

# Cowlitz River Hatchery Winter Steelhead Run Timing

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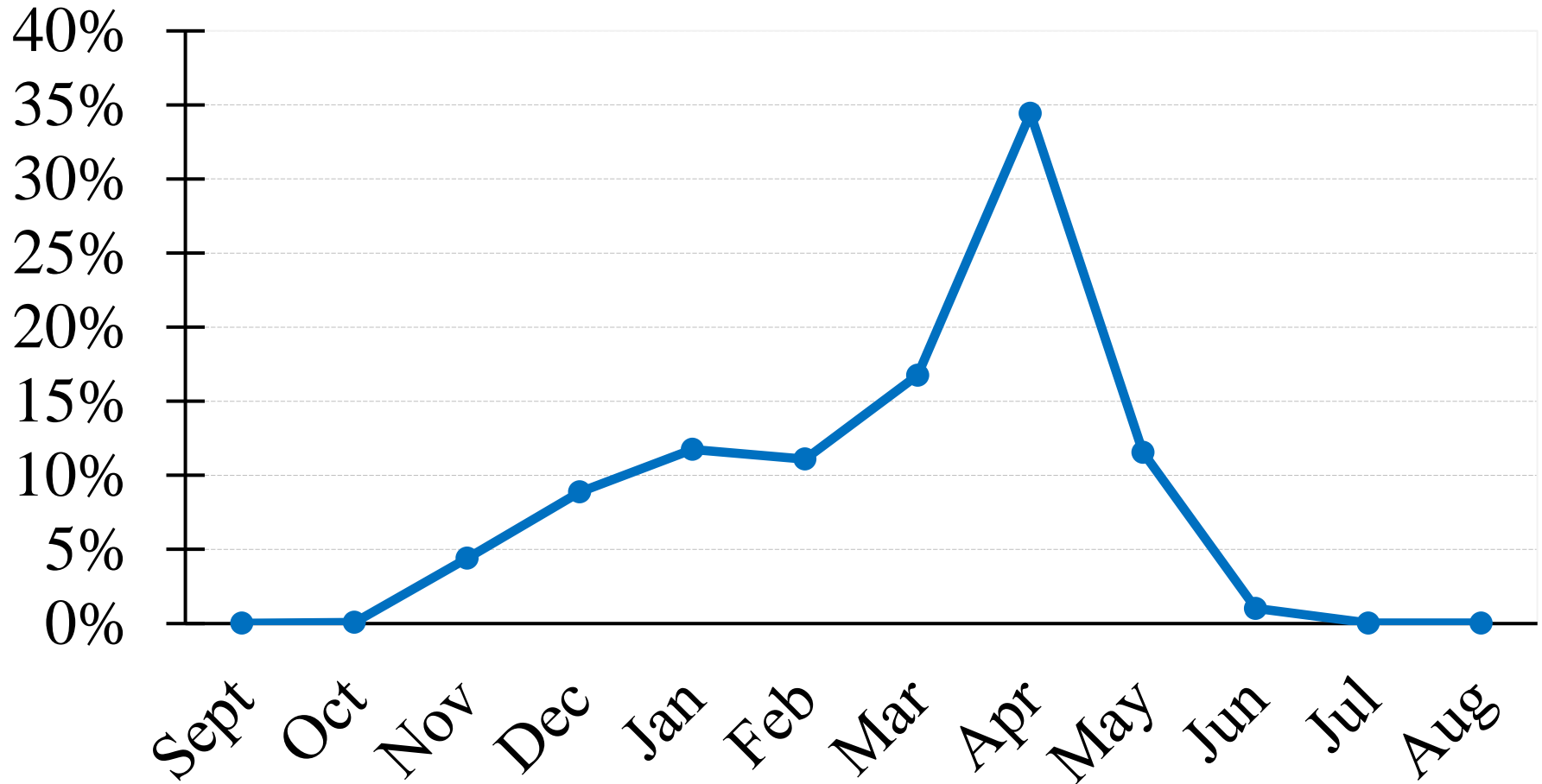


# Acknowledgements

- Thomas Buehrens (WDFW Research Scientist) provided modeling, timing graphics and review.
- Tacoma Power Adult Facility Crew provided the Barrier Dam Adult Counts for many years.



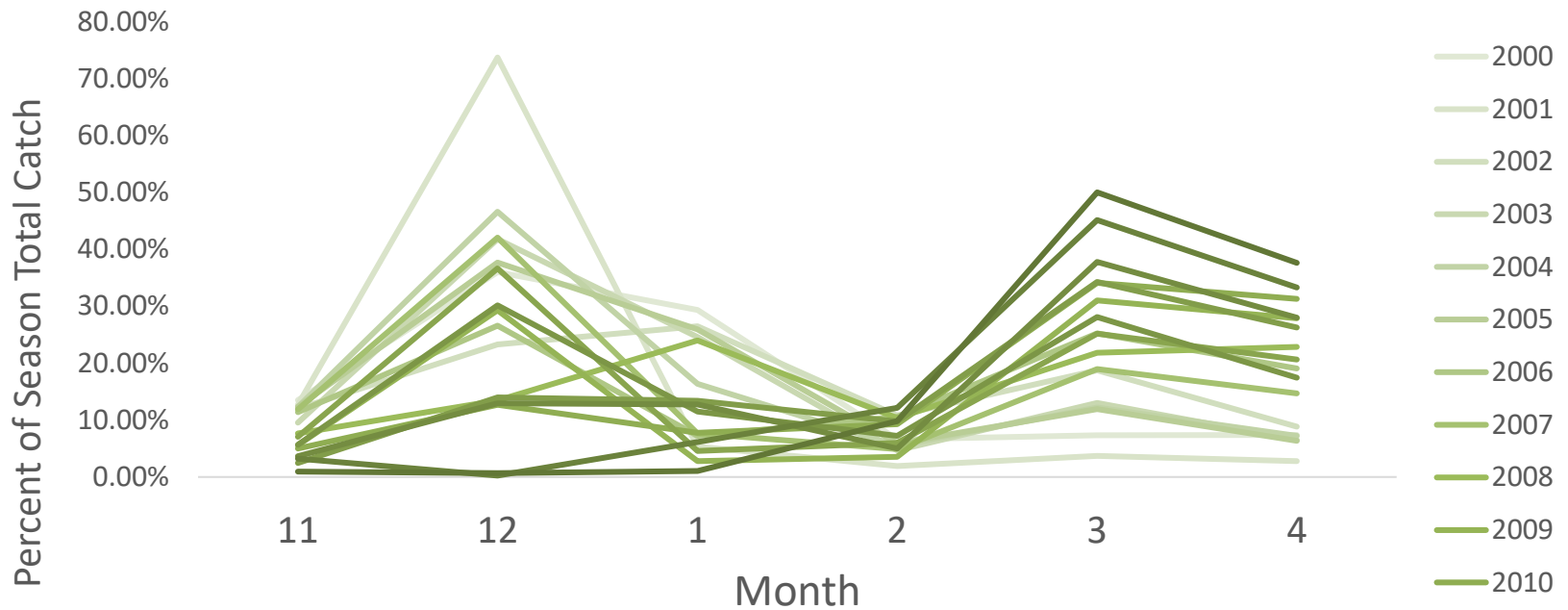
# 1961-66 Steelhead Adult Passage at Mayfield Dam



# THE COWLITZ RIVER HATCHERY STEELHEAD PROGRAM BEGAN IN 1968

- Original Hatchery Stocks
  - Chambers Creek Stock (Artificially Early)
  - Upper Cowlitz River Derived Stock (Artificially Late)
- History
  - First, a mix of early Chambers and late Cowlitz stocks.
  - Upper Cowlitz and Tilton Reintroduction began in 1995
  - Early Chambers Creek steelhead program terminated in 2011
- Problem:
  - 2011 Fishery and Hatchery Management Plan (FHMP) Decision to Eliminate “early” Chambers Creek Stock
  - Unpopular! → Absence of steelhead in January, February and March

## Hatchery winter steelhead catch has evolved: early → bimodal → late



# Solution: Make Cowlitz Steelhead Earlier Again (2020 FHMP plan)

- 3 Programs
  - Lower Cowlitz River ~~Integrated~~ → ***Segregated*** stock (~~Historically Artificially Late~~) → ***(Make Early)***
  - Tilton and Upper Cowlitz Integrated (2 stocks; make earlier, representative of wild fish)
- How do we make the Lower River stock early?
  - Earlier Egg Take Start Date
  - Take Brood from First Arrivals
  - Release Goal of 308,000 smolts
  - Plus any Shortfall in Upper Cowlitz and Tilton Integrated Programs
- Continue integrated programs for reintroduction in upper basins
- Shifting of Timing in Progress



# Modeling Results: Run Timing and Abundance

- Timing improved
- Median and 25<sup>th</sup> percentile return dates move forward by >30 days over 3 generations
- Dec. catch 48 → 380
- Total adult returns within 90-100% of existing depending on integrated SAR

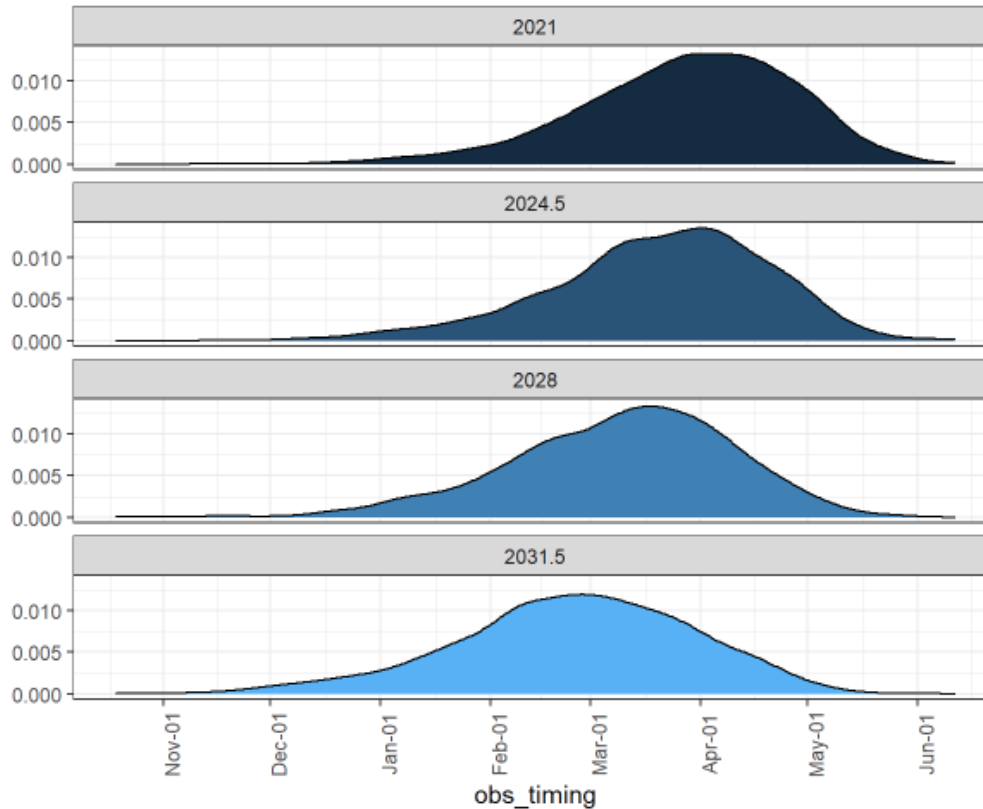


Figure 1: Return timing of the aggregate of Cowlitz winter steelhead programs

Table 1. Return timing quantiles by day of year, where 1 is Jan 1st, -31 is Dec 1st of the previous year, and so forth.

year	0.025	0.25	0.5	0.75	0.975
2021	18	68	89	108	137
2024	6	60	81	100	129
2028	1	48	70	89	121
2032	-19	34	56	78	114

Table 2. Percent of returns/catch by month.

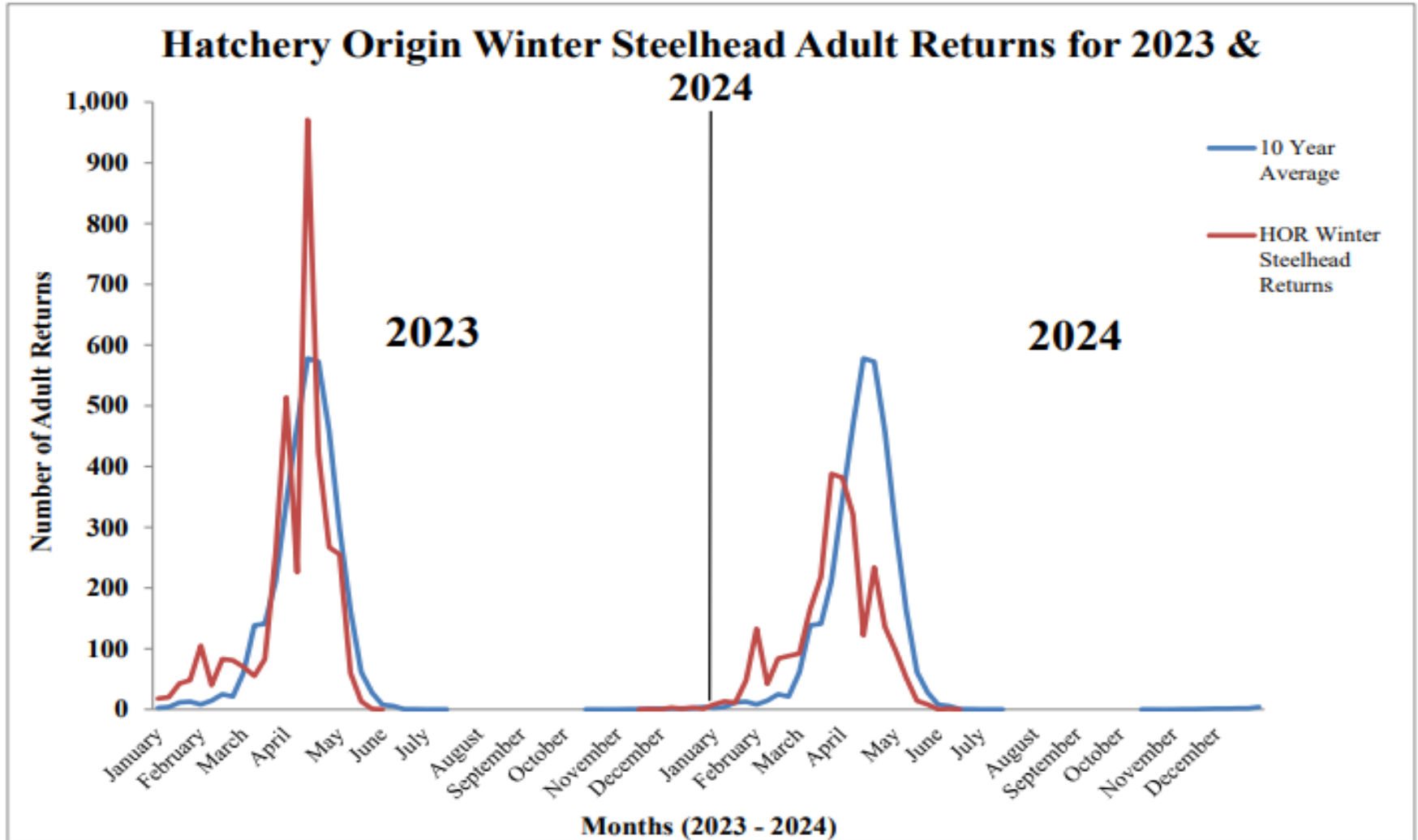
month	2021	2024.5	2028	2031.5
2030 January	4.3	6.5	10.0	15.3
2028 February	12.7	15.3	23.7	31.8
2028 March	33.8	38.1	39.8	32.1
2026 April	36.7	32.0	21.2	13.2
2024 May	11.6	6.2	3.0	1.0
2024 June	0.2	0.3	0.1	0.1
2022 October	NA	NA	0.1	0.1
November	0.1	0.2	0.3	0.9
December	0.7	1.4	1.9	5.4

Table 3. Catch by month.

month	2021	2024.5	2028	2031.5
January	300	460	704	1080
February	892	1080	1668	2244
March	2380	2688	2804	2264
April	2584	2256	1492	932
May	820	436	208	72
June	16	20	4	4
October	NA	NA	8	8
November	8	12	24	64
December	48	96	136	380

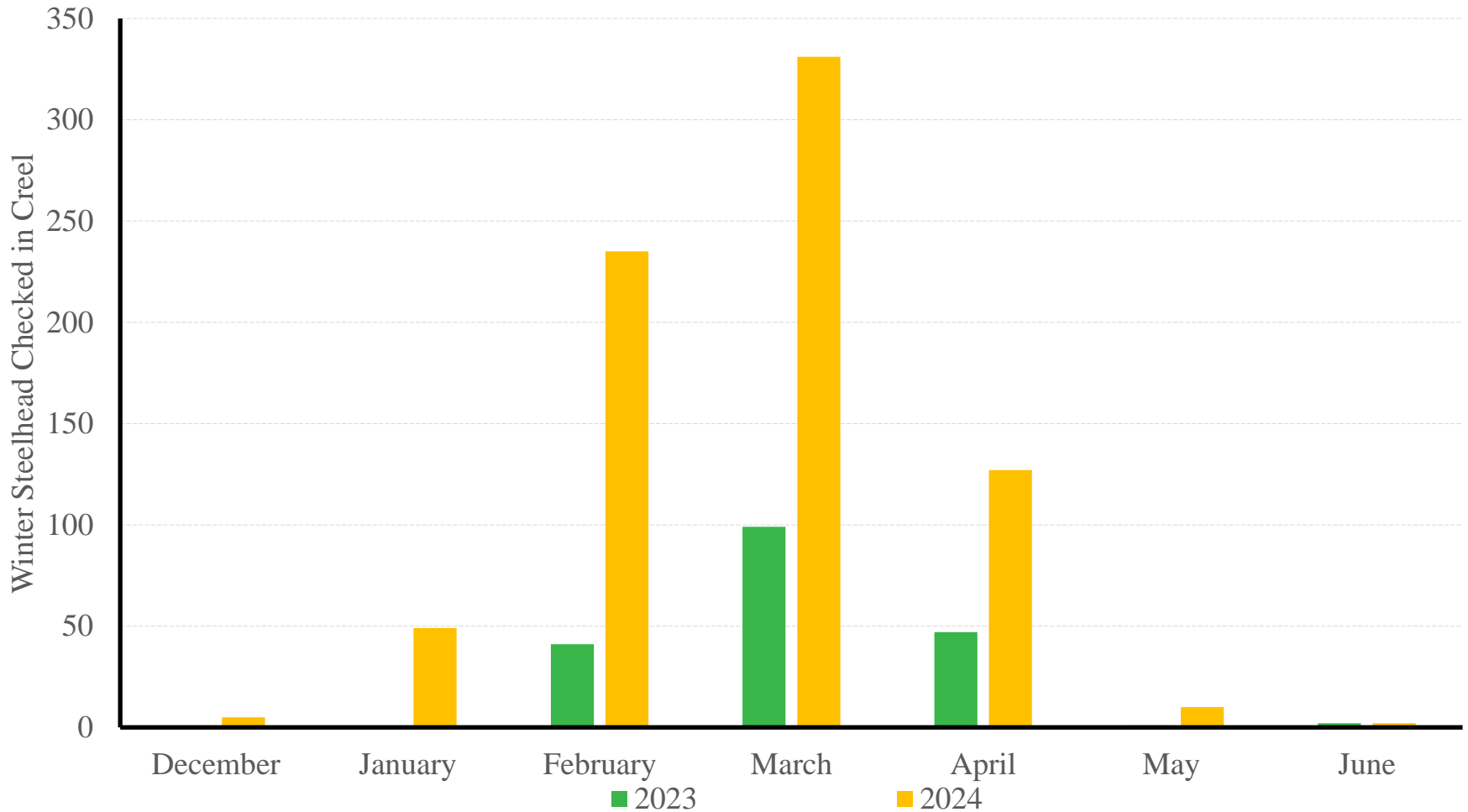


# Cowlitz Hatchery Winter Steelhead Return Timing, 2023, 2024 vs 10 Year Average





# Lower Cowlitz Creel Checks in 2023 and 2024



# Run Timing Will Continue to Change

- 2023 was the first year of the segregated program egg take of the first returns.
- The hatchery timing is expected to continue to move forward.
- The Upper Cowlitz and Tilton River Integrated Program return timing will continue to evolve to fit the current habitat conditions and will complement the return timing of the Segregated Lower Cowlitz Program





# Questions?

