

# Skeena Sockeye In Season Update for SFNTC

31 July, 2023

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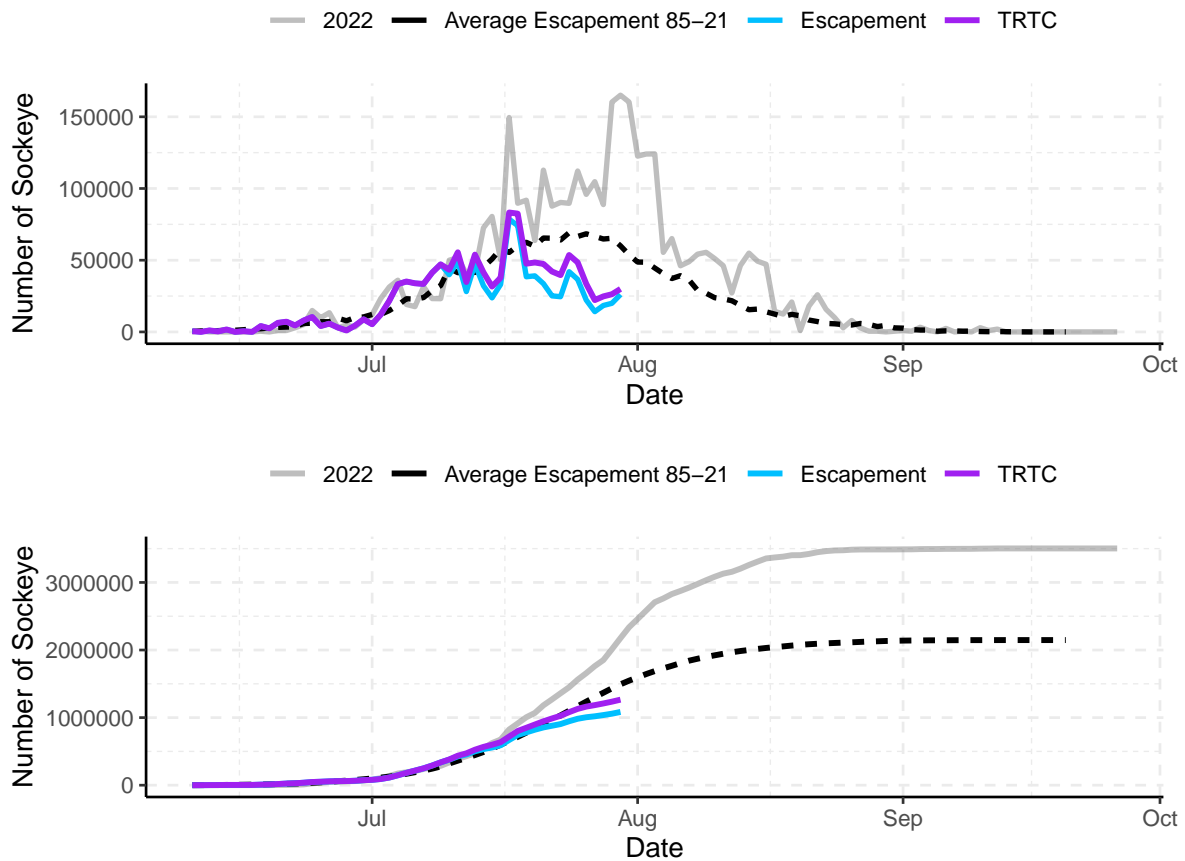
## Summary

- Cumulative total escapement of 1,083,644 past Tyee to date (Table 1, Figure 1). Run would be about 46% through on late timing, 67% on average timing, and 82% if the run is early.
- 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 ~ 1.9M (average run-timing), 1.6M (early run-timing), 2.56M (late run-timing) (Figure 3).
- Babine fence is operational with 154,615 large sockeye estimated through to date (and 3,201 jacks). 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 make 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.
- Marine and in-river sockeye Section 35(1) fisheries ongoing.
- Area 4 commercial gillnet fishery is on again today and tomorrow, seines completed their second opening, and FNs demo fisheries were open again last week. Total gillnet and seine catch to date ~ 181k. Total demo catch ~5,600 not including the last few days.
- 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 undergoing discussions on closure of Babine River to recreational angling. Marine areas 3-5 are open to sockeye with daily limit fo 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.

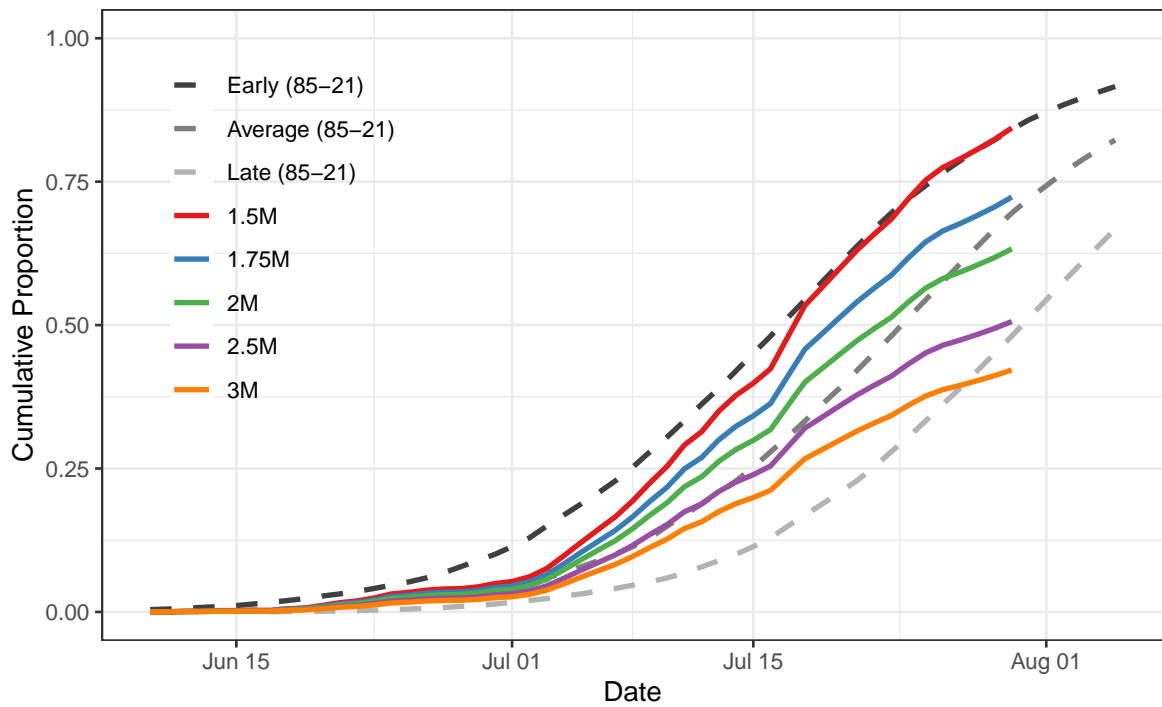
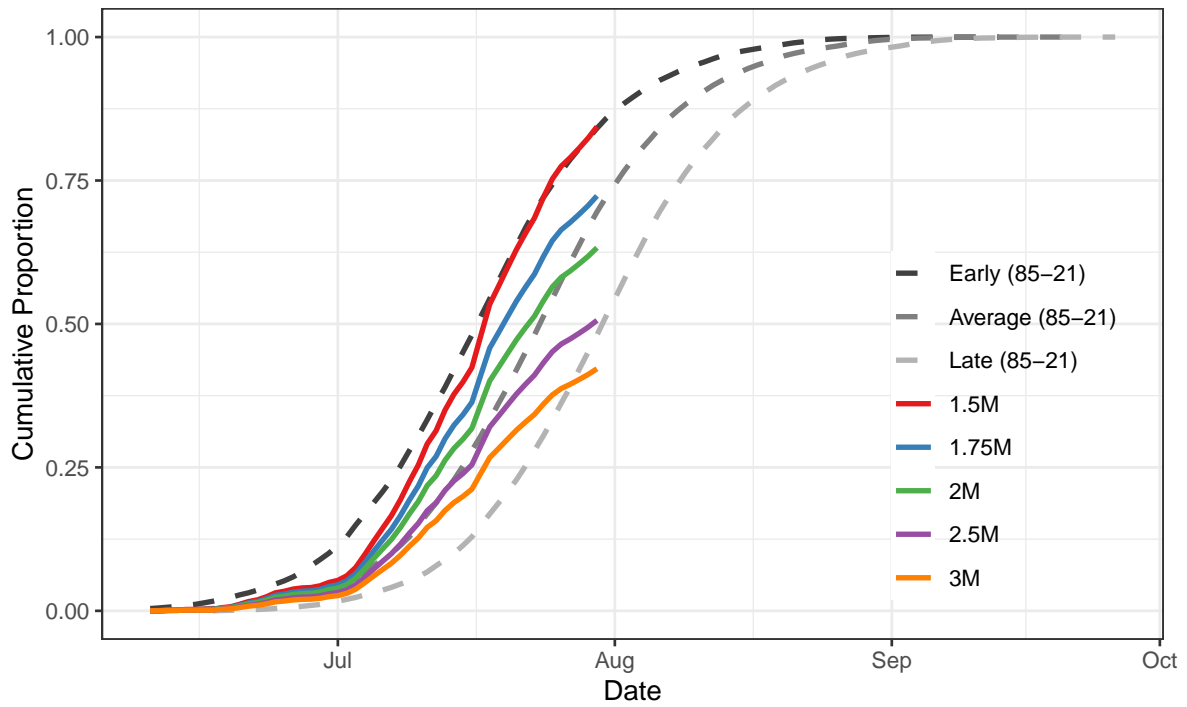
**Table 1:** Cumulative escapement, TRTC, and catch to July 30.

| Cumulative.to.Date      | Number.of.Sockeye | Run.Timing     | Percent.Through |
|-------------------------|-------------------|----------------|-----------------|
| Escapement Past Tyee    | 1083644           | Average        | 66.7            |
| TRTC (Escapement+Catch) | 1265576           | One week early | 82.0            |
| Catch (preliminary)     | 181932            | One week late  | 46.3            |

## 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.

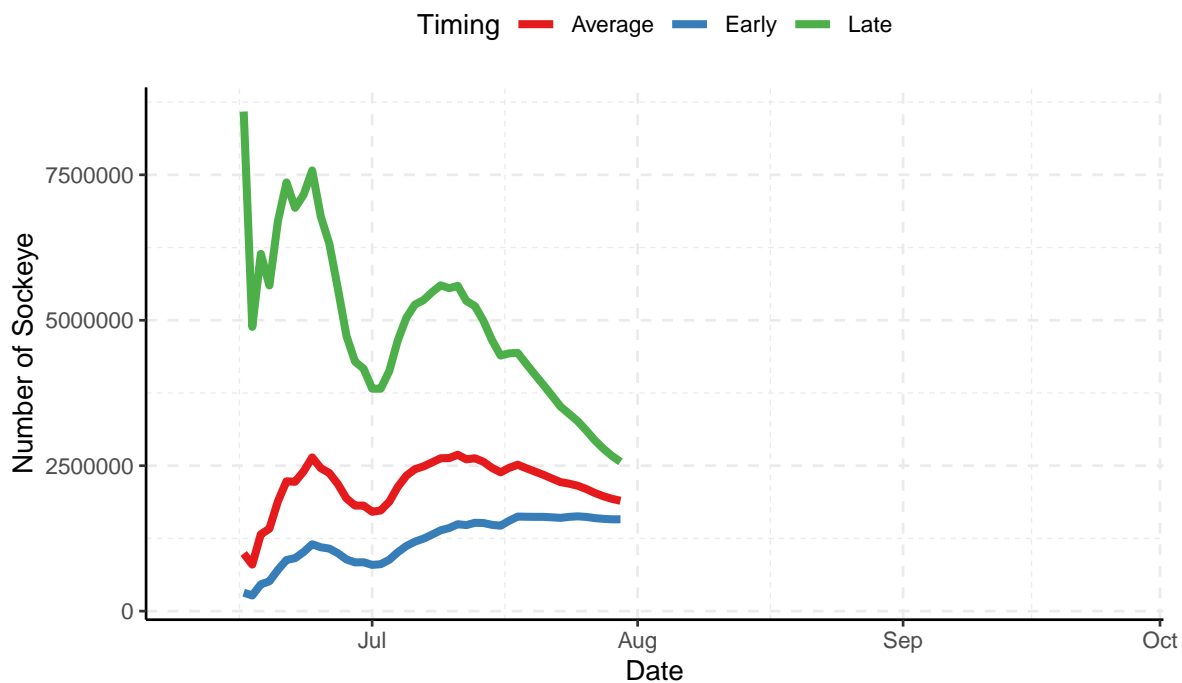


**Figure 2:** Cumulative estimated daily proportion of TRTC based on 1985-2021 average.

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

| Run.Timing | Forecasted.Final.Run.Size |
|------------|---------------------------|
| Early      | 1578120                   |
| Average    | 1897660                   |
| Late       | 2566353                   |

## Tyee run-timing model

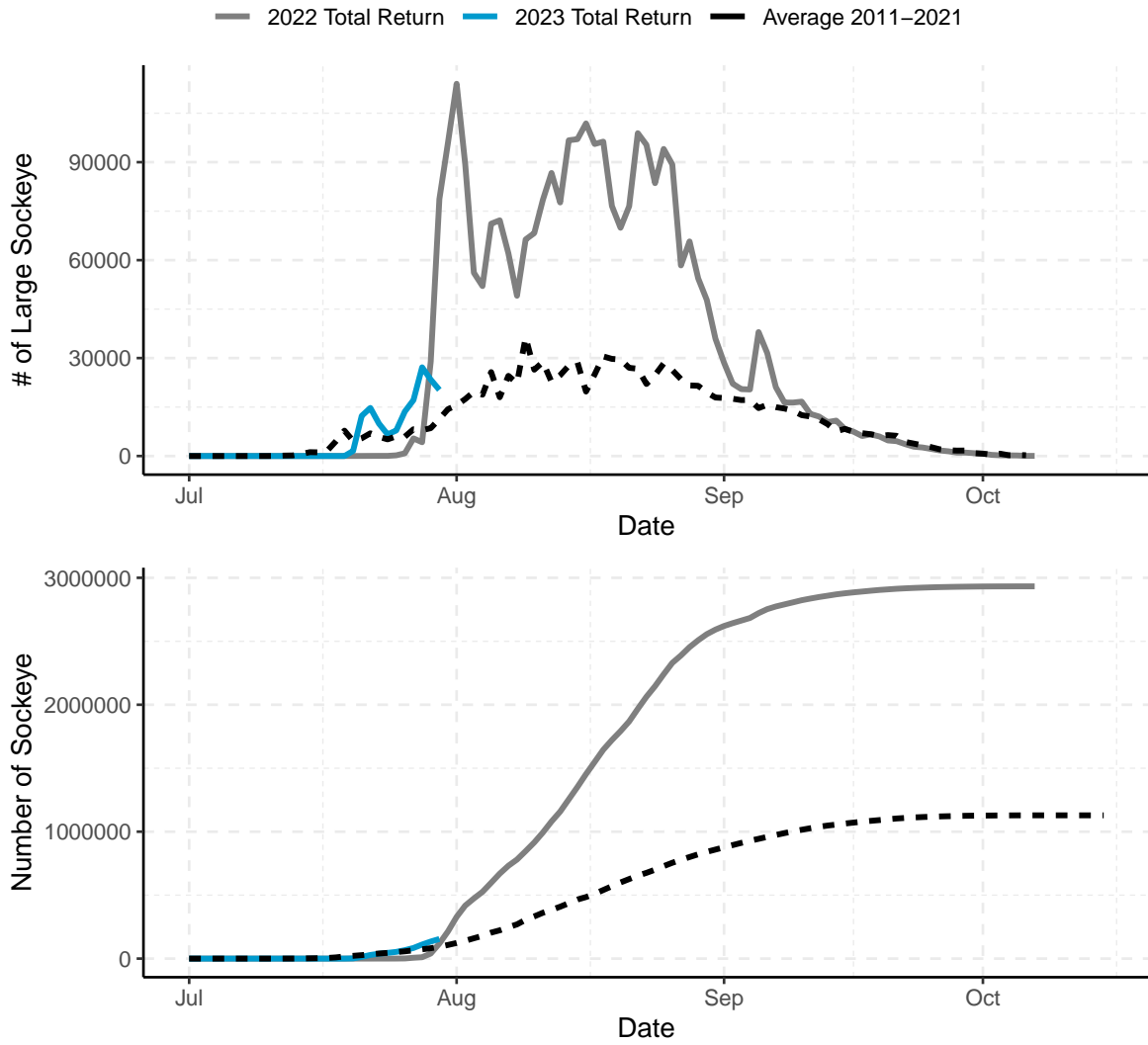


**Figure 3:** Forecasted final TRTC of Skeena sockeye based on the simple scalar run-timing model.

## Babine Fence

**Table 3:** Cumulative large sockeye and jacks to Babine River fence to July 30.

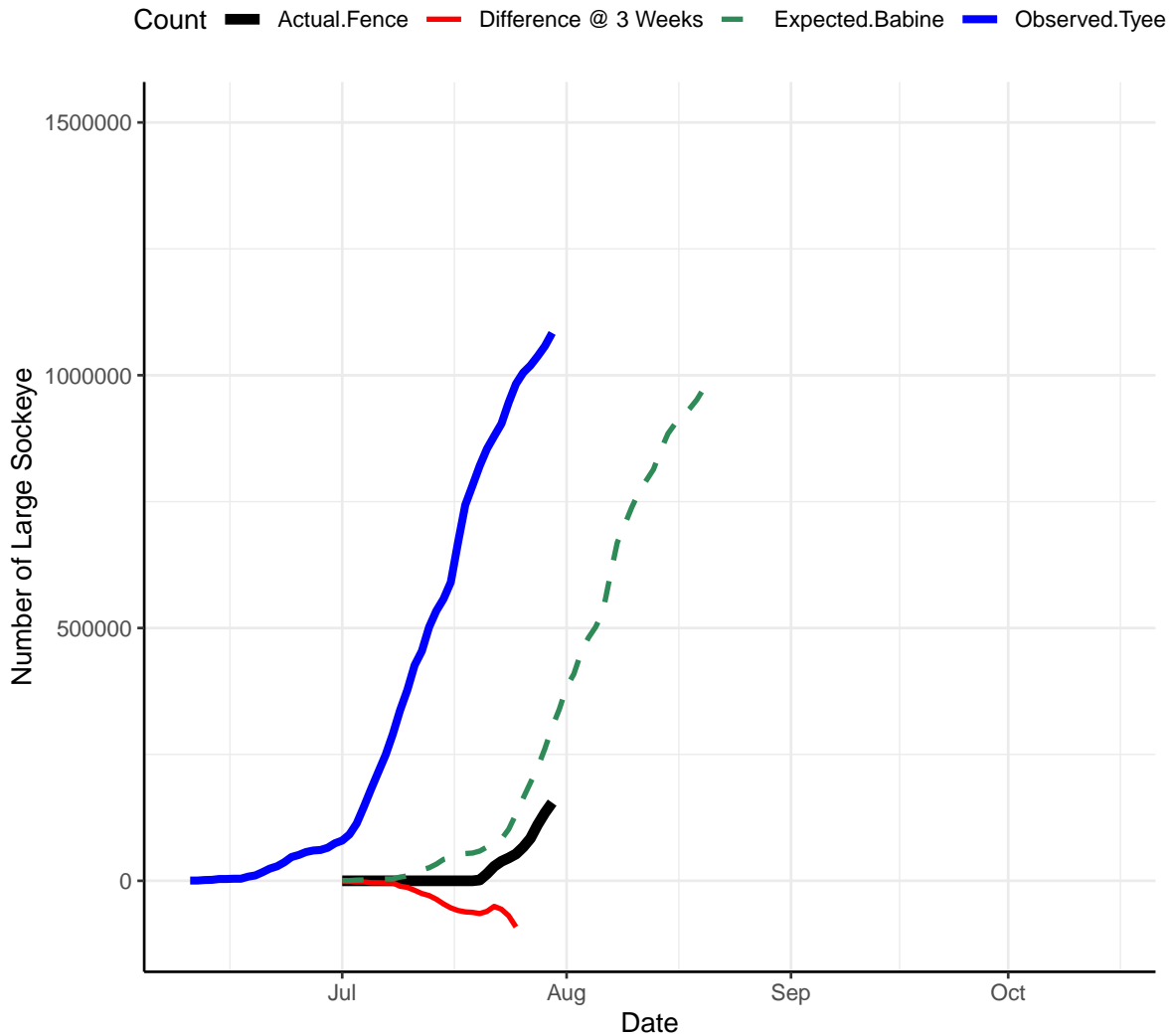
| Babine.Fence  | Total.Run |
|---------------|-----------|
| Large Sockeye | 154615    |
| Jacks         | 3201      |



**Figure 4:** Top panel: Total run to Babine fence for 2022 compared to 2014 (recent highest year) and the average from 2011-2021. Bottom panel: Cumulative estimated run to the Babine fence for 2022, 2014 (recent highest year) and the average from 2011-2021.

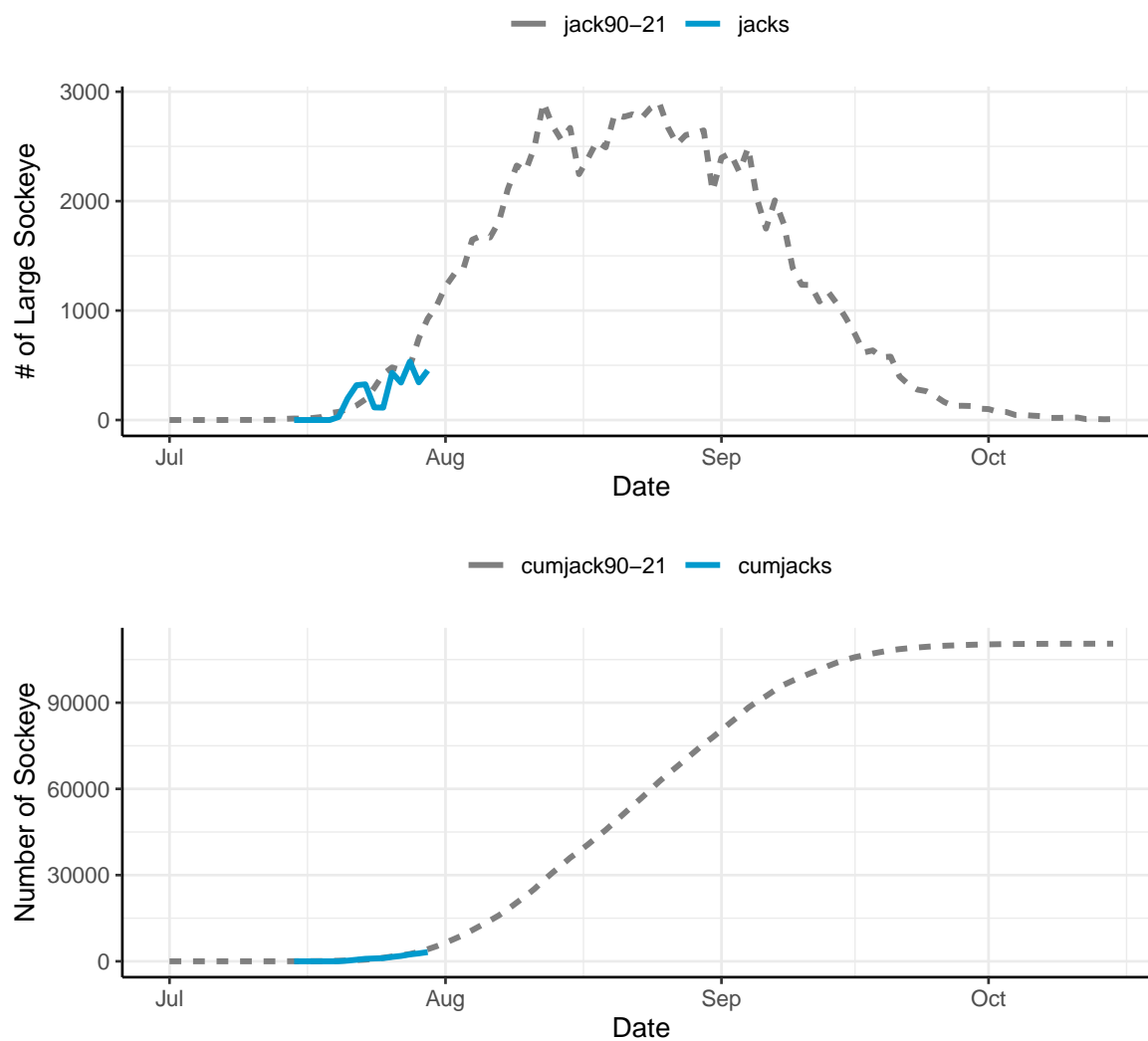
## Babine comparison with Tyee

This comparison aims to provide an 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 ~ 13,000 of FSC harvest between Tyee and Babine to date (Kitsumkalum, Kitselas and Gitksan sockeye FSC).



**Figure 5:** Estimated difference in sockeye between escapement past Tyee and the Babine Fence based on 3 week migration timing, 10% non-Babine stocks, and ~ 40,000 catch between Tyee and Babine spread over 2-3 weeks.

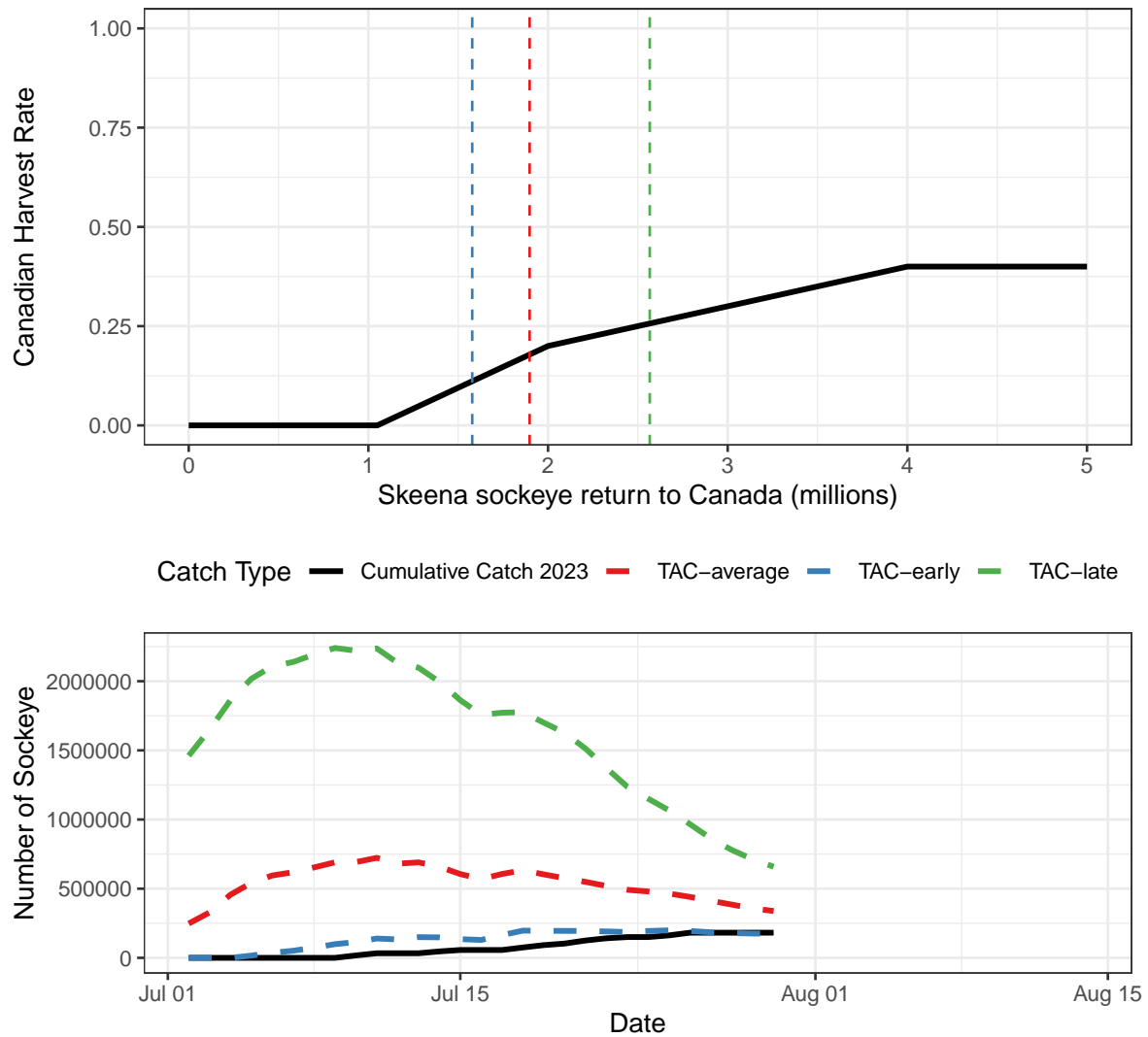
## Babine Sockeye Jacks



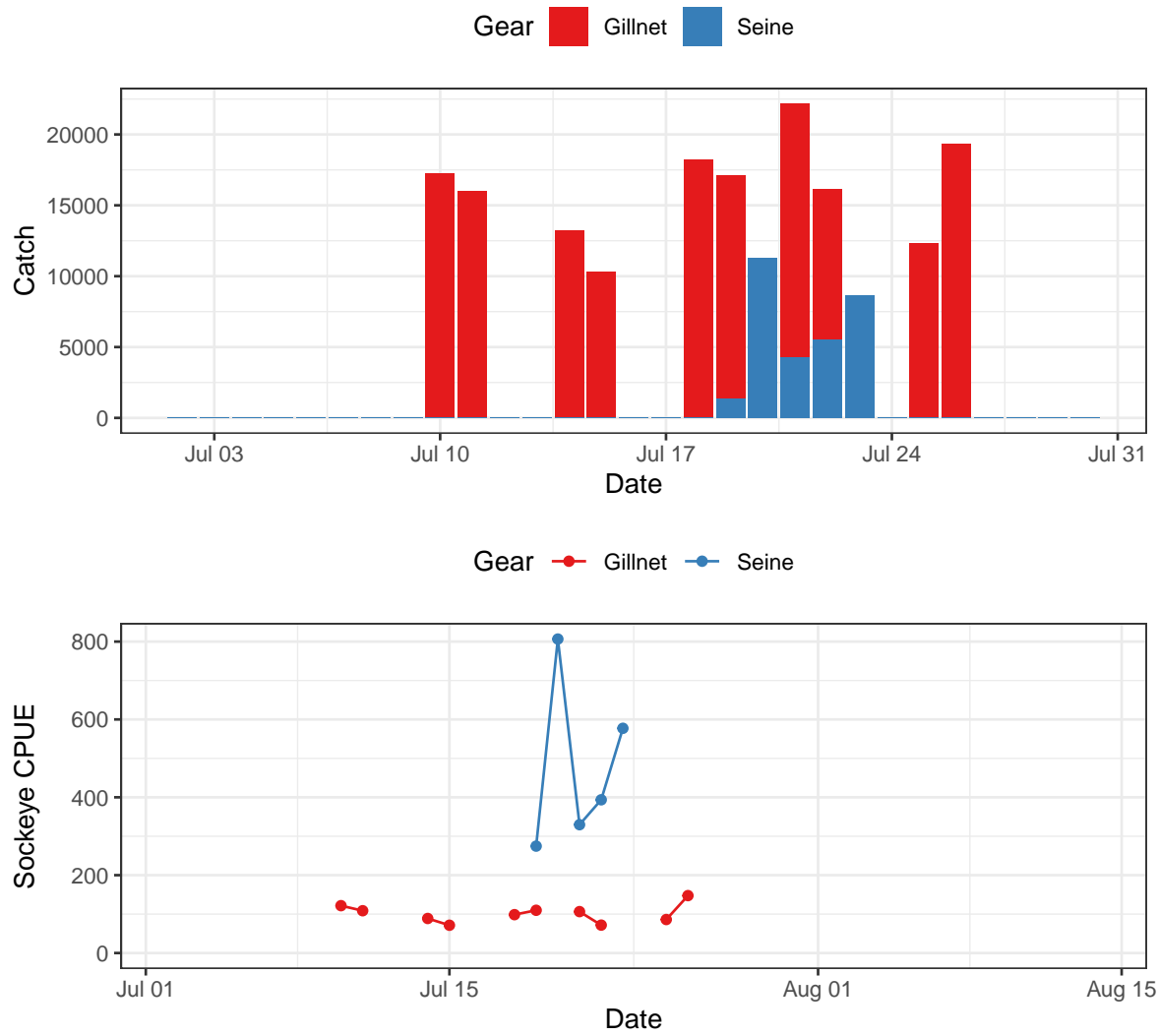
**Figure 6:** Daily (top) and cumulative (bottom) estimated total run of sockeye jacks at the Babine Fence versus the 1990-2021 average.



## 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.

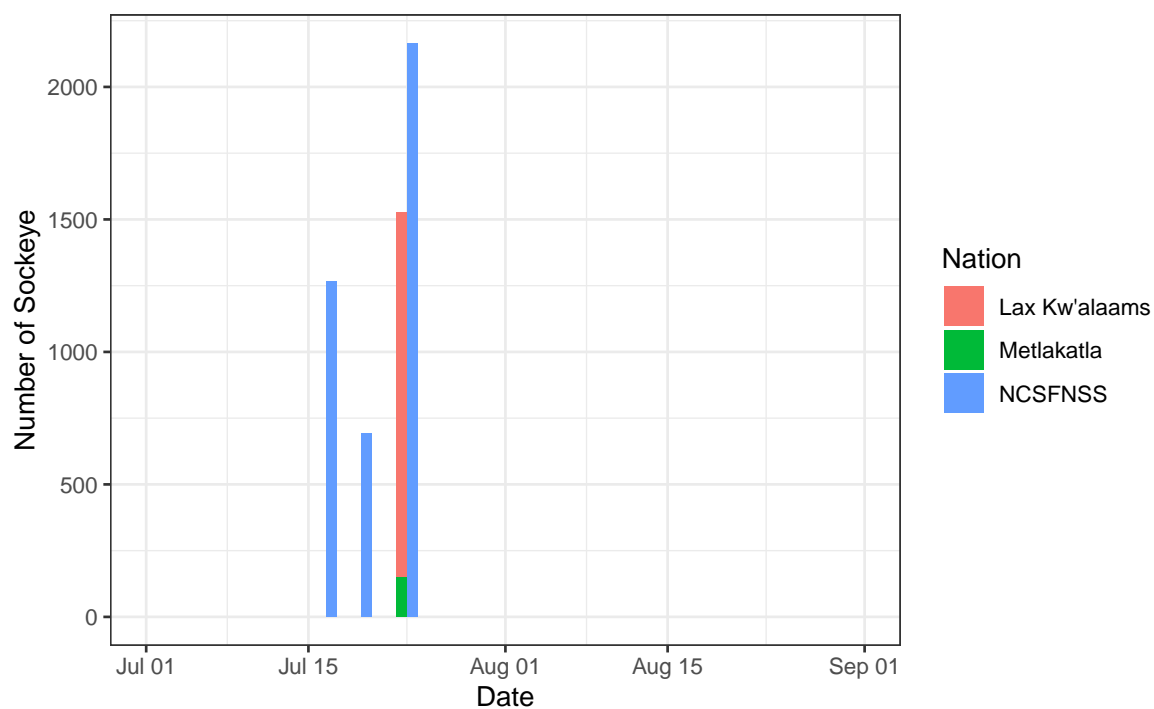


**Figure 8:** Top panel: Area 4 gillnet and seine sockeye catch. Bottom panel: CPUE of gillnet and seine based on daily catch/daily effort. Note that some values are preliminary.

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

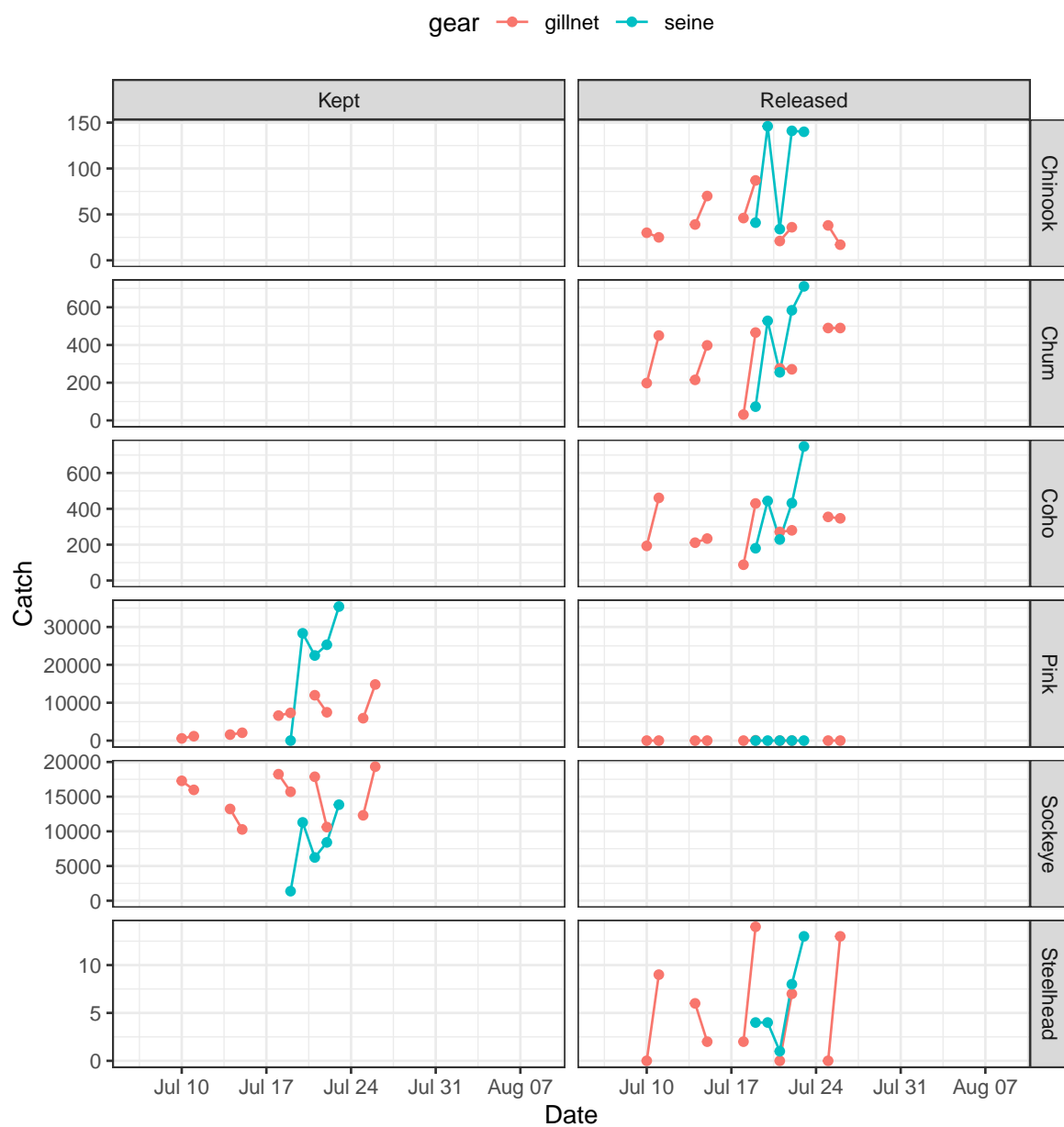
| Nation        | Total Demo Sockeye Catch |
|---------------|--------------------------|
| Lax Kw'alaams | 1375                     |
| Metlakatla    | 150                      |
| NCSFNSS       | 4127                     |
| Total         | 5652                     |

## First Nations Demo Catch

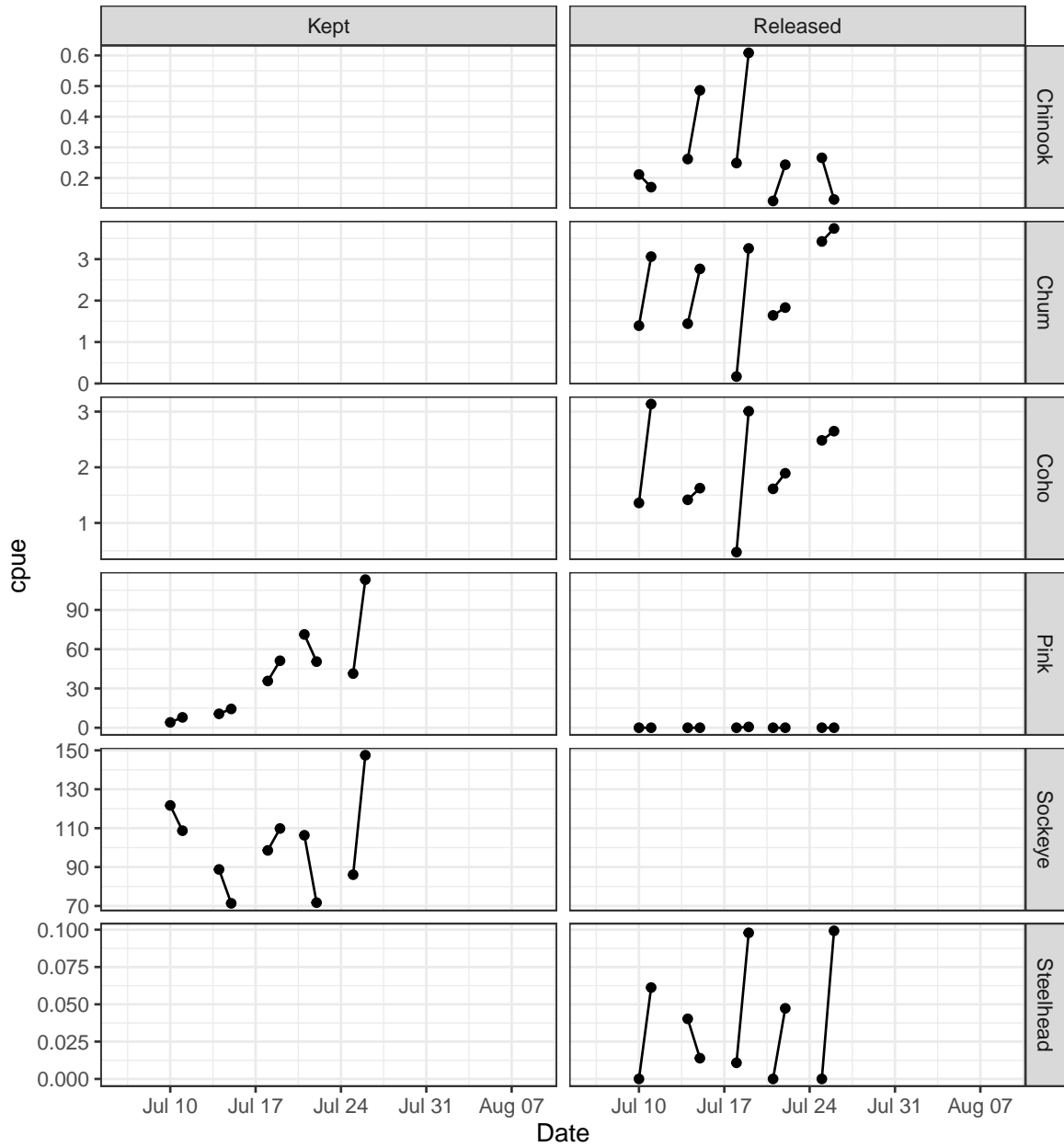


**Figure 9:** Catches of sockeye in First Nations Area 4 demo fisheries.

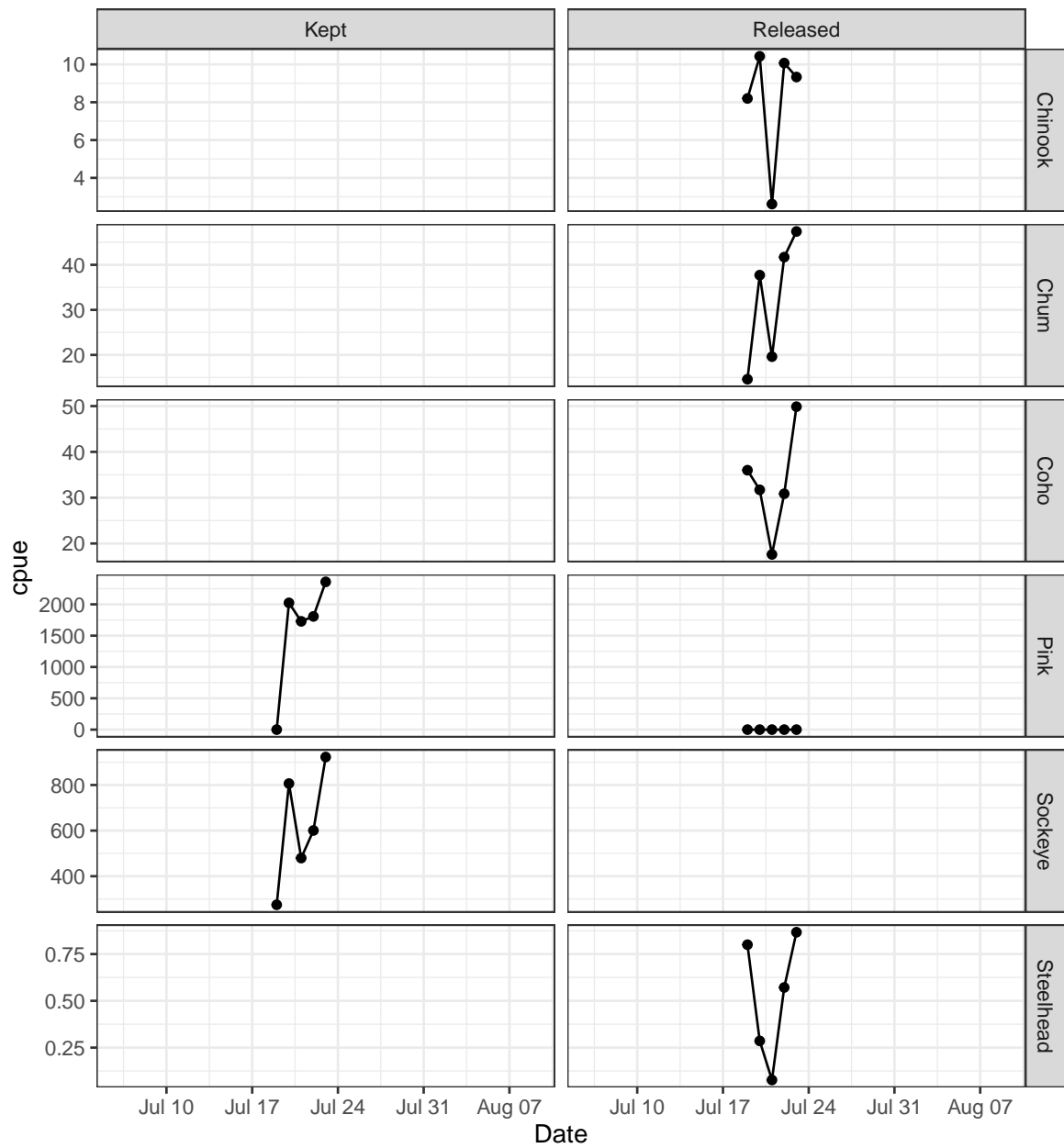
## Appendix A-Pink, chum, coho, chinook and steelhead



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



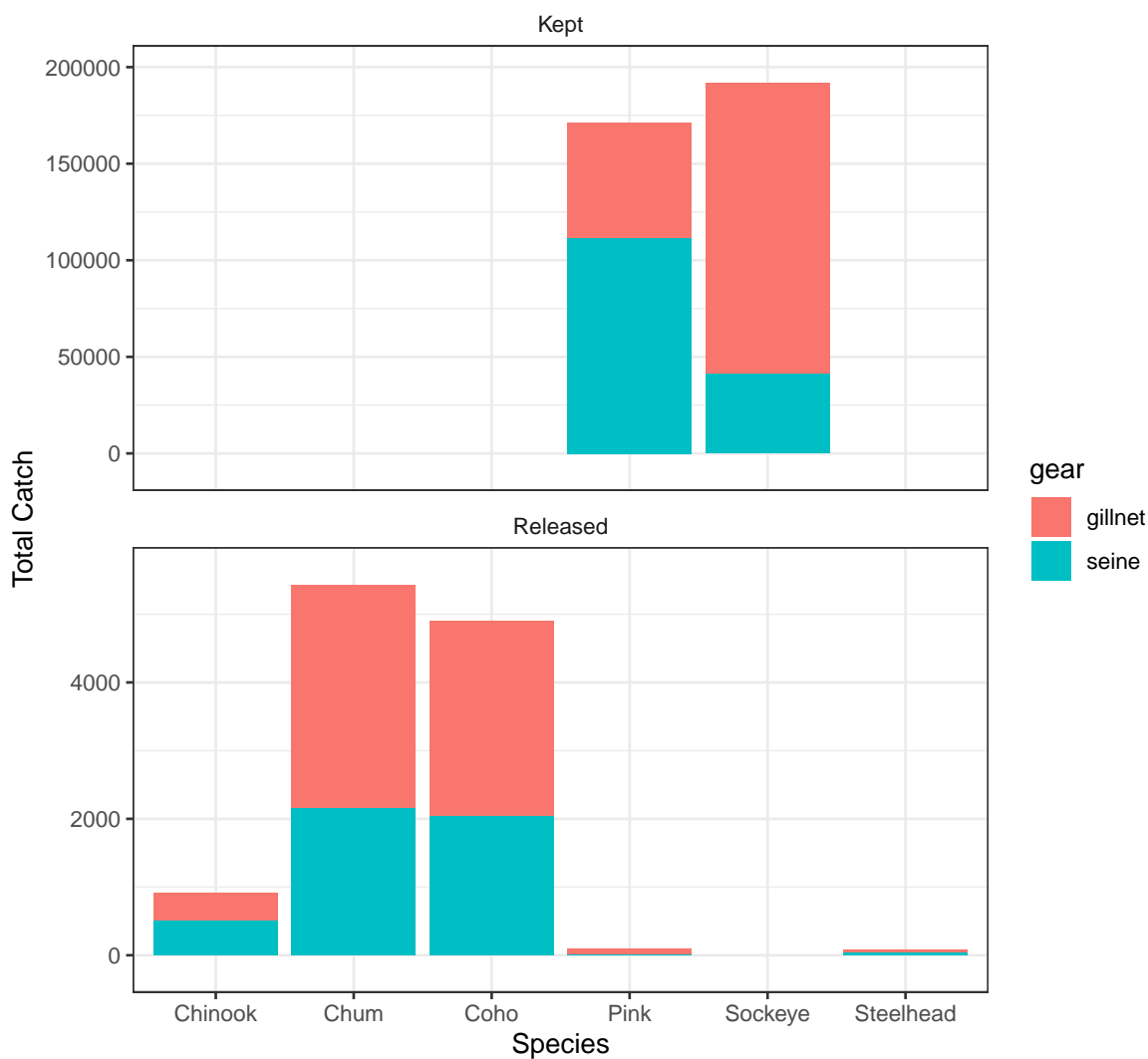
**Figure 11:** CPUE of other species caught and released (coho, chinook, chum and steelhead), or kept (pinks) by gillnets.



**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 gillnet and seine fisheries to July 30.

| Species   | gillnet_Released | gillnet_Kept | seine_Released | seine_Kept |
|-----------|------------------|--------------|----------------|------------|
| Chinook   | 409              | 0            | 502            | 0          |
| Chum      | 3285             | 0            | 2151           | 0          |
| Coho      | 2870             | 0            | 2033           | 0          |
| Pink      | 89               | 59486        | 0              | 111490     |
| Sockeye   | 0                | 150812       | 0              | 41147      |
| Steelhead | 53               | 0            | 30             | 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.

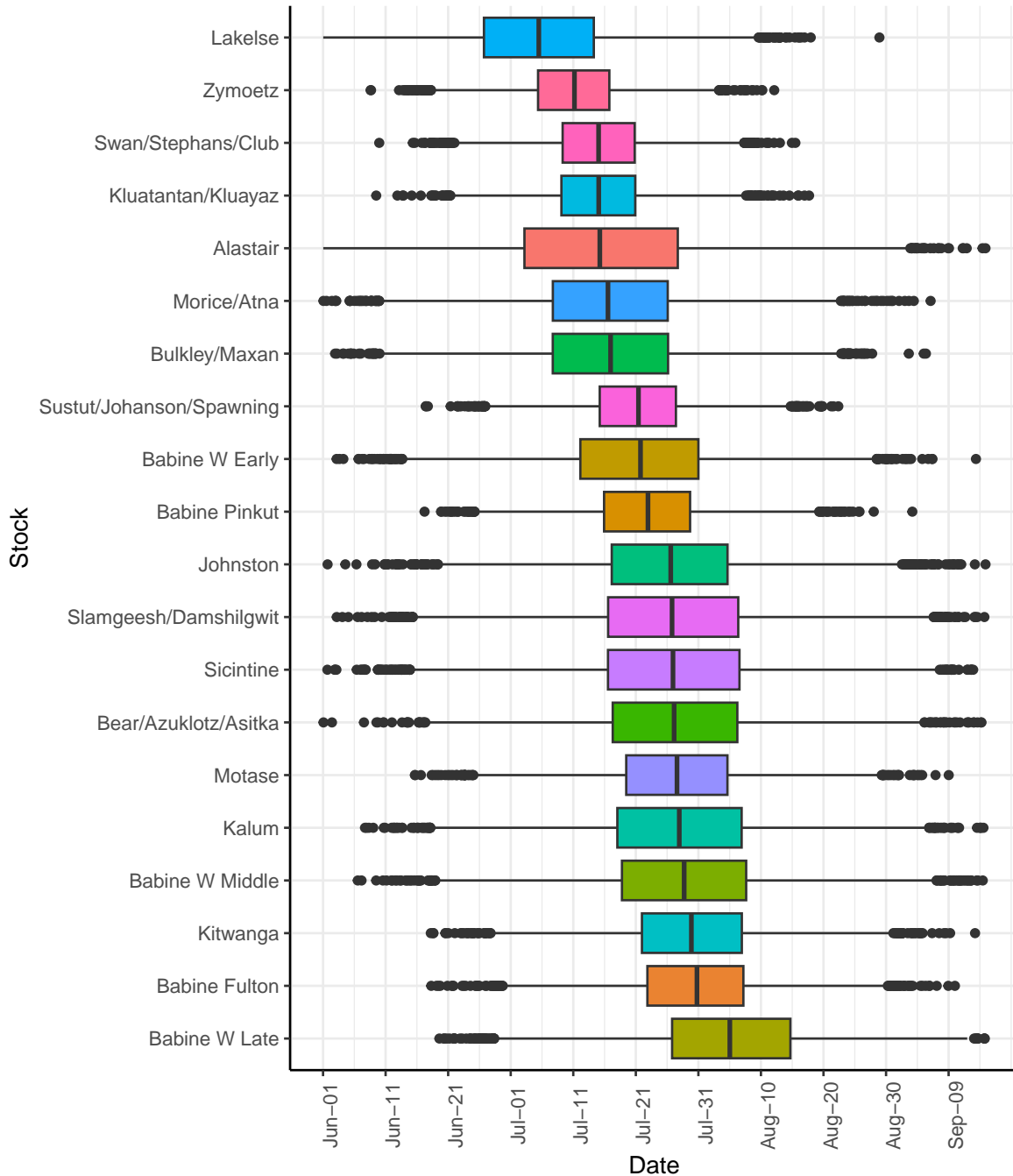
## Appendix B-Population specific run-timing through Tyee

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.

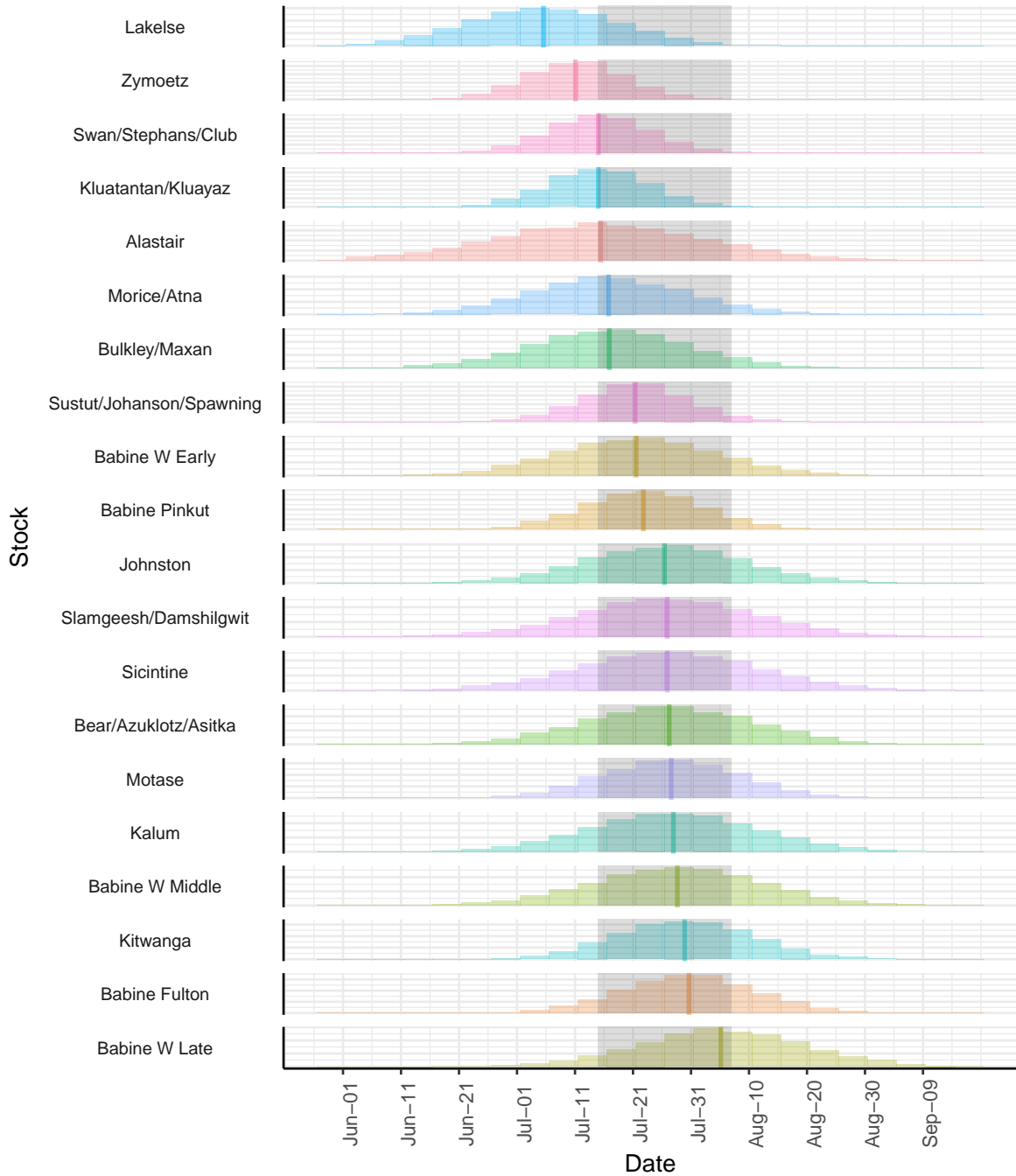


Stock run-timing at Tyee based on 2000–2014 GSI  
NBRR data provided by Karl English July 2022

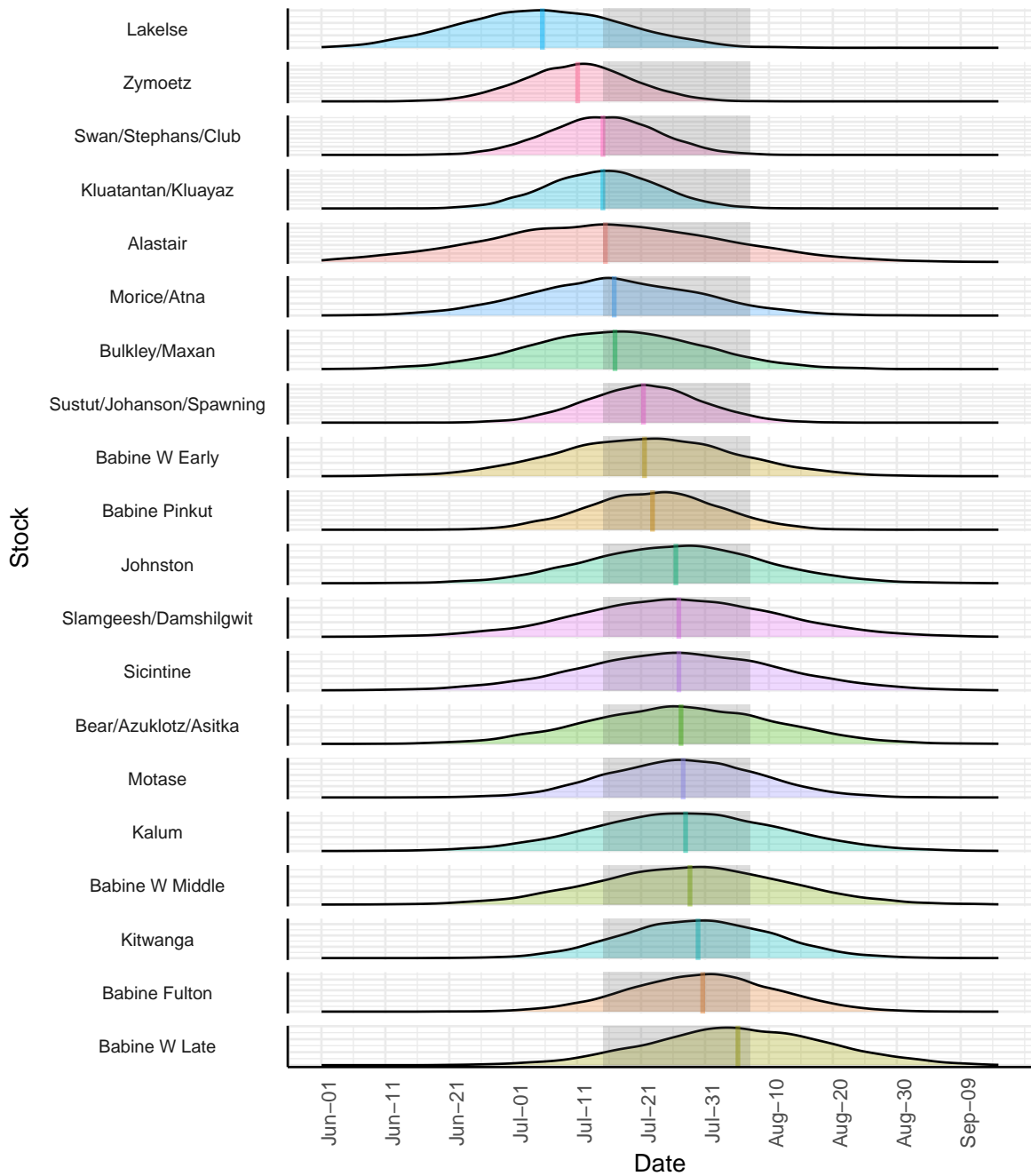


**Figure 14:** Boxplots of stock specific run-timing through Tyee. Based on 2000-2014 data provided by karl English from updated NBRR work. The filled area of the box represents 50% of the run.

Stock run-timing at Tyee based on 2000–2014 GSI  
NBRR data provided by Karl English July 2022



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



Stock run-timing at Tyee based on average run-timing (2000–2014) plus 3 weeks.  
 Vertical lines show the mean for each stock, with the 2022 harvest window  
 shown by the grey shaded box.  
 Data from Karl English from NBRR update provided July 2022.

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