

# Species Apportionment

Generally, cannot identify fish to species during data file review

Mainstem Eel River has distinct, temporal migration patterns for each species.  
Coho run in the range of 50-100 fish on Mainstem Eel

VAFS – Direct species ID  
Direct Observations in Mainstem Eel  
CDFW SF Eel Spawning Ground Surveys and Citizen Scientist survey observations

Opportunistic boat seining operations and mask and snorkel dives.

# Additional Species Data Collected

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## Green Sturgeon (*Acipenser medirostris*)

- Historically spawned in the upper Eel River and should be still considered a spawning river used by Green Sturgeon (Stillwater Sciences and Wiyot 2017).
- Observations have occurred on DIDSON files in March of 2020 (1 adult) and February and March of 2022 (minimum of 2 and possibly up to 4 adults).
- Additional observations have occurred in the late summers of 2021 and 2022 in the lower river (Stockwell and Sopjes and CDFW).

## Summer-run Steelhead

- Attempted in spring of 2021



# Additional Species Data Collected cont.

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## Sacramento Pikeminnow (*Ptychocheilus grandis*)

- DIDSON data file review is allowing to capture important seasonal distribution information and general abundance numbers of size-class distribution.
- This data could be utilized for future suppression efforts.



South Fork Eel River Weir for Pikeminnow Suppression, April 25, 2023



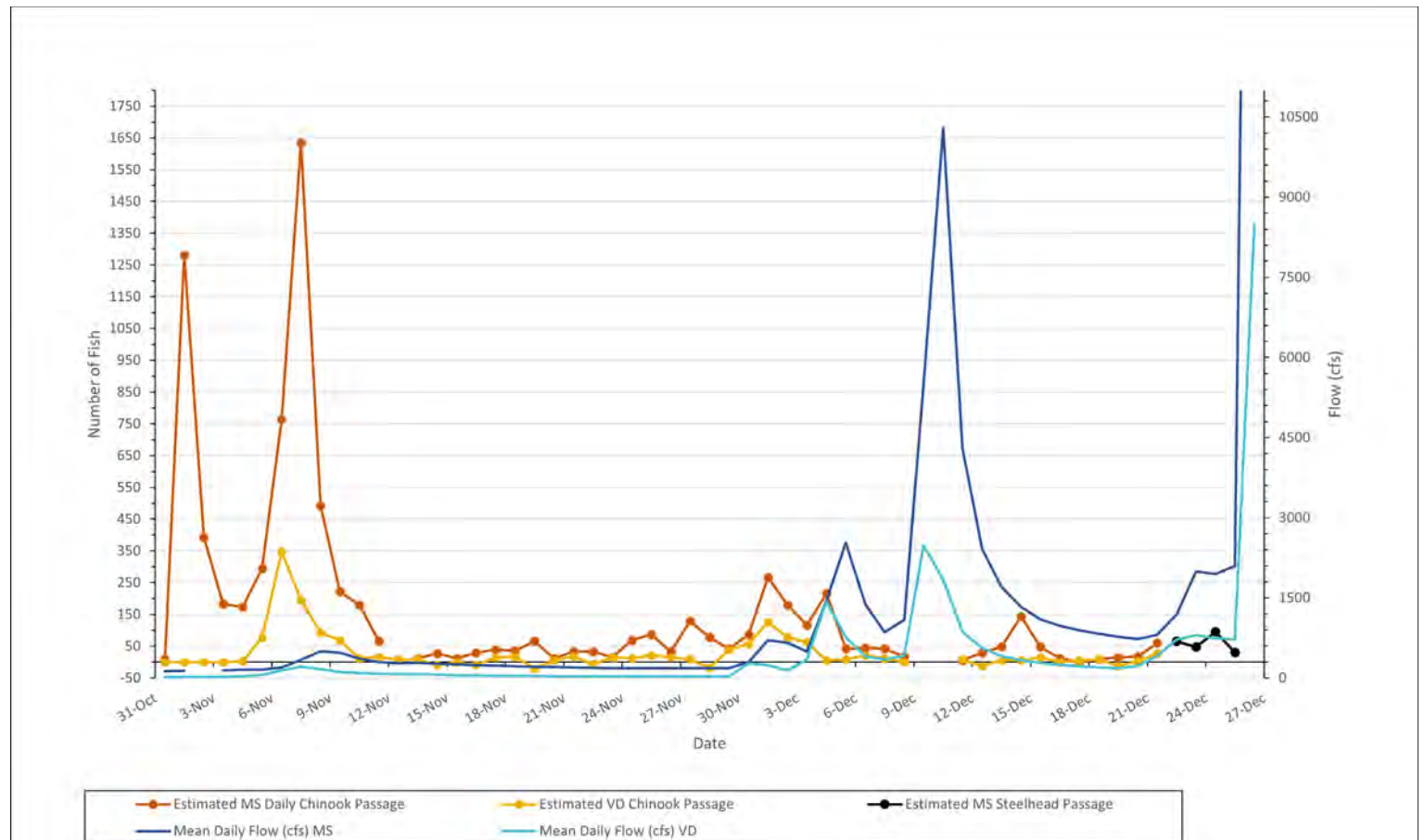
# Results

## 2022-2023

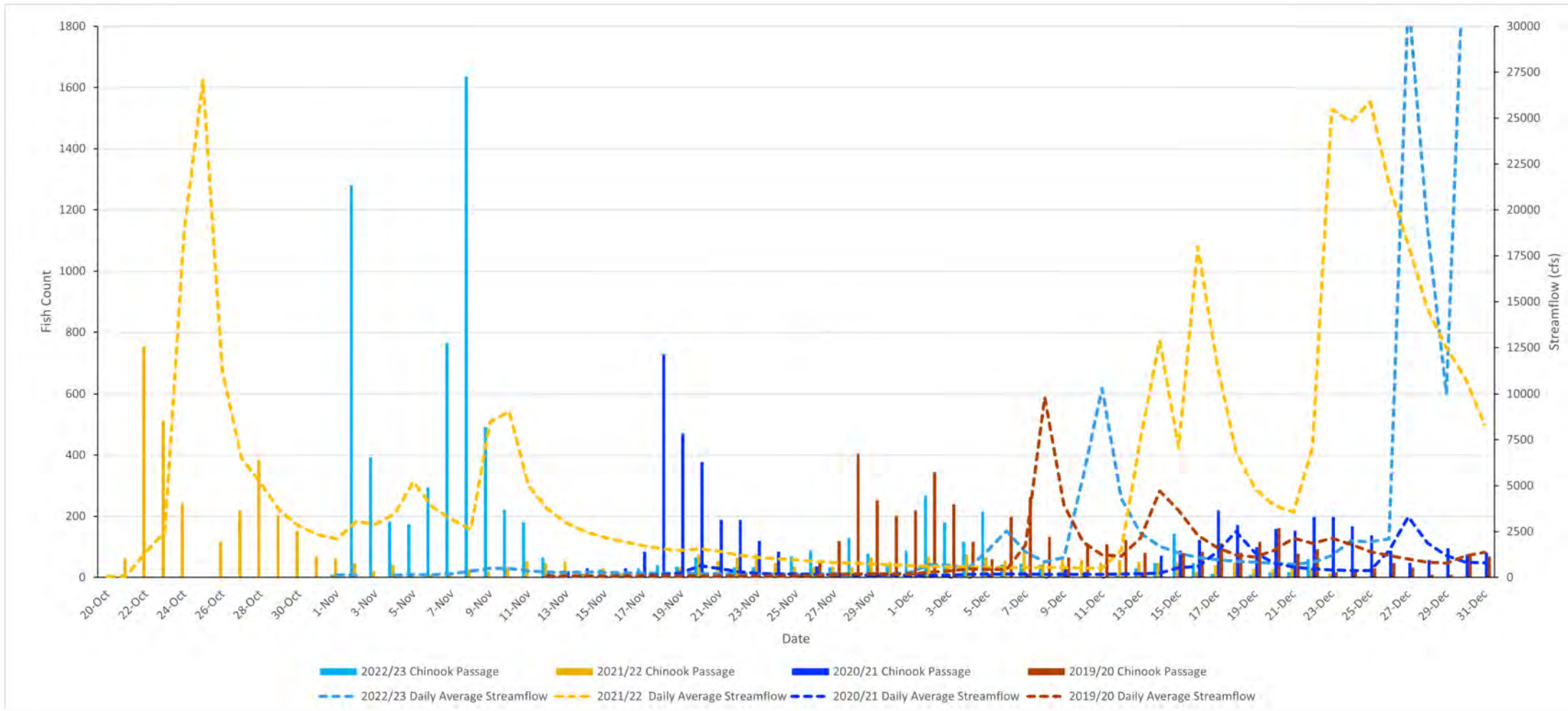
### Daily Fish Passage vs Flows:

- Mainstem (MS) site observed very high passage rates during first 10 days of the season: highest counts recorded on 11/8 and 11/2 having 1,635 and 1,281 fish, respectively.
- MS Chinook Salmon Abundance Estimate: 8,250 (adult & jacks)
- Van Duzen (VD) experienced unsuitable fish passage flows initially; highest fish counts occurred on 11/7 and 11/8 with 330 and 219 fish, respectively.
- VD Chinook Salmon Abundance Estimate: 1,473 (adults and jacks)

Daily Fish (Chinook and Steelhead) Passage Counts at Mainstem (MS) and Van Duzen (VD) DIDSON Stations with Mean Daily Flows (cfs)



# 2019-2022 Mainstem Eel River Chinook Salmon daily counts with Average Streamflow

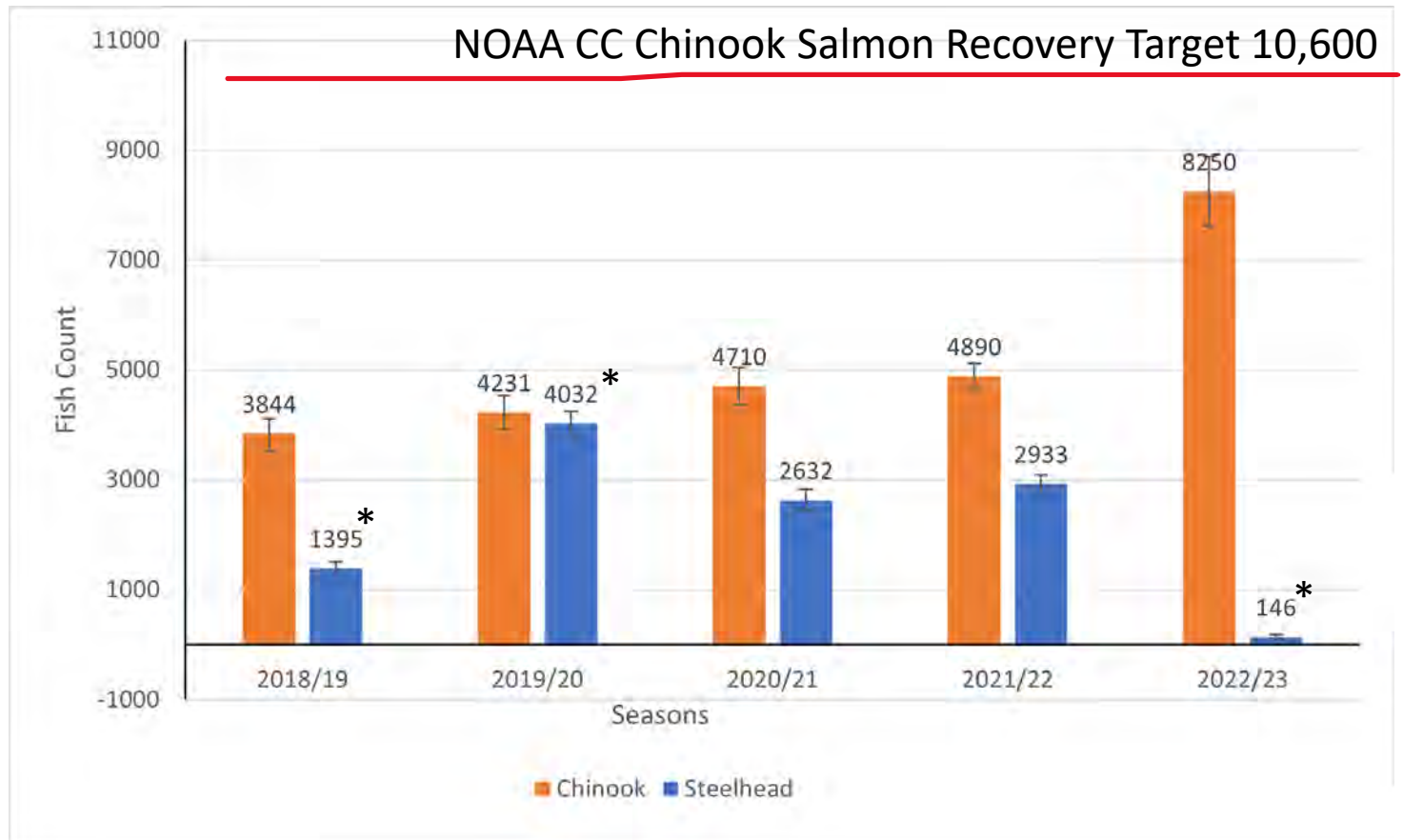


# Results – 5-Year Project Summary

## 2018-2023

- Pilot-year's low counts can be partially attributed to learning curve, loss of experienced crew lead, and time camera was non-operational.
- Slight increase of Chinook Salmon counts each year of project with significant jump in 2022. Correlates to observations/counts in staging areas of Lower Eel River.
- Steelhead run coincides with higher flows and is twice as long as Chinook run, making it difficult to operate the camera as efficiently and challenges in producing yearly abundance estimates.
- Nonetheless, steelhead numbers are at an alarming low state!
- NOAA Recovery Target for Steelhead Mainstem with MF is 22,900.

Summary of Mainstem Eel River Escapement Yearly Estimates for adult/jack Chinook Salmon and Adult Winter-Run Steelhead 2018 - 2023



# Fall Salmonid Staging Counts in Lower Eel River

## *Sopjes and Stockwell Drone Counts 2020-2022:*

- Fall of 2022 was by far the highest counts of any year.
- Fall of 2020 and even to a greater degree in 2018 and 2019, low flow conditions prevented upstream migration; therefore, adult salmonids held in lower river until mid to late November

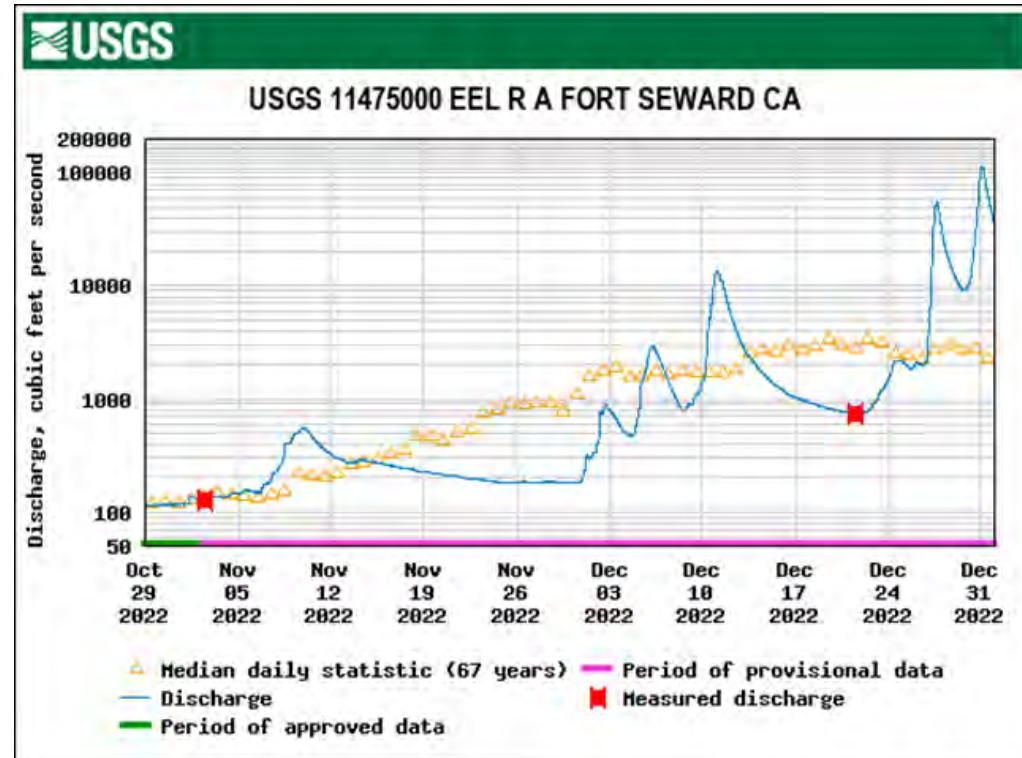




# Camera Operations and River Flow Conditions

## Chinook Salmon Run

- Generally, camera can operate in flows up to 7,000cfs @Fort Seward; Fall of 2022 -almost entire Chinook run experienced flows below 7,000cfs.



### Chinook Salmon Season 2022 -2018

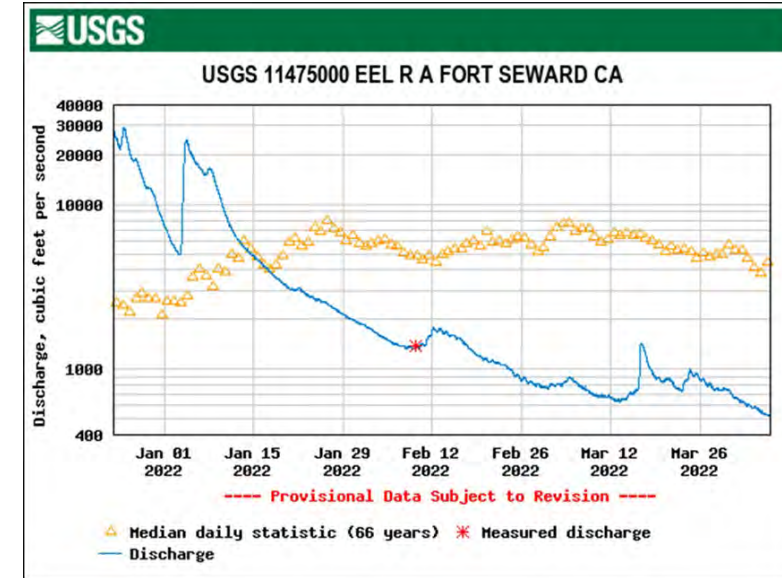
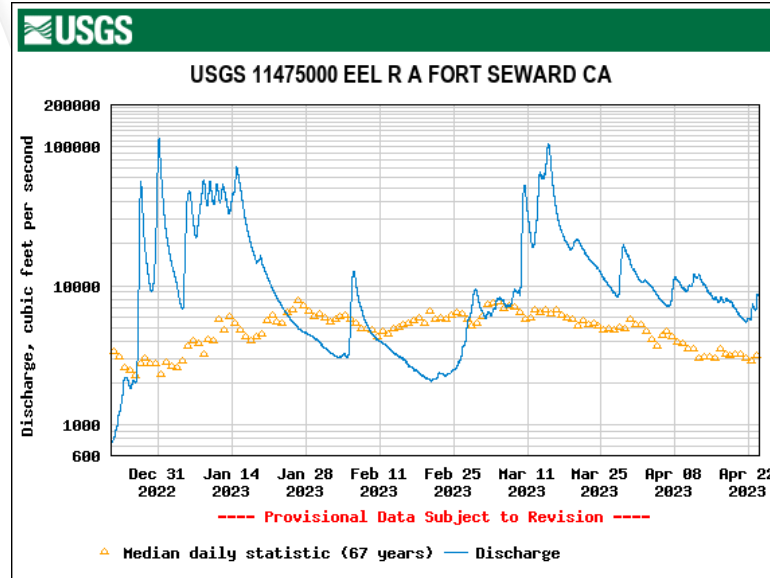
Project Year	Percent Time Sampled		Percent Time Not Sampled	
	Total % Sampled	# Hours Sampled	Total % Not Sampled	# Hours Not Sampled
Van Duzen 2022 Nov 1 – Dec 22	81%	1186	19%	278
2022 Nov 1 – Dec 22	90%	1115	10%	119
2021 Oct 31 - Dec 23	76%	1176	24%	371
2020 Nov 12 – Dec 31	98%	1162	2%	23
2019 Nov 25 – Dec 31	91%	799	9%	78
2018 Nov 15 – Dec 31	88%	1,058	9%	78



# Camera Operations and River Flow Conditions

## Winter-run Steelhead

During the 2022-23 Project Year, most of the winter-run steelhead season experience too high of flows to operate the camera (except month of February).



Steelhead Season 2023 – 2018				
Project Year	Percent Time Sampled		Percent Time Not Sampled	
	Total % Sampled	# Hours Sampled	Total % Not Sampled	# Hours Not Sampled
2022-23 Dec 23 – Feb 28	47%	773	53%	859
2021-22 Dec 24 – Apr 5	82%	2031	11%	278
2020/21 Jan 1 - Apr 10	85%	2040	15%	359
2019/20 Jan 1 – Mar 20	95%	1815	5%	105
2018/19 Jan 1 – Feb 12	90%	N/A	N/A	N/A