67	0	0
	12	5/10-5/11	2950	3010	60.9	60.9	2	57	0	0	16	0	1	18	1	0
	13	5/15-5/18	3050	3070	62.7	63.3	4	184	0	0	11	0	0	51	2	0
	14	5/22-5/25	1650	2370	64.4	65.8	4	37	0	0	0	0	0	30	1	0
I-5 UPS RST	1	2/21-2/23	940	970	43.5	44.7	3	50	0	0	0	0	0	0	1	0
	2	2/27-3/1	945	965	43.8	46.0	3	41	0	0	0	0	0	0	1	0
	3	3/6-3/9	987	1000	45.5	46.7	4	80	0	1	0	0	0	0	6	0
	4	3/13-3/16	983	1320	42.2	47.6	4	96	0	0	0	0	0	0	17	0
	5	3/20-3/23	1150	1480	44.0	45.6	4	153	0	0	0	0	8	1	6	0
	6	3/27-3/29	1470	1600	43.8	46.0	3	39	0	0	0	0	2	0	0	0
	7	4/3-4/6	1780	3890	46.5	49.4	4	352	0	0	1	0	1	2	1	0
	8	4/11-4/13	2400	3050	50.1	51.8	2	9	0	0	0	0	0	0	1	0
	9	4/17-4/20	1790	2030	50.9	52.9	4	33	0	0	0	0	0	6	1	0
	10	4/24-4/27	1580	1740	53.7	55.0	4	172	0	0	0	0	2	5	2	0
	11	5/1-5/4	1270	1370	53.6	56.6	4	105	0	0	1	1	1	8	4	0
	12	5/10-5/11	2950	3010	59.5	60.2	1	21	0	0	0	0	0	2	1	0
	13	5/15-5/18	3050	3070	63.3	64.9	4	152	0	0	0	0	1	0	10	0
	14	5/22-5/25	1650	2370	64.7	66.2	2	304	0	0	1	0	0	5	0	0
	15	5/30-5/31	1180	1200	64.9	65.4	2	60	0	0	3	0	0	2	1	0
	16	6/5-6/7	1040	1290	65.8	67.1	3	65	0	0	1	0	0	2	9	0
I-5 DNS RST	1	2/21-2/23	945	970	43.5	44.7	2	18	0	0	0	0	0	0	0	0
	2	2/27-3/1	940	965	43.8	46.0	2	16	0	0	0	0	0	0	0	0
	3	3/6-3/9	987	1000	45.5	46.7	4	51	0	0	0	1	0	0	2	0
	4	3/13-3/16	983	1320	42.2	47.6	4	109	0	0	0	0	0	0	12	0
	5	3/20-3/23	1150	1480	44.0	45.6	4	123	0	0	0	0	2	0	4	0
	6	3/27-3/29	1470	1600	43.8	46.0	3	19	0	0	0	0	0	1	1	0
	7	4/3-4/6	1780	3890	46.5	49.4	4	192	0	0	0	0	0	12	0	0
	8	4/11-4/13	2400	3050	50.1	51.8	1	2	0	0	0	0	0	0	0	0
	9	4/17-4/20	1790	2030	50.9	52.9	4	29	0	0	2	0	0	7	2	0
	10	4/24-4/27	1580	1740	53.7	55.0	4	75	0	0	0	0	0	3	0	0
	11	5/1-5/4	1270	1370	53.6	56.6	4	63	0	0	0	0	0	4	1	0
	12	5/10-5/11	2950	3010	59.5	60.2	2	33	0	0	0	0	1	5	2	0
	13	5/15-5/18	3050	3070	63.3	64.9	4	81	0	0	1	0	0	1	2	0
	14	5/22-5/25	1650	2370	64.7	66.2	4	319	0	0	4	0	0	9	5	0
	15	5/30-5/31	1180	1200	64.9	65.4	2	27	0	0	0	0	0	1	2	0
	16	6/5-6/7	1040	1290	65.8	67.1	3	25	0	0	0	0	0	0	2	0
I-5 Frame Net	1	2/21-2/23	940	970	43.5	44.7	3	15	0	0	0	0	0	0	0	0
	2	2/27-3/1	945	965	43.8	46.0	3	5	0	0	0	0	0	0	0	0
	3	3/6-3/9	987	1000	45.5	46.7	4	12	0	0	0	0	0	0	1	0
	4	3/13-3/16	983	1320	42.2	47.6	4	11	0	0	0	0	0	0	1	0
	5	3/20-3/23	1150	1480	44.0	45.6	4	59	0	0	1	0	6	0	0	0
	6	3/27-3/29	1470	1600	43.8	46.0	2	7	0	0	0	0	0	0	0	0
	7	4/3-4/6	1780	3890	46.5	49.4	4	57	0	0	0	0	0	8	2	0
	9	4/17-4/20	1790	2030	50.9	52.9	4	17	0	0	4	0	0	6	2	0
	10	4/24-4/27	1580	1740	53.7	55.0	4	19	0	0	0	0	0	0	0	0
	11	5/1-5/4	1270	1370	53.6	56.6	4	8	0	0	0	0	1	12	0	0
	14	5/22-5/25	1650	2370	64.7	66.2	4	8	0	0	0	0	0	5	0	0
	15	5/30-5/31	1180	1200	64.9	65.4	1	0	0	0	0	0	0	0	0	0

[a] mean discharge from day of sampling (discharge below IGD used for Bogus and I-5 sites; flow at Kinsman Site is Klamath River flow at Seiad minus Scott River flow)

[b] temperature recorded at time of trap check (true daily ranges from temperature loggers will become available at the end of the season)

Table 1 (continued). In-season summary of the total catch by week of adipose fin-clipped (AD Clip) and non adipose fin-clipped (No Clip) Chinook Salmon and steelhead and left maxillary-clipped (LM Clip) and non-maxillary clipped (No Clip) Coho Salmon by trap at the Bogus, I-5, and Kinsman trap sites on the mainstem Klamath River, 2018. Note that RST = rotary screw trap, UPS = upstream, DNS = downstream, and YOY = young-of-the-year.

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								Chinook (*O. tshawytscha*)			Coho (*O. kisutch*)			Steelhead (*O. mykiss*)		
								YOY				Age 1 +			Age 1 +	
Trap	Survey week	Sample dates	Q (cfs) [a] Min	Q (cfs) [a] Max	Water temp. (F) [b] Min	Water temp. (F) [b] Max	Trapping days	No clip	AD clip	Age 1+	YOY	No clip	LM clip	YOY	No clip	AD clip
Kinsman RST	1	2/21-2/23	1411	1434	49.2	49.2	3	11	0	0	0	0	0	0	1	0
	2	2/27-3/1	1411	1478			3	4	0	0	0	0	0	0	1	0
	3	3/6-3/9	1458	1821	45.0	45.9	4	5	0	0	0	0	0	0	3	0
	4	3/13-3/16	1995	2135	45.6	48.0	4	56	0	0	0	9	0	0	7	0
	5	3/20-3/23	1950	2228	46.4	46.4	4	51	0	0	0	3	5	0	6	0
	6	3/27-3/29	2238	2478			3	76	0	0	0	3	4	0	3	0
	7	4/3-4/6	2481	2940	49.4	50.4	3	162	0	0	0	1	0	0	10	0
	9	4/17-4/20	3006	3413	48.4	53.2	3	118	0	0	0	8	1	0	11	0
	10	4/24-4/27	2576	2902	54.0	56.6	4	305	0	0	0	27	4	4	36	0
	11	5/1-5/4	2030	2245	55.6	60.4	4	119	0	0	0	21	3	0	62	0
	13	5/15-5/18	3786	3881	62.6	64.5	3	32	0	0	1	1	0	0	31	0
	14	5/22-5/25	2321	3215	63.5	66.2	4	215	0	0	8	0	0	0	19	0
	15	5/30-6/1	1654	1662	62.4	70.5	3	8	0	0	0	0	0	0	6	0
	16	6/5-6/7	1392	1435	66.0	69.2	3	2	0	0	0	0	0	0	4	0
	17	6/14-6/15	1475	1558	66.7	67.6	2	28	5	0	0	0	0	0	7	0
	18	6/20-6/21	1381	1446	67.2	69.2	2	31	0	12	0	0	0	0	9	0
	19	6/26-6/27	1291	1383	69.2	69.6	2	9	0	4	0	0	0	0	3	0
Kinsman	2	2/28-3/1	1411	1478			2	6	0	0	0	0	0	0	0	0
Frame Net	3	3/6-3/9	1458	1821	45.0	45.9	4	44	0	0	0	0	0	0	1	0
	4	3/13-3/16	1995	2135	45.6	48.0	4	85	0	0	0	0	0	0	0	0
	5	3/21-3/23	1950	2228	46.4	46.4	3	65	0	0	0	0	0	0	3	0

[a] mean discharge from day of sampling (discharge below IGD used for Bogus and I-5 sites; flow at Kinsman Site is Klamath River flow at Seiad minus Scott River flow)

[b] temperature recorded at time of trap check (true daily ranges from temperature loggers will become available at the end of the season)

Table 2. In-season summary of the average catch-per-day by week of non adipose fin-clipped (No Clip) and adipose fin-clipped (AD Clip) Chinook Salmon and steelhead and non-maxillary clipped (No Clip) and left maxillary-clipped (LM Clip) Coho Salmon by trap at the Bogus, I-5, and Kinsman trap sites on the mainstem Klamath River, 2018. Note that RST = rotary screw trap, UPS = upstream, DNS = downstream, and YOY = young-of-the-year.

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								Chinook (*O. tshawytscha*)			Coho (*O. kisutch*)			Steelhead (*O. mykiss*)		
								YOY				Age 1 +			Age 1 +	
Trap	Survey week	Sample dates	Q (cfs) [a] Min	Q (cfs) [a] Max	Water temp. (F) [b] Min	Water temp. (F) [b] Max	Trapping days	No clip	AD clip	Age 1+	YOY	No clip	LM clip	YOY	No clip	AD clip
Bogus Frame Net	2	2/27-3/1	945	965	45.6	46.0	3	59.33	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00
	3	3/6-3/9	987	1000	45.8	46.4	3	153.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4	3/13-3/16	983	1320	44.0	46.9	4	656.25	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.00
	5	3/20-3/23	1150	1480	44.2	45.1	4	382.50	0.00	0.00	0.00	0.00	0.25	1.75	0.00	0.00
	6	3/27-3/29	1470	1600	45.6	46.9	3	133.00	0.00	0.00	0.00	0.00	0.00	33.00	0.00	0.00
	7	4/3-4/6	1780	3890	48.3	49.2	4	616.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00
	8	4/11-4/13	2400	3050	51.0	51.2	3	79.00	0.00	0.00	11.33	0.00	0.00	1.33	0.00	0.00
	9	4/17-4/20	1790	2030	52.1	52.8	4	185.00	0.00	0.00	26.00	0.50	0.00	21.75	0.25	0.00
	10	4/24-4/27	1580	1740	53.4	55.4	4	77.25	0.00	0.00	1.75	0.00	0.00	26.75	0.00	0.00
	11	5/1-5/4	1270	1370	55.0	57.3	4	25.50	0.00	0.00	0.00	0.25	0.00	16.75	0.00	0.00
	12	5/10-5/11	2950	3010	60.9	60.9	2	28.50	0.00	0.00	8.00	0.00	0.50	9.00	0.50	0.00
	13	5/15-5/18	3050	3070	62.7	63.3	4	46.00	0.00	0.00	2.75	0.00	0.00	12.75	0.50	0.00
	14	5/22-5/25	1650	2370	64.4	65.8	4	9.25	0.00	0.00	0.00	0.00	0.00	7.50	0.25	0.00
I-5 UPS RST	1	2/21-2/23	940	970	43.5	44.7	3	16.67	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00
	2	2/27-3/1	945	965	43.8	46.0	3	13.67	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00
	3	3/6-3/9	987	1000	45.5	46.7	4	20.00	0.00	0.25	0.00	0.00	0.00	0.00	1.50	0.00
	4	3/13-3/16	983	1320	42.2	47.6	4	24.00	0.00	0.00	0.00	0.00	0.00	0.00	4.25	0.00
	5	3/20-3/23	1150	1480	44.0	45.6	4	38.25	0.00	0.00	0.00	0.00	2.00	0.25	1.50	0.00
	6	3/27-3/29	1470	1600	43.8	46.0	3	13.00	0.00	0.00	0.00	0.00	0.67	0.00	0.00	0.00
	7	4/3-4/6	1780	3890	46.5	49.4	4	88.00	0.00	0.00	0.25	0.00	0.25	0.50	0.25	0.00
	8	4/11-4/13	2400	3050	50.1	51.8	2	4.50	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00
	9	4/17-4/20	1790	2030	50.9	52.9	4	8.25	0.00	0.00	0.00	0.00	0.00	1.50	0.25	0.00
	10	4/24-4/27	1580	1740	53.7	55.0	4	43.00	0.00	0.00	0.00	0.00	0.50	1.25	0.50	0.00
	11	5/1-5/4	1270	1370	53.6	56.6	4	26.25	0.00	0.00	0.25	0.25	0.25	2.00	1.00	0.00
	12	5/10-5/11	2950	3010	59.5	60.2	1	21.00	0.00	0.00	0.00	0.00	0.00	2.00	1.00	0.00
	13	5/15-5/18	3050	3070	63.3	64.9	4	38.00	0.00	0.00	0.00	0.00	0.25	0.00	2.50	0.00
	14	5/22-5/25	1650	2370	64.7	66.2	2	152.00	0.00	0.00	0.50	0.00	0.00	2.50	0.00	0.00
	15	5/30-5/31	1180	1200	64.9	65.4	2	30.00	0.00	0.00	1.50	0.00	0.00	1.00	0.50	0.00
	16	6/5-6/7	1040	1290	65.8	67.1	3	21.67	0.00	0.00	0.33	0.00	0.00	0.67	3.00	0.00
I-5 DNS RST	1	2/21-2/23	940	970	43.5	44.7	2	9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2	2/27-3/1	945	965	43.8	46.0	2	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3	3/6-3/9	987	1000	45.5	46.7	4	12.75	0.00	0.00	0.00	0.25	0.00	0.00	0.50	0.00
	4	3/13-3/16	983	1320	42.2	47.6	4	27.25	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00
	5	3/20-3/23	1150	1480	44.0	45.6	4	30.75	0.00	0.00	0.00	0.00	0.50	0.00	1.00	0.00
	6	3/27-3/29	1470	1600	43.8	46.0	3	6.33	0.00	0.00	0.00	0.00	0.00	0.33	0.33	0.00
	7	4/3-4/6	1780	3890	46.5	49.4	4	48.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00
	8	4/11-4/13	2400	3050	50.1	51.8	1	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	9	4/17-4/20	1790	2030	50.9	52.9	4	7.25	0.00	0.00	0.50	0.00	0.00	1.75	0.50	0.00
	10	4/24-4/27	1580	1740	53.7	55.0	4	18.75	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.00
	11	5/1-5/4	1270	1370	53.6	56.6	4	15.75	0.00	0.00	0.00	0.00	0.00	1.00	0.25	0.00
	12	5/10-5/11	2950	3010	59.5	60.2	2	16.50	0.00	0.00	0.00	0.00	0.50	2.50	1.00	0.00
	13	5/15-5/18	3050	3070	63.3	64.9	4	20.25	0.00	0.00	0.25	0.00	0.00	0.25	0.50	0.00
	14	5/22-5/25	1650.0	2370	64.7	66.2	4	79.75	0.00	0.00	1.00	0.00	0.00	2.25	1.25	0.00
	15	5/30-5/31	1180	1200	64.9	65.4	2	13.50	0.00	0.00	0.00	0.00	0.00	0.50	1.00	0.00
	16	6/5-6/7	1040	1290	65.8	67.1	3	8.33	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00
I-5 Frame Net	1	2/21-2/23	940	970	43.5	44.7	3	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2	2/27-3/1	945	965	43.8	46.0	3	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3	3/6-3/9	987	1000	45.5	46.7	4	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00
	4	3/13-3/16	983	1320	42.2	47.6	4	2.75	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00
	5	3/20-3/23	1150	1480	44.0	45.6	4	14.75	0.00	0.00	0.25	0.00	1.50	0.00	0.00	0.00
	6	3/27-3/29	1470	1600	43.8	46.0	2	3.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	7	4/3-4/6	1780	3890	46.5	49.4	4	14.25	0.00	0.00	0.00	0.00	0.00	2.00	0.50	0.00
	9	4/17-4/20	1790	2030	50.9	52.9	4	4.25	0.00	0.00	1.00	0.00	0.00	1.50	0.50	0.00
	10	4/24-4/27	1580	1740	53.7	55.0	4	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	11	5/1-5/4	1270	1370	53.6	56.6	4	2.00	0.00	0.00	0.00	0.00	0.25	3.00	0.00	0.00
	14	5/22-5/25	1650	2370	64.7	66.2	4	2.00	0.00	0.00	0.00	0.00	0.00	1.25	0.00	0.00
	15	5/30-5/31	1180	1200	64.9	65.4	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

[a] mean daily discharge range during sampling dates (discharge below IGD used for Bogus and I-5 sites; flow at Kinsman Site is Klamath River flow at Seiad minus Scott River flow)

[b] temperature recorded at time of trap check (true daily ranges from temperature loggers will become available at the end of the season)

Table 2 (continued). In-season summary of the average catch-per-day by week of non adipose fin-clipped (No Clip) and adipose fin-clipped (AD Clip) Chinook Salmon and steelhead and non-maxillary clipped (No Clip) and left maxillary-clipped (LM Clip) Coho Salmon by trap at the Bogus, I-5, and Kinsman trap sites on the mainstem Klamath River, 2018. Note that RST = rotary screw trap, UPS = upstream, DNS = downstream, and YOY = young-of-the-year.

Preliminary Data - Subject to Revision

								Chinook (*O. tshawytscha*)			Coho (*O. kisutch*)			Steelhead (*O. mykiss*)		
								YOY			YOY	Age 1 +		YOY	Age 1 +	
Trap	Survey week	Sample dates	Q (cfs) [a] Min	Q (cfs) [a] Max	Water temp. (F) [b] Min	Water temp. (F) [b] Max	Trapping days	No clip	AD clip	Age 1+		No clip	LM clip		No clip	AD clip
Kinsman RST	1	2/21-2/23	1411	1434	49.2	49.2	3	3.67	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00
	2	2/27-3/1	1410	1478			3	1.33	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00
	3	3/6-3/9	1458	1821	45.0	45.9	4	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.00
	4	3/13-3/16	1995	2135	45.6	48.0	4	14.00	0.00	0.00	0.00	2.25	0.00	0.00	1.75	0.00
	5	3/20-3/23	1950	2228	46.4	46.4	4	12.75	0.00	0.00	0.00	0.75	1.25	0.00	1.50	0.00
	6	3/27-3/29	2238	2478			3	25.33	0.00	0.00	0.00	1.00	1.33	0.00	1.00	0.00
	7	4/3-4/6	2481	2940	49.4	50.4	3	54.00	0.00	0.00	0.00	0.33	0.00	0.00	3.33	0.00
	9	4/17-4/20	3006	3413	48.4	53.2	3	39.33	0.00	0.00	0.00	2.67	0.33	0.00	3.67	0.00
	10	4/24-4/27	2576	2902	54.0	56.6	4	76.25	0.00	0.00	0.00	6.75	1.00	1.00	9.00	0.00
	11	5/1-5/4	2030	2245	55.6	60.4	4	29.75	0.00	0.00	0.00	5.25	0.75	0.00	15.50	0.00
	13	5/15-5/18	3786	3881	62.6	64.5	3	10.67	0.00	0.00	0.33	0.33	0.00	0.00	10.33	0.00
	14	5/22-5/25	2321	3215	63.5	66.2	4	53.75	0.00	0.00	2.00	0.00	0.00	0.00	4.75	0.00
	15	5/30-6/1	1654	1662	62.4	70.5	3	2.67	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
	16	6/5-6/7	1392	1435	66.0	69.2	3	0.67	0.00	0.00	0.00	0.00	0.00	0.00	1.33	0.00
	17	6/14-6/15	1475	1558	66.7	67.6	2	14.00	2.50	0.00	0.00	0.00	0.00	0.00	3.50	0.00
	18	6/20-6/21	1381	1446	67.2	69.2	2	15.50	0.00	6.00	0.00	0.00	0.00	0.00	4.50	0.00
	19	6/26-6/27	1291	1383	69.2	69.6	2	4.50	0.00	2.00	0.00	0.00	0.00	0.00	1.50	0.00
Kinsman Frame Net	2	2/28-3/1	1411	1478			2	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3	3/6-3/9	1458	1821	45.0	45.9	4	11.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00
	4	3/13-3/16	1995	2135	45.6	48.0	4	21.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5	3/21-3/23	1950	2228	46.4	46.4	3	21.67	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00

[a] mean daily discharge range during sampling dates (discharge below IGD used for Bogus and I-5 sites; flow at Kinsman Site is Klamath River flow at Seiad minus Scott River flow)

[b] temperature recorded at time of trap check (true daily ranges from temperature loggers will become available at the end of the season)

Table 3. In-season summary of fork lengths, compared with the last ten years, of naturally-produced Chinook and Coho salmon by trap type at the Bogus, Klamathon, I-5, and Kinsman sites on the mainstem Klamath River, 2018. RST = rotary screw trap and YOY = young-of-the-year. Note: these data only include naturally-produced fish and end at the date of the release of hatchery fish.

Preliminary data - Subject to revision

			YOY Chinook (natural) - fork length data								YOY Coho - fork length data							
			2018					Previous 10 years			2018					Previous 10 years		
Site	Calendar Week	2018 sampling dates	n	Mean (mm)	Min. (mm)	Max. (mm)	% > 55 mm	n	Years of data	Mean (mm)	n	Mean (mm)	Min. (mm)	Max. (mm)	% > 55 mm	n	Years of data	Mean (mm)
Bogus	8	Feb 22	1	40.0	40	40	0.0%	39	1	35.1	0	-	-	-	-	0	0	-
Frame	9	Feb 27-Mar 1	90	37.2	33	41	0.0%	123	4	37.9	0	-	-	-	-	0	0	-
	10	Mar 6-8	76	36.4	31	42	0.0%	392	6	36.8	0	-	-	-	-	0	0	-
	11	Mar 13-15	90	36.6	31	42	0.0%	540	8	36.9	0	-	-	-	-	2	1	34.0
	12	Mar 20-22	90	35.8	30	49	0.0%	688	9	37.1	0	-	-	-	-	28	3	35.2
	13	Mar 27-29	90	36.3	31	41	0.0%	718	8	37.3	0	-	-	-	-	145	5	34.1
	14	Apr 3-5	90	38.0	32	45	0.0%	783	10	37.9	0	-	-	-	-	158	7	34.2
	15	Apr 11-12	60	38.9	31	50	0.0%	783	10	39.2	13	33.5	29	35	0.0%	217	10	34.9
	16	Apr 17-19	90	40.9	29	54	0.0%	815	10	39.2	78	33.2	26	37	0.0%	479	9	35.2
	17	Apr 24-26	90	46.8	33	61	14.4%	752	10	40.6	7	35.4	33	42	0.0%	516	8	34.6
	18	May 1-3	69	52.5	38	69	34.8%	722	10	43.7	0	-	-	-	-	258	10	38.2
	19	May 10	30	48.6	35	88	26.7%	650	10	44.9	8	41.3	32	46	0.0%	224	8	38.0
	20	May 15-17	88	58.4	38	93	42.0%	461	7	46.4	7	39.0	33	50	0.0%	116	6	43.0
	21	May 22-24	30	77.6	41	118	80.0%	249	5	46.8	0	-	-	-	-	21	4	44.4
Klamathon	9	Feb 28	30	38.9	34	47	0.0%	30	1	40.7	0	-	-	-	-	0	0	-
Seine	10	Mar 8	30	38.6	32	48	0.0%	62	4	39.8	0	-	-	-	-	0	0	-
	11	Mar 15	30	43.4	34	52	0.0%	102	5	39.4	0	-	-	-	-	0	0	-
	12	Mar 22	30	41.8	35	50	0.0%	175	8	38.4	0	-	-	-	-	0	0	-
	13	Mar 29	30	40.4	29	50	0.0%	186	8	39.8	0	-	-	-	-	0	0	-
	14	Apr 5	30	43.4	36	60	6.7%	141	8	40.6	0	-	-	-	-	1	1	42.0
	15	Apr 12	2	47.0	39	55	0.0%	262	10	41.6	0	-	-	-	-	5	2	36.2
	16	Apr 19	5	42.2	34	54	0.0%	257	10	42.7	0	-	-	-	-	4	1	34.3
	17	Apr 26	30	47.9	35	72	10.0%	237	10	44.8	0	-	-	-	-	2	1	34.0
	18	May 3	30	62.2	44	76	80.0%	269	10	51.5	0	-	-	-	-	2	1	39.5
	19	May 10	5	61.2	53	72	60.0%	243	10	51.1	0	-	-	-	-	1	1	47.0
	20	May 17	2	64.0	60	68	100.0%	205	9	55.1	0	-	-	-	-	4	3	46.7
	21	May 24	30	65.3	44	114	80.0%	173	6	57.7	0	-	-	-	-	4	2	49.7
	22	May 31	30	62.9	47	82	86.7%	113	4	61.7	0	-	-	-	-	0	0	-
	23	Jun 6	1	57.0	57	57	100.0%	42	3	67.0	0	-	-	-	-	0	0	-
I-5	8	Feb 21-22	41	37.9	32	43	0.0%	0	0	-	0	-	-	-	-	0	0	-
RST's	9	Feb 27-Mar 1	58	38.2	30	46	0.0%	120	2	39.2	0	-	-	-	-	0	0	-
	10	Mar 6-8	77	36.1	29	41	0.0%	309	5	38.3	0	-	-	-	-	0	0	-
	11	Mar 13-15	90	37.0	31	45	0.0%	423	10	37.8	0	-	-	-	-	1	1	35.0
	12	Mar 20-22	90	36.6	29	44	0.0%	511	9	37.5	0	-	-	-	-	0	0	-
	13	Mar 27-29	58	37.1	29	53	0.0%	606	8	37.7	0	-	-	-	-	12	3	35.1
	14	Apr 3-5	90	37.3	30	55	0.0%	643	10	39.2	0	-	-	-	-	10	4	33.2
	15	Apr 11-12	13	40.5	31	63	7.7%	642	10	41.6	1	39.0	39	39	0.0%	51	7	34.7
	16	Apr 17-19	43	50.7	34	71	34.9%	721	10	43.2	0	-	-	-	-	110	7	34.6
	17	Apr 24-26	63	59.2	35	84	63.5%	716	10	46.0	0	-	-	-	-	88	8	36.2
	18	May 1-3	72	62.6	39	86	62.5%	749	10	49.5	1	46.0	46	46	0.0%	29	6	40.2
	19	May 10	24	64.9	46	92	91.7%	722	10	53.0	0	-	-	-	-	28	10	43.3
	20	May 15-17	90	83.4	41	120	91.1%	693	10	59.5	1	45.0	45	45	0.0%	49	8	52.5
	21	May 22-24	90	84.8	58	123	100.0%	389	7	68.4	5	59.6	49	65	60.0%	51	5	52.8
	22	May 30-31	67	89.0	57	120	100.0%	178	3	67.4	3	60.7	55	65	66.7%	46	2	55.9
	23	Jun 5-7	80	87.4	41	123	86.3%	59	2	81.1	1	60.0	60	60	100.0%	10	2	61.3
I-5	8	Feb 21-22	10	35.6	32	40	0.0%	3	1	37.7	0	-	-	-	-	0	0	-
Frame	9	Feb 27-Mar 1	5	38.2	34	41	0.0%	77	2	38.8	0	-	-	-	-	0	0	-
	10	Mar 13-15	11	38.8	34	48	0.0%	140	2	38.9	0	-	-	-	-	0	0	-
	11	Mar 13-15	10	36.1	30	40	0.0%	186	5	37.4	0	-	-	-	-	1	1	35.0
	12	Mar 20-22	45	37.2	30	45	0.0%	309	6	36.8	0	-	-	-	-	14	2	35.4
	13	Mar 27-29	7	39.3	35	46	0.0%	465	6	37.3	0	-	-	-	-	80	5	34.2
	14	Apr 3-5	32	42.0	33	58	3.1%	418	6	37.4	0	-	-	-	-	62	5	34.6
	15		0	-	-	-	-	332	5	39.6	0	-	-	-	-	61	5	34.0
	16	Apr 17-19	10	48.5	33	67	20.0%	441	6	40.7	3	37.0	35	39	0.0%	103	6	35.3
	17	Apr 24-26	11	52.6	36	70	36.4%	404	6	42.4	0	-	-	-	-	75	6	36.1
	18	May 1-3	5	68.8	43	90	60.0%	308	6	45.8	0	-	-	-	-	49	4	40.2
	19		0	-	-	-	-	237	6	47.9	0	-	-	-	-	52	4	40.5
	20		0	-	-	-	-	213	5	54.0	0	-	-	-	-	21	4	45.1
	21	May 22-24	5	92.8	57	120	100.0%	111	2	49.0	0	-	-	-	-	2	1	54.5
	22	May 30-31	0	-	-	-	-	61	2	54.2	0	-	-	-	-	3	1	42.0

Table 3 (continued). In-season summary of fork lengths, compared with the last ten years, of naturally-produced Chinook and Coho salmon by trap type at the Bogus, Klamathon, I-5, and Kinsman sites on the mainstem Klamath River, 2018. RST = rotary screw trap and YOY = young-of-the-year. Note: these data only include naturally-produced fish and end at the date of the release of hatchery fish.

Preliminary data - Subject to revision

			YOY Chinook (natural) - fork length data								YOY Coho - fork length data							
			2018					Previous 10 years			2018					Previous 10 years		
Site	Calendar Week	2018 sampling dates	n	Mean (mm)	Min. (mm)	Max. (mm)	% > 55 mm	n	Years of data	Mean (mm)	n	Mean (mm)	Min. (mm)	Max. (mm)	% > 55 mm	n	Years of data	Mean (mm)
Kinsman	8	Feb 21-22	8	38.9	32	44	0.0%	0	0	-	0	-	-	-	-	0	0	-
RST	9	Feb 27-28	4	37.0	34	40	0.0%	90	3	37.8	0	-	-	-	-	0	0	-
	10	Mar 6-8	2	37.5	36	39	0.0%	254	4	38.8	0	-	-	-	-	0	0	-
	11	Mar 13-15	27	41.9	35	55	0.0%	363	8	39.6	0	-	-	-	-	12	1	33.4
	12	Mar 20-22	35	51.0	35	60	20.0%	555	8	41.7	0	-	-	-	-	33	2	35.0
	13	Mar 27-29	76	53.1	35	70	44.7%	624	7	42.5	0	-	-	-	-	77	3	34.6
	14	Apr 3-5	88	58.0	40	75	59.1%	579	8	43.5	0	-	-	-	-	64	7	35.1
	15	Apr 11-12	4	62.3	59	68	100.0%	586	9	45.5	0	-	-	-	-	62	7	35.0
	16	Apr 18-19	60	64.3	49	80	91.7%	647	9	50.0	0	-	-	-	-	122	7	33.3
	17	Apr 24-26	90	66.8	37	84	88.9%	686	9	51.5	0	-	-	-	-	105	6	38.6
	18	May 1-3	84	70.0	47	93	89.3%	622	9	55.7	1	43.0	43	43	0.0%	47	5	36.6
	19	May 10	1	90.0	90	90	100.0%	634	9	58.3	0	-	-	-	-	53	8	44.1
	20	May 15-17	16	90.1	75	105	100.0%	650	9	62.9	1	56.0	56	56	100.0%	82	9	46.3
	21	May 22-24	79	92.4	72	111	100.0%	612	9	65.3	7	56.3	49	61	42.9%	98	7	53.3
	22	May 30-31	6	92.0	78	103	100.0%	356	5	69.8	0	-	-	-	-	92	8	54.2
	23	Jun 5-7	2	82.5	81	84	100.0%	155	4	72.4	0	-	-	-	-	69	6	56.2
Kinsman	9	Feb 28-Mar 1	6	36.8	29	46	0.0%	0	0	-	0	-	-	-	-	0	0	-
Frame	10	Mar 6-8	32	40.0	36	53	0.0%	0	0	-	0	-	-	-	-	0	0	-
	11	Mar 13-15	42	39.8	30	51	0.0%	0	0	-	0	-	-	-	-	0	0	-
	12	Mar 21-22	34	44.6	30	60	5.9%	0	0	-	0	-	-	-	-	0	0	-

Table 4. In-season summary of clinical signs of disease in young-of-the-year Chinook Salmon by site at the Bogus, Klamathon, I-5, and Kinsman sites on the mainstem Klamath River, 2018. *Note: Although only Chinook Salmon are reported in this table, we also monitor clinical signs of diseases in Coho Salmon and other species. We have not observed any clinical signs of disease in Coho Salmon so far this season.*

Preliminary Data - Subject to Revision

Site	Calendar week	Sampling dates	Weekly mean flow (cfs) [a]	Water temp. (F) [b] Min	Water temp. (F) [b] Max	Belly Condition Sample size	Belly Condition Distended n	Belly Condition Distended %	Gills Color Sample size	Gills Color Pale or worse n	Gills Color Pale or worse %	Gills Condition Eroded or fungal n	Gills Condition Eroded or fungal %
Bogus	8	Feb 22	960	46.4	46.4	1	0	- [c]	0	-	-	-	-
	9	Feb 27-Mar 1	964	45.6	46.0	90	0	0.0%	0	-	-	-	-
	10	Mar 6-8	994	45.8	46.4	76	0	0.0%	0	-	-	-	-
	11	Mar 13-15	1,104	44.0	46.9	90	0	0.0%	0	-	-	-	-
	12	Mar 20-22	1,360	44.6	45.1	90	0	0.0%	1	0	- [c]	0	- [c]
	13	Mar 27-29	1,734	45.6	46.9	90	0	0.0%	0	-	-	-	-
	14	Apr 3-5	2,719	48.3	48.7	90	0	0.0%	0	-	-	-	-
	15	Apr 11-12	3,796	51.0	51.1	60	0	0.0%	5	0	- [c]	0	- [c]
	16	Apr 17-19	1,904	52.1	52.8	90	0	0.0%	20	1	5.0%	0	0.0%
	17	Apr 24-26	1,626	53.4	55.4	90	0	0.0%	53	0	0.0%	0	0.0%
	18	May 1-3	1,371	55.0	57.3	59	0	0.0%	49	11	22.4%	1	2.0%
	19	May 10	2,401	60.9	60.9	28	0	0.0%	14	1	7.1%	1	7.1%
	20	May 15-17	3,050	62.7	63.3	69	0	0.0%	50	23	46.0%	2	4.0%
	21	May 22-24	2,139	64.4	65.6	10	0	0.0%	5	3	- [c]	0	- [c]
Klamathon	9	Feb 28	964	46.9	46.9	30	0	0.0%	0	-	-	-	-
	10	Mar 8	994	48.9	48.9	30	0	0.0%	0	-	-	-	-
	11	Mar 15	1,104	43.8	43.8	30	0	0.0%	14	0	0.0%	0	0.0%
	12	Mar 22	1,360	45.5	45.5	30	0	0.0%	8	0	- [c]	0	- [c]
	13	Mar 29	1,734	49.2	49.2	30	0	0.0%	5	0	- [c]	0	- [c]
	14	Apr 5	2,719	48.9	48.9	30	0	0.0%	7	0	- [c]	0	- [c]
	15	Apr 12	3,796	51.0	51.0	2	0	- [c]	1	0	- [c]	0	- [c]
	16	Apr 19	1,904	53.2	53.2	5	0	- [c]	2	0	- [c]	0	- [c]
	17	Apr 26	1,626	56.4	56.4	30	0	0.0%	20	0	0.0%	0	0.0%
	18	May 3	1,371	59.1	59.1	30	0	0.0%	29	8	27.6%	0	0.0%
	19	May 10	2,401	60.9	60.9	5	0	- [c]	5	0	- [c]	0	- [c]
	20	May 17	3,050	63.6	63.6	2	0	- [c]	2	0	- [c]	0	- [c]
	21	May 24	2,139	66.0	66.0	30	0	0.0%	28	6	21.4%	0	0.0%
	22	May 31	1,200	67.2	67.2	30	0	0.0%	30	0	0.0%	0	0.0%
	23	Jun 6	1,264	69.6	69.6	1	0	- [c]	1	0	- [c]	0	- [c]
I-5	8	Feb 21-22	960	44.6	44.7	51	0	0.0%	0	-	-	-	-
	9	Feb 27-Mar 1	964	43.8	46.0	63	0	0.0%	0	-	-	-	-
	10	Mar 6-8	994	45.5	46.7	90	0	0.0%	0	-	-	-	-
	11	Mar 13-15	1,104	42.2	47.6	100	0	0.0%	0	-	-	-	-
	12	Mar 20-22	1,360	44.0	45.6	135	0	0.0%	0	-	-	-	-
	13	Mar 27-29	1,734	43.8	46.0	65	0	0.0%	7	0	- [c]	0	- [c]
	14	Apr 3-5	2,719	46.5	49.4	122	0	0.0%	10	0	0.0%	0	0.0%
	15	Apr 11-12	3,796	50.1	51.8	11	0	0.0%	0	-	-	-	-
	16	Apr 17-19	1,904	50.9	51.8	52	0	0.0%	33	0	0.0%	0	0.0%
	17	Apr 24-26	1,626	53.7	55.0	74	0	0.0%	66	2	3.0%	1	1.5%
	18	May 1-3	1,371	53.6	55.5	66	0	0.0%	60	4	6.7%	5	8.3%
	19	May 10	2,401	59.5	59.5	10	0	0.0%	10	2	20.0%	2	20.0%
	20	May 15-17	3,050	63.3	64.9	61	0	0.0%	59	5	8.5%	0	0.0%
	21	May 22-24	2,139	64.7	66.2	90	0	0.0%	90	1	1.1%	2	2.2%
	22	May 30-31	1,200	64.9	65.4	60	0	0.0%	60	0	0.0%	2	3.3%
	23	Jun 5-7	1,264	65.8	67.1	35	0	0.0%	33	2	6.1%	1	3.0%
Kinsman	8	Feb 21-22	1,418	-	-	8	0	- [c]	0	-	-	-	-
	9	Feb 27-Mar 1	1,449	-	-	10	0	0.0%	1	0	- [c]	0	- [c]
	10	Mar 6-8	1,584	45.0	45.9	34	0	0.0%	5	0	- [c]	0	- [c]
	11	Mar 13-15	1,982	47.7	48.0	69	0	0.0%	11	0	0.0%	0	0.0%
	12	Mar 20-22	2,139	46.4	46.4	68	0	0.0%	46	0	0.0%	0	0.0%
	13	Mar 27-29	2,556	-	-	76	0	0.0%	66	0	0.0%	0	0.0%
	14	Apr 3-5	3,462	49.4	50.4	88	0	0.0%	87	0	0.0%	0	0.0%
	15	Apr 11-12	5,936	46.6	48.4	4	0	- [c]	4	0	- [c]	0	- [c]
	16	Apr 18-19	3,225	49.8	50.7	60	0	0.0%	60	1	1.7%	1	1.7%
	17	Apr 24-26	2,689	54.0	56.1	90	0	0.0%	90	2	2.2%	1	1.1%
	18	May 1-3	2,215	55.6	56.3	84	0	0.0%	84	1	1.2%	0	0.0%
	19	May 10	3,126	59.2	59.2	0	-	-	0	-	-	-	-
	20	May 15-17	3,826	62.6	64.4	12	0	0.0%	12	2	16.7%	1	8.3%
	21	May 22-24	2,897	63.5	65.3	79	0	0.0%	79	4	5.1%	0	0.0%
	22	May 31-Jun 1	1,733	62.4	65.1	2	0	- [c]	2	0	- [c]	0	- [c]
	23	Jun 5-7	1,578	66.0	69.2	0	0	- [c]	0	0	- [c]	0	- [c]
	24	Jun 14-15	1,695	66.7	67.6	12	0	0.0%	12	8	66.7%	0	0.0%
	25	Jun 20-21	1,428	67.2	69.2	9	0	0.0%	9	2	- [c]	0	- [c]
	26	Jun 26-27	1,256	69.2	69.6	2	0	0.0%	2	1	- [c]	0	- [c]

[a] discharge below IGD used for Bogus, Klamathon, and I-5 sites; flow at Kinsman Site is Klamath River flow at Seiad minus Scott River flow

[b] temperature recorded at time of trap check/seine (true daily ranges from temperature loggers will become available at the end of the season)

[c] sample size too low for a reportable calculation

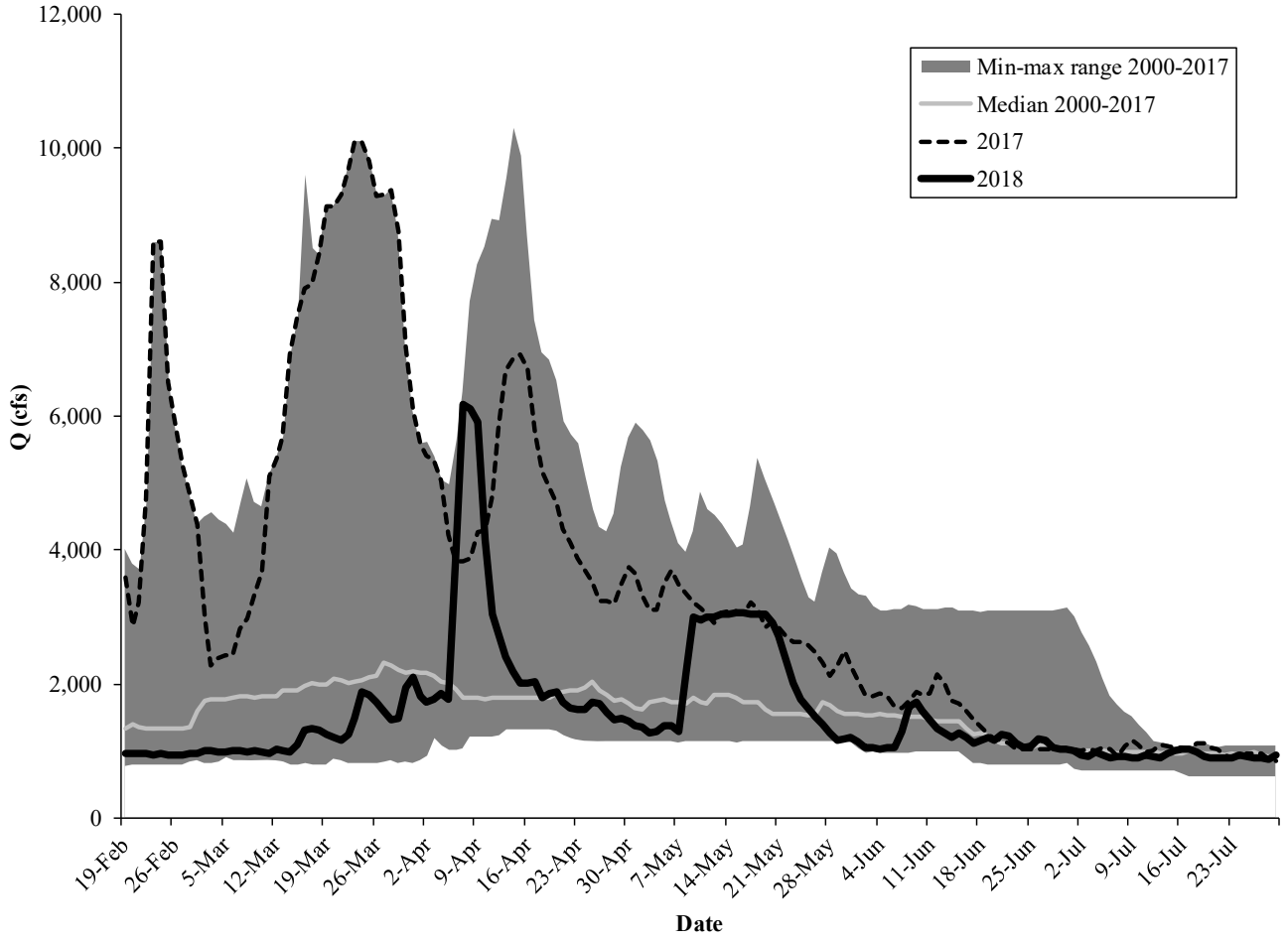

Figure 1. Daily mean discharge below Iron Gate Dam, Klamath River (USGS Gaging Station 11516530) from late February through July, 2000–2018.

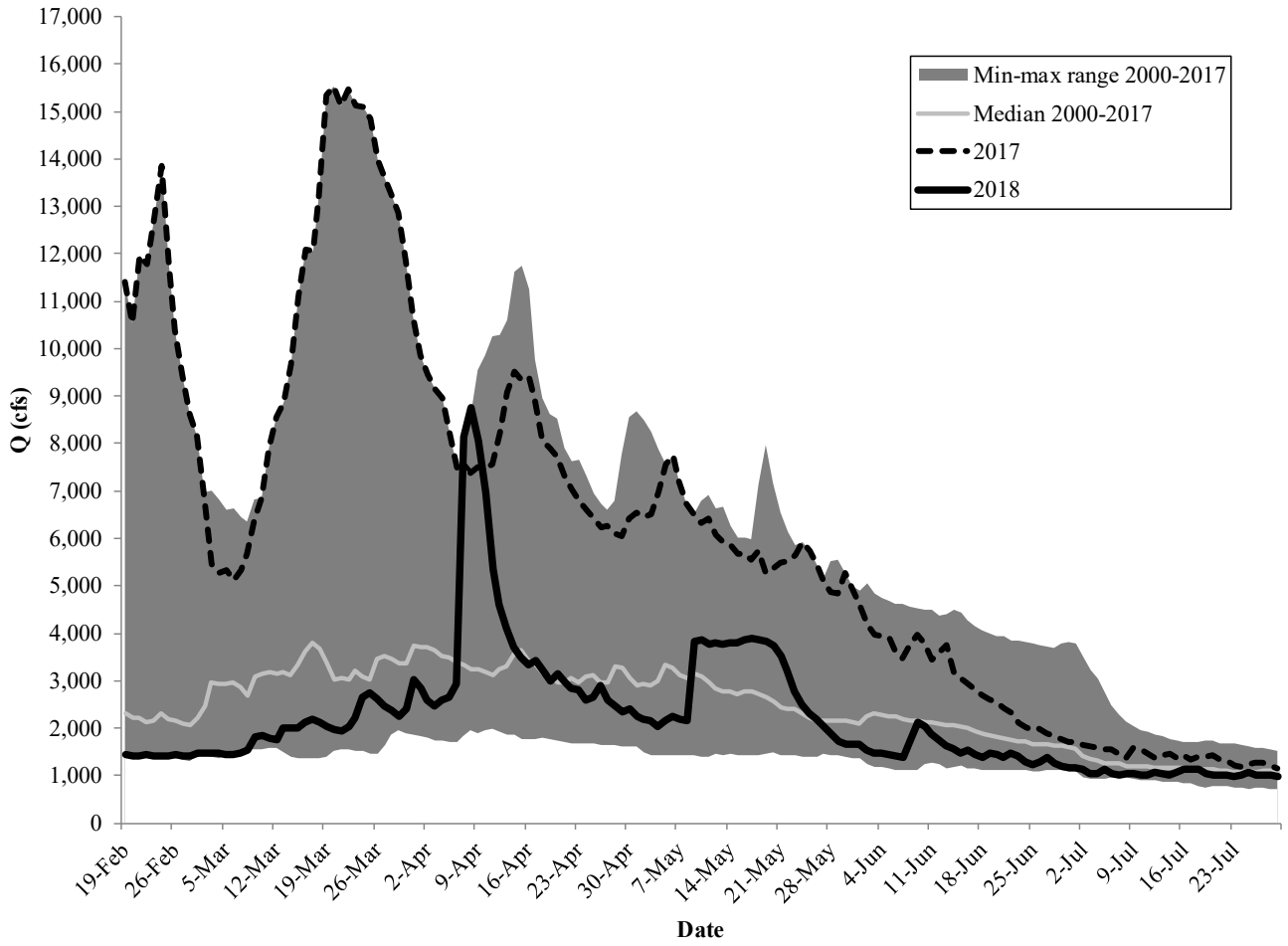

Figure 2. Klamath River daily mean discharge at the Kinsman Trap Site from late February through July, 2000–2018. Flow measurements are not available at this location. Therefore Klamath River flow near Seiad Valley, California (USGS Gaging Station 11520500) minus flow from the Scott River near Fort Jones, California (USGS 11511950) is used as a surrogate.