



Klamath River Outmigrant Monitoring Update — June 12, 2023

Synopsis: The outmigration of juvenile salmonids is monitored annually on the mainstem Klamath River by the USFWS Arcata Fish and Wildlife Office (AFWO), the Karuk Tribe of California, and the Yurok 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 length and presence of clinical signs of disease at four selected locations on the mainstem Klamath River.
2. Examine subsamples of Chinook Salmon, Coho Salmon, and steelhead for external disease indicators and 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 *Ceratonova shasta* infection rate in the outmigrant population.
3. Collect relative abundance and biological data on Coho Salmon and steelhead at the four 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 S3 (Stream Salmonid Simulator) Chinook Salmon production model, among others.

Monitoring is conducted at four sites on the mainstem Klamath River between Iron Gate Dam (IGD; rkm 309.65) and the Trinity River confluence (rkm 64.3). 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 'Kinsman Trap Site' (rkm 237.55-238.56) consists of two traps separated by ~1km. The upstream trap is located on the left bank of the main channel downstream of the confluence of Horse Creek. The downstream trap is located on the left bank is positioned in a side channel on the left bank just upstream of the Kinsman Creek confluence. The 'Weitchpec Trap Site' (rkm 65) is the farthest downstream and is 0.7 km upstream of the Trinity River confluence behind the Yurok Tribal office in Weitchpec, California.

Trapping at the Bogus Trap Site is conducted using a single 3.1-m wide and 1.6-m tall frame net. Sampling at the I-5 Trap Site is conducted using two in-line 8-ft diameter rotary screw traps (RST) and one 3.1-m by 1.6-m frame net. The Kinsman Trap side consists of one 8-ft diameter RST upstream and one 5-ft diameter RST in the downstream side channel. The Weitchpec trap site uses one 8-ft diameter RST on the left bank and periodically one to two 3.1-m by 1.6-m frame nets on the right bank. Traps are typically operated four nights per week (Monday through Thursday) and checked once daily while in operation. Trapping began the week of March 16 [Calendar Week (CW) 11] at Bogus, I-5, and Kinsman sites in 2023 due to winter storms delaying trap deployment. *Winter storms, high flows, and general unsafe conditions have prevented the installation of the Weitchpec site at this time.*

This project update provides an in-season summary of the 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 provide weekly estimates of mean fork length of YOY Chinook and Coho salmon from each of the four trap sites (Table 3). Expansions to generate weekly-stratified abundance estimates are calculated after the end of the sampling 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.*

Included in this project update is a weekly-stratified summary of clinical signs of disease observed in the catch for the trap and seine sites (Table 4). Note that these data are based on the visual presence of external symptoms of disease, which may not always be revealed by infected fish. 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 (Table 4). 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 are 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 determine infection rates more accurately for the outmigrant juvenile Chinook Salmon population passing the Kinsman Trap Site, I-5 Trap Site, and Weitchpec Trap Site, weekly-stratified random samples are collected, preserved, and delivered to the CA–NV FHC to process using qPCR assays. This season's fish health sampling began the week of March 20. The CA–NV FHC investigates infection rates of *C. shasta* and other pathogens in juvenile salmonids in the Klamath River annually. The CA–NV FHC releases regular updates (available on the [USFWS online library](#)) and a final report for each season.

We also present daily mean discharge below IGD (Figure 1), at the Kinsman Trap Site (Figure 2), and at the Weitchpec Trap Site (Figure 3) from late February to July to help portray pertinent flow conditions. Discharge at the Bogus and I-5 trap sites are 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) is used as a surrogate flow for the Kinsman Trap Site. Discharge at USGS 10523000 (Klamath River at Orleans, California) is used to represent flow at the Weitchpec Trap Site.

If you have any questions regarding this summary, please contact Tyler Wallin (tyler_wallin@fws.gov) or Bill Pinnix (bill_pinnix@fws.gov).

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, 2023. Note that RST = rotary screw trap, UPS = upstream, DNS = downstream, and YOY = young-of-the-year.

USFWS 2023 Mainstem Klamath River Outmigrant Trap Juvenile Salmonid Catch Summary

U.S. Fish & Wildlife Service, Arcata Fish & Wildlife Office, 1655 Heindon Road, Arcata, CA 95521, (707)822-7201

Preliminary Data - Subject to Revision

Trap	Calendar week	Sample dates	Q (cfs) ^a		Water temp. (°F) ^b		Trapping days	Chinook (<i>O. tshawytscha</i>)			Coho (<i>O. kisutch</i>)			Steelhead (<i>O. mykiss</i>)		
			Min	Max	Min	Max		YOY			Age 1+			Age 1+		
								No clip	AD clip	Age 1+	YOY	No clip	LMclip	YOY	No clip	AD clip
Bogus Frame Net	12	3/21-3/24	993	1,210	43.7	44.9	3	477	0	0	0	0	0	0	1	0
	13	3/28-3/31	994	1,000	42.0	44.7	4	478	0	0	0	0	0	0	0	0
	14	4/4-4/7	1,310	1,360	44.6	45.5	4	783	0	0	0	0	0	0	0	0
	15	4/11-4/14	1,350	1,350	47.6	49.1	4	2183	0	0	13	0	0	0	1	0
	16 ^c	4/18-4/21	1,390	6,140	-	-	0	-	-	-	-	-	-	-	-	-
	17 ^c	4/25-4/28	3,190	3,480	-	-	0	-	-	-	-	-	-	-	-	-
	18 ^c	5/2-5/5	3,020	3,070	-	-	0	-	-	-	-	-	-	-	-	-
	19	5/9-5/12	2,990	3,030	58.1	58.1	2	116	0	0	33	0	0	115	0	0
	20	5/16-5/19	2,580	2,760	60.4	63.3	4	158	0	0	19	0	0	91	0	0
	21	5/23-5/26	2,250	2,370	64.9	65.6	4	100	0	0	41	0	0	128	1	0
	22	5/31-6/2	1,960	2,080	66.5	67.2	2	6	0	0	1	0	0	1	0	0
	23	6/6-6/9	1,630	1,780	-	-	0	0	0	0	0	0	0	0	0	0
	I-5 UPS RST	11	3/16-3/16	1,800	1,800	39.0	39.0	0	-	-	-	-	-	-	-	-
12		3/21-3/24	993	1,210	41.4	43.1	4	690	0	3	0	1	2	0	5	0
13		3/28-3/31	994	1,000	41.7	43.1	4	657	1	0	0	0	5	0	1	0
14		4/4-4/7	1,310	1,360	43.1	44.9	4	420	0	0	0	1	0	0	2	0
15		4/11-4/14	1,350	1,350	43.7	46.7	4	417	0	0	5	0	0	0	1	0
16		4/18-4/21	1,390	6,140	46.0	47.3	2	160	0	0	5	0	2	0	0	0
17		4/25-4/28	3,190	3,480	51.4	54.5	4	44	0	0	4	1	0	1	1	0
18		5/2-5/5	3,020	3,070	55.5	55.9	4	293	0	0	9	0	0	15	0	0
19		5/9-5/12	2,990	3,030	55.7	58.2	4	1061	0	0	30	2	1	83	0	0
20		5/16-5/19	2,580	2,760	58.6	64.9	4	593	0	0	77	0	1	176	1	0
21		5/23-5/26	2,250	2,370	62.9	64.9	4	1393	0	0	160	0	0	98	2	0
22		5/31-6/2	1,960	2,080	64.5	65.6	3	258	0	0	27	0	0	16	2	0
23		6/6-6/9	1,630	1,780	64.4	67	3	152	0	0	14	0	0	4	0	0
I-5 DNS RST	11	3/16-3/16	993	1,800	39.4	39.4	1	254	0	2	0	0	0	0	0	0
	12	3/21-3/24	1,800	1,210	41.4	43.1	4	305	0	0	0	0	3	0	0	0
	13	3/28-3/31	994	1,000	41.7	43.1	4	364	0	0	0	0	0	1	0	0
	14	4/4-4/7	1,310	1,360	43.1	44.9	3	191	0	0	0	0	0	0	0	0
	15	4/11-4/14	1,350	1,350	43.7	46.7	4	282	0	0	2	0	0	0	0	0
	16	4/18-4/21	1,390	6,140	46.0	47.3	2	154	0	0	0	0	0	1	0	0
	17	4/25-4/28	3,190	3,480	51.4	54.5	4	48	0	0	3	0	0	3	3	0
	18	5/2-5/5	3,020	3,070	55.5	55.9	4	252	0	0	9	2	0	10	1	0
	19	5/9-5/12	2,990	3,030	55.7	58.2	4	659	0	1	7	0	0	54	0	0
	20	5/16-5/19	2,580	2,760	58.6	64.9	4	481	0	0	23	0	0	117	2	0
	21	5/23-5/26	2,250	2,370	62.9	64.9	4	801	0	0	95	0	0	57	1	0
	22	5/31-6/2	1,960	2,080	64.5	65.6	3	129	0	0	21	0	0	7	0	0
	23	6/6-6/9	1,630	1,780	64.4	67	3	11	1	0	7	0	0	9	0	0
I-5 Frame Net	11	3/16-3/16	1,800	1,800	39.4	39.4	0	-	-	-	-	-	-	-	-	-
	12	3/21-3/24	993	1,210	41.4	43.1	4	275	0	0	0	0	0	0	0	0
	13	3/28-3/31	994	1,000	41.7	43.1	4	299	0	0	0	0	1	0	1	0
	14	4/4-4/7	1,310	1,360	43.1	44.9	4	151	0	0	0	1	0	0	0	0
	15	4/11-4/14	1,350	1,350	45.3	47.3	4	254	0	0	5	0	0	0	0	0
	16	4/18-4/21	1,390	6,140	46.0	47.3	2	153	0	0	32	0	0	0	0	0
	17 ^c	4/25-4/28	3,190	3,480	-	-	0	-	-	-	-	-	-	-	-	-
	18 ^c	5/2-5/5	3,020	3,070	-	-	0	-	-	-	-	-	-	-	-	-
	19 ^c	5/9-5/12	2,990	3,030	-	-	0	-	-	-	-	-	-	-	-	-
	20 ^c	5/16-5/19	2,580	2,760	-	-	0	-	-	-	-	-	-	-	-	-
	21 ^c	5/23-5/26	2,250	2,370	-	-	0	-	-	-	-	-	-	-	-	-
	22 ^c	5/31-6/2	1,960	2,080	-	-	0	-	-	-	-	-	-	-	-	-
	23 ^c	6/6-6/9	1,630	1,780	-	-	0	-	-	-	-	-	-	-	-	-
Kinsman RST	11	3/14-3/16	3,771	4,910	-	-	0	-	-	-	-	-	-	-	-	-
	12	3/21-3/24	2,250	2,882	43.7	45.8	4	50	0	0	0	19	0	2	3	0
	13	3/28-3/31	1,953	2,087	41.8	47.1	4	140	0	4	4	6	0	2	0	0
	14	4/4-4/7	2,181	2,356	43.6	47.6	4	182	0	0	1	4	2	0	4	0
	15	4/11-4/14	2,960	3,780	45.9	50.0	4	71	1	0	0	11	1	3	1	1
	16	4/18-4/21	2,656	7,164	47.7	47.8	2	79	0	0	0	1	0	0	1	1
	17 ^c	4/25-4/28	5,380	5,870	-	-	0	-	-	-	-	-	-	-	-	-
	18	5/2-5/5	4,860	5,480	54.3	54.7	3	15	0	0	3	1	1	0	2	0
	19	5/9-5/12	4,530	4,620	54.3	58.6	3	83	0	1	2	2	0	2	3	0
	20	5/16-5/19	5,130	5,220	55.1	72.3	4	48	0	0	25	0	0	6	4	0
	21	5/23-5/26	3,920	4,490	59.7	63.6	4	20	0	0	25	0	0	1	2	0
	22	5/31-6/2	3,290	3,640	62.5	63.4	3	86	0	0	53	0	0	3	0	0
	23	6/6-6/9	2,760	3,040	65.0	65.6	2	222	0	0	80	0	0	19	0	0
Kinsman UPS RST	11	3/16-3/16	4,018	4,018	-	-	0	-	-	-	-	-	-	-	-	-
	12	3/21-3/24	2,250	2,882	43.1	44.7	4	37	0	0	0	23	0	5	0	0
	13	3/28-3/31	1,953	2,087	43.6	46.1	4	171	0	0	3	6	2	0	1	0
	14	4/4-4/7	2,181	2,356	43.9	49.7	4	233	0	0	2	5	1	1	1	0
	15	4/11-4/14	2,960	3,780	46.3	49.0	4	278	0	0	3	16	0	6	2	0
	16	4/18-4/21	2,656	7,164	47.9	47.9	2	137	0	0	0	0	0	0	0	0
	17	4/25-4/28	5,380	5,870	51.1	52.8	1	2	0	0	1	0	0	0	1	0
	18 ^c	5/2-5/5	4,860	5,480	54.3	54.4	4	51	0	0	2	2	1	0	1	0
	19	5/9-5/12	4,530	4,620	54.9	58.1	4	237	0	2	4	4	0	4	1	0
	20	5/16-5/19	5,130	5,220	57.7	60.9	0	5	0	0	0	0	0	0	1	0
	21	5/23-5/26	3,920	4,490	60.1	63.4	4	121	0	0	4	0	0	0	1	0
	22	5/31-6/2	3,290	3,640	62.8	63.8	3	173	0	0	7	0	0	3	1	0
	23	6/6-6/9	2,760	3,040	65.1	65.6	3	285	0	0	80	0	0	42	6	0

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

^b temperature recorded at time of trap check

^c trap not set this week because trapping operations were limited due to a flow event and/or hatchery release

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, I-5, and Kinsman sites on the mainstem Klamath River, 2023. RST = rotary screw trap and YOY = young-of-the-year.

USFWS 2023 Mainstem Klamath River YOY Chinook and Coho Salmon Size Summary

U.S. Fish & Wildlife Service, Arcata Fish & Wildlife Office, 1655 Heindon Road, Arcata, CA 95521, (707)822-7201

Preliminary data - Subject to revision

Site	Calendar Week	2023 Sampling Dates	YOY Chinook (natural) - fork length data				YOY Coho - fork length data												
			2023				Previous 10 years		2023				Previous 10 years						
			n	Mean (mm)	Min. (mm)	Max. (mm)	% > 55 mm	n	Mean (mm)	n	Mean (mm)	Min. (mm)	Max. (mm)	% > 55 mm	n	Mean (mm)			
Bogus Frame	8 ^a	Feb 21-23	0	-b	-b	-b	-b	40	2	37.6	0	-b	-b	-b	-b	0	0	-	
	9 ^a	Feb 28-Mar 02	0	-b	-b	-b	-b	213	5	37.7	0	-b	-b	-b	-b	0	0	-	
	10 ^a	Mar 07-09	0	-b	-b	-b	-b	604	10	36.8	0	-b	-b	-b	-b	0	2	-	
	11 ^a	Mar 14-16	0	-b	-b	-b	-b	694	9	37.0	0	-b	-b	-b	-b	0	1	-	
	12	Mar 21-23	60	37.3	34.0	41.0	0	615	9	32.6	0	-b	-b	-b	-b	20	4	25.8	
	13	Mar 28-30	90	37.2	33.0	44.0	0	673	8	37.3	0	-b	-b	-b	-b	133	3	22.7	
	14	Apr 04-06	90	37.4	6.0	41.0	0	662	9	37.9	0	-b	-b	-b	-b	172	5	33.9	
	15	Apr 11-13	90	38.1	31.0	43.0	0	603	8	40.2	10	-b	-b	-b	-b	374	8	35.0	
	16 ^a	Apr 18-20	0	-b	-b	-b	-b	725	10	39.6	0	-b	-b	-b	-b	423	9	35.0	
	17 ^a	Apr 25-27	0	-b	-b	-b	-b	632	9	42.3	0	-b	-b	-b	-b	281	7	34.5	
	18 ^a	May 02-04	0	-b	-b	-b	-b	701	10	45.3	0	-b	-b	-b	-b	286	9	38.5	
	19	May 09-11	30	43.8	36.0	57.0	3%	519	10	46.4	30	43.8	36	57	3%	199	8	37.3	
	20	May 16-18	84	51.4	37.0	70.0	36%	328	7	50.8	13	-b	-b	-b	-b	30	5	42.6	
	21	May 23-25	76	56.7	38.0	90.0	49%	106	6	52.7	9	-b	-b	-b	-b	33	4	46.2	
	22	May 30-Jun 01	4	-b	-b	-b	-b	70	3	57.4	1	-b	-b	-b	-b	14	2	19.7	
	23	Jun 06-08	0	-b	-b	-b	-b	20	3	61.2	0	-b	-b	-b	-b	1	2	21.0	
	I-5 RSTs	8 ^a	Feb 21-23	0	-b	-b	-b	-b	41	1	37.9	0	-b	-b	-b	-b	0	0	-
		9 ^a	Feb 28-Mar 02	0	-b	-b	-b	-b	178	3	38.8	0	-b	-b	-b	-b	0	0	-
		10 ^a	Mar 07-09	0	-b	-b	-b	-b	696	10	37.7	0	-b	-b	-b	-b	0	2	-
		11	Mar 14-16	28	-b	-b	-b	-b	685	10	37.8	0	-b	-b	-b	-b	1	2	17.5
		12	Mar 21-23	90	38.0	33.0	43.0	0	722	9	37.3	0	-b	-b	-b	-b	0	1	-
		13	Mar 28-30	90	38.2	32.0	44.0	0	590	8	37.9	0	-b	-b	-b	-b	15	4	35.0
		14	Apr 04-06	90	38.1	31.0	44.0	0	759	10	39.3	0	-b	-b	-b	-b	38	5	34.2
15		Apr 11-13	91	39.0	33.0	50.0	0	645	9	43.1	3	-b	-b	-b	-b	61	6	35.3	
16		Apr 18-20	60	39.8	34.0	47.0	0	814	10	46.1	5	-b	-b	-b	-b	108	6	34.5	
17		Apr 25-27	63	42.0	34.0	55.0	0	777	10	49.5	7	-b	-b	-b	-b	161	7	36.5	
18		May 02-04	95	49.8	35.0	67.0	25%	861	10	52.5	8	-b	-b	-b	-b	131	9	42.6	
19		May 09-11	90	52.1	37.0	65.0	24%	755	10	55.1	32	40.8	33	47	0%	47	8	37.9	
20		May 16-18	90	56.6	37.0	70.0	56%	748	10	62.6	61	50.2	36	65	11%	25	7	51.5	
21		May 23-25	90	64.9	46.0	89.0	86%	528	8	71.9	88	50.3	39	62	15%	23	5	53.7	
22		May 30-Jun 01	60	75.0	50.0	94.0	95%	308	4	72.0	37	52.6	36	67	43%	19	3	57.7	
23	Jun 06-08	79	77.0	43.0	98.0	90%	254	4	77.5	21	-b	-b	-b	-b	51	3	59.4		
I-5 Frame	8 ^a	Feb 21-23	0	-b	-b	-b	-b	13	2	36.7	0	-b	-b	-b	-b	0	0	-	
	9 ^a	Feb 28-Mar 02	0	-b	-b	-b	-b	82	3	38.6	0	-b	-b	-b	-b	0	0	-	
	10 ^a	Mar 07-09	0	-b	-b	-b	-b	222	7	38.0	0	-b	-b	-b	-b	0	2	-	
	11	Mar 14-16	9	-b	-b	-b	-b	270	6	37.1	0	-b	-b	-b	-b	1	2	17.5	
	12	Mar 21-23	90	37.5	32.0	42.0	0	311	6	37.5	0	-b	-b	-b	-b	3	2	17.7	
	13	Mar 28-30	90	38.4	35.0	43.0	0	323	6	37.9	0	-b	-b	-b	-b	64	4	24.1	
	14	Apr 04-06	71	38.3	34.0	43.0	0	371	7	38.2	0	-b	-b	-b	-b	69	4	35.1	
	15	Apr 11-13	90	39.1	34.0	47.0	0	212	5	40.5	3	-b	-b	-b	-b	44	4	26.1	
	16	Apr 18-20	60	44.4	9.0	388.0	2%	370	8	43.1	32	34.3	32	38	0%	61	8	35.0	
	17 ^a	Apr 25-27	0	-b	-b	-b	-b	325	7	45.4	7	-b	-b	-b	-b	44	6	36.9	
	18 ^a	May 02-04	0	-b	-b	-b	-b	321	8	50.0	0	-b	-b	-b	-b	110	4	39.3	
	19 ^a	May 09-11	0	-b	-b	-b	-b	327	7	48.4	0	-b	-b	-b	-b	87	6	42.4	
	20 ^a	May 16-18	0	-b	-b	-b	-b	181	6	54.7	0	-b	-b	-b	-b	14	5	44.8	
	21 ^a	May 23-25	0	-b	-b	-b	-b	78	5	61.7	0	-b	-b	-b	-b	2	2	21.8	
	22 ^a	May 30-Jun 01	0	-b	-b	-b	-b	24	2	53.7	0	-b	-b	-b	-b	7	2	23.4	
23	Jun 06-08	0	-b	-b	-b	-b	18	2	65.7	0	-b	-b	-b	-b	1	2	22.0		
Kinsman RSTs	8 ^a	Feb 21-23	0	-b	-b	-b	-b	8	1	38.9	0	-b	-b	-b	-b	0	0	-	
	9 ^a	Feb 28-Mar 02	0	-b	-b	-b	-b	94	4	37.6	0	-b	-b	-b	-b	0	0	-	
	10 ^a	Mar 07-09	0	-b	-b	-b	-b	504	8	37.7	0	-b	-b	-b	-b	2	2	16.5	
	11	Mar 14-16	0	-b	-b	-b	-b	601	8	39.0	0	-b	-b	-b	-b	14	2	34.2	
	12	Mar 21-23	65	38.2	32.0	52.0	0	610	8	41.6	0	-b	-b	-b	-b	32	3	34.1	
	13	Mar 28-30	171	43.9	35.0	104.0	5%	652	8	42.5	6	-b	-b	-b	-b	111	5	34.4	
	14	Apr 04-06	179	46.5	35.0	62.0	9%	638	8	44.7	3	-b	-b	-b	-b	61	5	33.4	
	15	Apr 11-13	103	47.8	34.0	64.0	17%	737	9	49.5	3	-b	-b	-b	-b	46	7	34.1	
	16	Apr 18-20	60	53.1	39.0	78.0	35%	712	9	52.7	0	-b	-b	-b	-b	100	7	33.8	
	17 ^a	Apr 25-27	1	-b	-b	-b	-b	643	8	53.7	1	-b	-b	-b	-b	132	5	37.1	
	18	May 02-04	47	62.7	46.0	79.0	79%	684	9	55.5	4	-b	-b	-b	-b	40	4	38.3	
	19	May 09-11	157	59.9	33.0	86.0	73%	583	9	60.6	157	59.9	33	86	73%	49	6	46.5	
	20	May 16-18	42	60.2	36.0	81.0	76%	599	9	63.3	23	-b	-b	-b	-b	68	7	50.2	
	21	May 23-25	116	67.2	36.0	94.0	85%	516	9	69.1	37	42.3	26	60	16%	79	8	50.5	
	22	May 30-Jun 01	107	69.2	32.0	96.0	90%	198	6	73.7	49	39.3	32	75	8%	34	6	55.9	
23	Jun 06-08	97	79.5	59.0	101.0	100%	70	5	73.7	36	36.9	30	52	0%	37	3	56.4		

^a trap not set this week because trapping operations were limited due to a flow event and/or hatchery release

^b sample size too low for a reportable calculation

Table 4. In-season summary of clinical signs of disease in young-of-the-year Chinook Salmon by site at the Bogus, I-5, and Kinsman sites on the mainstem Klamath River, 2023. *Note: Although only Chinook Salmon are reported in this table, we also monitor clinical signs of diseases in Coho Salmon and other species.*

USFWS 2023 Mainstem Klamath River YOY Chinook Salmon Clinical Signs of Disease Summary

U.S. Fish & Wildlife Service, Arcata Fish & Wildlife Office, 1655 Heindon Road, Arcata, CA 95521, (707)822-7201

Preliminary Data - Subject to Revision

Site	Calendar week	Sampling dates	Weekly mean flow (cfs) ^a	Water temp. (°F) ^b		Belly condition			Gills				
				Min	Max	Sample size	Distended		Sample size	Color		Condition	
							# positive	%		# positive	%	# positive	%
Bogus	12	3/21-3/24	1,154	43.7	44.9	60	0	0.0%	0	0	0	0	0
	13	3/28-3/31	1,031	42.0	44.7	90	0	0.0%	0	0	0	0	0
	14	4/4-4/7	1,323	44.6	45.5	90	0	0.0%	0	0	0	0	0
	15	4/11-4/14	1,346	47.6	49.1	89	0	0.0%	0	0	0	0	0
	16 ^c	4/18-4/21	3,683	-	-	-	-	-	-	-	-	-	-
	17 ^c	4/25-4/28	3,584	-	-	-	-	-	-	-	-	-	-
	18 ^c	5/2-5/5	3,044	-	-	-	-	-	-	-	-	-	-
	19	5/9-5/12	2,991	58.1	58.1	30	1	3.3%	11	1	0	1	0
	20	5/16-5/19	2,706	60.4	63.3	75	11	14.7%	50	0	0.0%	0	0.0%
	21	5/23-5/26	2,337	64.9	65.6	75	13	17.3%	30	1	3.3%	1	3.3%
	22	5/31-6/2	2,066	66.5	67.2	4	0	0	0	0	0	0	0
	23	6/6-6/9	1,720	-	-	-	-	-	-	-	-	-	-
	I-5	11 ^c	3/16-3/16	1,415	39.0	39.0	37	0	0.0%	0	0	0	0
12		3/21-3/24	1,154	41.4	43.1	180	0	0.0%	0	0	0	0	0
13		3/28-3/31	1,031	41.7	43.1	180	0	0.0%	0	0	0	0	0
14		4/4-4/7	1,323	43.1	44.9	161	0	0.0%	0	0	0	0	0
15		4/11-4/14	1,346	43.7	46.7	180	0	0.0%	4	1	0	0	0
16		4/18-4/21	3,683	46.0	47.3	120	0	0.0%	5	0	0	0	0
17		4/25-4/28	3,584	51.4	54.5	62	1	1.6%	21	0	0	0	0
18		5/2-5/5	3,044	55.5	55.9	89	2	2.2%	60	2	3.3%	3	5.0%
19		5/9-5/12	2,991	55.7	58.2	89	3	3.4%	80	5	6.3%	11	13.8%
20		5/16-5/19	2,706	58.6	64.9	88	11	12.5%	64	13	20.3%	3	4.7%
21		5/23-5/26	2,337	62.9	64.9	89	7	7.9%	71	6	8.5%	6	8.5%
22		5/31-6/2	2,066	64.5	65.6	60	0	0.0%	48	4	8.3%	3	6.3%
23		6/6-6/9	1,720	64.4	67.0	80	1	1.3%	68	0	0.0%	2	2.9%
Kinsman	12	3/21-3/24	2,626	43.7	45.8	59	0	0.0%	5	0	0	0	0
	13	3/28-3/31	2,022	41.8	47.1	171	0	0.0%	66	0	0.0%	0	0.0%
	14	4/4-4/7	2,305	43.6	47.6	177	3	1.7%	105	0	0.0%	0	0.0%
	15	4/11-4/14	3,118	45.9	50.0	97	1	1.0%	65	0	0.0%	0	0.0%
	16	4/18-4/21	4,583	47.7	47.8	60	0	0.0%	54	1	1.9%	1	1.9%
	17 ^c	4/25-4/28	5,921	-	-	0	0	-	0	0	0	0	0
	18	5/2-5/5	5,217	54.3	54.7	44	1	2.3%	45	1	2.2%	0	0.0%
	19	5/9-5/12	4,641	54.3	58.6	156	0	0.0%	154	0	0.0%	0	0.0%
	20	5/16-5/19	5,130	55.1	72.3	39	2	5.1%	37	0	0.0%	0	0.0%
	21	5/23-5/26	4,326	59.7	63.6	108	1	0.9%	108	2	1.9%	0	0.0%
	22	5/31-6/2	3,563	62.5	63.4	103	20	19.4%	97	25	25.8%	16	16.5%
23	6/6-6/9	2,869	65.0	65.6	95	6	6.3%	96	2	2.1%	0	0.0%	

^a discharge below IGD used for Bogus and I-5 sites; discharge at Kinsman Site is Klamath River discharge near Seiad Valley minus discharge in the Scott River near Fort Jones; discharge at Weitchpec Site is discharge near

^b temperature recorded at time of trap check/seine

^c trap not set this week because trapping operations were limited due to a flow event and/or hatchery release

^d sample size too low for a reportable calculation

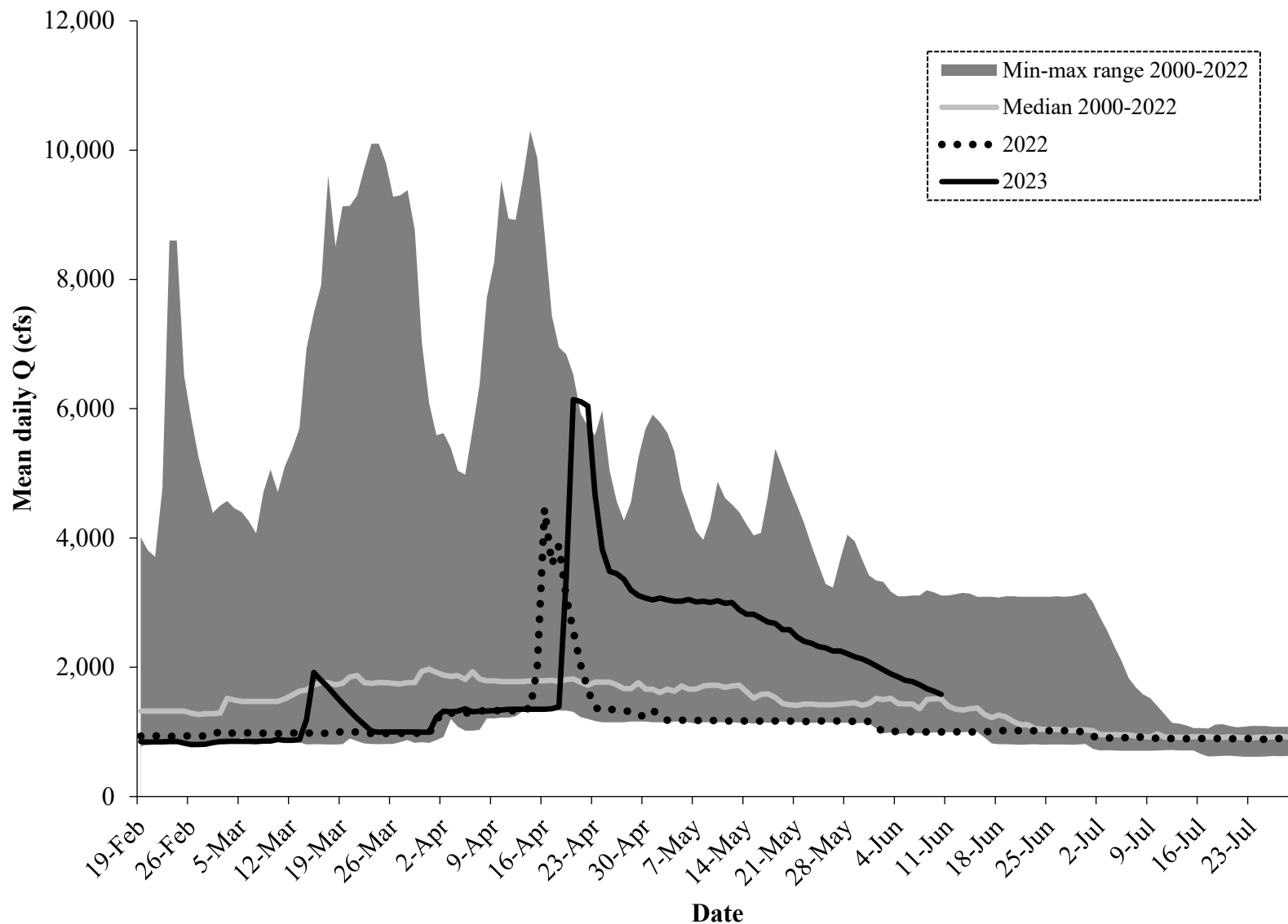


Figure 1. Daily mean discharge below Iron Gate Dam, Klamath River (USGS Gaging Station 11516530) from late February through July, 2000–2023

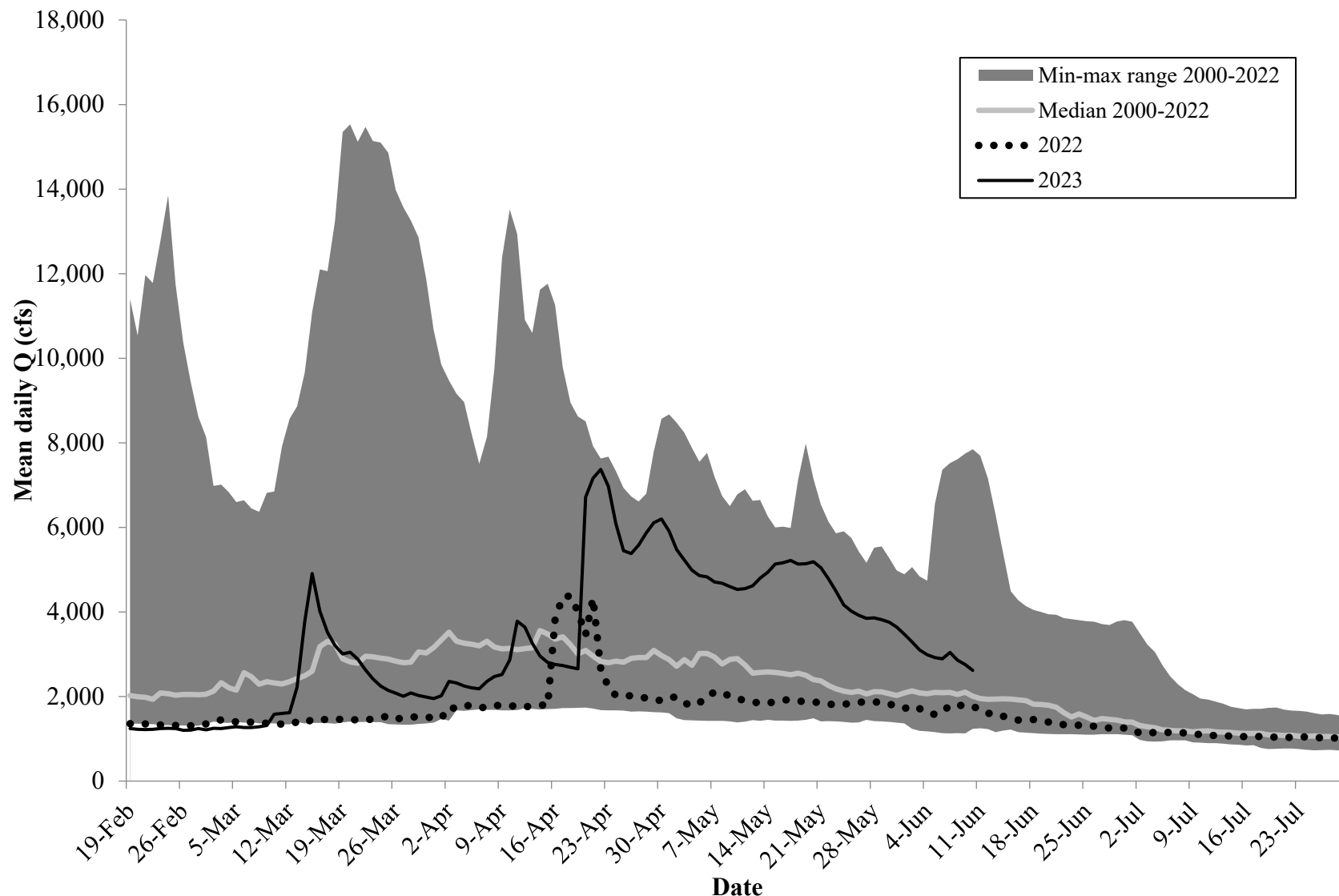


Figure 2. Klamath River daily mean discharge at the Kinsman Trap Site from late February through July 2000–2023. Discharge measurements are not available at this location. Therefore, Klamath River discharge near Seiad Valley, California (USGS Gaging Station 11520500) minus discharge from the Scott River near Fort Jones, California (USGS 11519500) is used as a surrogate.