

# Paper Plots V2

Brett Stacy

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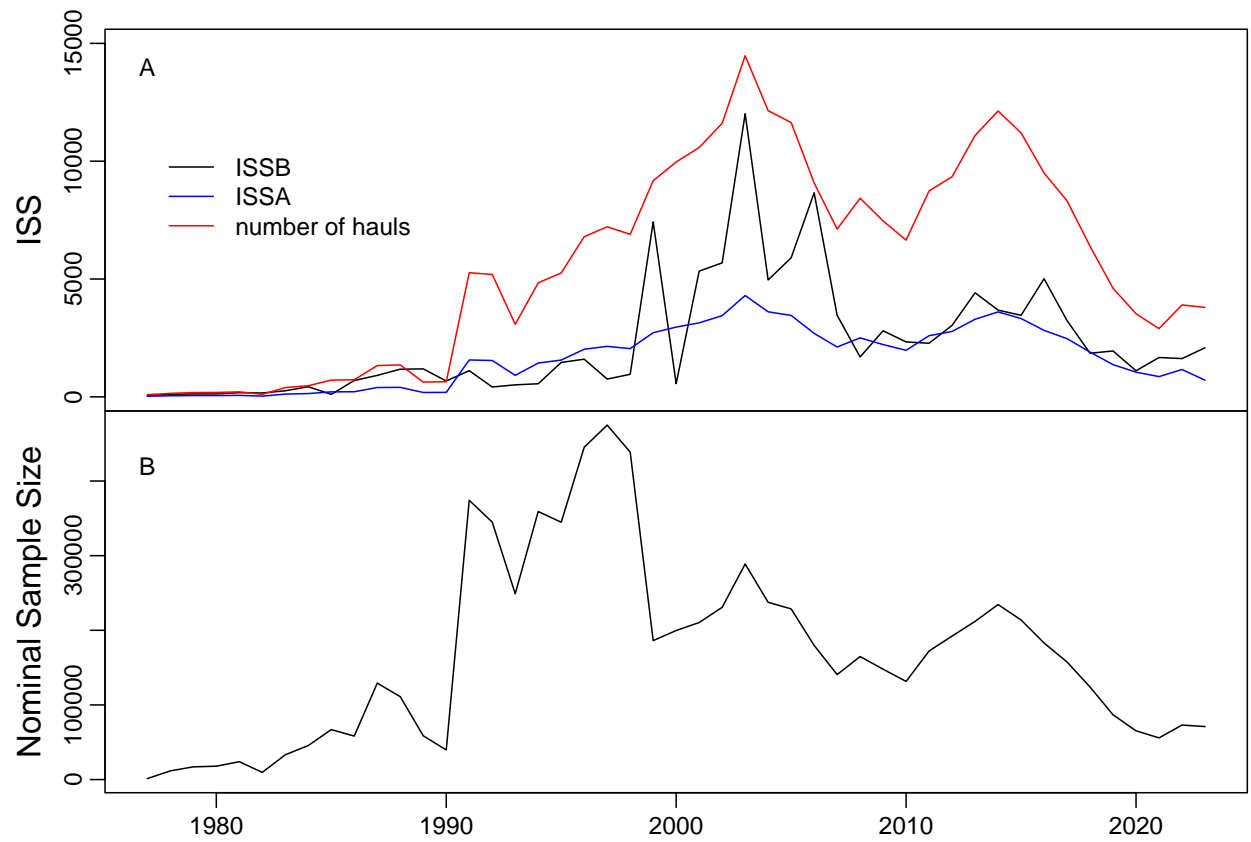
## Introduction

Plots for paper:

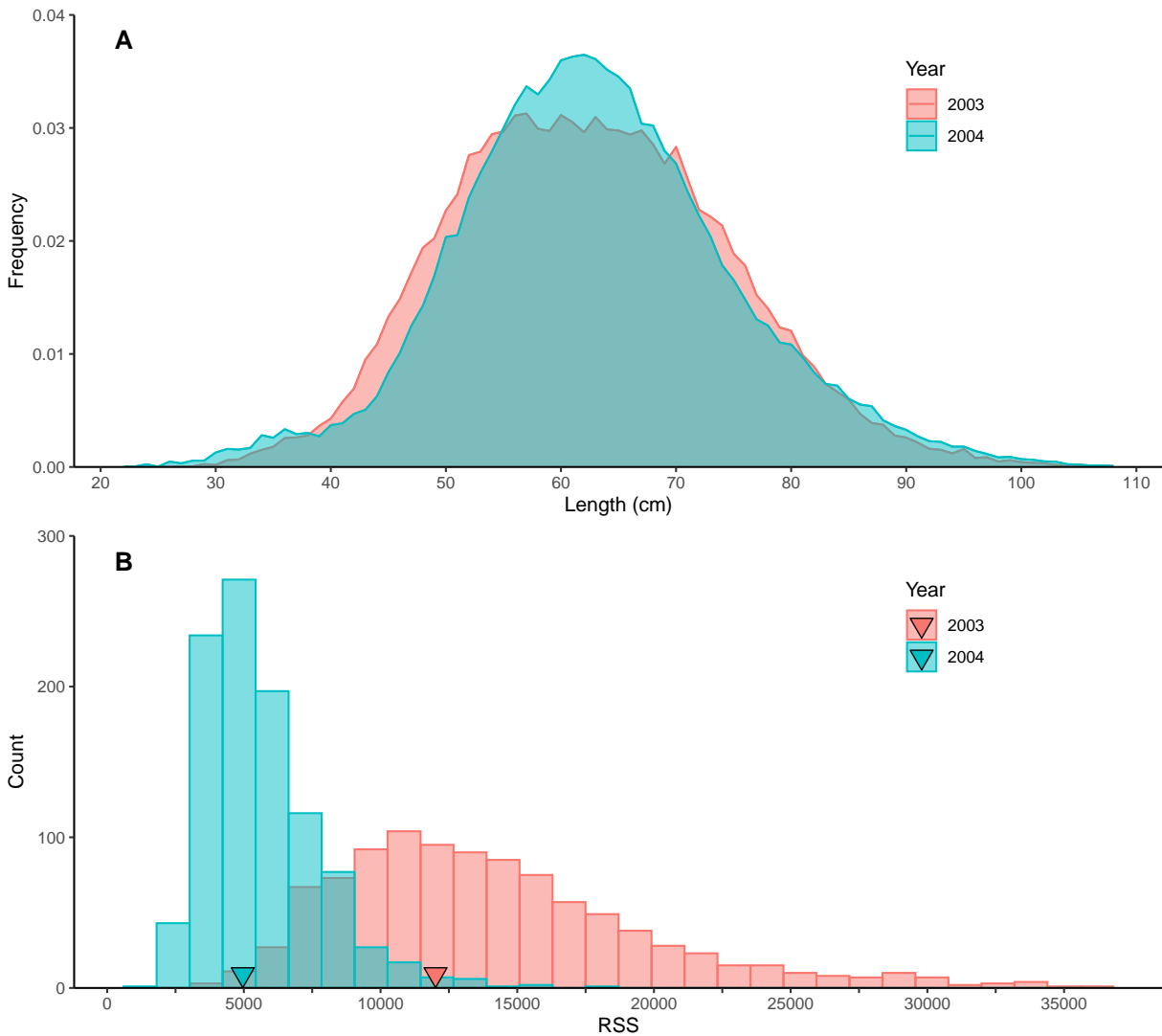
## Data

## ISSB Results

\* Time series 2 panel

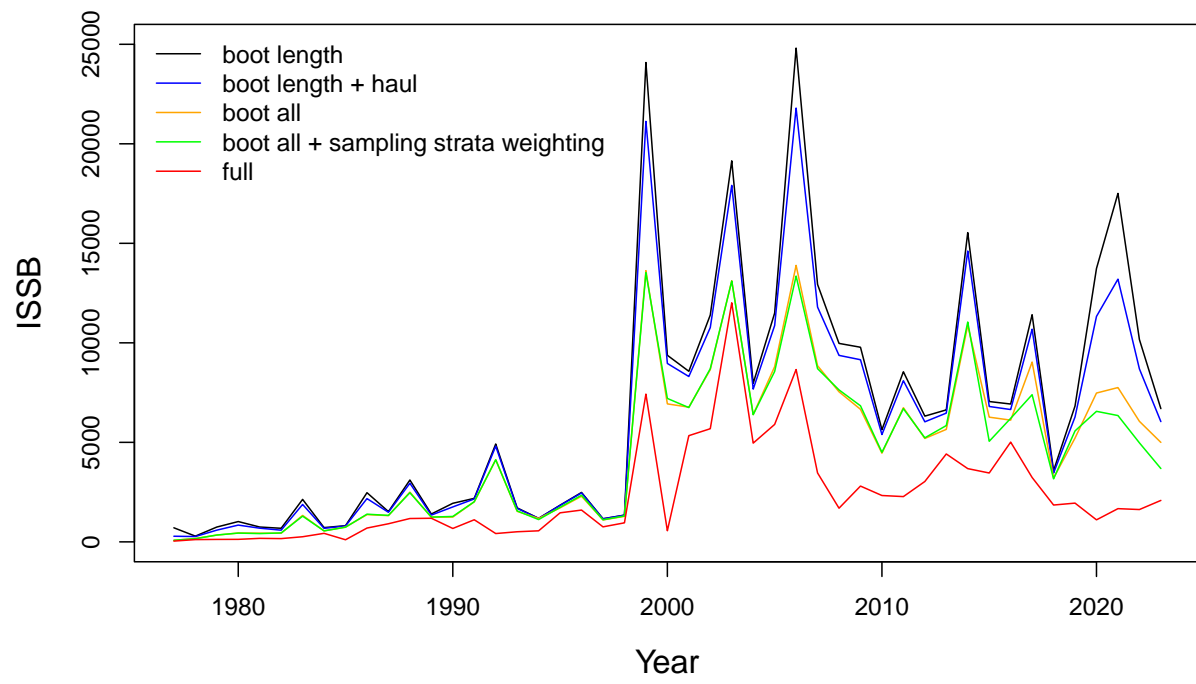


\* 2003 and 2004 histograms



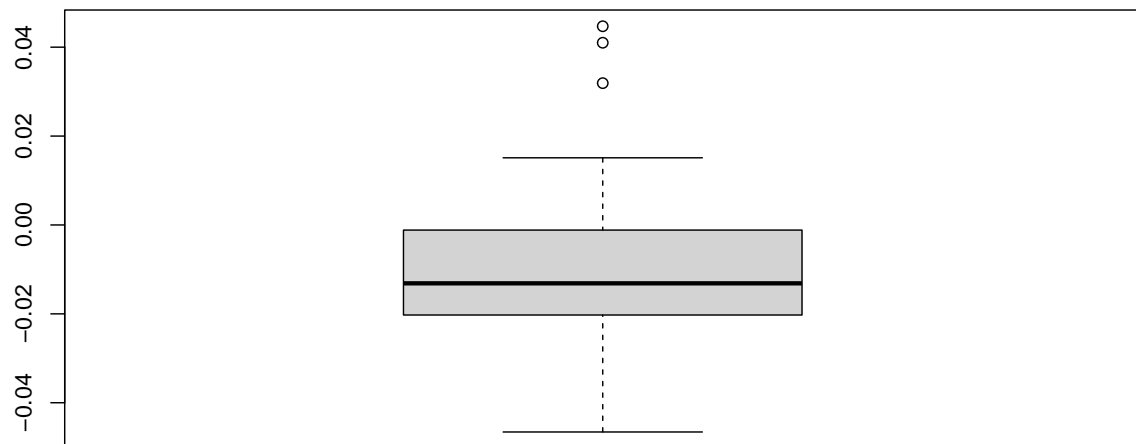
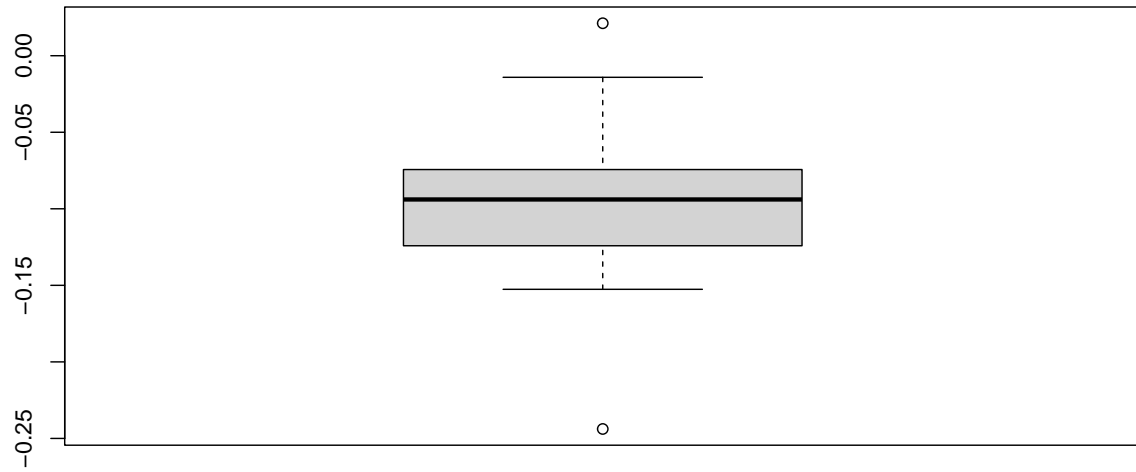
The comparison shows that fish in 2003 were less similar in length compared to 2004. 2003 corresponds to a higher ISS even though the sample rate was the same and the number of hauls and nominal sample size were comparable. More of the fish sampled in 2003 were required for characterizing the underlying multinomial sampling distribution compared to 2004 because more lengths were represented at a higher rate in 2003 (shorter, wider distribution). This is reflected in the RSS (ref figure).

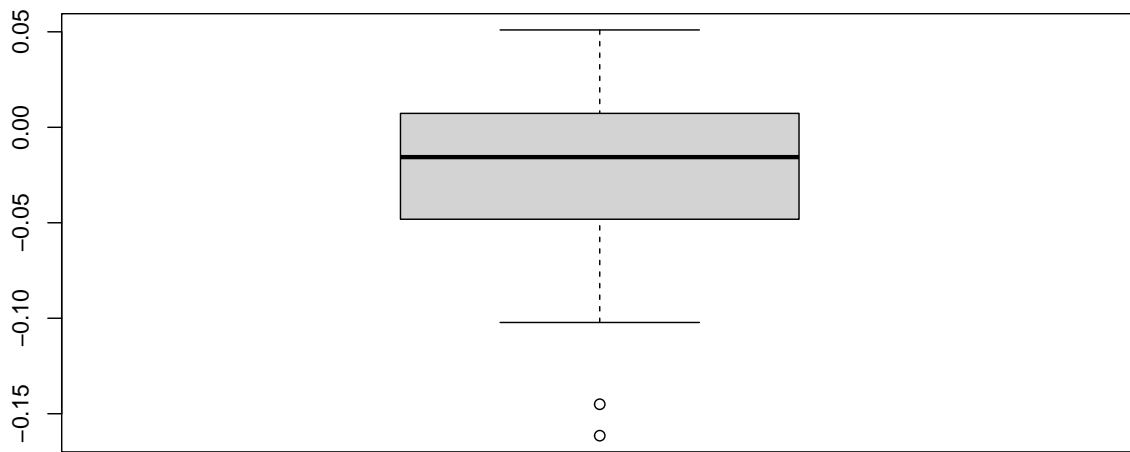
\* Time series components



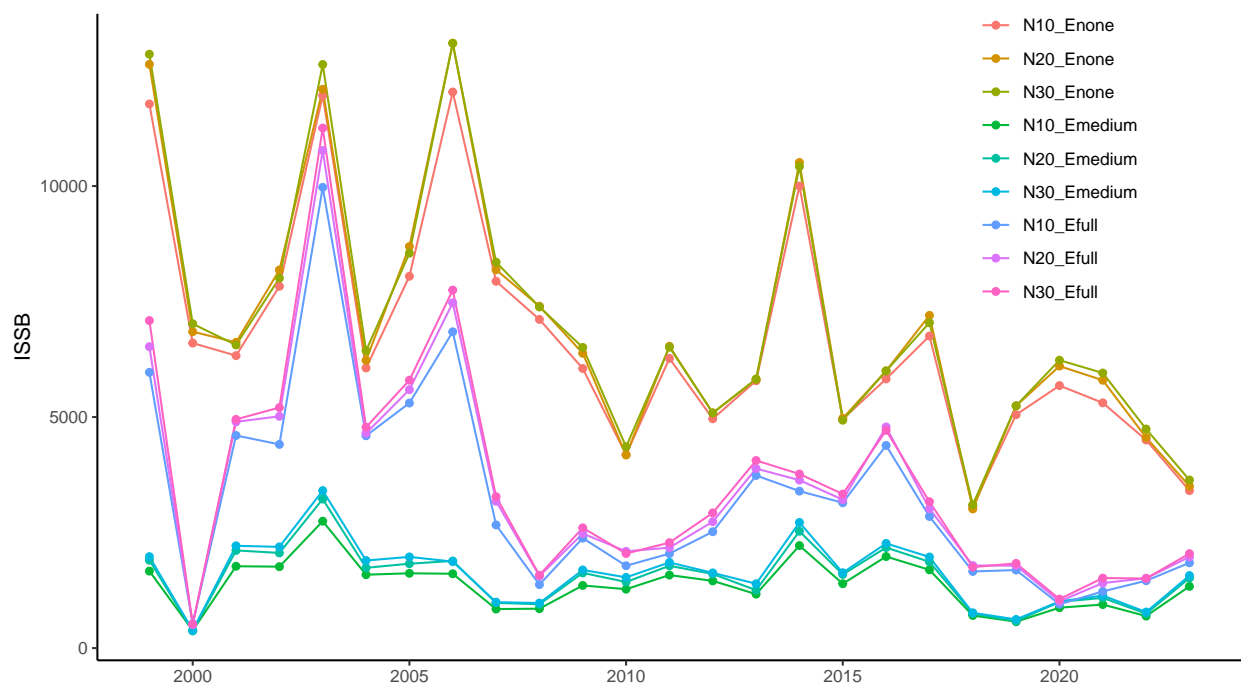
## Optimize Sampling

Min 20

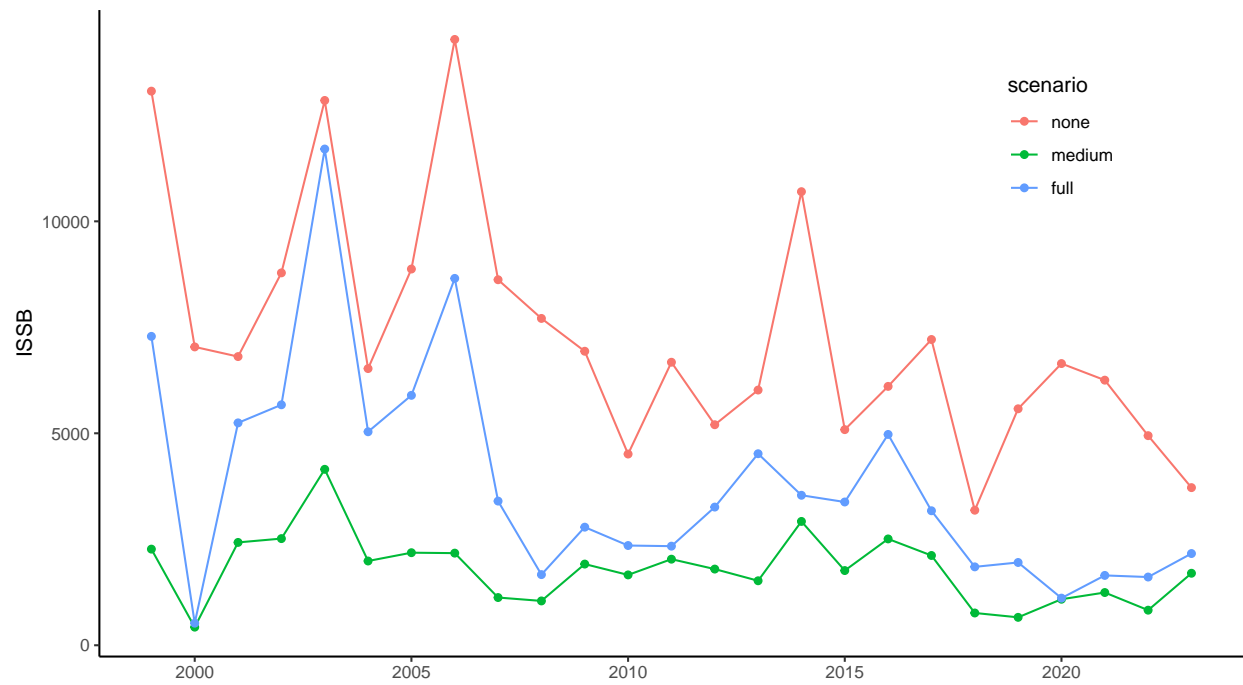
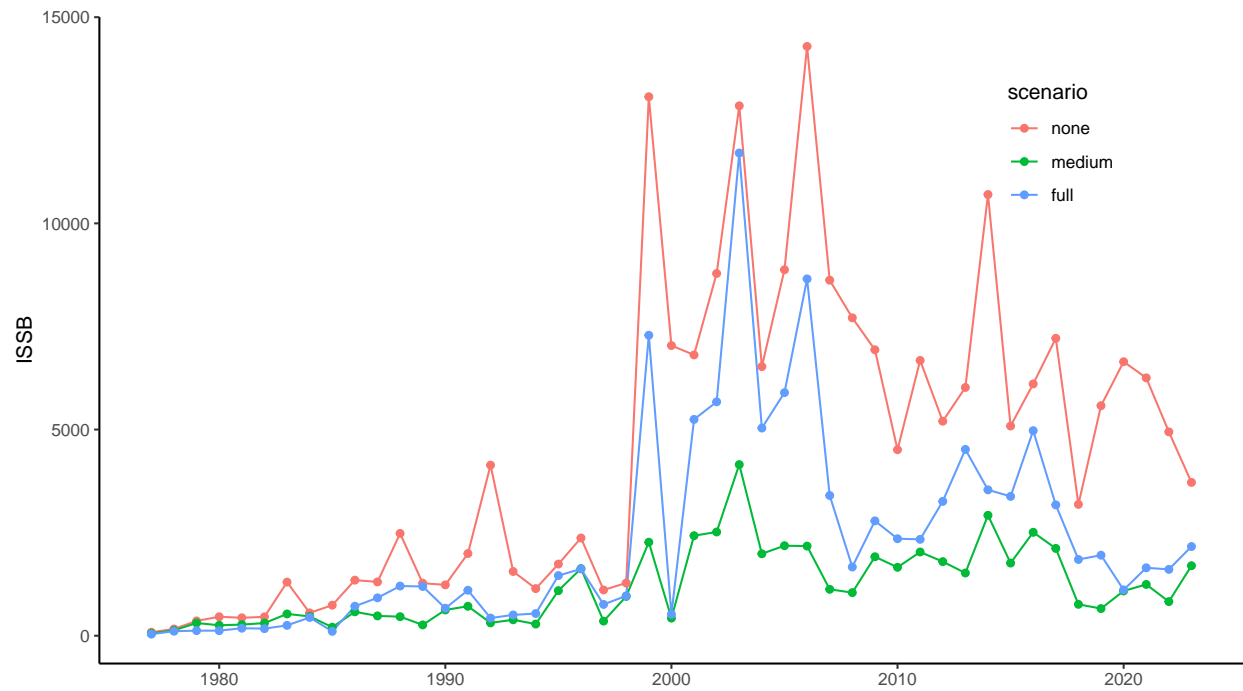




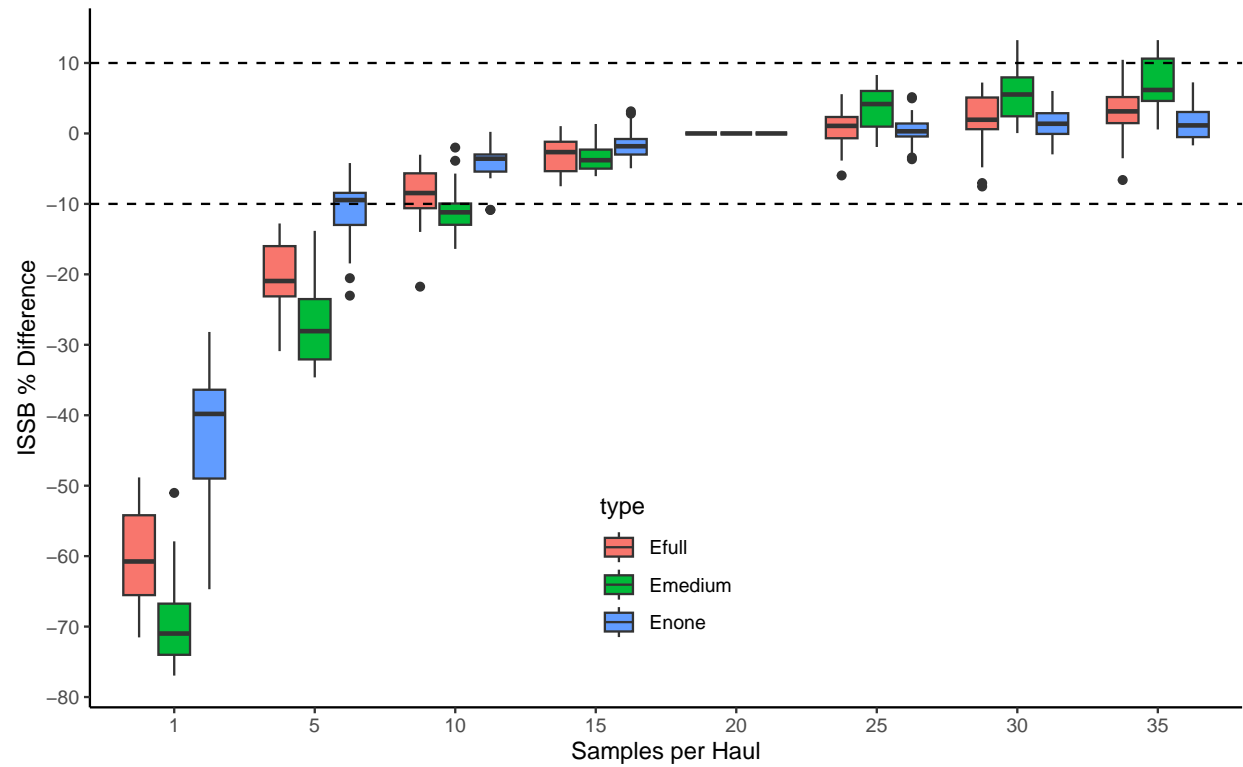
\* Time series Expansion X Samples 10, 20, 30



\* Time series Expansion NEW



\* Samples VS Expantion. Boxplots Together 1999-2023

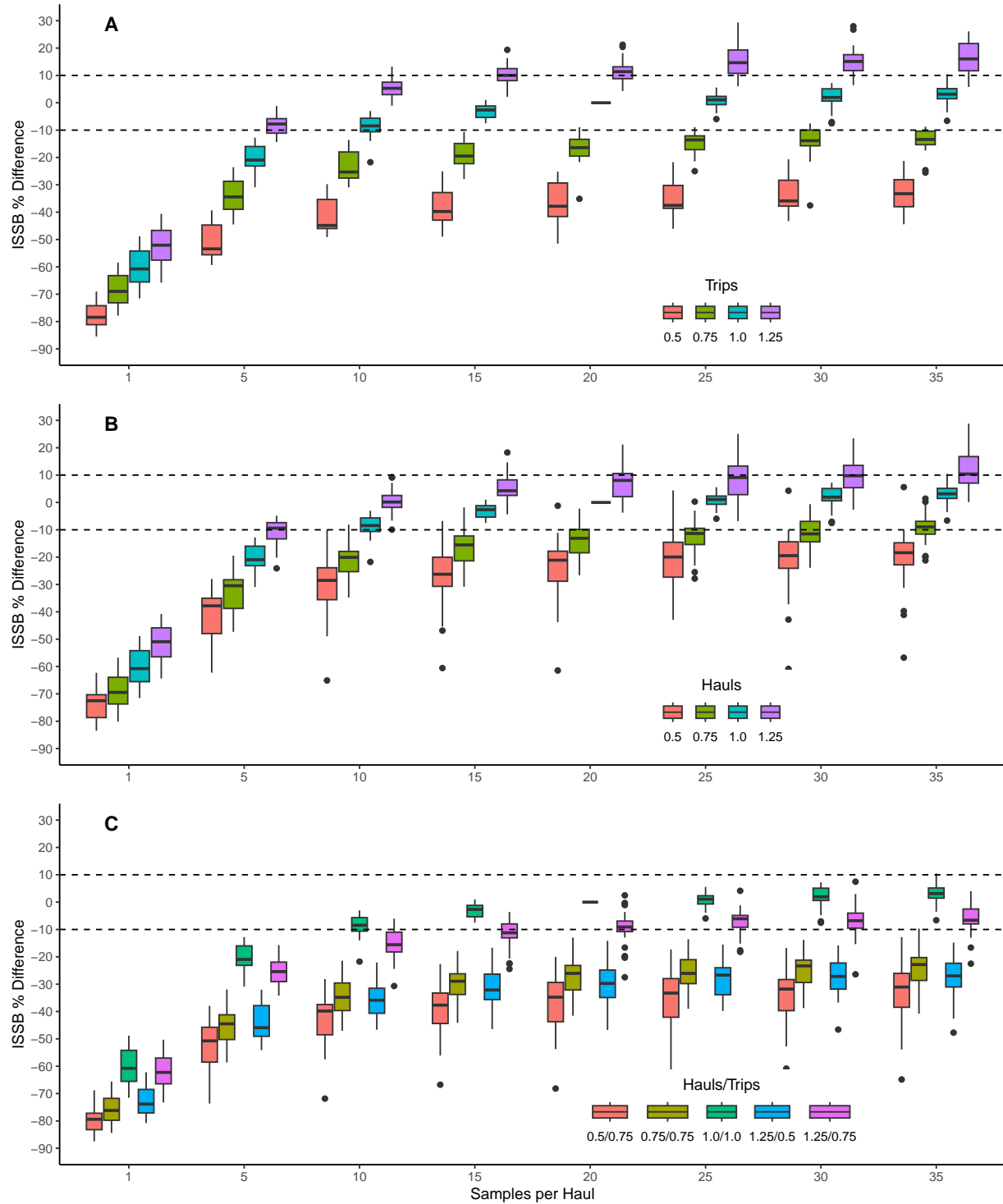


DATA: Samples VS Haul

DATA: Samples VS Trip

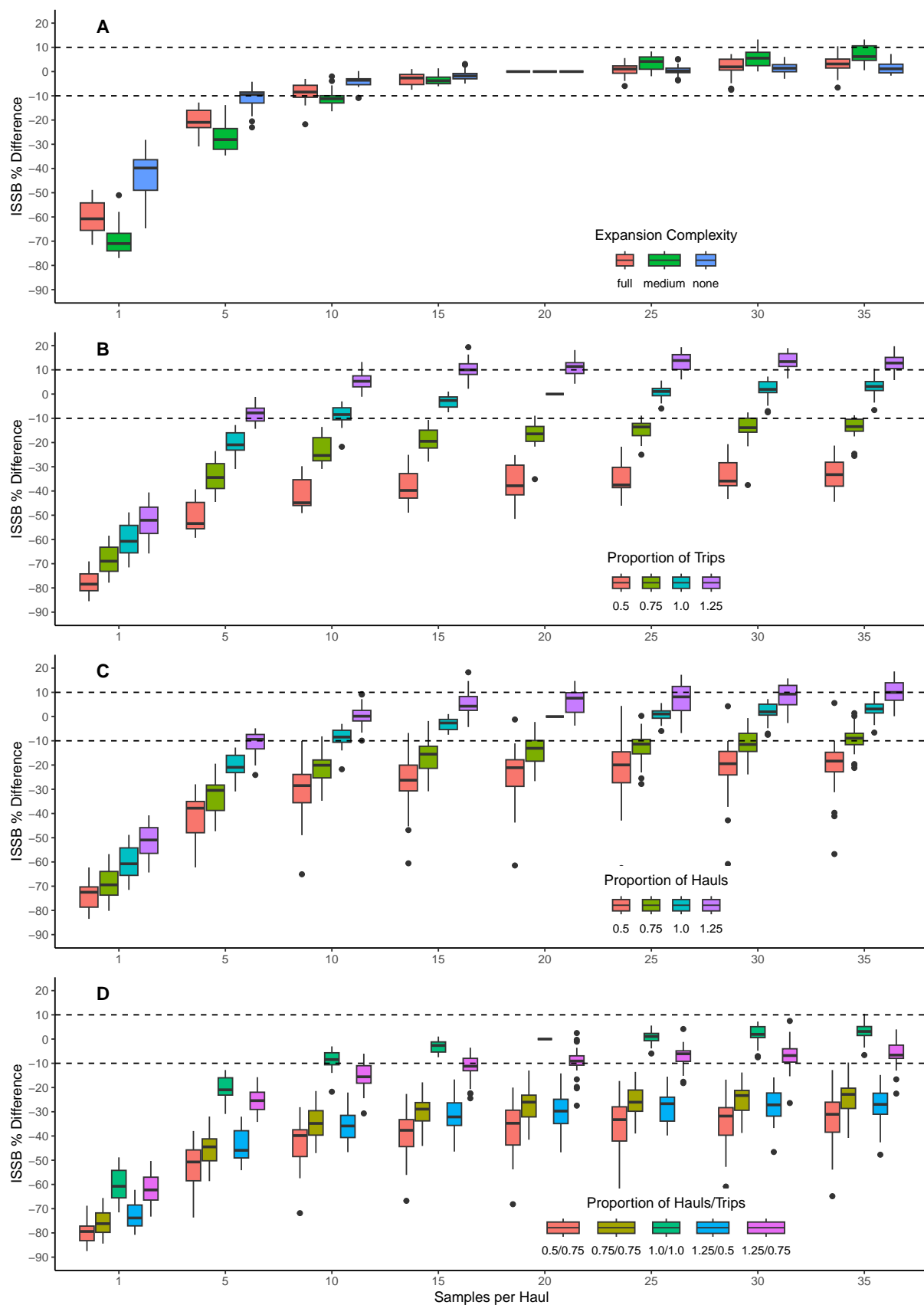
DATA: Samples VS Trip/Haul

\* 3 Panel: Sample Size VS Haul, Trip, Haul/Trip

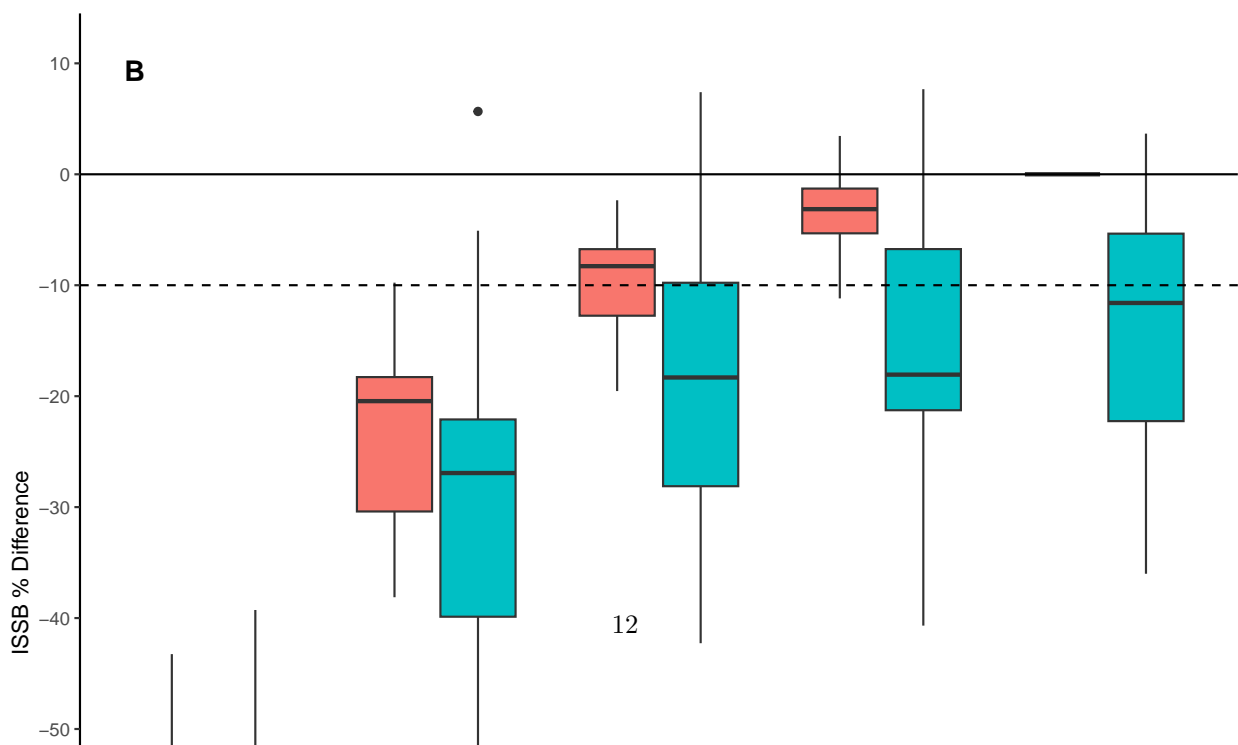
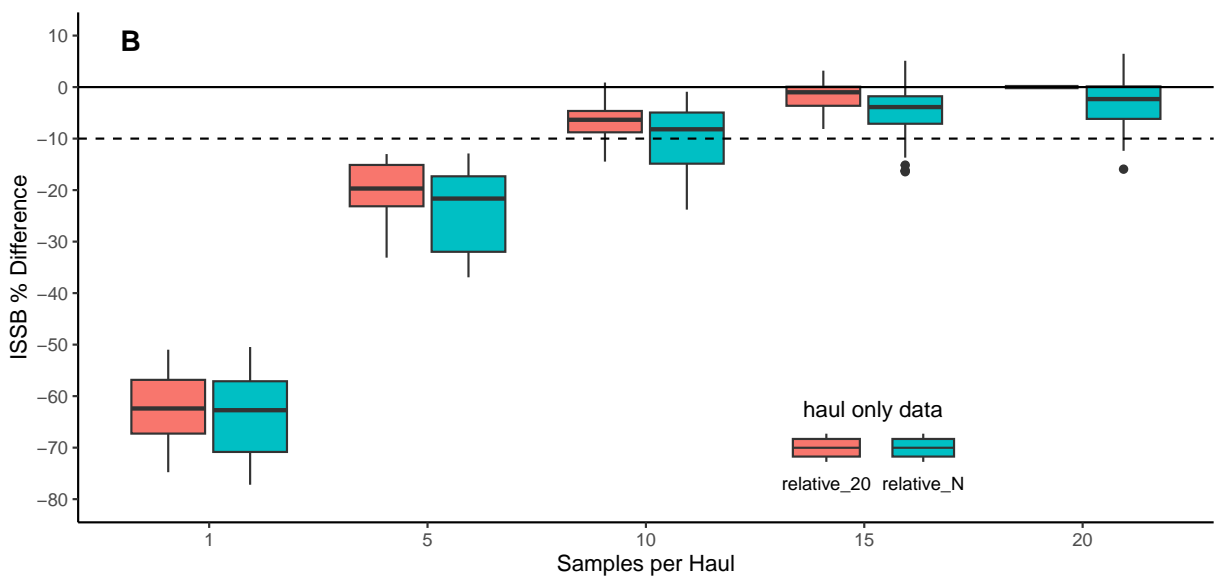
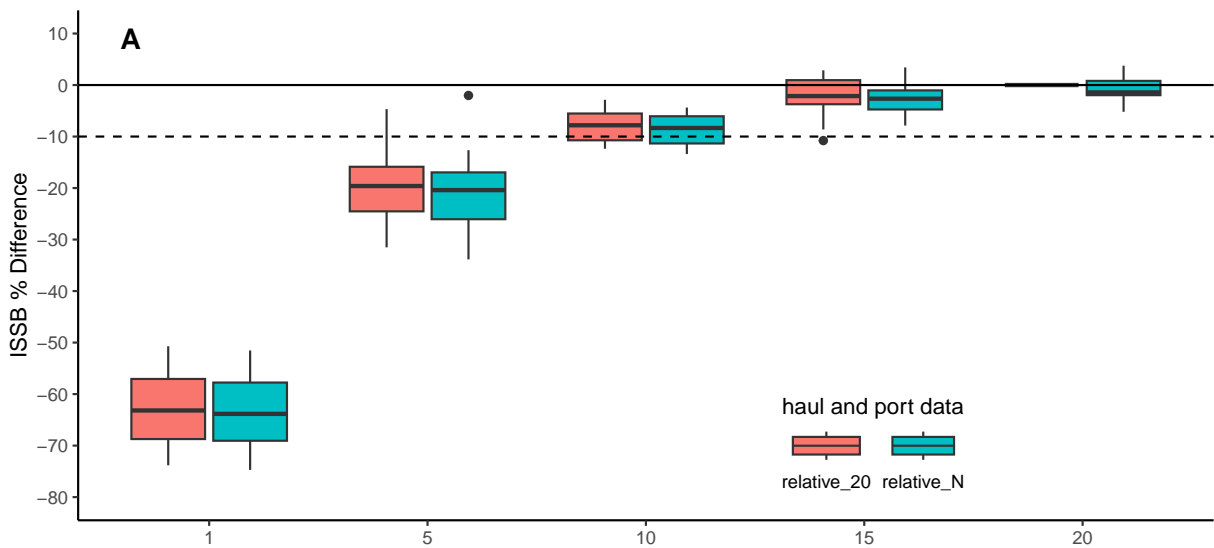




\* 4 Panel: Sample Size VS Expansion, Haul, Trip, Haul/Trip



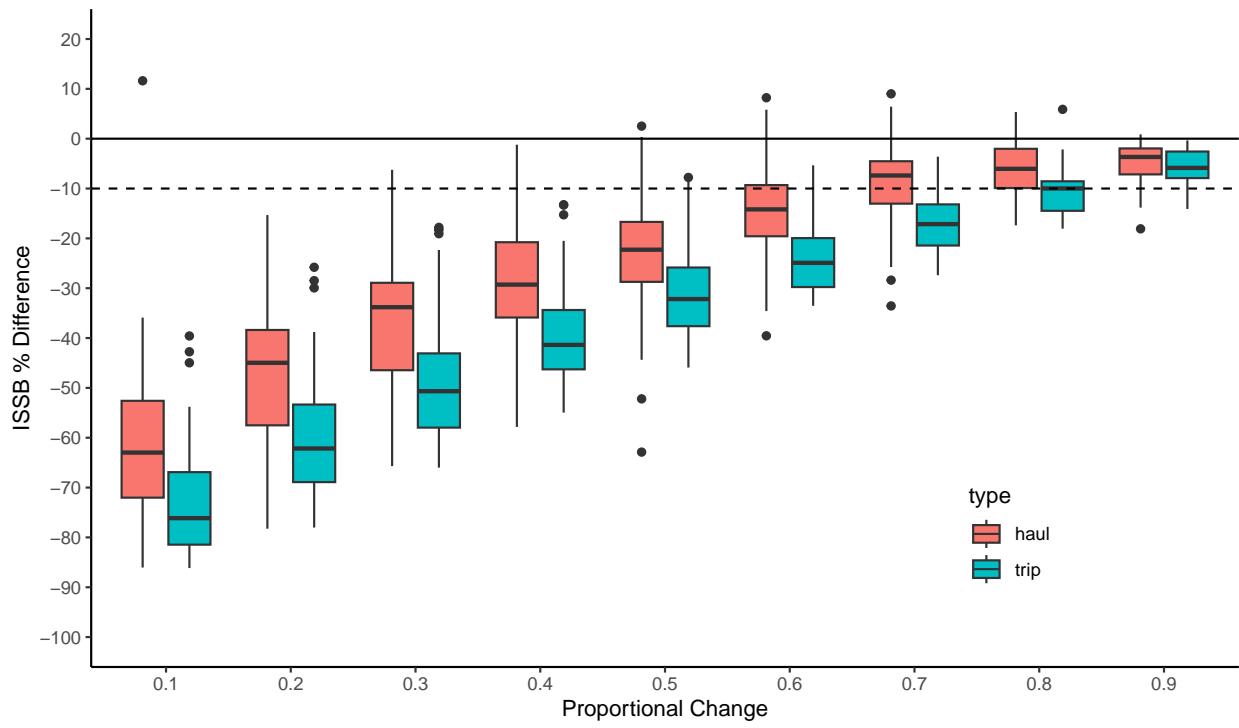
\* DATA: NEW samples x trip and haul under only



for above. “the median percent difference in ISSB increased with increasing sample size using the full data set (A) and only the haul data (B) over the period 1999-2023. There was no appreciable change in the percent difference when only using the haul data. There was also very little difference comparing the percent difference relative to the baseline ISSB or relative to applying the sample reduction routine at a sampling rate of 20. This verifies that the results are comparable for the following scenarios: comparisons to the baseline or comparisons to just using hauls with a sampling rate that never exceeds 20. The most conservative scenario is assuming a future sampling where high sampling rates from port samples are not available and the haul sampling rate is allowed to be below 20 but not exceed it. Comparisons relative to this scenario are the most relevant, conservative, scenario available to evaluate the impact of reducing observer haul sampling rate on composition data precision for future years. If the sampling rate behavior continues on average at least as good as it has done for the period 1999:2023 (which it is scheduled to do), we can expect the loss of precision not to exceed these values. (Assuming fishing trip and haul characteristics are comparable on average, also likely expected).

## NEW Haul and TRIP Decrease

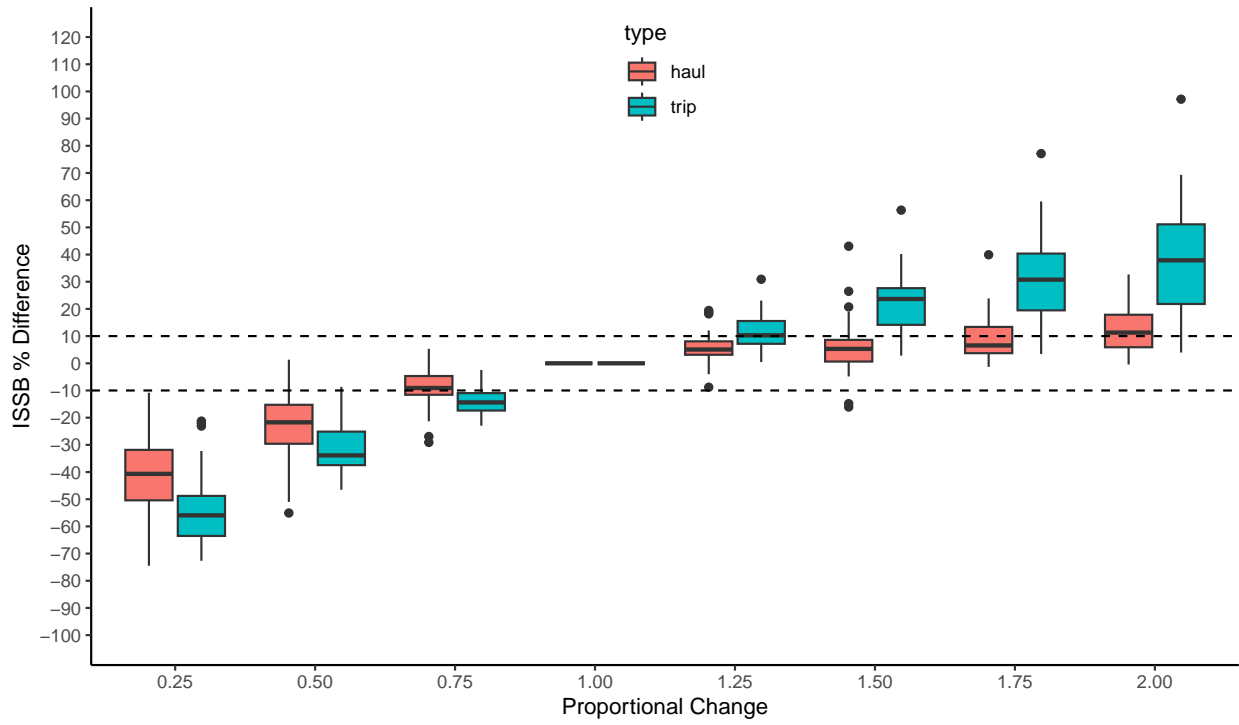
### NEW Haul and TRIP Decrease w/o replacement



## SUPPLEMENTARY MATERIAL

### Plot 7x2 Grid Haul and Trip numbers

CONSIDER MOVING THESE TO SUPPLEMENTARY MATERIAL AND TOTALLY FOCUSING ON 1999-2023 PERIOD.



### Boxplots Together 1999-2023

