

# 2023 RBDD RST Summary of Results



SRSP 2024 Fish Trends Meeting  
Presented by Bill Poytress, Fish Biologist  
USFWS-RBFWO



# RBDD RST 2023 in Review

- **Brood year 2021 report completed/available:**
  - data through November of 2022 (CHN, GST, Lamprey spp.)
  - 2022 report in preparation (through November of 2023)
- **Acoustic tagging effort sidelined to support (3) LSNFH WCS Releases**
  - And Pulse Flow tagging studies in spring of 2023
- **Multiple activities conducted supporting research and SRSP**
  - Science Activities #11, 12, 13, ~~28~~



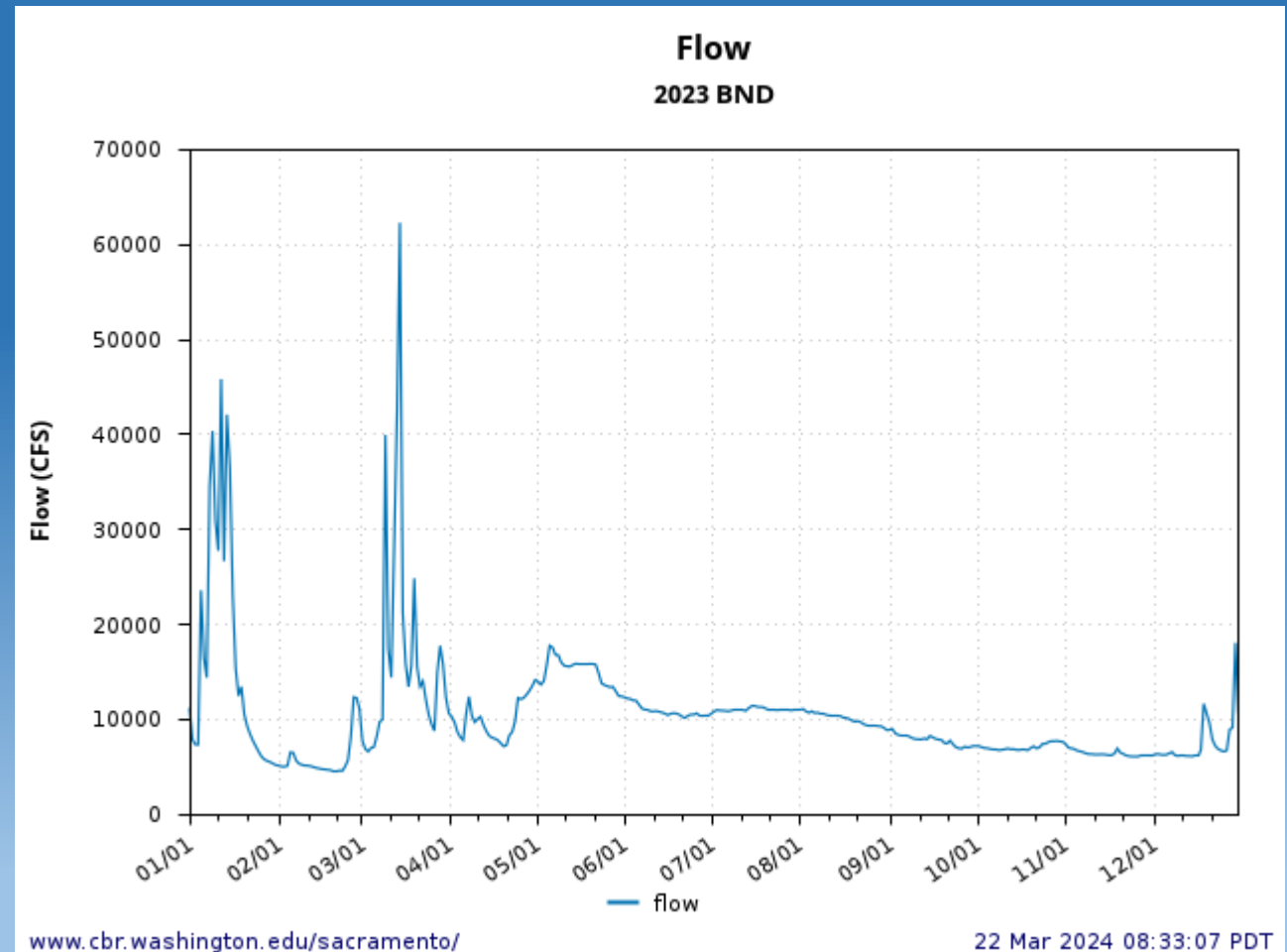
# RBDD RST 2023 in Review

- **Year #4 of RST Array using (4) 5' RST's and (1) 8' RST**
  - **Sampling effort was moderate (80%) through primary fall run outmigration period (June 30, 2023)**
    - High flows precluded sampling; trap removed from river 2x (28 of 181 days interpolated)
      - Staffing limitations during high water year (2/181 days interpolated)
    - Reduced sample effort around hatchery releases January and April (8/181 days interpolated)
  - **Sampling effort was high (96%) through primary winter run outmigration period (December 31, 2023)**
    - Eight days not sampled due to: (4) holidays, (2) staffing limitations, (2) storm conditions (8/184 days interpolated)

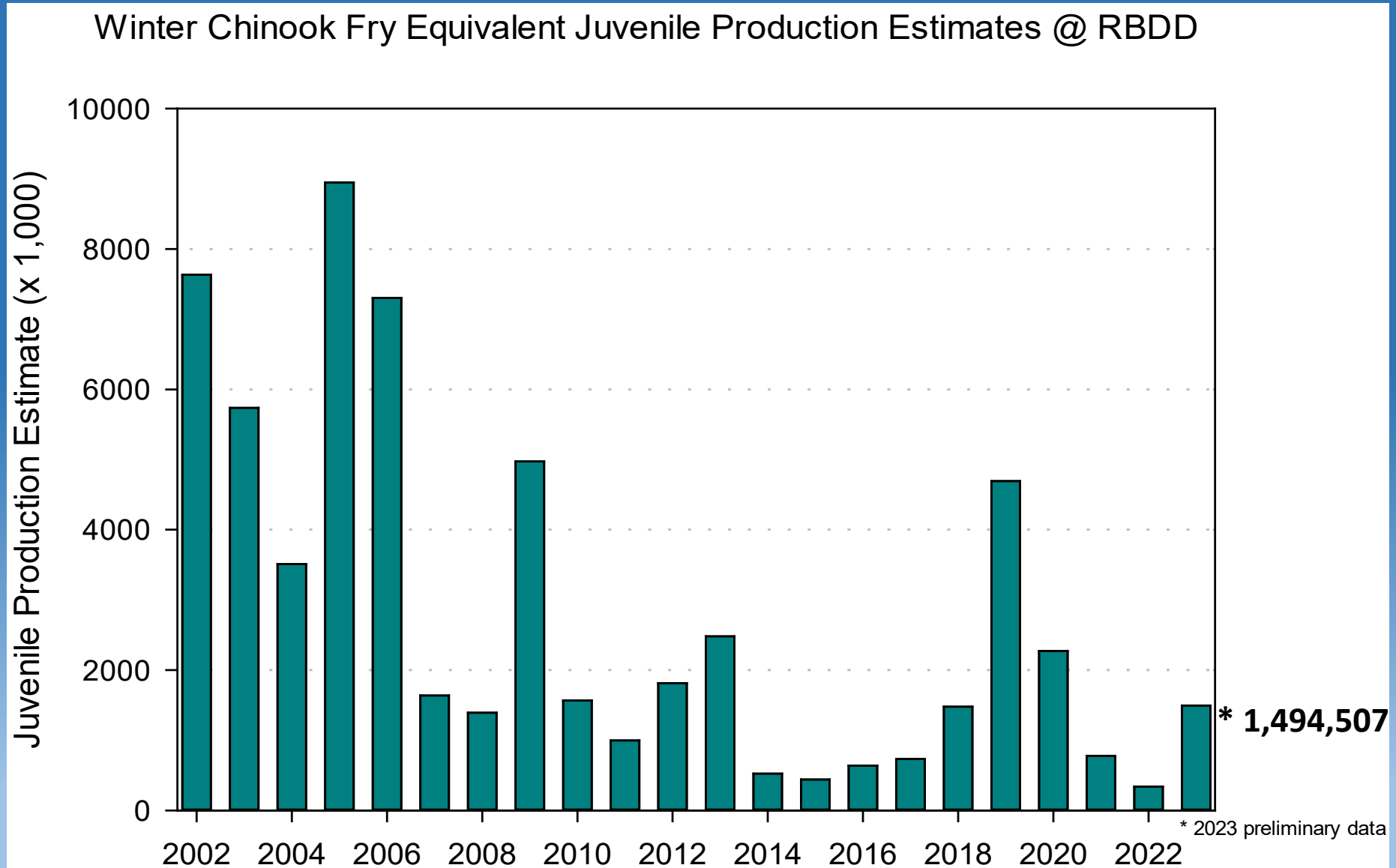


# 2023 RBDD RST Challenge #1: High Water

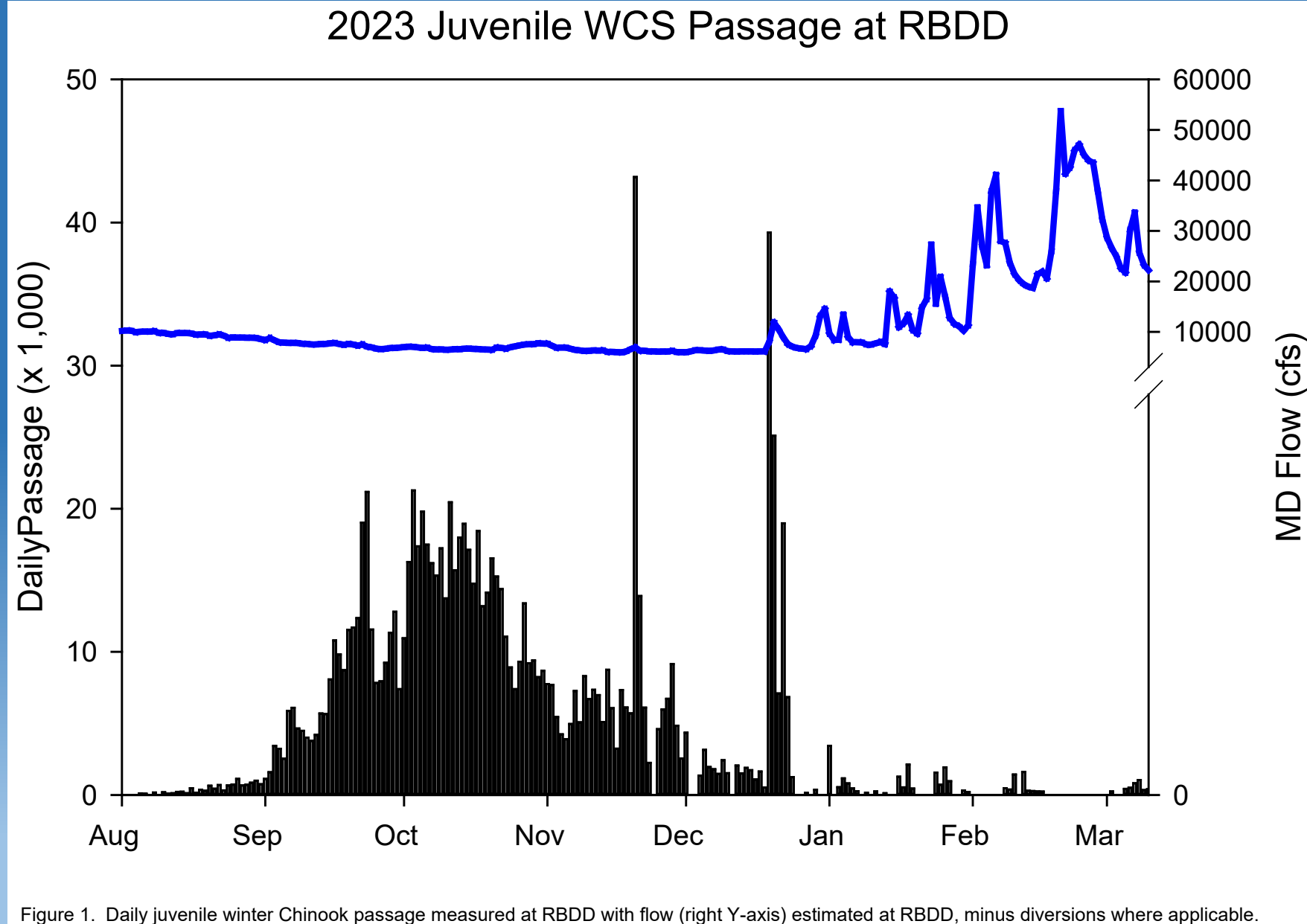
- High flows – excellent runoff
- Unable to sample effectively
- Traps overdue for maintenance
  - Been deployed since June of 2020
  - Removed from river 2X
- Net effect is more interpolation
  - Fall Run Estimate Impacts
  - Minor Winter Run Impacts
- A Good Problem to Have!!!



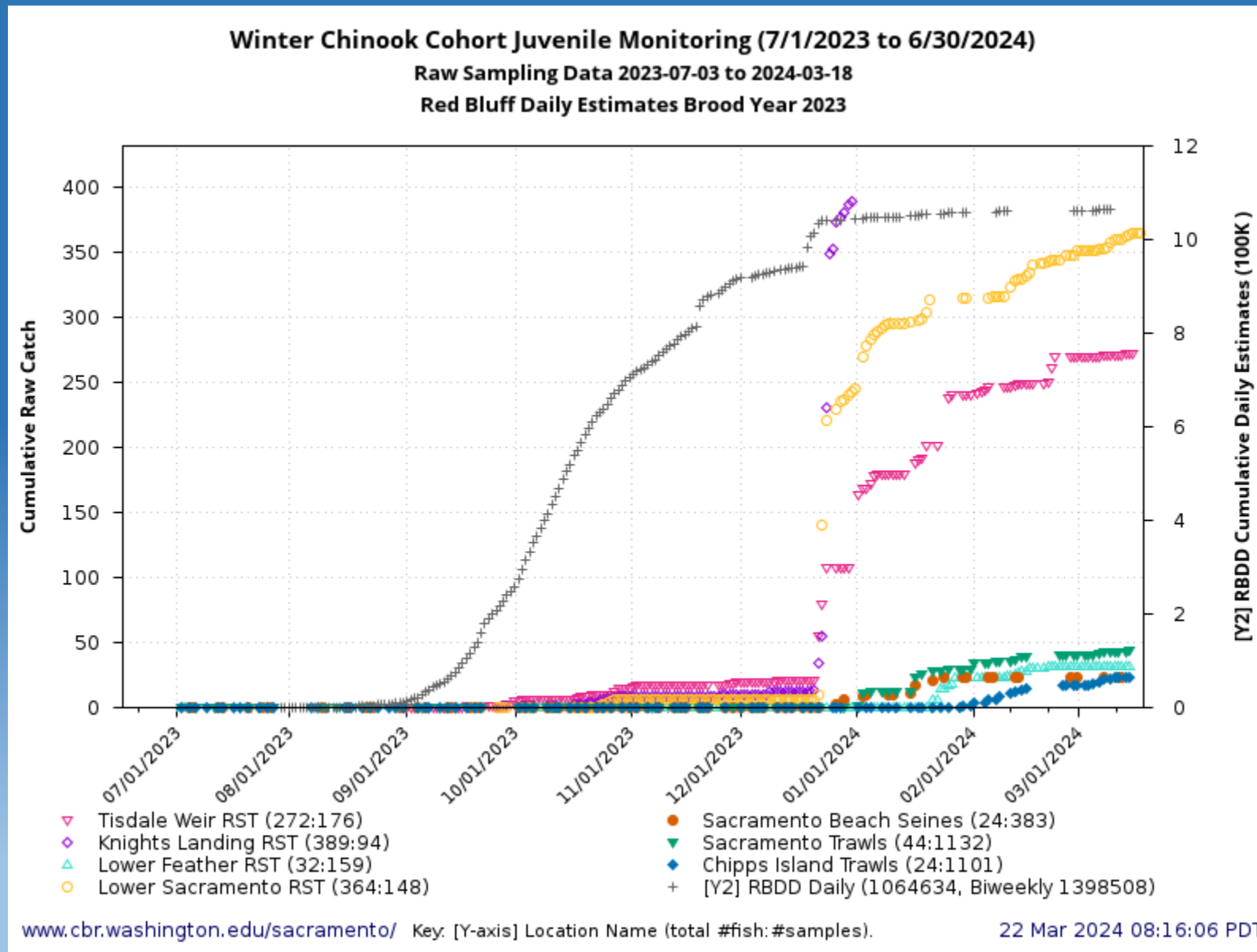
# 2023 Fish Trends, RBDD RST



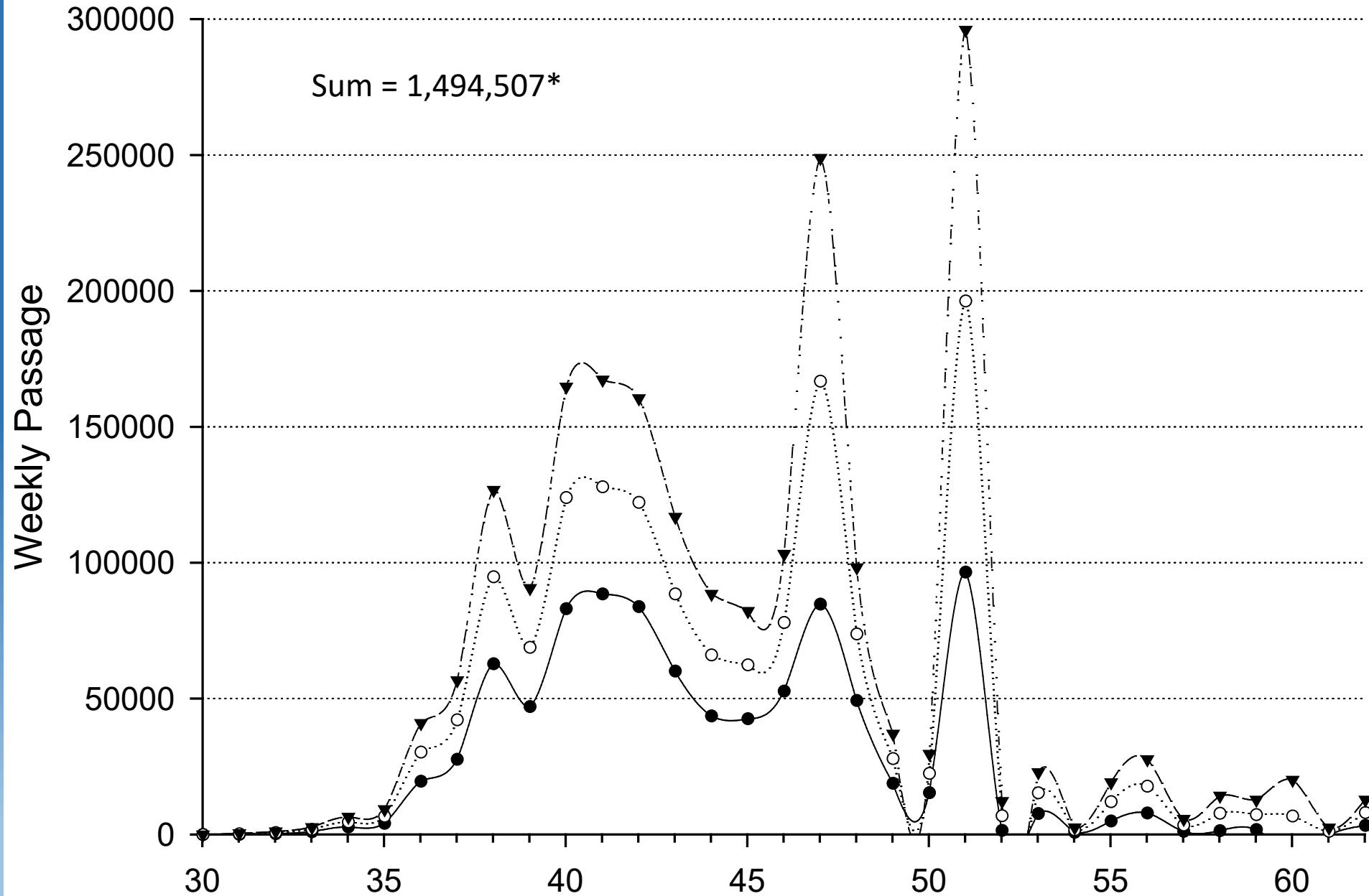
# WCS FEQ2 JPI: 1,494,507\*



# Lower Sac saw fish pass in late December...



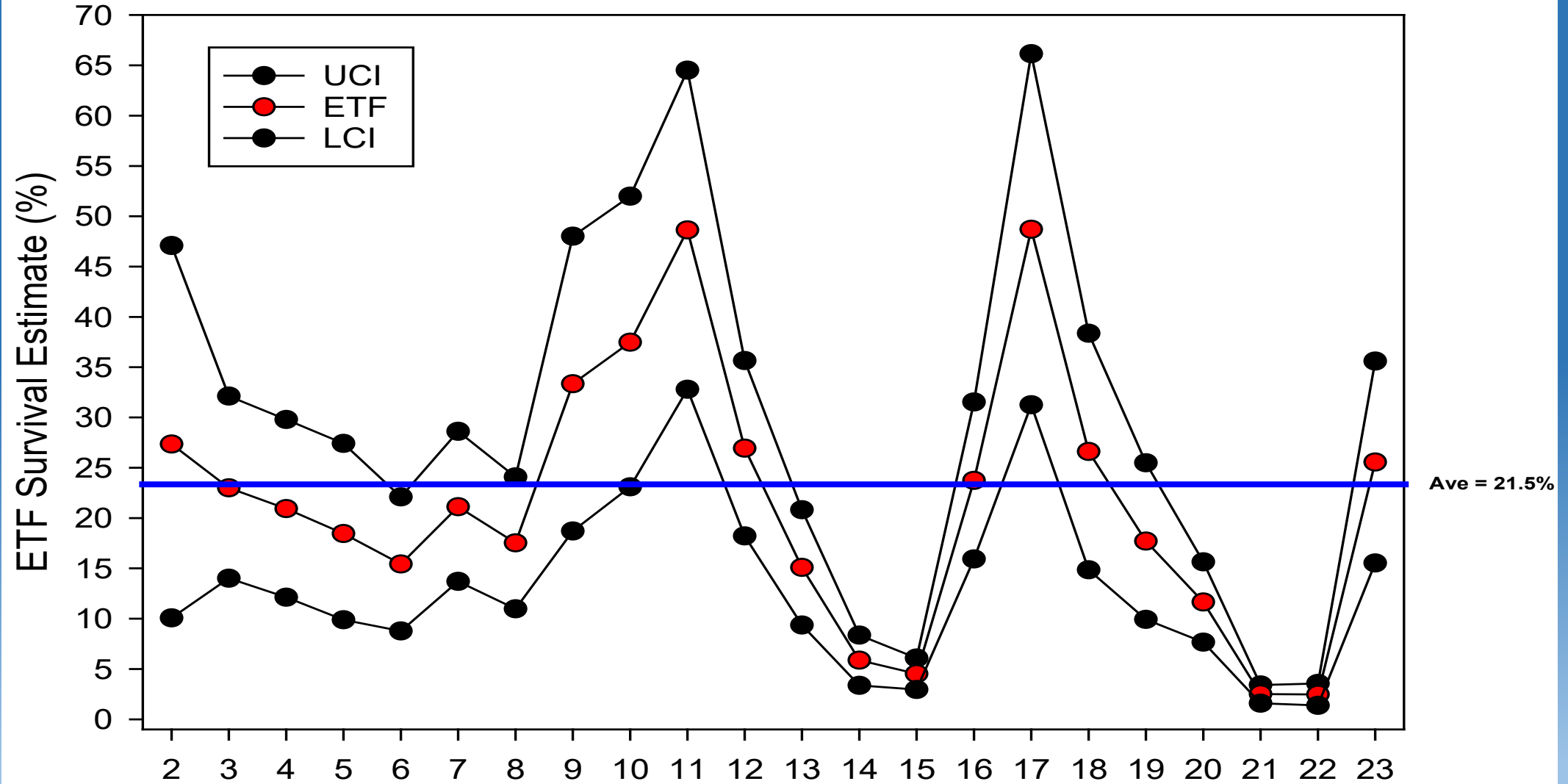
# Weekly Winter Chinook Passage trend with 90% CI's...



\* preliminary

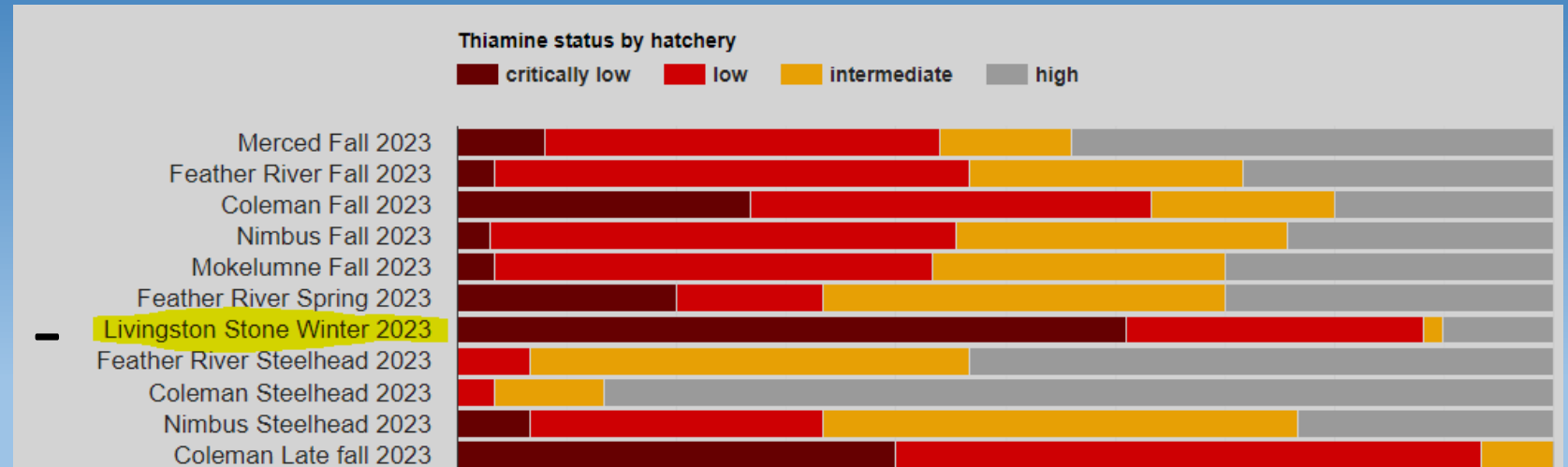
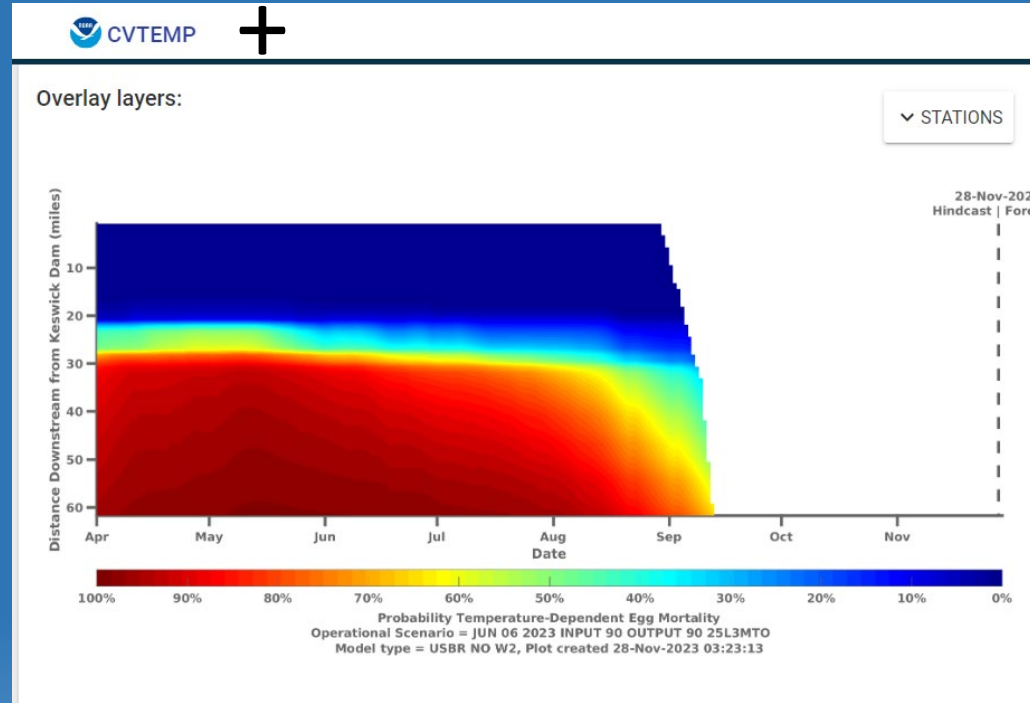


# Winter Chinook Egg-to-Fry estimate time series

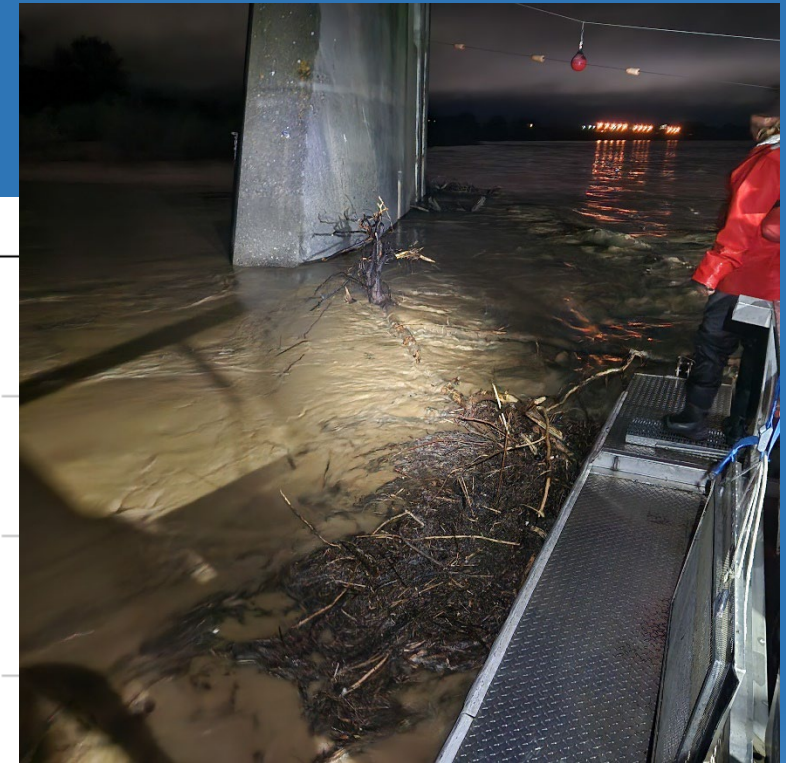
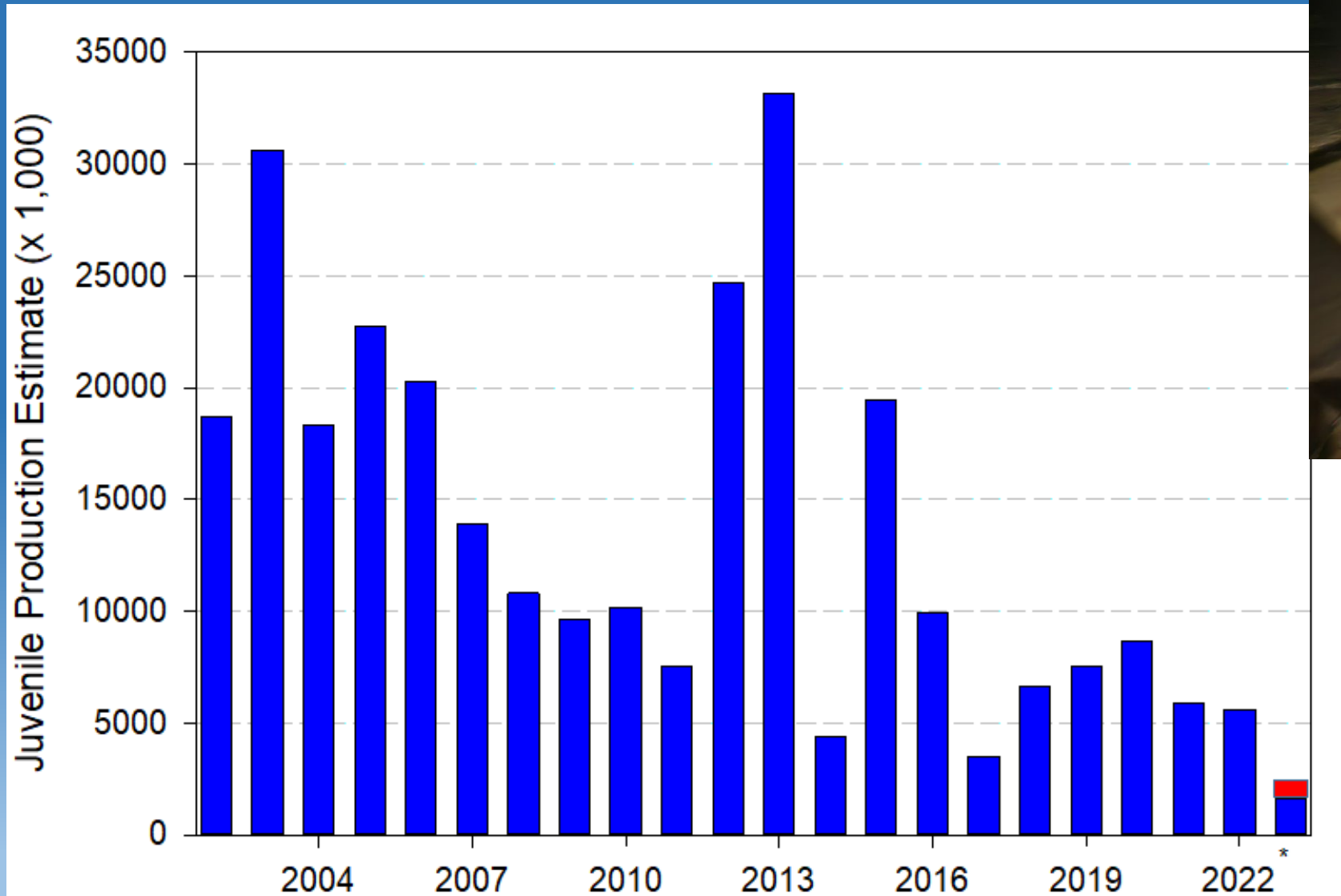


# Winter Chinook Egg-to-Fry estimate factors

Year	L 90 CI	ETF	Hi 90 CI
2	10.07%	27.35%	47.09%
3	14.02%	23.00%	32.11%
4	12.12%	20.94%	29.79%
5	9.89%	18.46%	27.41%
6	8.77%	15.43%	22.10%
7	13.70%	21.12%	28.61%
8	10.97%	17.53%	24.09%
9	18.71%	33.35%	48.01%
10	23.09%	37.48%	51.99%
11	32.79%	48.64%	64.51%
12	18.22%	26.93%	35.64%
13	9.36%	15.09%	20.82%
14	3.38%	5.87%	8.37%
15	2.97%	4.53%	6.09%
16	15.94%	23.73%	31.53%
17	31.25%	48.70%	66.16%
18	14.85%	26.61%	38.37%
19	9.93%	17.71%	25.49%
20	7.66%	11.66%	15.65%
21	1.60%	2.50%	3.41%
22	1.38%	2.47%	3.56%
23	15.53%	25.56%	35.60%



# 2023\* Fish Trends...Fall Chinook



Total = 1,815,951\*

\* preliminary, incomplete estimate accounting for 76%, on average, of annual passage as of 3/10/24. Red bar extrapolation of remaining 24%

Extrapolated estimate  
= 2,389,409\*

# 2023 Fish Trends...Fall Chinook

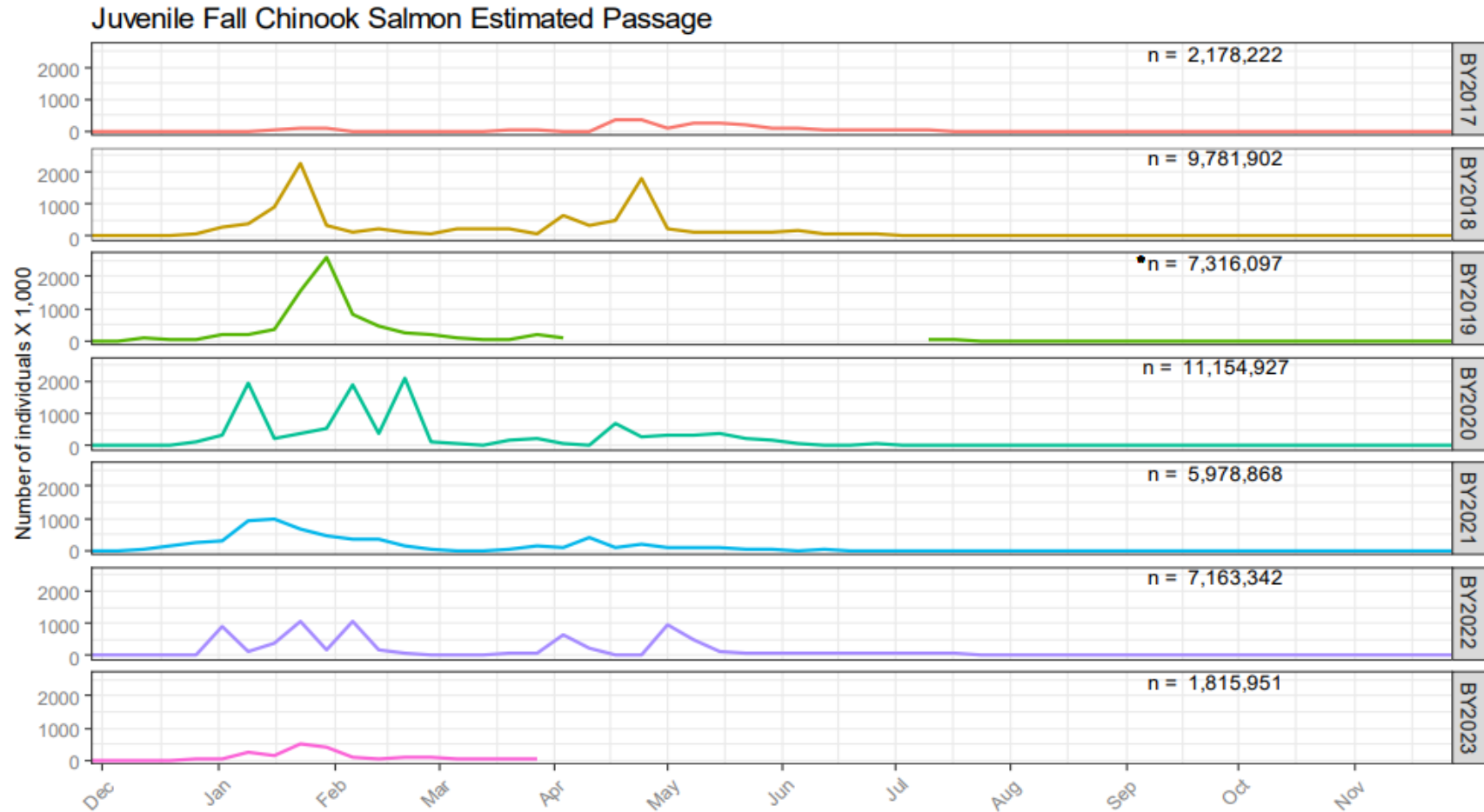


Figure 4. Weekly estimated passage of unmarked juvenile fall Chinook salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period December 1, 2017 to present .

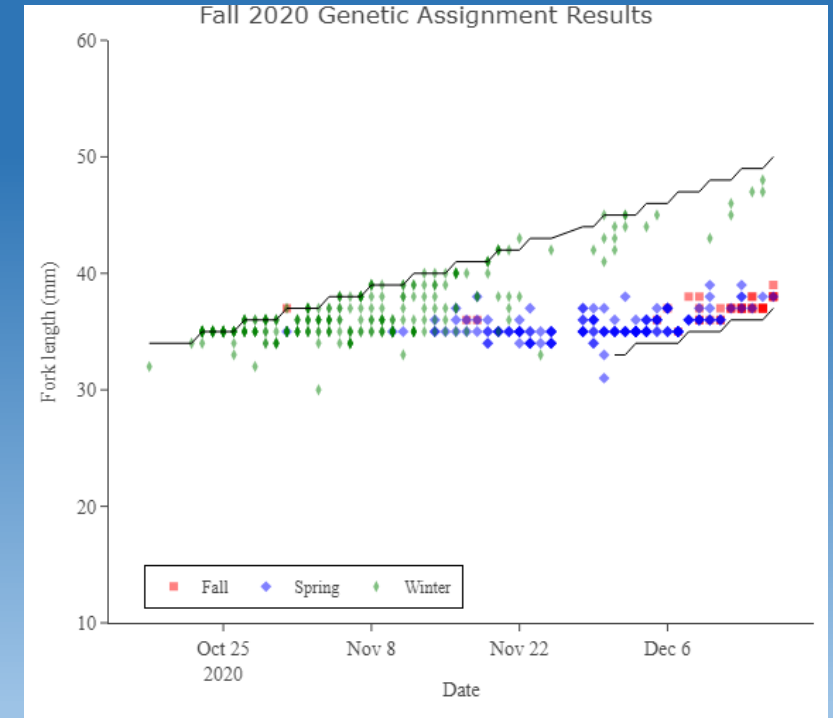
\*Rotary-trapping/juvenile fish monitoring operations at the Red Bluff Diversion Dam were suspended from March 25, 2020 to June 30, 2020, to protect employee health and safety resulting from the Coronavirus/COVID-19 global pandemic .

# 2023 RBDD RST SRSP Support Activities

- Collect tissue samples for genetic analyses
  - Year 7 of Parentage based analyses (SRSP Activity 13)
  - WCS/SCS LAD corrections for JPE (rapid analyses)

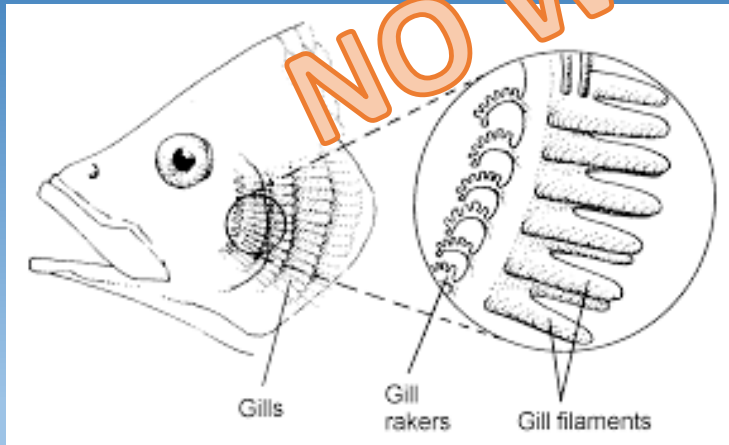


23-Sep	106-233	234-270	0-58	59-105	*	23
24-Sep	106-235	236-270	0-58	59-105	*	24
25-Sep	107-236	237-270	0-58	59-106	*	25
26-Sep	108-238	239-270	0-59	60-107	*	26
27-Sep	108-239	240-270	0-59	60-107	*	27
28-Sep	109-241	242-270	0-59	60-108	*	28
29-Sep	110-243	244-270	0-60	61-109	*	29
30-Sep	111-244	245-270	0-60	61-110	*	30
	FALL	SPRING	WINTER	LATE-FALL		
1-Oct	111-246	247-270	0-61	62-110	*	1-O
2-Oct	112-247	248-270	0-61	62-111	*	2-O
3-Oct	113-249	250-270	0-61	62-112	*	3-O
4-Oct	113-251	252-270	0-62	63-112	*	4-O
5-Oct	114-252	253-270	0-62	63-113	*	5-O
6-Oct	115-254	255-270	0-63	64-114	*	6-O
7-Oct	116-256	257-270	0-63	64-115	*	7-O
8-Oct	116-257	258-270	0-64	65-115	*	8-O
9-Oct	117-259	260-270	0-64	65-116	*	9-O
10-Oct	118-261	262-270	0-64	65-117	*	10-O
11-Oct	119-262	263-270	0-65	66-118	*	11-O
	FALL	SPRING	WINTER	LATE-FALL		
12-Oct	120-264	265-270	0-65	66-119	*	12-O
13-Oct	120-266	267-270	0-66	67-119	*	13-O
14-Oct	121-268	269-270	0-66	67-120	*	14-O
15-Oct	122-269	270-270	0-67	68-121	*	15-O
16-Oct	123-270	0-33	34-67	68-122	*	16-O
17-Oct	124-270	0-33	34-67	68-123	*	17-O
18-Oct	124-270	0-34	35-68	69-123	*	18-O
19-Oct	125-270	0-34	35-68	69-124	*	19-O
20-Oct	126-270	0-34	35-69	70-125	*	20-O
21-Oct	127-270	0-34	35-69	70-126	*	21-O
22-Oct	128-270	0-34	35-70	71-127	*	22-O
23-Oct	128-270	0-35	36-70	71-127	*	23-O
24-Oct	129-270	0-35	36-71	72-128	*	24-O
25-Oct	130-270	0-35	36-71	72-129	*	25-O
26-Oct	131-270	0-35	36-72	73-130	*	26-O
27-Oct	132-270	0-36	37-72	73-131	*	27-O
28-Oct	133-270	0-36	37-72	73-132	*	28-O
29-Oct	134-270	0-36	37-73	74-133	*	29-O



# 2023 RBDD RST SRSP Support Activities

- Collect Fish Health/Pathogen Data for others (SRSP Activity 28)
  - UCD/NMFS/USFWS-CNFH
    - Lethal Sampling of 80 wcs
      - Gill rakers for pathogen genomics (UCD)
      - Whole specimens for pathogen presence (USFWS/NMFS)
        - Monitor for *P. Mirabilis* and *C. Shasta*
      - Incidental mortality saved for NMFS-UCD
        - Use for healths for habitat use, year 2



# Green Sturgeon

- RST: Tons of larvae and many small juveniles in summer of 2023
- (2) 2D AT arrays setup: Data being analyzed
- Article Published in Journal of Applied Ichthyology, 2016-2019 Juvenile Sturgeon AT Data: *Transition Strategies of Juvenile Green Sturgeon from Freshwater to a Brackish Water Environment*



# Looking for data or reports?

Data accessible from EDI:

<https://portal.edirepository.org/nis/mapbrowse?packageid=edi.1365.1>

SacPas:

[http://www.cbr.washington.edu/sacramento/data/juv\\_monitoring.html](http://www.cbr.washington.edu/sacramento/data/juv_monitoring.html)

Acoustics (2021 and 2022 reach level survival data):

<https://oceanview.pfeg.noaa.gov/shiny/FED/telemetry/>

Reports available on ResearchGate:

<https://www.researchgate.net/>

RBFWO website (update needed still):

<https://www.fws.gov/project/red-bluff-diversion-dam-juvenile-fish-monitoring>

Email: [bill\\_poytress@fws.gov](mailto:bill_poytress@fws.gov)





Time for questions or discussion???

