

Port Biological Sampling

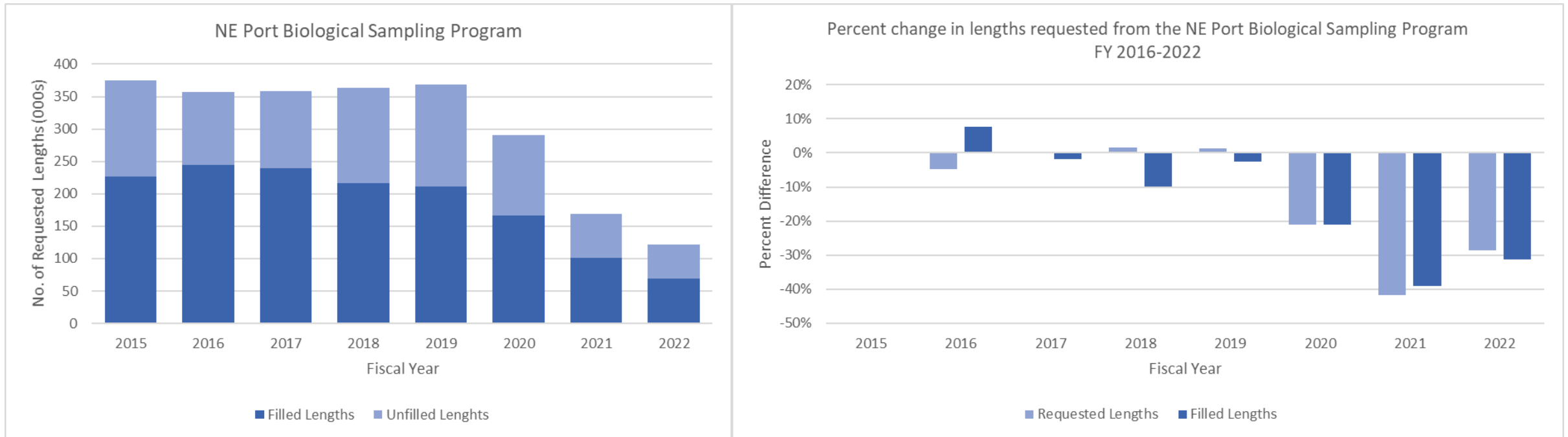
Presentation for September 13, 2023 Mid-Atlantic SSC meeting

Presenter: Brian Linton

Background

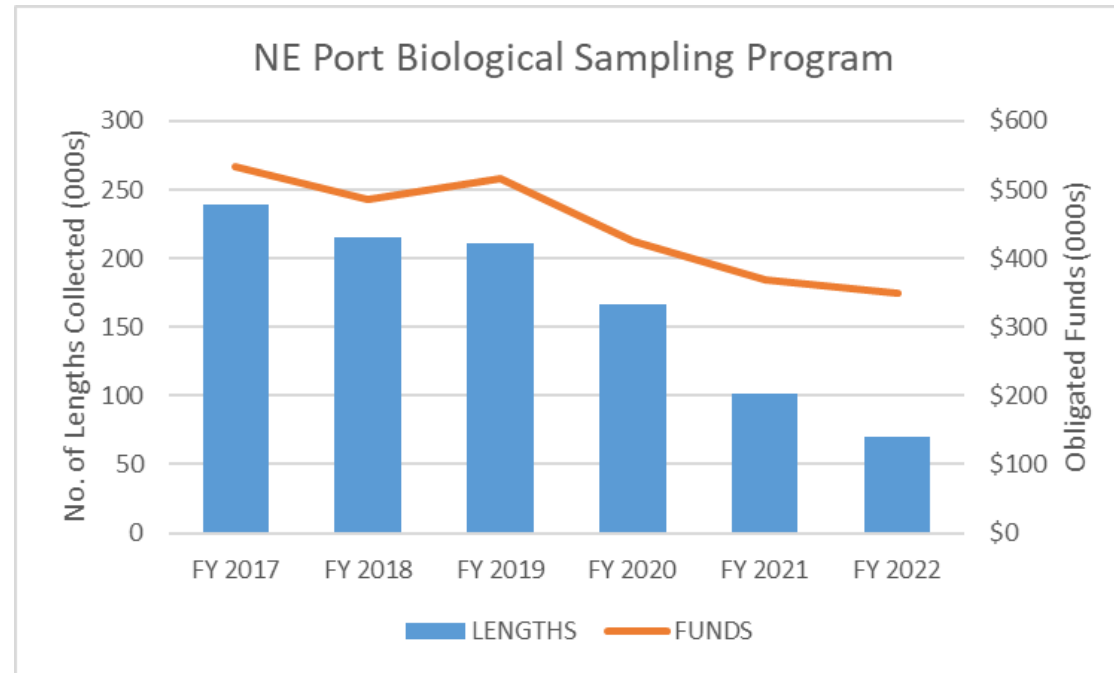
- The Greater Atlantic Regional Fisheries Office announced a predicted 50% reduction in the number of commercial biological samples collected by the Northeast Port Biological Sampling Program (PBSP) in FY2020, due to funding issues
- As a result, an FY2020 port biological sampling prioritization plan was developed to address how the Northeast Fisheries Science Center (NEFSC) might allocate the reduced number of port biological samples available to us in FY2020.
- The FY2023 biological sampling requests are affected by the same funding issues that constrained the FY2020, FY2021 and FY2022 sampling requests.
- This included the start of the new Protech contract on February 1, 2021, which increased costs and further reduced the number of biological samples that could be collected.

Total number of lengths requested FY 2015 - 2022



- FY2023 port sample requests are currently under development
- Total number of lengths requested in FY2023 will be similar to FY2022

Port Biological Sampling Lengths Collected and Funds Obligated



Provided by GARFO

- Price per length will continue to increase each year
 - FY2023: ~80K standard lengths and 100 individual lengths
 - FY2024: ~78K standard lengths and 100 individual lengths
 - FY2025: ~75K standard lengths and 100 individual lengths

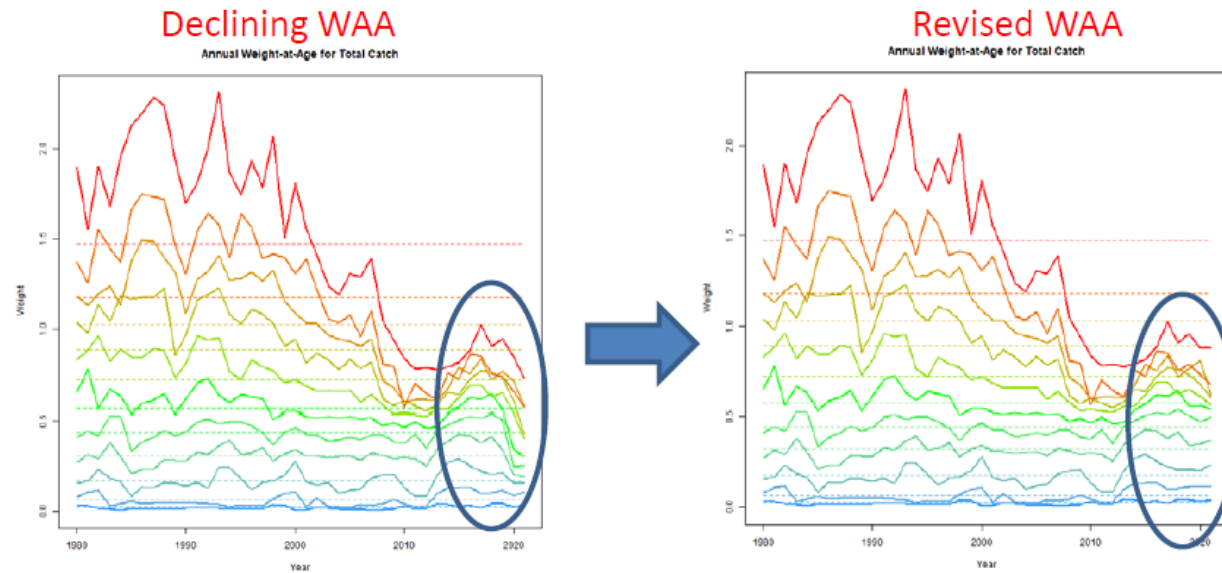
Impact of funding on port sampling operations

- Prior to FY2020, had 7 full-time port samplers
 - 1 for each port sampling region: ME/NH, MA-N, MA-S/CC, RI/CT, NY/LI, NJ and VA/MD/NC
- Since FY2020, have 1 full-time port sampler with the other port samplers being part-time
- In FY2021, lost the ME/NH port sampler followed shortly by the MA-N port sampler
 - For part of FY2021 and all of FY2022 these 2 regions lacked dedicated port samplers
 - Port samplers from other regions covered these regions when able
 - Attempts to fill these 2 positions were unsuccessful
- In FY2023, a new port sampler was hired to cover both MA-N and ME/NH

Potential consequences of reduced sampling for stock assessments

- Note: Length and age data are used for converting landings by market category to derive commercial length expansions and landings-at-age
- Impact will likely be stock specific and will vary by the amount of landings, spatial distribution and availability of port sampler
- Systematic temporal and spatial gaps in sampling and increased uncertainty in fishery dependent data leading to biased age and length compositions.
- Potential reduced tracking ability of cohorts and year class strength (i.e. Impact estimation of reliable recruitment)
- Increased uncertainty in catch weights-at-age
- Increased uncertainty in estimation of fishery selectivity.
- Impact on model performance (i.e. retrospective bias due to data inconsistencies in the model)

2022 American Plaice MT Assessment Catch WAA



- Shift in WAA is likely due to observed decline in mean LAA in 2020 and 2021
- Low Sampling in 2021 (n = 209)
- Cohort shrinkage in 2020. Cause unknown
- Application of 2019 ALK seems to stabilize the strong trends in WAA and recommended for 2022 MT
- This is a source of uncertainty in the assessment and warrants further investigation

Recommendation from the 2022 Fall Management Track Peer Review Panel Report

“Reduction in Port sampling for individual lengths and age structures represents a significant threat to the stock assessment enterprise. NOAA should decide whether it can return Port sampling to levels comparable with those achieved prior to 2019. If they cannot, they should increase catch sampling by observers (either ASM or NEFOP) to balance the loss of these data.”

- Supplementing port sampling with observer samples has its difficulties
 - Port samples are stratified by market category to derive age and length compositions
 - Observer samples are not assigned to market categories

Potential Opportunities for Exploration

- Examine candidate list of stocks for simulation based on life-history and FMP
- Develop simulation analyses to examine the impact of reduced sampling on size and age distribution of commercial landings as well as measures of uncertainty
- Test simulated data to evaluate the impact of reduced port sampling on performance of stock assessment models and results.

Summary

- Reduced port biological sampling will likely introduce uncertainty in landings-at-age data
- Simulation testing is needed. Useful to understand the magnitude of the issue on model performance and scientific advice
- Simulation will also be useful to help us understand the tradeoffs between sampling cost and level of sampling necessary to maintain reliable scientific advice
- Population Dynamics Branch does not have the full capacity to investigate this issue but this topic offers the opportunity for potential collaboration.