Atlantic States Marine Fisheries Commission

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MEMORANDUM

March 4, 2019

To: **Summer Flounder, Scup, and Black Sea Bass Management Board**

From: **Summer Flounder, Scup, and Black Sea Bass Technical Committee**

RE: **Technical Committee Review of Massachusetts Proposal for 2019 Recreational Black Sea Bass Measures**

Technical Committee Members: Greg Wojcik (Chair, CT), Jason McNamee (RI), John Maniscalco (NY), Peter Clarke (NJ), Steve Doctor (MD), Alex Aspinwall (VA), Richard Wong (DE), T.D. VanMiddlesworth (NC)

Staff: Caitlin Starks (ASMFC), Kirby Rootes-Murdy (ASMFC), Kiley Dancy (MAFMC), Julia Beaty (MAFMC), Karson Coutre (MAFMC), Emily Gilbert (NOAA)

Additional Attendees: Nichola Meserve (MA)

The Summer Flounder, Scup, Black Sea Bass Technical Committee (TC) met via conference call on Wednesday, February 27, 2019 to review a conservation equivalency proposal from Massachusetts (MA) for 2019 black sea bass recreational measures.

Massachusetts Proposal for 2019 Conservation Equivalency Measures

The Summer Flounder, Scup, Black Sea Bass Board approved status quo black sea bass recreational measures at their meeting on February 5, 2019. MA submitted a proposal to slightly modify their 2019 black sea bass recreational measures using conservation equivalency to maintain a Saturday opening day. MA's proposal is to cut four days from the end of the season in September to account for the projected increase in harvest from one additional open day in May. This would result in the following 2019 black sea bass recreational measures: a 5 fish daily bag limit, 15 inch minimum size limit, and a season from May 18 to September 8. MA's measures in 2018 included the same bag and minimum size limits, but with a season from May 19 to September 12.

MA DMF reviewed 2016–2018 "uncalibrated" MRIP harvest data for MA by wave to determine wave specific daily harvest rates and calculate the conservationally equivalent season length with a May 18 opening. The TC approved of the methods used in the Massachusetts proposal, and agreed that the modified measures are conservationally equivalent to the 2018 measures.

The TC noted that modest changes to season dates are unlikely to have significant impacts on harvest, however the TC has less confidence in how more drastic changes in season, or changes to minimum size and bag limits could impact harvest.

NEW JERSEY DIVISION OF
Fish and Wildlife
P.O. Box 400
Trenton, NJ 08625-0400
Larry Herrighty, Director

Memorandum

TO: Kirby Rootes-Murdy, FMP Coordinator
Atlantic States Marine Fisheries Commission

FROM: Peter Clarke, Senior Biologist
New Jersey Bureau of Marine Fisheries

DATE: February 28, 2019

SUBJECT: New Jersey Summer Flounder Recreational Fishery Management Proposal for 2019

Attached is New Jersey's proposed management option for the 2019 recreational summer flounder fishery. Under the Council Staff recommended conservation equivalency plan, only a slight adjustment in the season is being proposed by New Jersey to allow for a Friday, May 24, 2019 start date to coincide with the Friday before Memorial Day as was the start in 2018. No adjustment to size limits or possession limits are being requested. New Jersey feels this option satisfies the requirements of conservation equivalency as established by the Atlantic States Marine Fisheries Commission (ASMFC). A table describing the adjustment is included while an excel spreadsheet has been provided to the ASMFC summer flounder, scup, black sea bass technical committee for review.

Background:

In a February 27, 2019 Monitoring Committee meeting and resulting summary report, the Mid-Atlantic Fishery Management Council staff and Monitoring Committee recommended implementing status quo management measures for the recreational summer flounder fishery for 2019. As such, measures are required to remain identical to those from the previous year. New Jersey is submitting a conservation equivalency proposal that would deviate from status quo by adjusting the season start and end dates one day forward while retaining the previous years size and possession limit. The result of this change increases harvest in New Jersey as measured by the Marine Recreational Information Program annual wave estimates by 3,877 fish, a 0.3 % increase in projected harvest. While considered an increase, this percentage falls well below the MRIP estimates PSE ranging from 17.8 to 31 percent indicating that a variation of 0.3% may still result in a harvest equal to or less than that in 2018.

Methodology:

Using "New" MRIP estimates for 2018 describing specific wave level harvest, New Jersey calculated the total harvest during waves, 3, 4, and 5, divided the total wave specific harvest by the number of days that wave was open which determined the average daily harvest rate for each of the three open waves. Proposing to increase the numbers of days open in wave three and decreasing the number of days open in wave 5, New Jersey recalculated the appropriate waves by the average daily rate and the number of proposed open days. This resulted in the same total number of open days in 2019 compared to 2018 (121), keeping the size limit the same, with no adjustment to the possession limit. The result of this shift in open days translates into an additional 3,887 fish harvested in 2019 compared to 2018 or a 0.30% increase in harvest (See table below).

NJ 2019 Summer Flounder Options

Option	Size	Bag	Season	Total Days	Change
Status Quo	18	3	May 25-Sept 22	121	0%
1	18	3	May 24-Sept 21	121	0.30%

Proposal for Adding Summer Flounder to RI's Special Shore Fishing Sites

Jason McNamee, RI Division of Marine Fisheries

03 March 2019

Introduction

The state of Rhode Island has maintained seven "Special Shore Fishing Sites" for a number of years (Fig. 1). These sites allow access to a smaller scup (8" in 2018) than is the standard regulation in the rest of the state (9" in 2018). These sites were created to provide more opportunity and access to shore fishermen, with a focus on providing a benefit to those who use shore fishing as a mechanism to supplement protein in their diets, sometimes referred to as subsistence fishermen. The sites themselves were selected with two criteria. One was to try and locate the sites in an equally distributed fashion across the state to provide reasonable access regardless of where the fishermen may live, and the second was to locate the sites at locations where there was not a boat ramp or marina in close proximity so as to not conflate what may have been caught at the shore location with fish that may have been harvested from a vessel (which would not allow the smaller sized fish).

At their advent, these sites were monitored through a special intercept survey, and in the case of scup, which has very good stock status and a robust age structure in the population, the increased access did not result in increased harvest. This is likely due to the fact that there are plenty of scup available to the shore fishery at the larger size, so the smaller size was not needed to be able to catch a bag limit of scup.

This proposal seeks to add two summer flounder to these same "Special Shore Fishing Sites" and analyzes potential impacts to harvest by allowing a 16" and a 17" summer flounder at these sites. The current size in RI is 19", therefore this represents a decrease of 2" for a 17" fish and 3" for a 16" fish. While it was shown that harvest was not increased with the decreased scup size at these locations, the case may not be the same for summer flounder, so until a more targeted study can be done on these sites for summer flounder, conservative assumptions will be used for this analysis.

Data and Methods

Data from MRIP will be used to conduct this analysis. Using the MRIP length frequency data query tool (see: https://www.st.nmfs.noaa.gov/recreational-fisheries/data-and-documentation/queries/index), the time series of harvested summer flounder from 1981 - 2018 for the shore mode fishery in RI was queried. The data were aggreagted by length bin across this entire time series.

Using this dataset, a series of generalized linear models (GLMs) were used to predict potential increases in harvest by lowering the minimum size. Three seperate distributions were used for the analysis; a lognormal, a poisson, and a negative binomial distribution. The following equation was used for each of these different model distributions:

$$PredictedLandings = \beta_0 + \beta_1 Length \quad (1)$$

Where β_0 = intercept, β_1 = is the coeficient associated with the length parameter, and $Length$ = length in inches.

The data increases with decreasing length as expected, with a peak at around 15", at which point the harvest decreases (Fig. 2). Due to this, the data were truncated at 15" as a way to capture the increase without biasing the estimates low because of the decay in harvest below 15" The models were run on the truncated dataset and are used to predict harvest in a range from 15 - 27 inches.

This prediction is then used to to compare the predicted harvest at 19“, the current minimum size in RI, to either 16” or 17" The proportional increase is calculated from this data.

$$Proportionalincrease = \frac{PredictedLandings_{16or17}}{PredictedLandings_{19}} \quad (2)$$

As a final calculation, a method was used to obtain a sense of how much harvest may occur at the chosen seven sites in relation to the total potential shore sites in RI. Using the RI MRIP site register, filtered for active locations, there are seventy-six locations registered as shore mode sites. A simple proportion of 9% (7 out of 76 sampled shore locations) was used to prorate the overall shore harvest attributed to the “Special Shore Sites”, and then the increase in harvest as calculated by the GLMs was applied to this prorated 2018 shore harvest value to calculate the potential increase.

$$IncreaseinHarvest = Landings_{2018} * 9\% * Proportionalincrease_{16or17} \quad (3)$$

Keep in mind that the “Special Shore Sites” were selected not due to a fishing success criteria, but for other reasons as explained above. Anecdotally the seven sites represent a cross section of both good and poor fishing areas, so using a simple proportion is a valid assumption as the seven sites are believed to represent a standard sample across all of the RI shore fishing areas, so are not biased high or low.

Results

All of the GLMs converged and upon visual inspection appear to predict the data well (Fig 3). A preferred model was not selected and the full model ensemble was used for the overall predicted increase. The models predict increases in the range of 281% through 314% (Table 1) for a 16" fish and in the range of 199% through 215% (Table 2) for a 17" fish.

Using the ensemble approach, the overall increase for a 16" summer flounder was:

```
overall.inc.16
```

```
## [1] 2.97827
```

And for a 17" summer flounder was:

```
overall.inc.17
```

```
## [1] 2.069335
```

Applying these overall increases in harvested fish for a 16" summer flounder to equation 3 gives:

```
shoreharv.2018 = 1930
special.shore.increase = shoreharv.2018*0.09*overall.inc.16; round(special.shore.increase, 0)
```

```
## [1] 517
```

Applying these overall increase in harvested fish for a 17" summer flounder to equation 3 gives:

```
special.shore.increase = shoreharv.2018*0.09*overall.inc.17; round(special.shore.increase,0)
```

```
## [1] 359
```

Conclusion

The number of increased fish harvested by adding two summer flounder at a smaller size class at the RI “Special Shore Fishing Sites” results in 517 fish if the size is decreased to 16" and 359 fish if the size is decreased to 17" Most of the assumptions going in to the calculations above are conservative in nature, with one added layer of conservation being that the proration applied above does not account for the fact that only

2 of the possible 6 fish caught will be at the smaller size, it assumes all of the fish caught at these sites will be at the smaller size, therefore the analysis presented above will be protective of some of the uncertainties inherent in this type of management approach. To account for this increase RI will deduct 2 days from the beginning of the season (therefore a May 3rd start date), thereby remaining at status quo harvest in 2019. At a daily average harvest in wave 3 of 279 fish per day (based on wave 3 harvest in 2018 divided by the number of open days), 2 closed days results in 558 fish saved, covering both potential scenarios.

As a final note, RI commits to sampling these sites in a similar manner that it did for scup. A report will be generated and presented to the technical committee at the end of 2019.

Table 1 - Predicted increase in harvest by going from a 19" to a 16" summer flounder.

Length - inches	Prediction - Lognormal	Prediction - Poisson	Prediction - Negative Binomial
16	190897.233764083	190373.699669701	172134.397383924
19	60752.9419924917	60597.4786554816	61150.5179241289
Predicted Increase	3.14218912703315	3.14161090351702	2.81492950881456

Table 2 - Predicted increase in harvest by going from a 19" to a 17" summer flounder.

Length - inches	Prediction - Lognormal	Prediction - Poisson	Prediction - Negative Binomial
17	130333.340945463	129983.876500066	121911.634936483
19	60752.9419924917	60597.4786554816	61150.5179241289
Predicted Increase	2.14530089689435	2.14503770427596	1.99363209135435

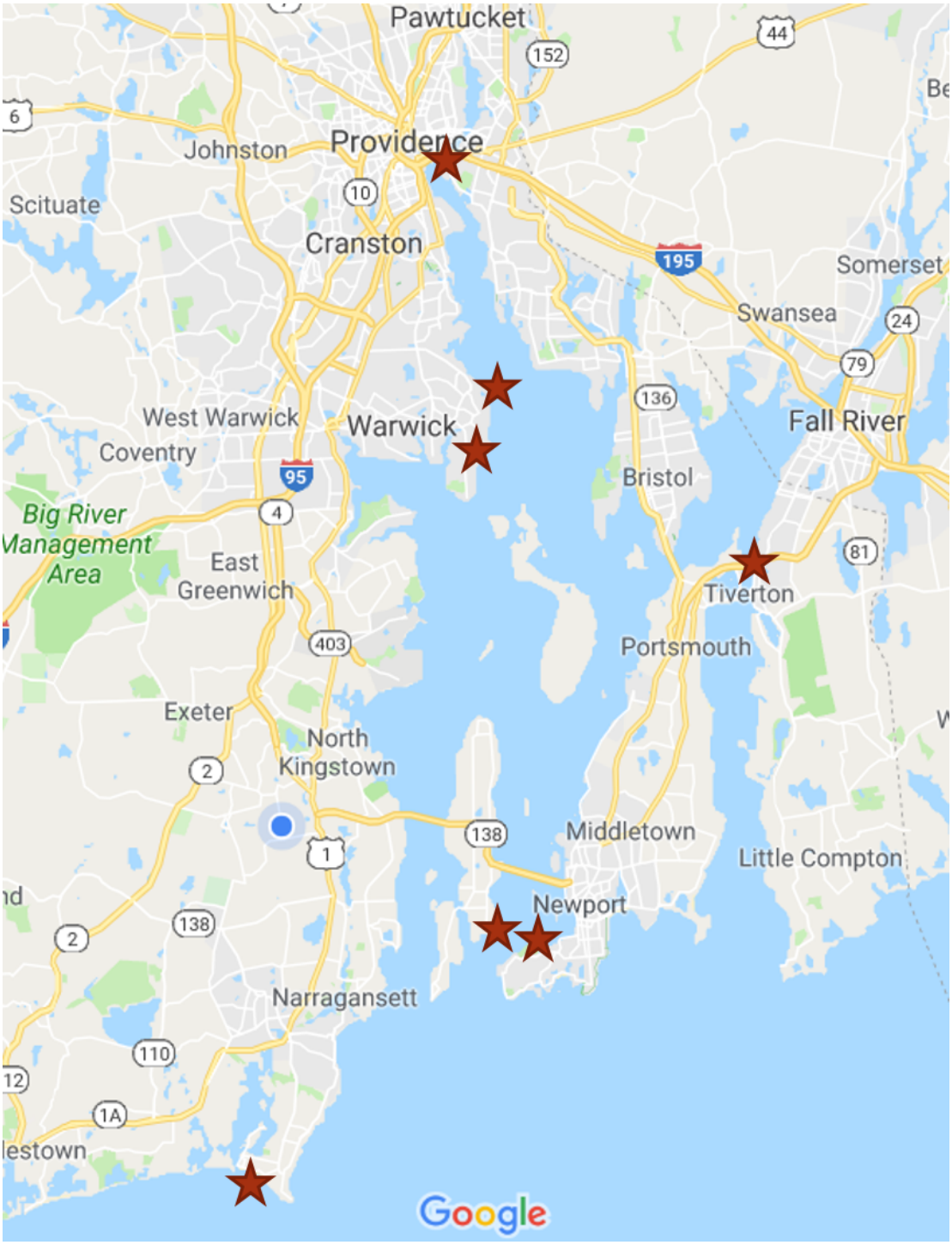

Figure 1: Map of the Special Shore Fishing Sites in Rhode Island. The red stars denote the location of the sites.

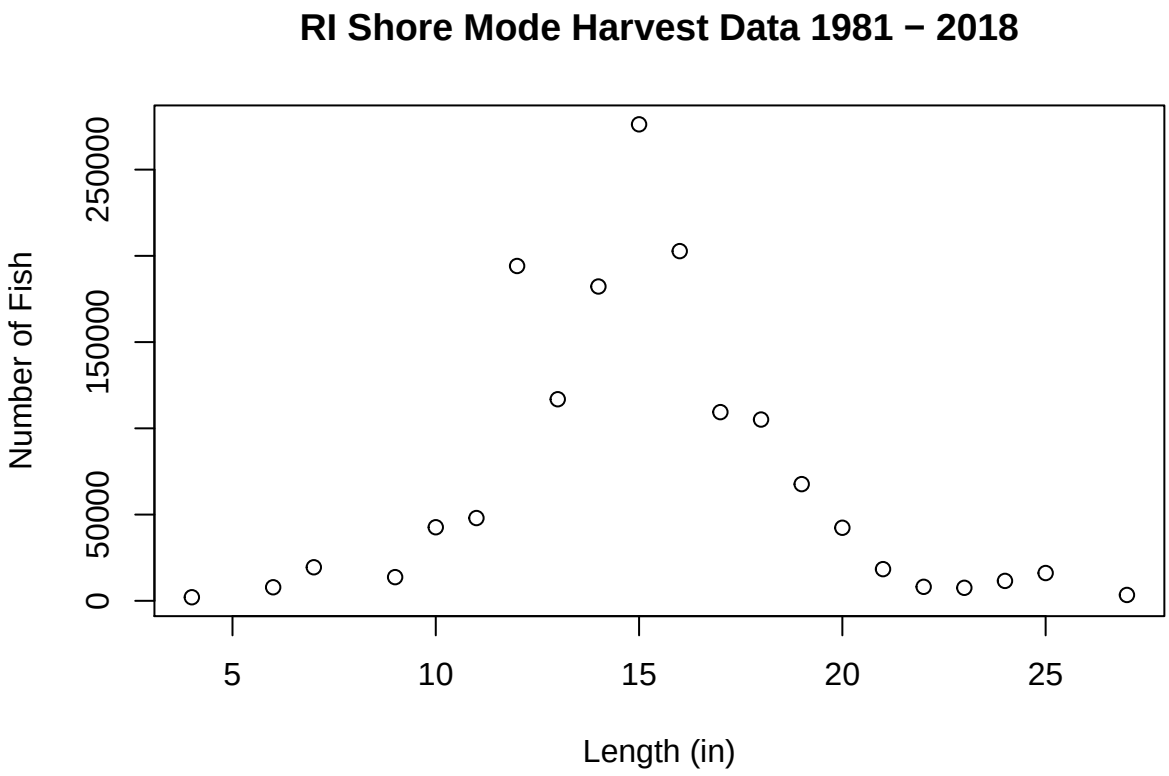

Figure 2: Harvest at length in RI from MRIP data aggregated over the years 1981 - 2018

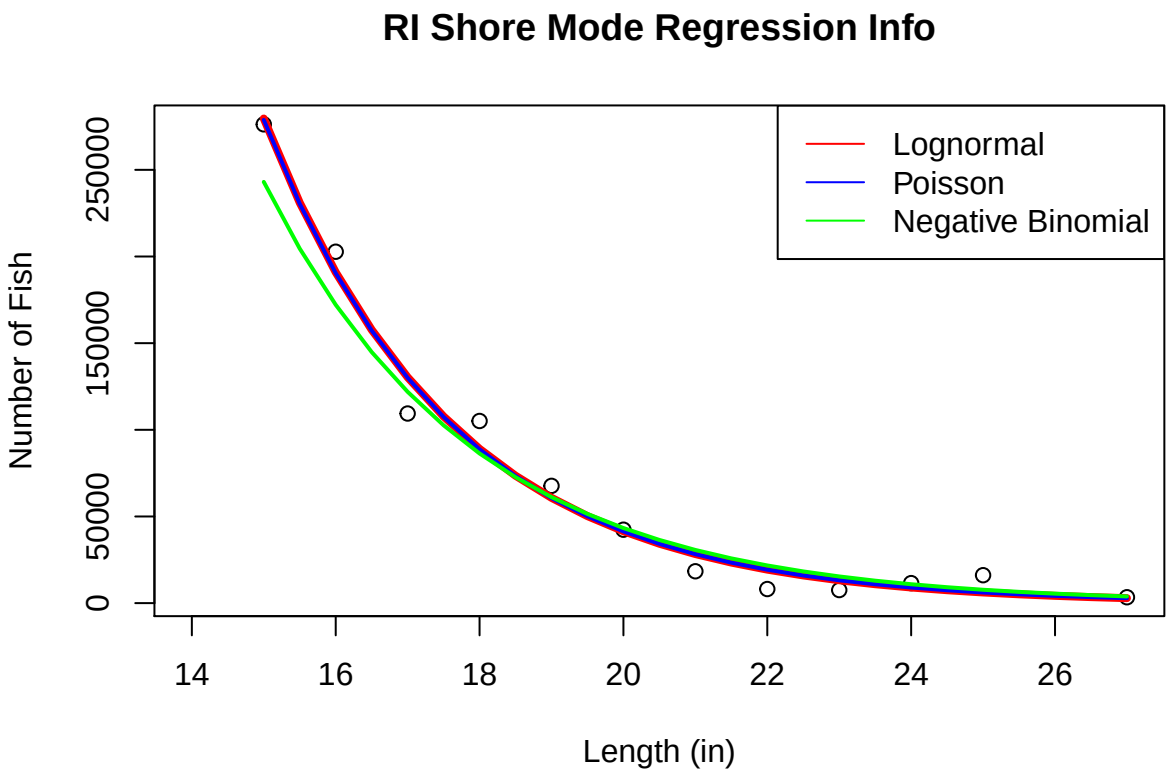

Figure 3: Predicted harvest at length using three different generalized linear models (GLMs).