

Gulf of Mexico King Mackerel Stock Assessment Update

SEDAR 38 UPDATE

SSC's Summary Presentation to
Gulf of Mexico Fishery Management Council

October 26-29, 2020



Gulf of Mexico King Mackerel

Assessment Update



The approved SEDAR 38 Gulf of Mexico king mackerel base model was updated with data through 2017

Where practicable, the SEDAR 38 update base model used the same data sets as the SEDAR 38 base model with an updated time series

Key changes from SEDAR 28 include incorporating the Fishing Effort Survey (FES) adjustments to the recreational catch and method of estimating shrimp fishery bycatch of king mackerel

Gulf of Mexico King Mackerel Assessment Update



The update base model found that king mackerel in the Gulf of Mexico is not overfished and not undergoing overfishing. In 2017, the stock was being harvested at 84% of MFMT and SSB was 112% of MSST.

The update base model projections indicate that landings can remain at current values with a low probability of future overfishing or becoming overfished.

Stock Status: Not Overfished

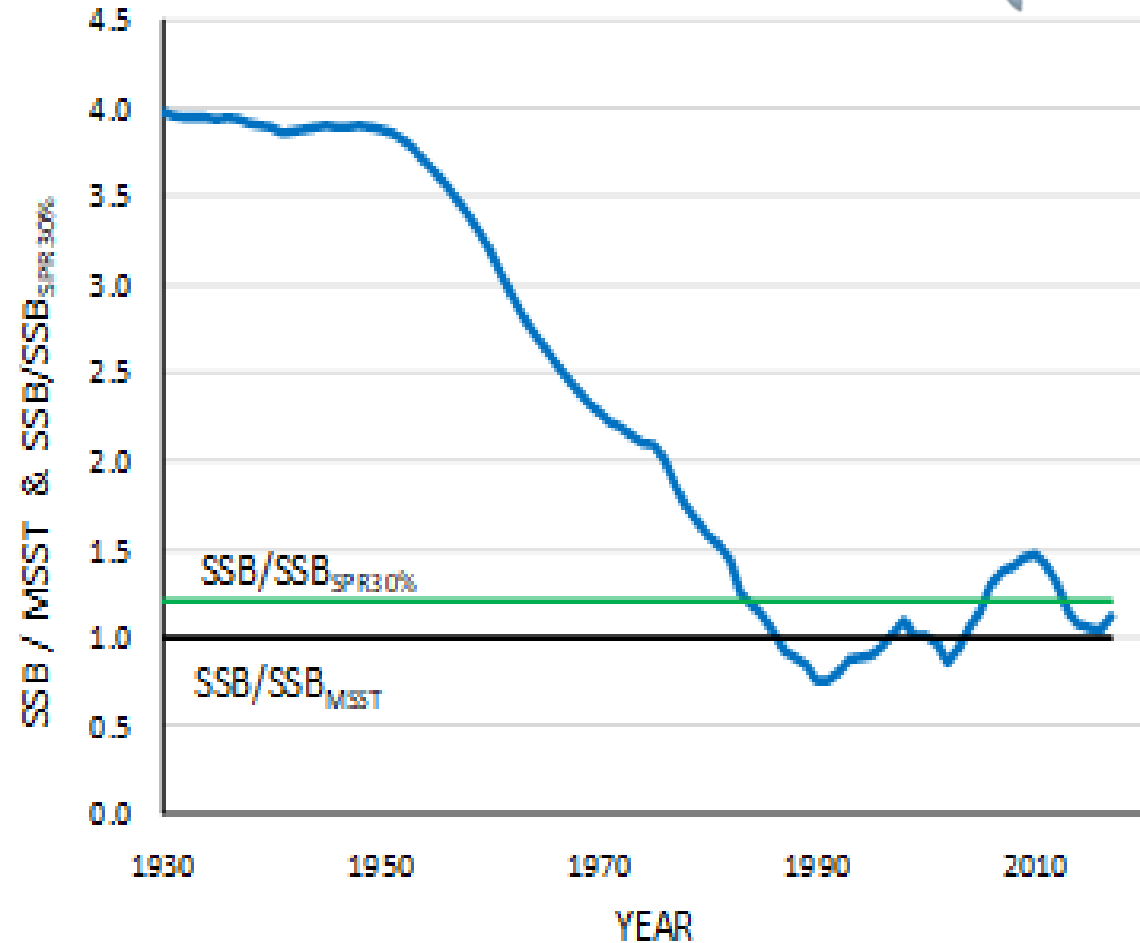


$$\text{SSB}_{2017} / \text{MSST} = 1.12 (0.98 - 1.26)$$

The estimated probability the stock is not overfished is 85%

$$F_{2017} / \text{MFMT} = 0.84 (0.68 - 0.98)$$

The estimated probability that overfishing is not occurring is 91%



Stock Status: Not Overfishing

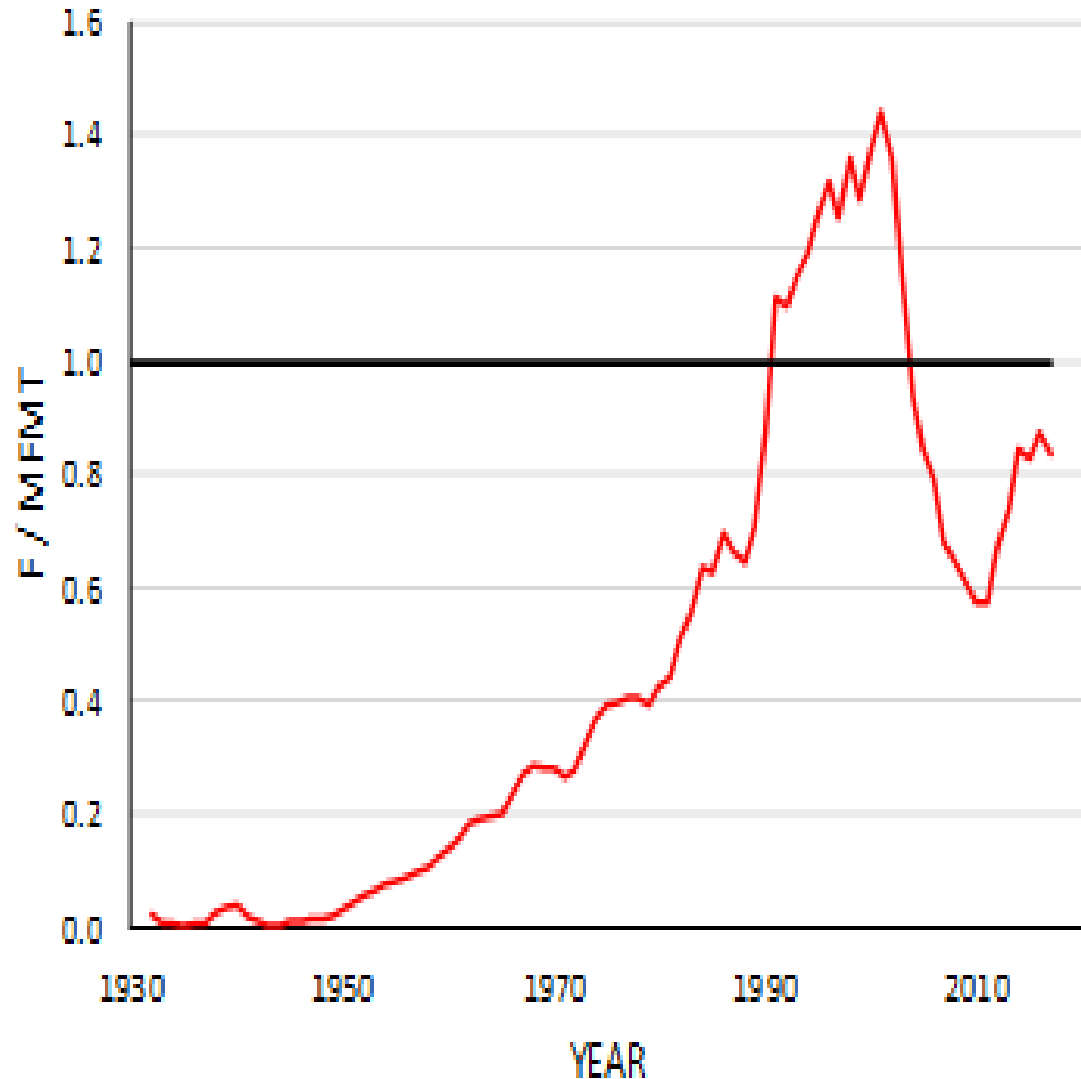


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Stock Status: Not Overfished. Not Overfishing

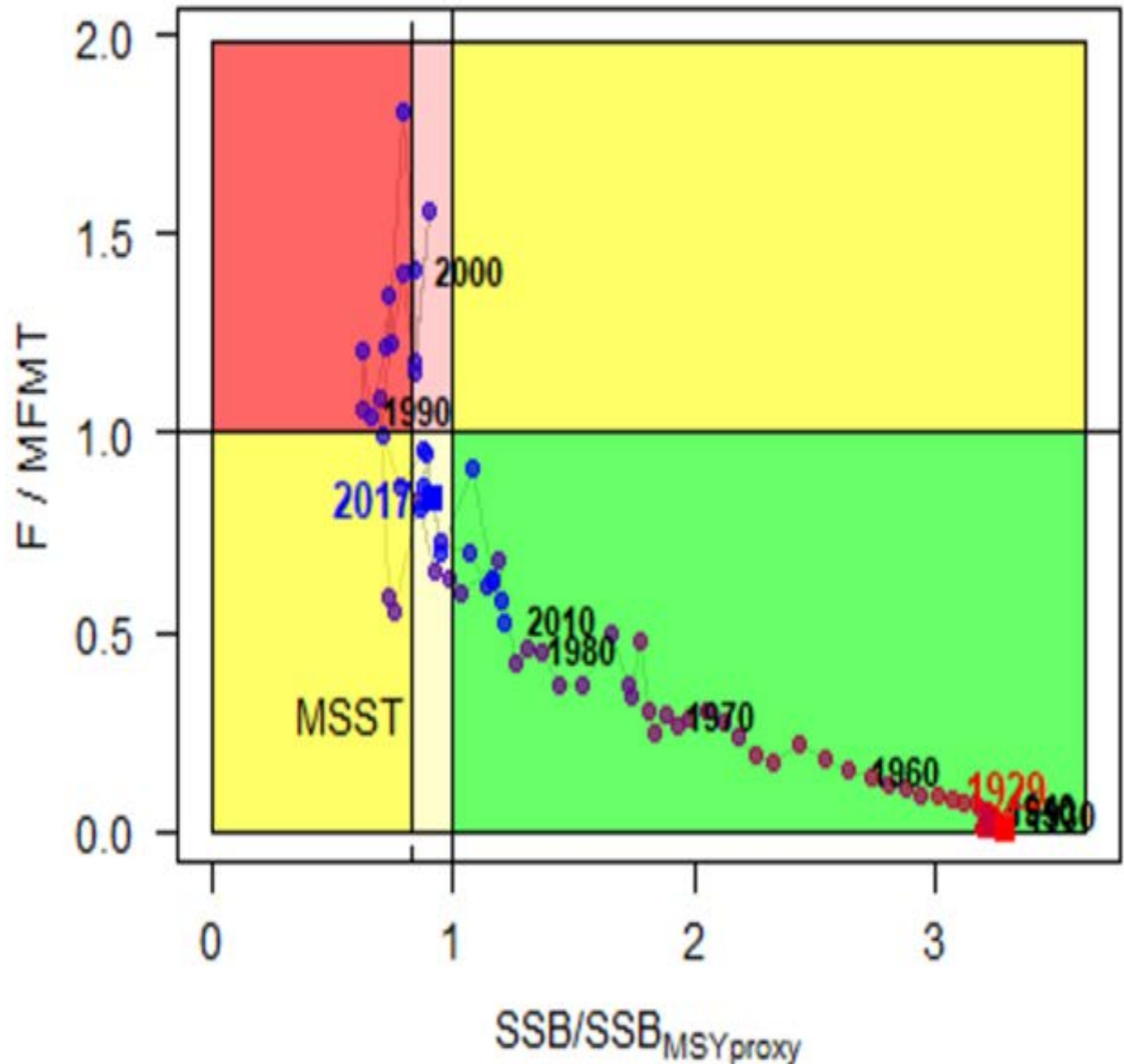


$SSB_{2017} / MSST =$
1.12 (0.98 – 1.26)

The estimated
probability the
stock is not
overfished is **85%**

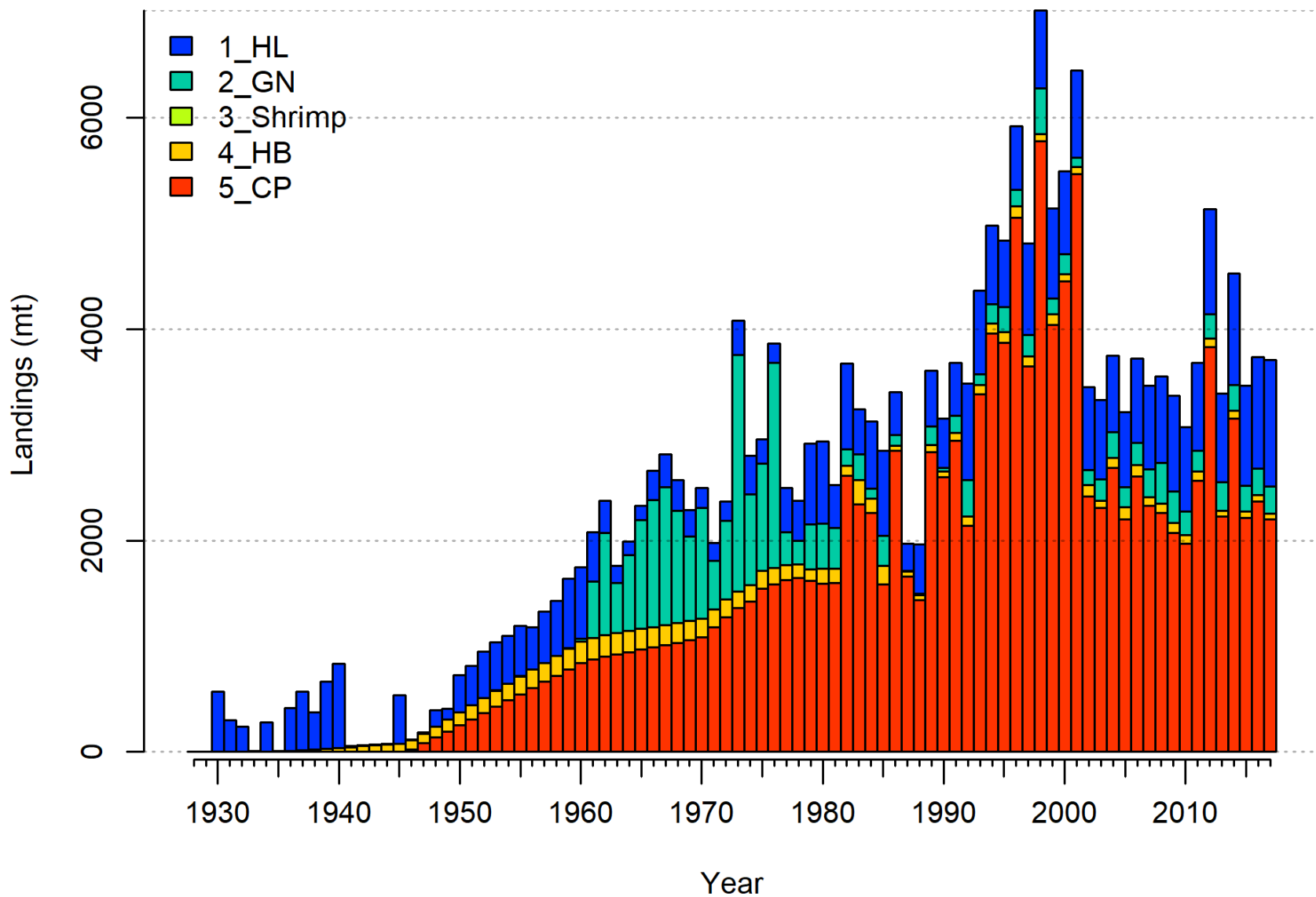
$F_{2017} / MFMT =$
0.84 (0.68 – 0.98)

The estimated
probability that
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occurring is **91%**



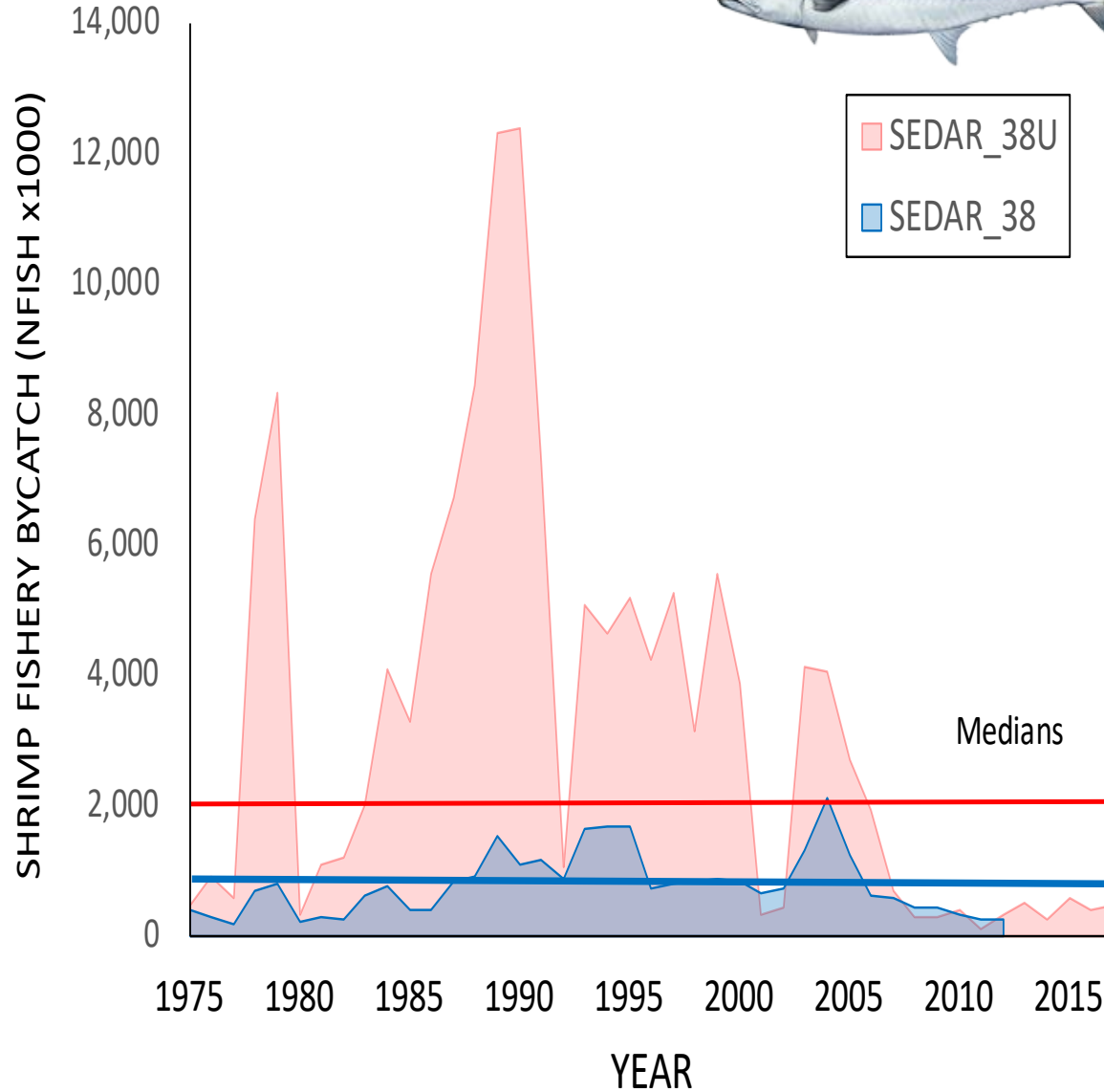


Total Landings



Data - Compare Shrimp Fishery Bycatch

Zhnag, X., J. Isely. 2019. Shrimp Fishery Bycatch Estimates for Gulf of Mexico King Mackerel, 1972-2017



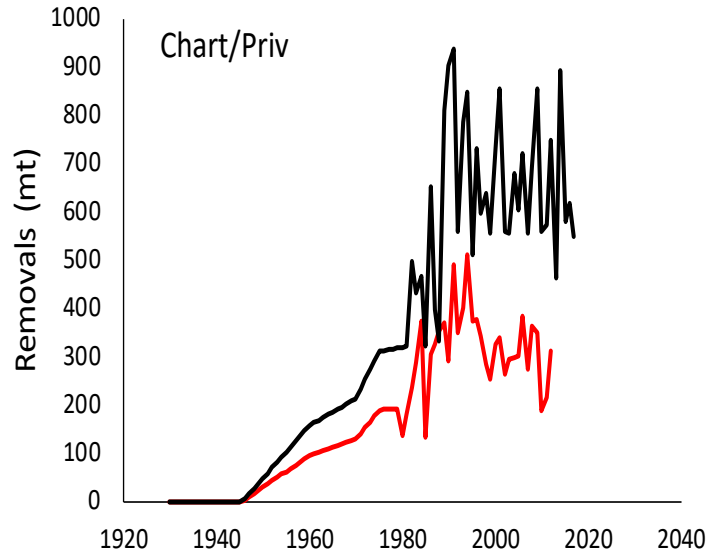
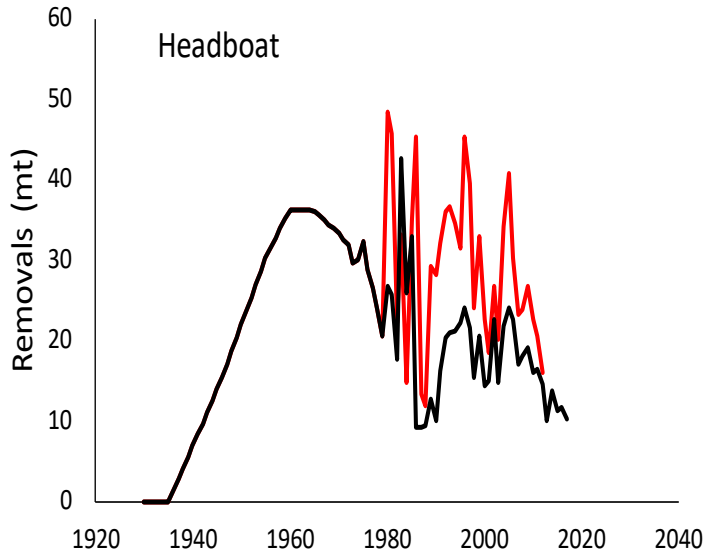
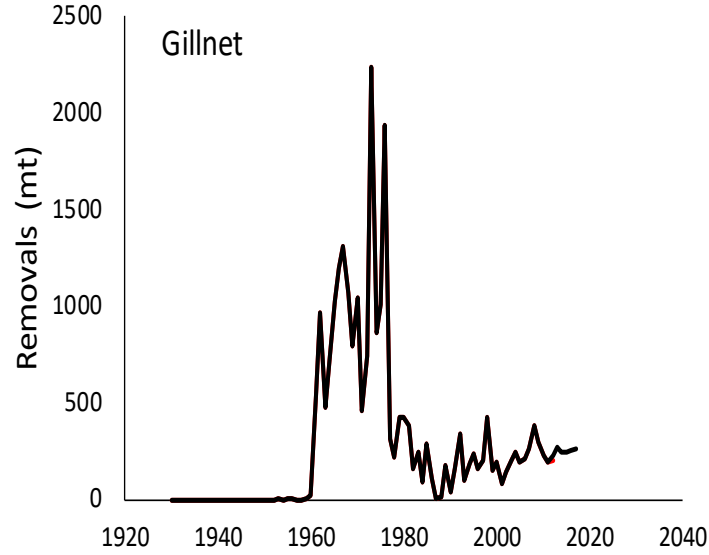
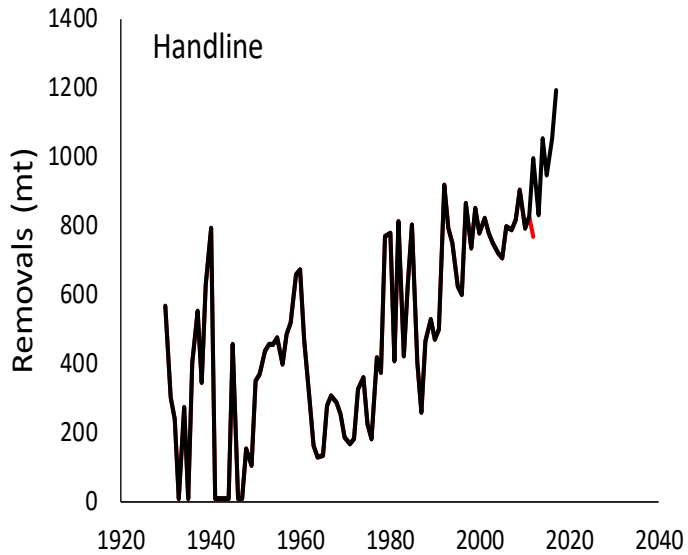
■ Shrimp effort trend was essentially identical to SEDAR 38

■ Method used to estimate king mackerel bycatch was changed. The SEDAR 38 median was 708k fish and SEDAR 38U is 1,998k fish

Removals



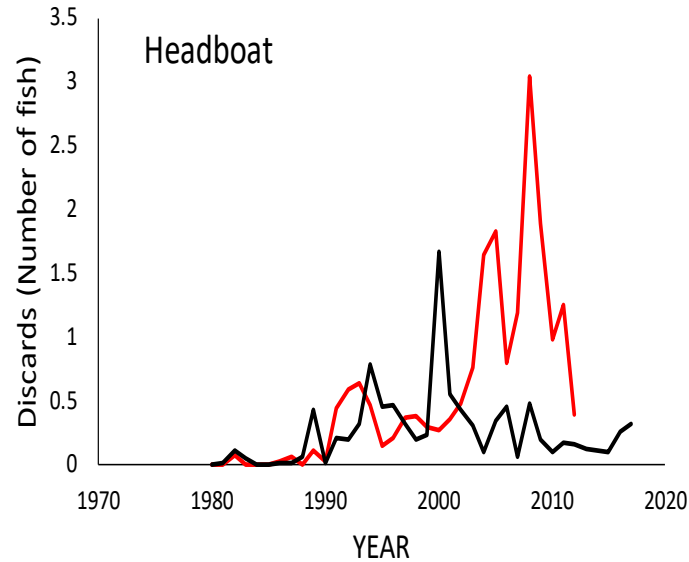
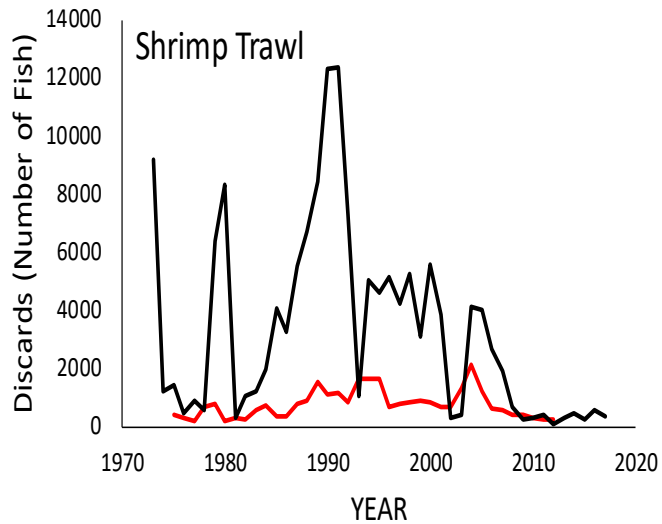
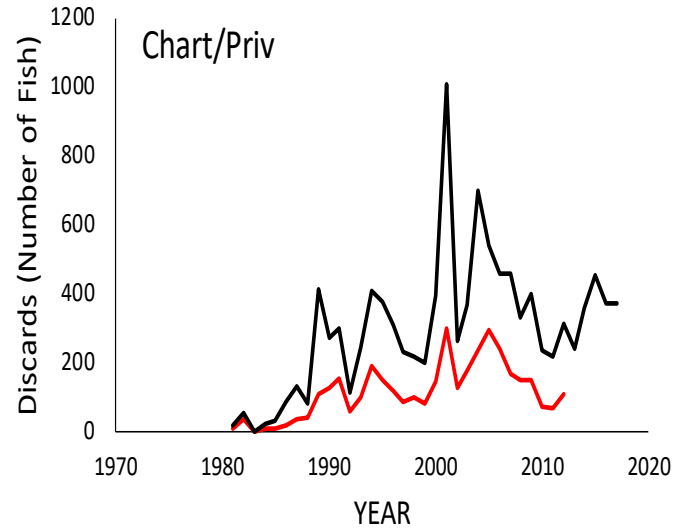
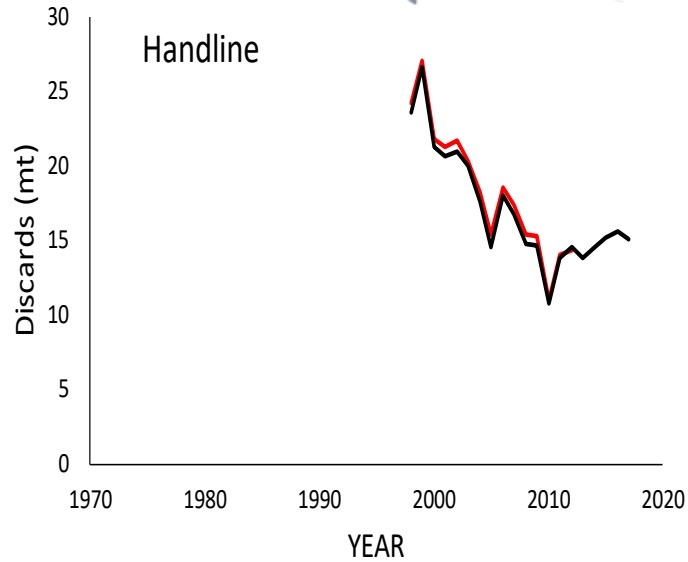
SEDAR
38U in
black





Discards

SEDAR38
U in black

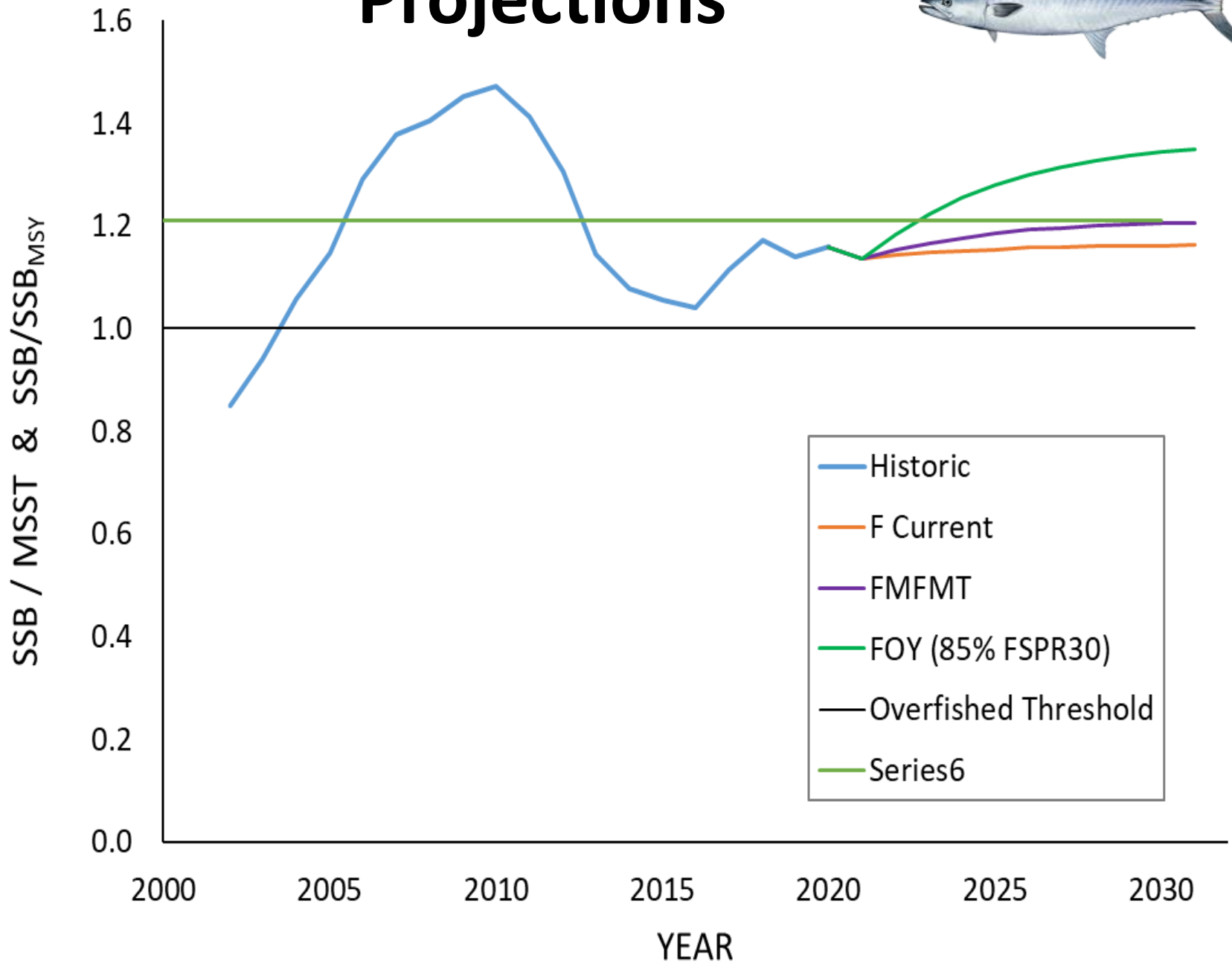


Stock Status: Not Overfished. Not Overfishing



The SSC determined that the SEDAR 38 Update assessment of Gulf King Mackerel represents the best scientific information available and, based on assessment results, the stock status is estimated to be not overfished and not undergoing overfishing.

Projections



OFL ABC



The SSC estimates OFL to be 10.89, 11.05, and 11.18 million pounds whole weight for the Gulf King Mackerel stock during fishing years 2021-2023, respectively, based on results of the SEDAR 38 update assessment and assessment projections. The SSC sets ABC for the same years to be 9.37, 9.72, and 9.99 million pounds whole weight, respectively, with annual ABC being the projected yield at F_{OY} ($0.85 * F_{SPR30\%}$).

SSC discussion re shrimp bycatch



The SSC noted that increases in estimated shrimp bycatch in the earlier part of that time series (pre-2000s) may have had a larger effect on the revised median estimate of shrimp bycatch, which then affected SEDAR 38U. These older estimates may be less certain than more recent estimates.

A series of best practices workshops will be hosted by the SEFSC to evaluate and estimate shrimp bycatch for various species, with the goal of improving these estimates in future stock assessments. These workshops will continue exploring and fine-tuning approaches to address shrimp bycatch in the future.

SSC discussion re headboat discards



The SSC asked about the use of MRIP-FES as a metric for determining discards for the headboat fleet. Due to small sample sizes of observed data in the Southeast Region Headboat Survey (used to monitor harvest from headboats), NMFS developed a ratio to apply to the headboat fleet, based on discard fractions observed in the charter for-hire vessel fleet by MRIP-FES. Discards are a small fraction of catch for the headboat fleet; therefore, observations of discards are much smaller still. This method of using a proxy from one fleet to inform another is uncommon for most Gulf stock assessments, since most managed species have a larger number of observations of discards.

