Skeena Sockeye In Season Update for SFNTC

02 August, 2023

Summary

- Cumulative total escapement of 1,122,420 past Tyee to date (Table 1, Figure 1). Run would be about 52% through on late timing, 72% on average timing, and 85% if the run is early. Estimated TRTC is ~ 1.339M although this does not include marine FSC catch.
- Continued low daily Tyee estimates and catches in the marine fishery are concerning, with indications for a potentially early, and lower than expected run (Figure 2). Well below average daily estimates through Tyee.
- Now after peak (on average timing), however the simple Tyee run-timing model estimate continues to fall with the below average daily counts, suggesting runs of ~ 1.85M (average run-timing), 1.6M (early run-timing), 2.4M (late run-timing) (Figure 3).
- Babine fence is operational with 192,702 large sockeye estimated through to date (and 4,167 jacks) (Figure 4, Figure 6). Some early sockeye were missed due to delay in opening from wildfires.
- Tyee comparison with Babine fence counts (Figure 5) is very early, although some indications that fish are missing from the Babine fence. This is likely mostly missed fish before the fence was operational. Low Skeena discharge may be making migration timing faster than usual, which would have the opposite effect. A coarse estimate of in-rover FSC and demo catches when they occur are included in the comparison.
- Marine and in-river sockeye Section 35(1) fisheries ongoing.
- Area 4 commercial gillnet fishery last opening was July 31/August 1, seines completed their second opening, and FNs marine demo fisheries were open again last week and are open again this week with small allocations. Total gillnet and seine catch to date ~ 235k. Total marine demo catch ~11,013 but missing some catch numbers (Table 4, Figure 9).
- Recreational fishing trigger of 1,000,000 has been passed triggering sockeye directed recreational fisheries with a daily limit of 2 on the Skeena, Babine River and Babine Lake. The next trigger (1.0M) likely to be exceeded shortly. Retention of 4 sockeye daily opening on July 25 in Areas 3-5 (marine). LBN has closed Babine River near fence to recreational angling. Marine areas 3-5 are open to sockeye with daily limit of 4.
- Appendix A includes information on the other species caught in the Area 4 commercial fishery and CPUEs.
- Appendix B includes information on run-timing of specific Skeena Conservation Units/stocks.

Table 1: Cumulative escapement, TRTC, and catch to August 1.

Cumulative.to.Date	Number.of.Sockeye	Run.Timing	Percent.Through
Escapement Past Tyee	1122420	Average	71.8
TRTC (Escapement+Catch)	1339288	One week early	85.3
Catch (preliminary)	235600	One week late	52.4

Tyee Escapement and TRTC

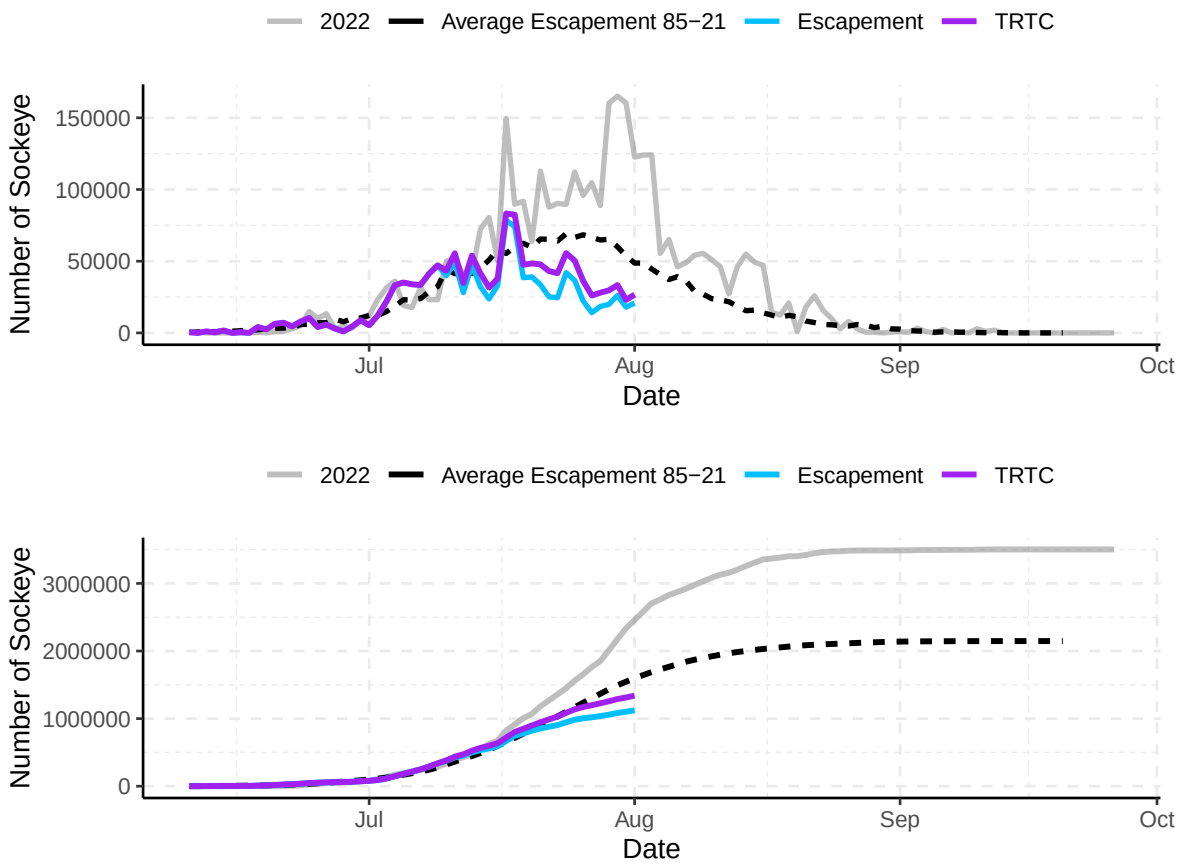

Figure 1: Daily (top) and cumulative (bottom) estimated escapement and TRTC (escapement + adjusted catch) at the Tyee test fishery versus the 1985-2021 average.

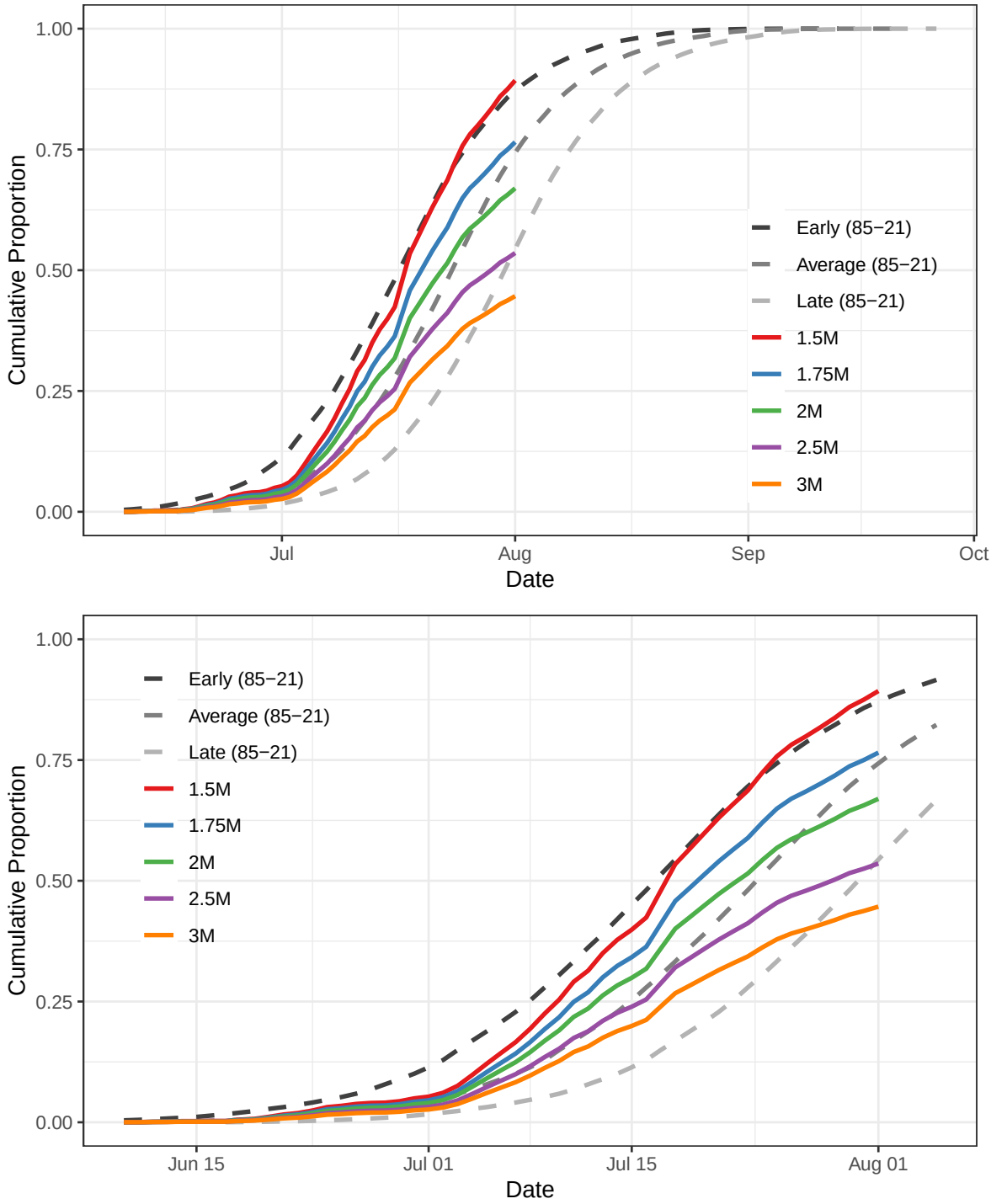

Figure 2: Cumulative estimated daily proportion of TRTC based on 1985-2021 average.

Table 2: Forecasted sockeye final TRTC based on early, average and late run-timing.

Run.Timing	Forecasted.Final.Run.Size
Early	1599769
Average	1866154
Late	2418439

Tyee run-timing model

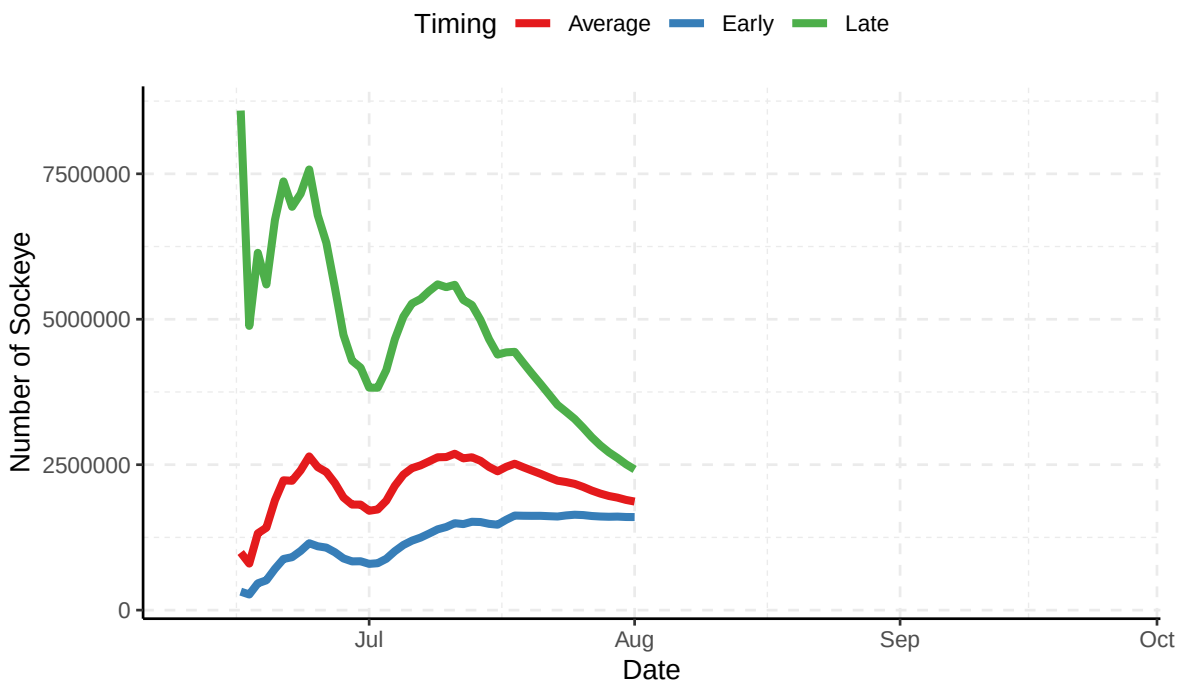

Figure 3: Forecasted final TRTC of Skeena sockeye based on the simple scalar run-timing model.

Table 3: Cumulative large sockeye and jacks to Babine River fence to August 1.

Babine.Fence	Total.Run
Large Sockeye	192702
Jacks	4167

Babine Fence

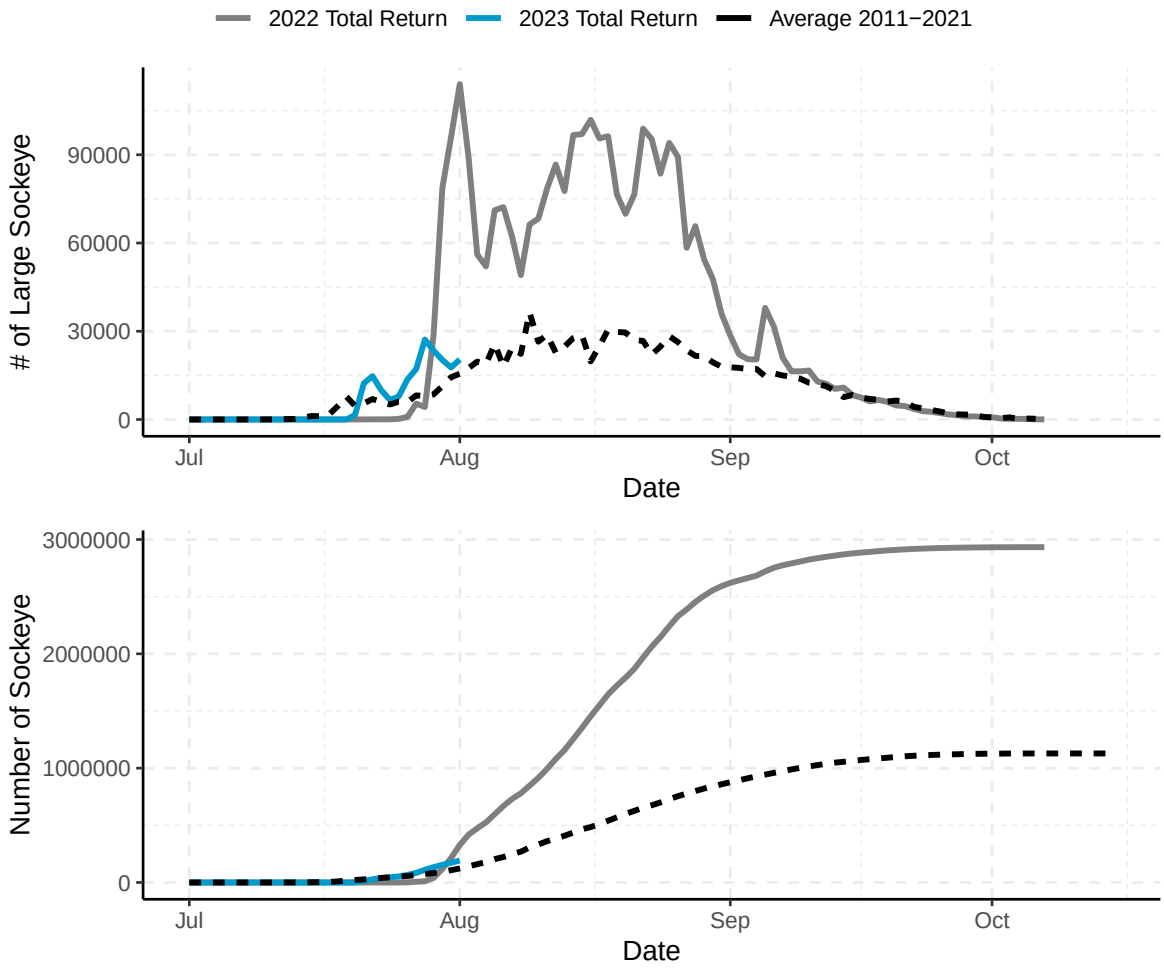

Figure 4: Top panel: Total run to Babine fence for 2023 compared to 2022 (recent highest year) and the average from 2011-2021. Bottom panel: Cumulative estimated run to the Babine fence for 2023 and the average from 2011-2021.

Babine Sockeye Jacks

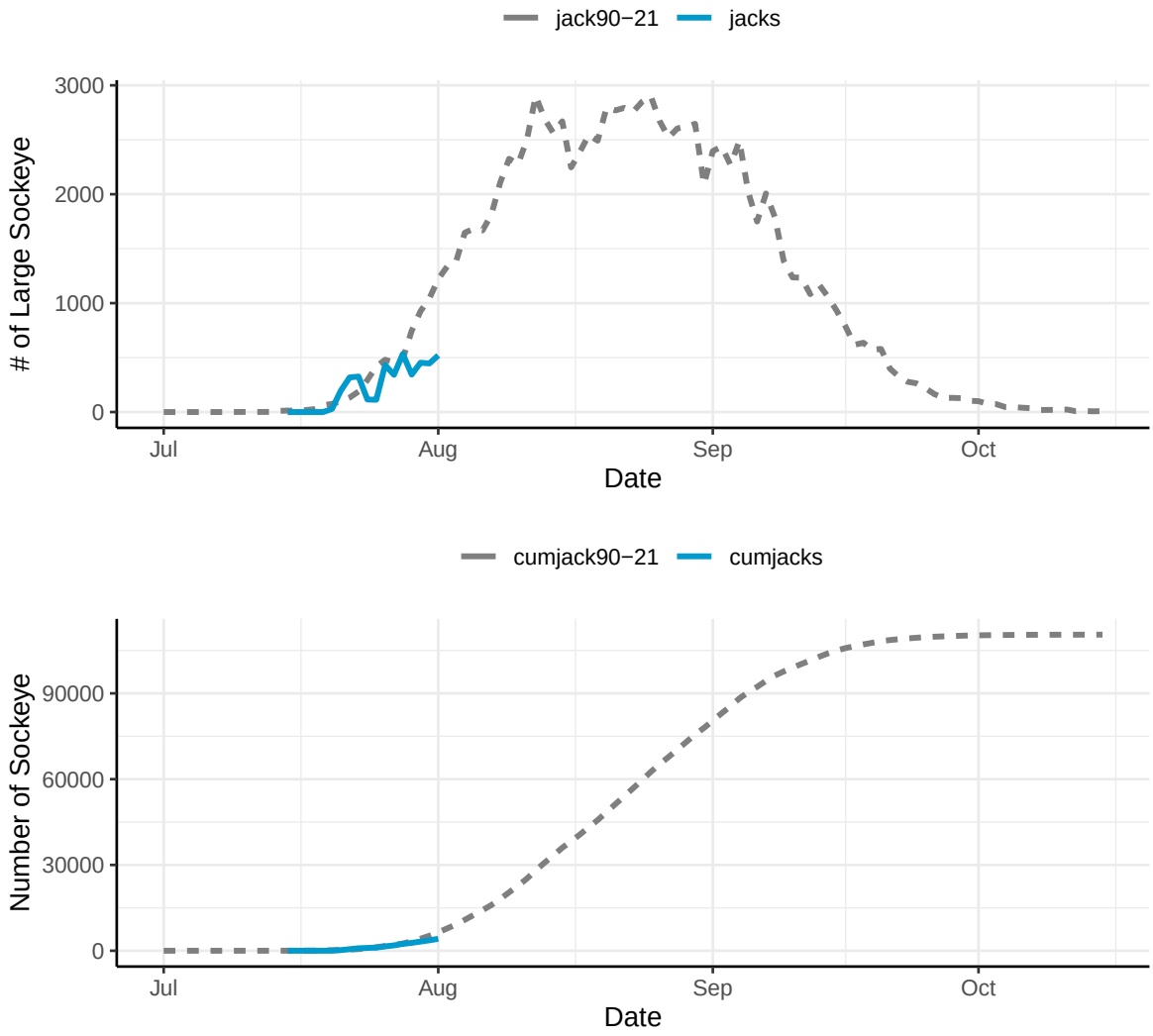

Figure 5: Daily (top) and cumulative (bottom) estimated total run of sockeye jacks in 2023 at the Babine Fence versus the 1990-2021 average.

Babine comparison with Tyee

This comparison aims to provide a coarse idea on the catchability at Tyee. The red line in the figure below shows the difference between the escapement past Tyee and the total run being counted at the Babine Fence, based on some assumptions. These assumptions include 3 week migration timing, 10% non-Babine stock composition and a rough estimate of in-river FSC and demo harvest to date between Tyee and Babine. In 2023 some sockeye were missed due to the delay from wildfire evacuations, however DFO and LBN staff indicate that no sockeye were visible below the fence when it was evacuated, and therefore the number of sockeye missed was probably fairly low. Additional analysis will be required to provide an estimate of the number of missed sockeye.

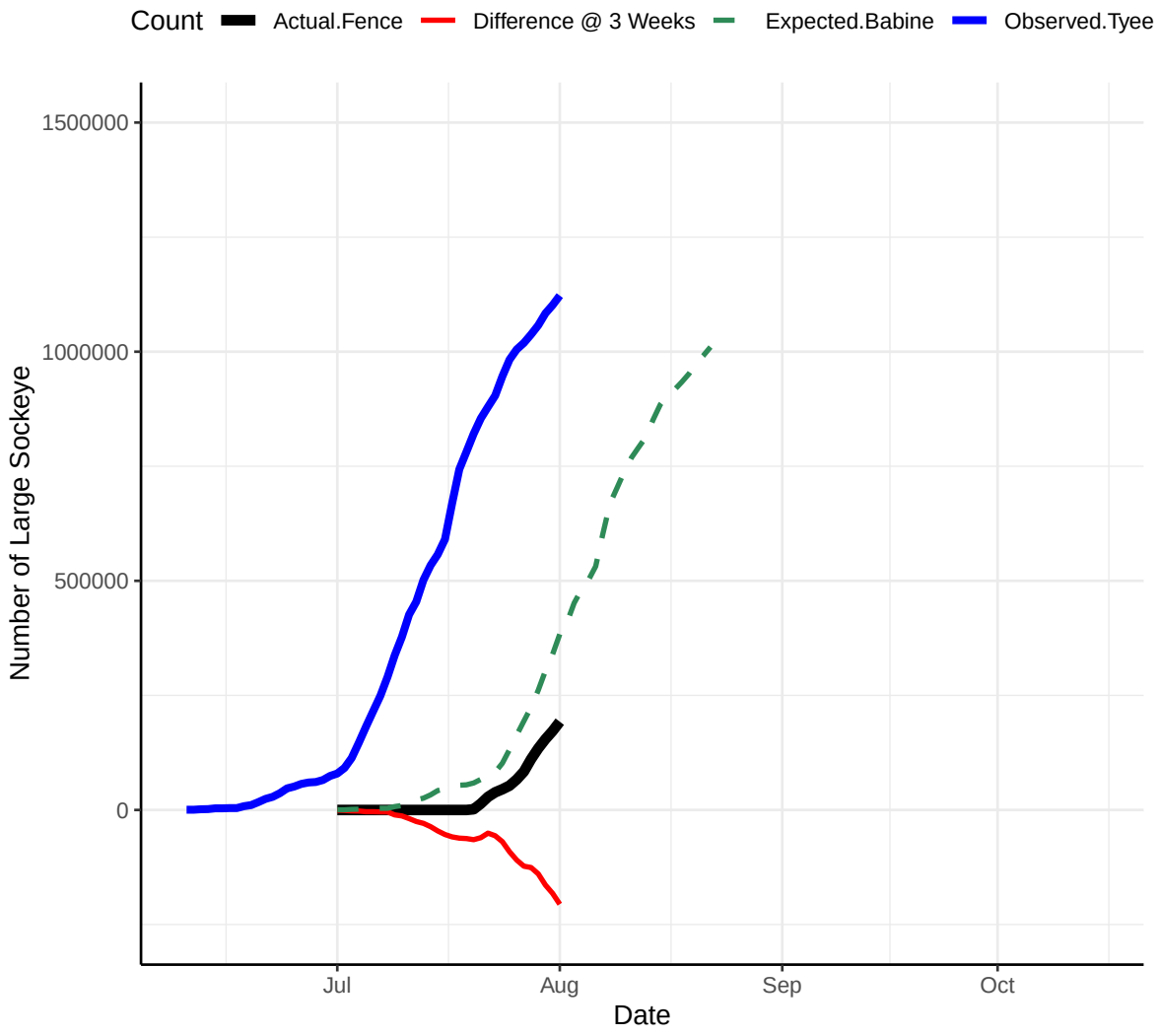

Figure 6: Estimated difference in sockeye between escapement past Tyee and the Babine Fence based on 3 week migration timing, 10% non-Babine stocks, and in-river FSC and demo catch to date. The solid blue line is the escapement past Tyee, the dotted green line is the expected run at the Babine fence, the solid black line is the actual total run at the fence, and the red line is the difference between the black line and green line (fence run - expected run).

Area 4 Commercial Marine Catch

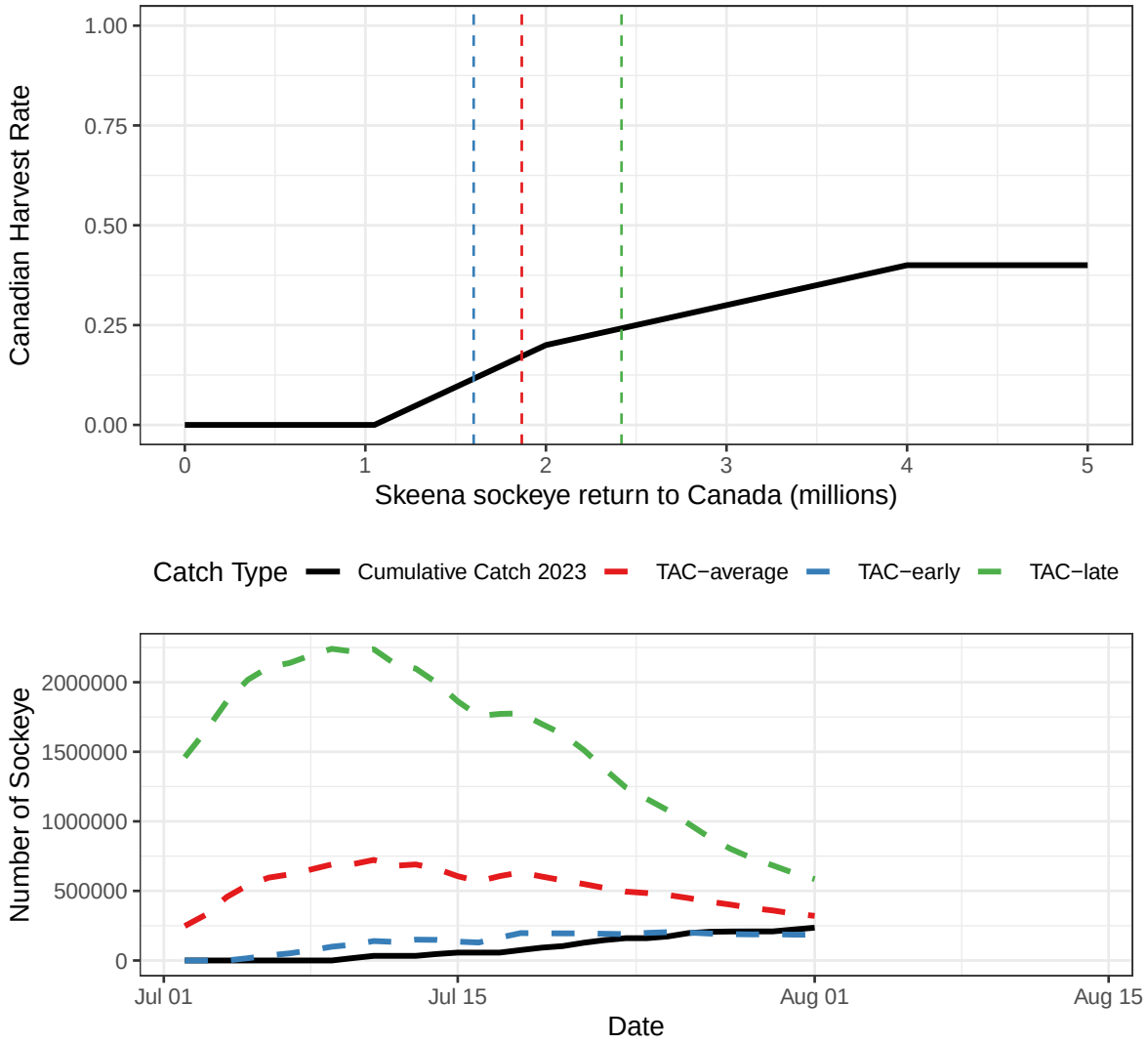

Figure 7: Top panel: The Skeena sockeye harvest control rule based on TRTC. Bottom panel: Cumulative Area 4 gillnet and seine sockeye catch versus daily estimates of TAC based on early (blue), average (red), and late (green) run-timing from the in-season TRTC model.

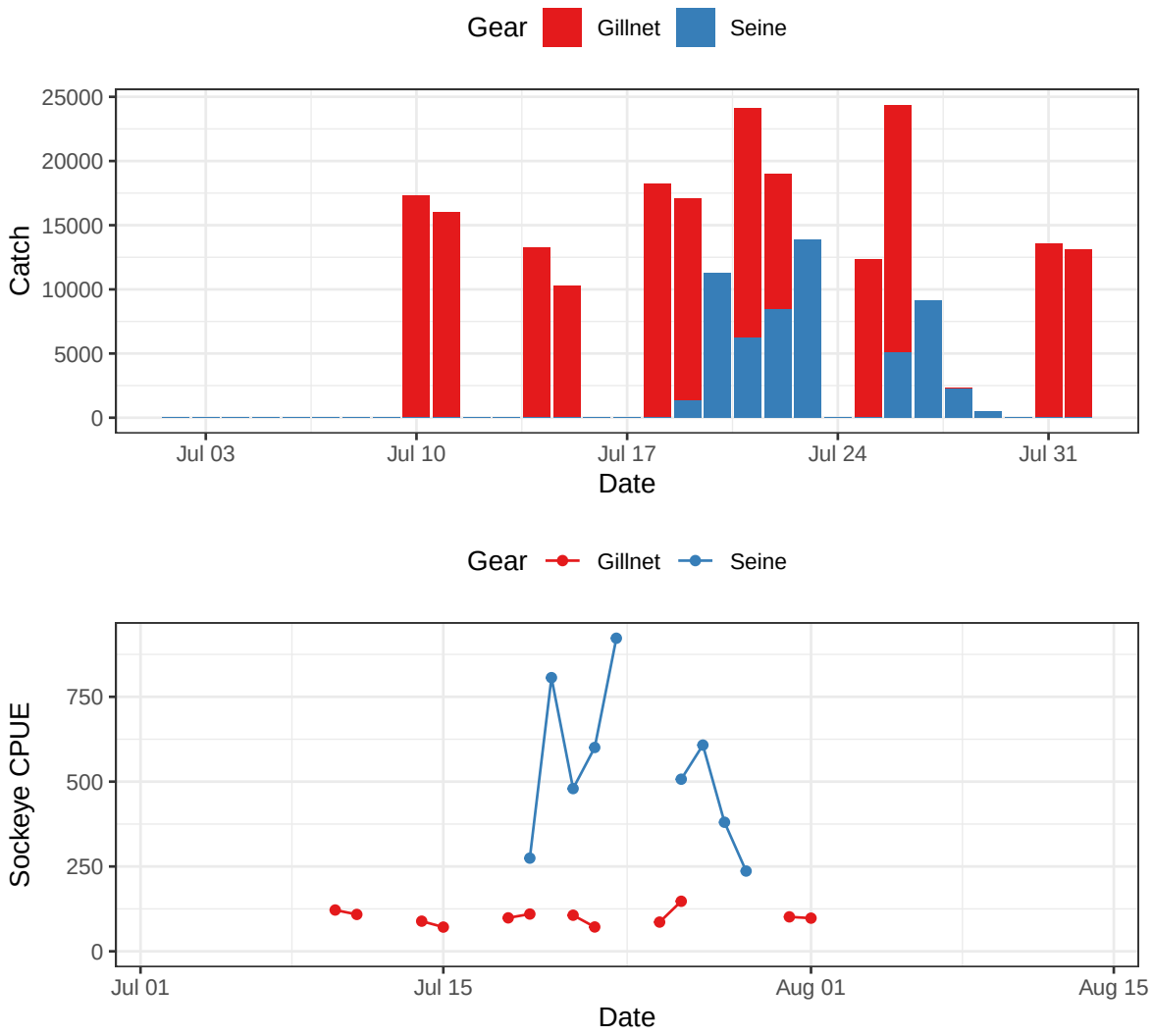

Figure 8: Top panel: Area 4 gillnet and seine sockeye catch. Bottom panel: CPUE of gillnet and seine based on daily catch/daily effort. Note that some values are preliminary.

Table 4: Total Area 4 First Nations demo catches of sockeye.

Nation	Total Demo Sockeye Catch
Lax Kw'alaams	1375
Metlakatla	150
NCSFNSS	9488
Total	11013

First Nations Demo Catch

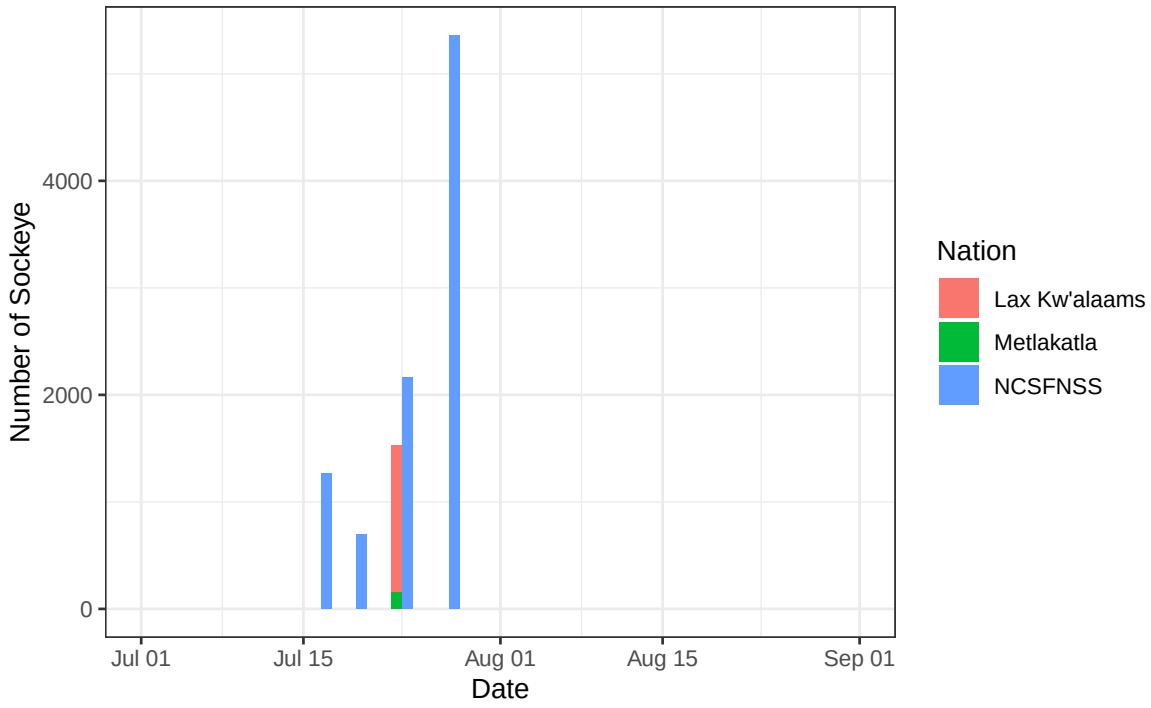

Figure 9: Catches of sockeye in First Nations Area 4 demo fisheries.

Appendix A-Pink, chum, coho, chinook and steelhead

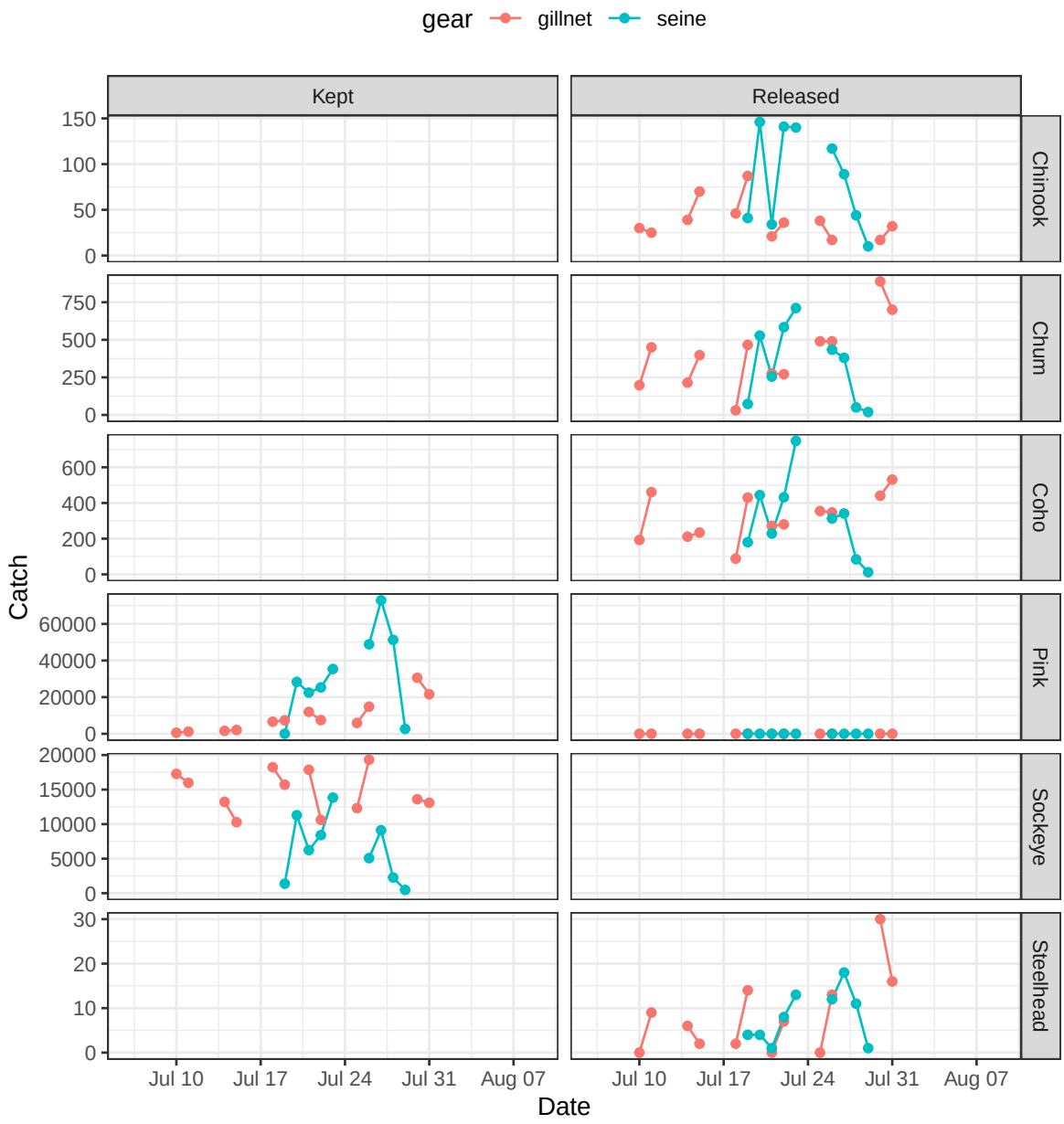

Figure 10: Number of other species caught and released (coho, chinook, chum and steelhead), or kept (pinks).

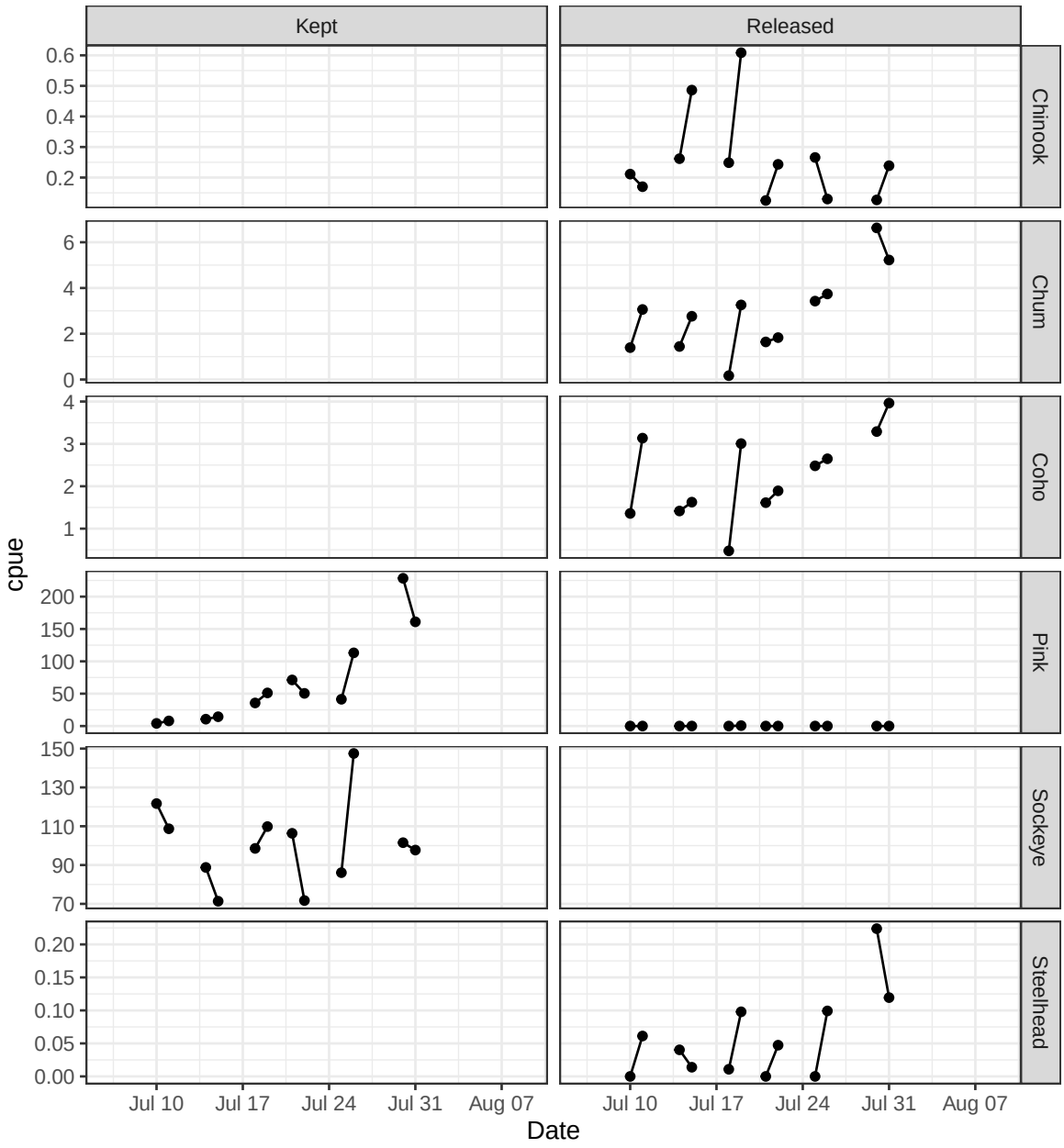

Figure 11: CPUE of other species caught and released (coho, chinook, chum and steelhead), or kept (pinks) by gillnets.

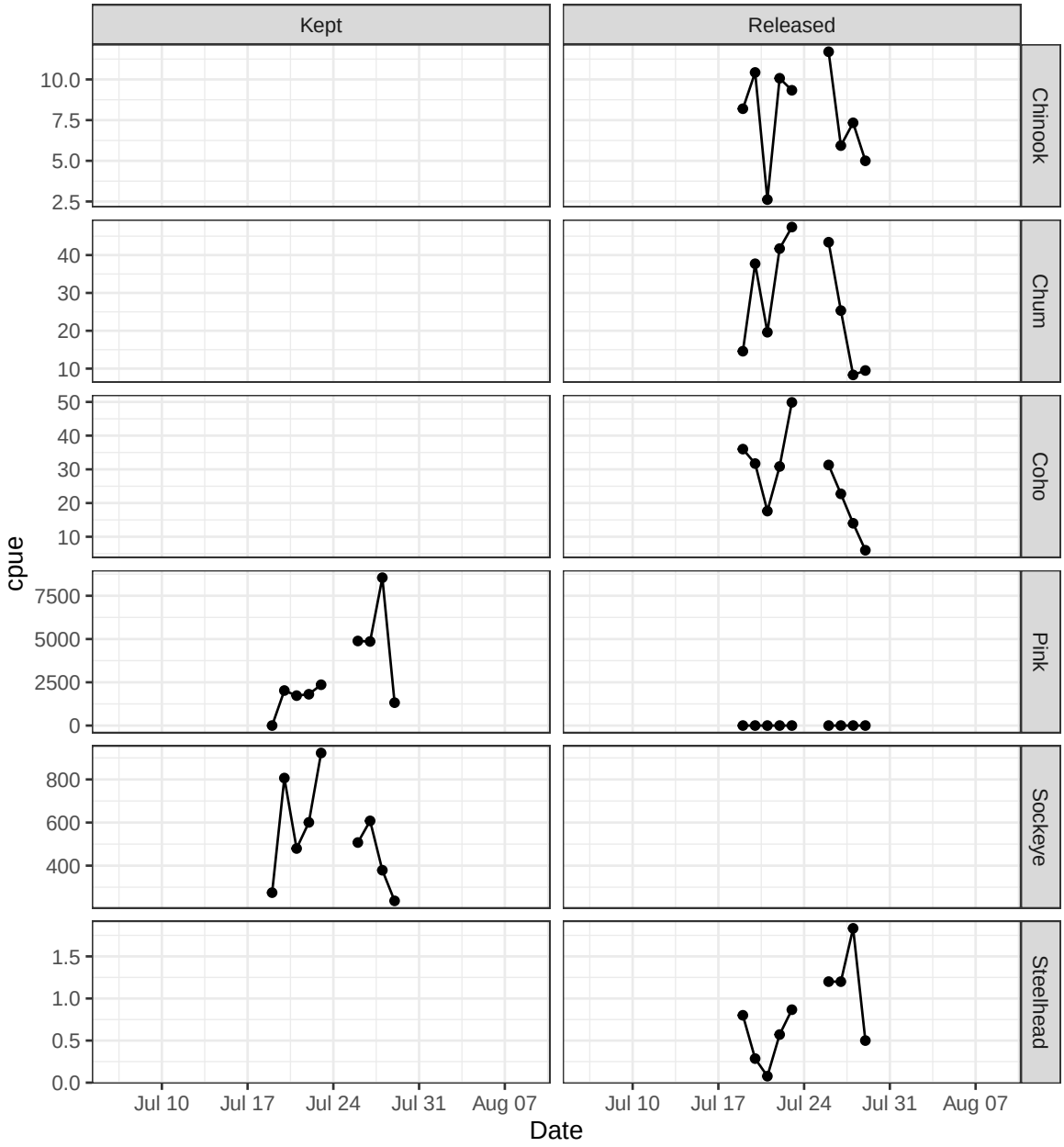

Figure 12: CPUE of other species caught and released (coho, chinook, chum and steelhead), or kept (pinks) by seines.

Table 5: Total catch of coho, chum, chinook, pink and steelhead in the commercial gillent and seine fisheries to August 1.

Species	gillnet_Released	gillnet_Kept	seine_Released	seine_Kept
Chinook	458	0	762	0
Chum	4873	0	3034	0
Coho	3842	0	2783	0
Pink	89	111663	0	287144
Sockeye	0	177510	0	58080
Steelhead	99	0	72	0

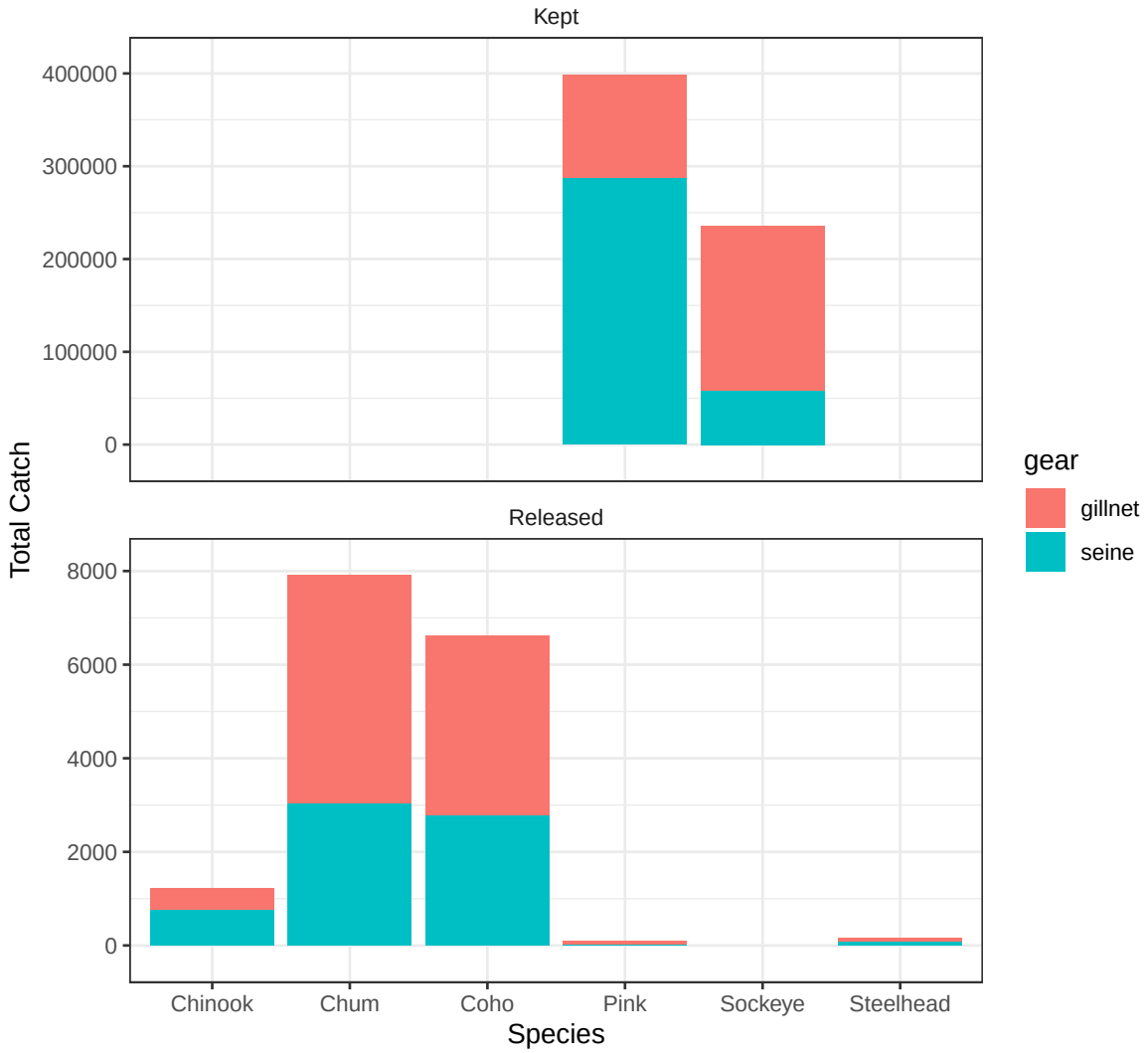

Figure 13: Total catch of other species caught and kept or released (coho, pinks, chinook, chum and steelhead) by gillnets and seines in the marine Area 4 commercial fishery.

Appendix B-Population specific run-timing through Tyee

Notes:

- Based on NBRR update data (2000-2014) provided by Karl English July 2022. Will add in the newer data and some comparisons.
- These are average run-timings.
- Explorations on the differences between the average and ANNUAL run-timing standard deviations are underway for stocks with appropriate sample size.

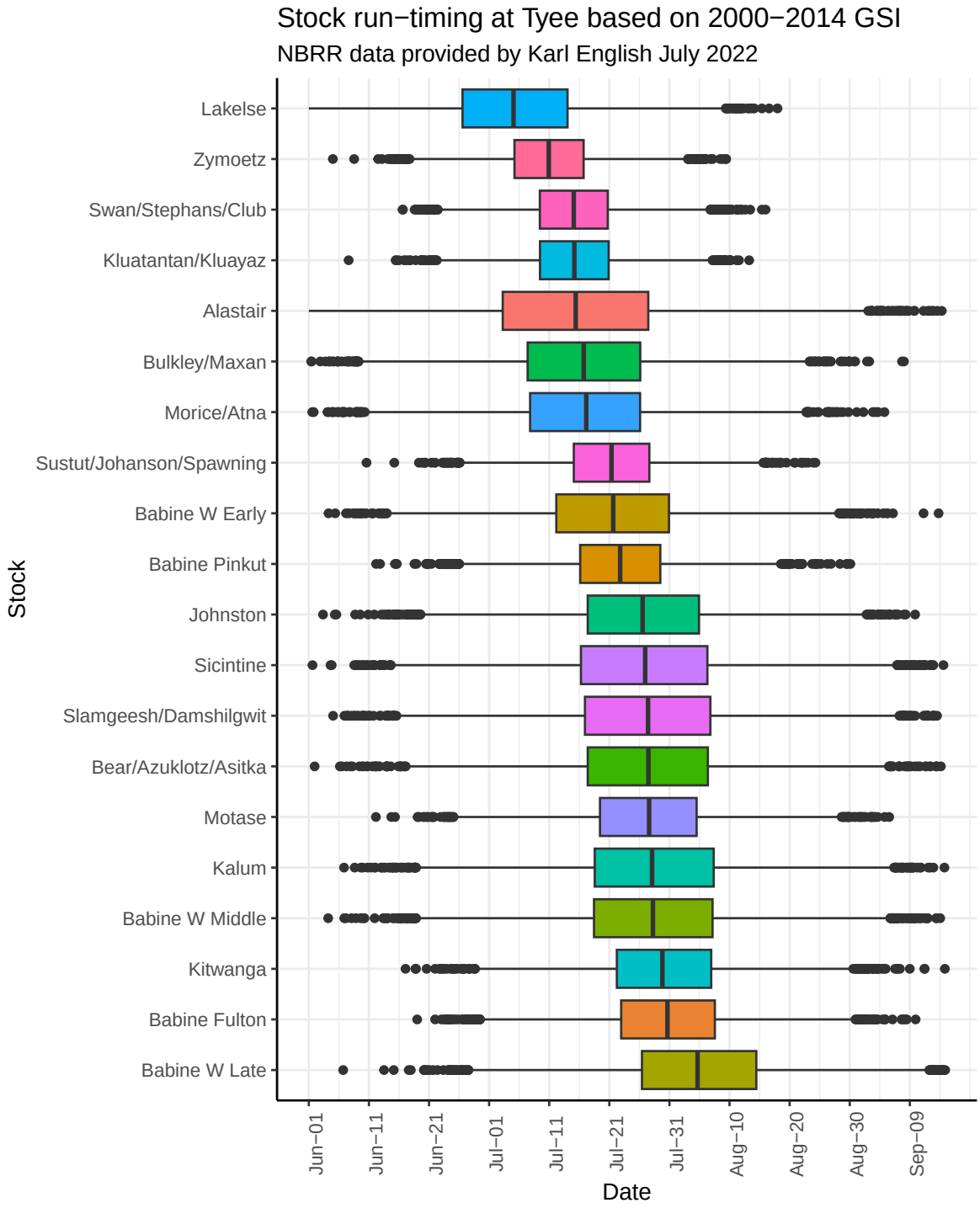

Figure 14: Boxplots of stock specific run-timing through Tyee. Based on 2000-2014 data provided by karl English from updated NBRR work. The filled area of the box represents 50% of the run.

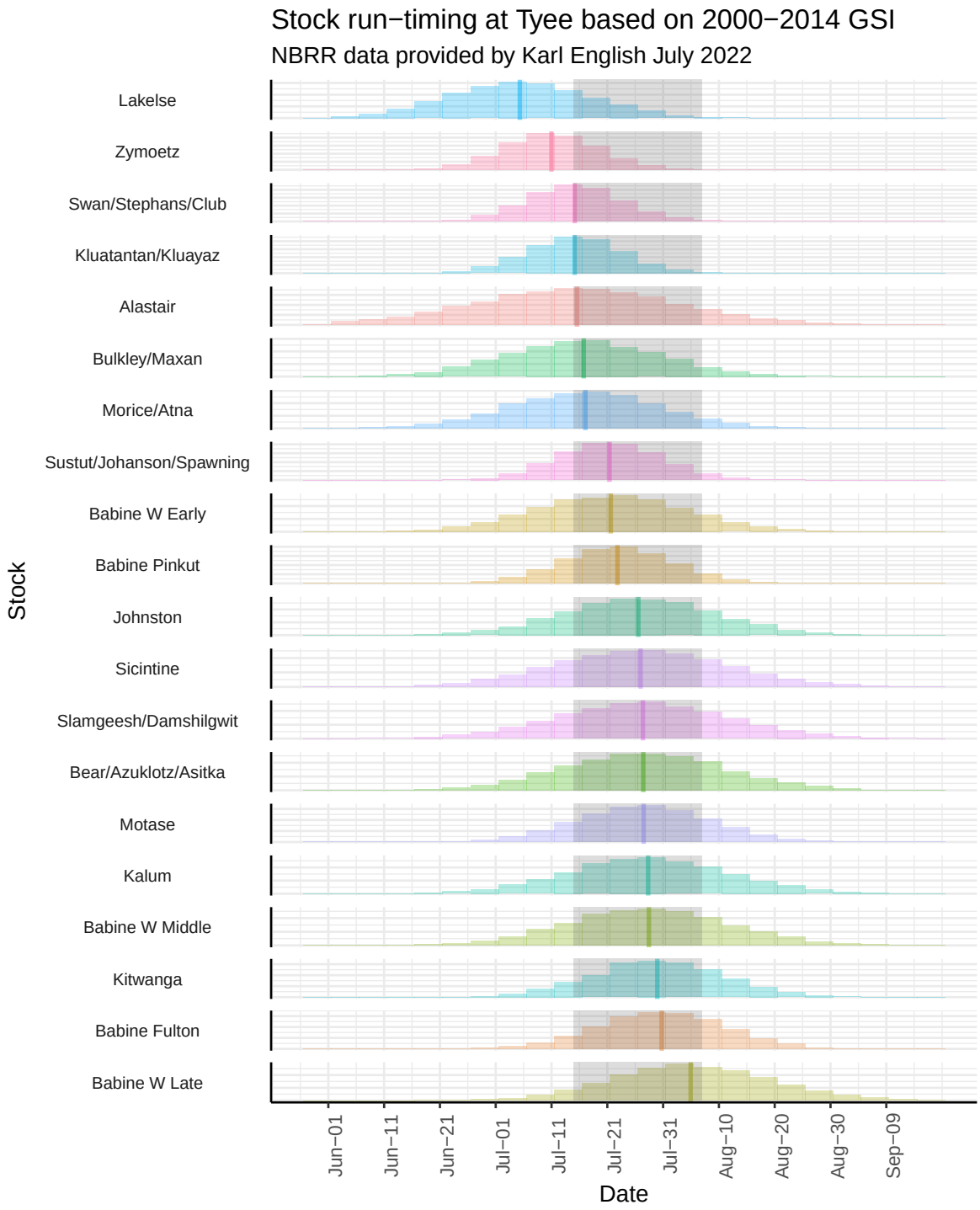

Figure 15: Histograms of stock specific run-timing through Tyee. Based on 2000-2014 data provided by karl English from updated NBRR work.

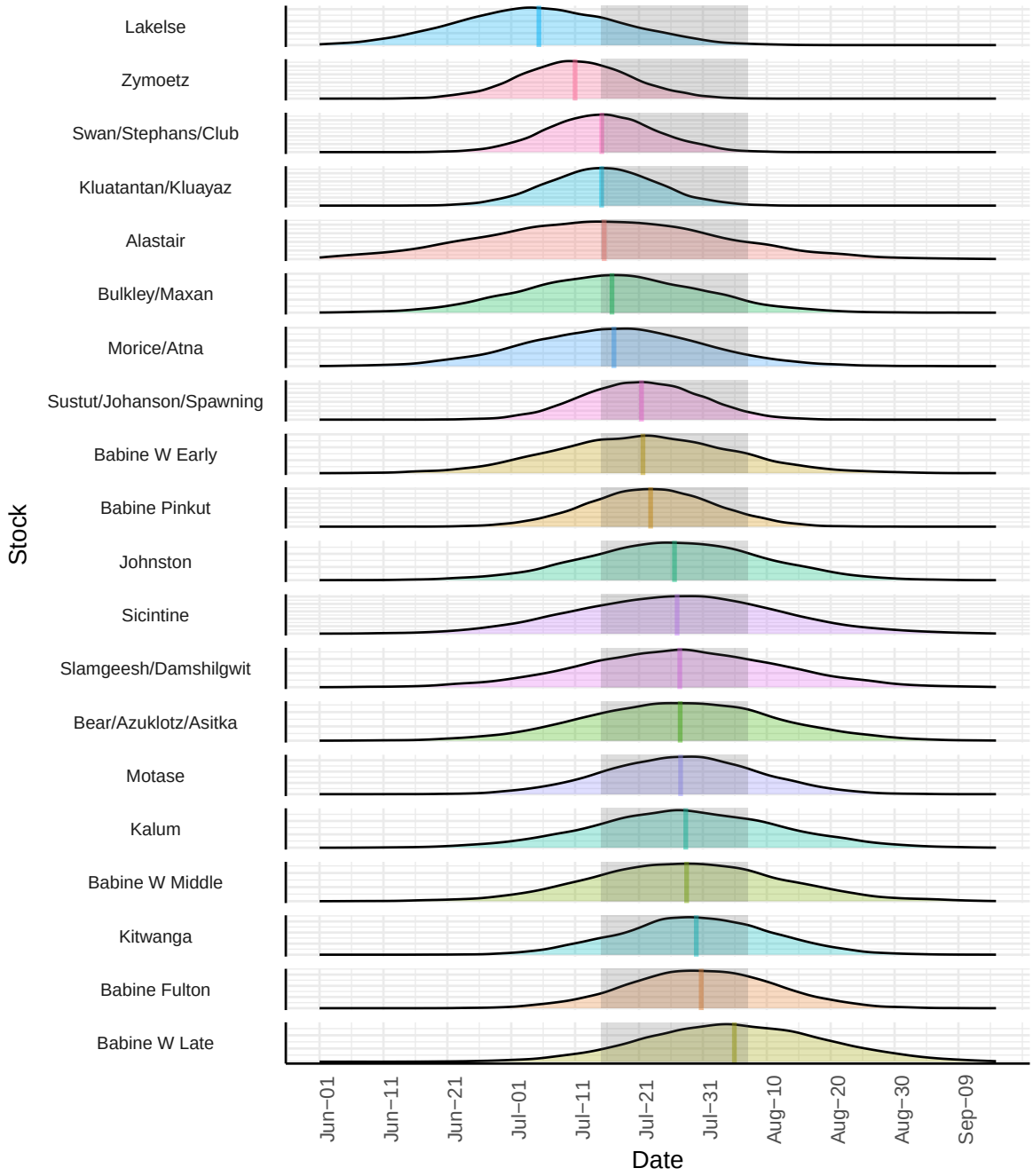

Figure 16: Density plot of stock specific run-timing through Tyee. Based on 2000-2014 data provided by karl English from updated NBRR work.