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DRAFT MEMORANDUM

DATE: **October 9, 2015**

TO: Science and Statistical Committee

FROM: Scallop Plan Development Team (PDT)

SUBJECT: **PDT recommendations for OFL and ABC for Framework 27 (FY2016 and FY2017 default)**

This memorandum forwards the Scallop PDT recommendation for an OFL and ABC for the scallop resource for FY2016 and FY2017 (default) (Table 1). It should be noted that the values are the same for both years. The original model outputs are also provided, which have different values for each year (Table 2). However, the PDT recommends the limits be restricted to the 2016 values for both years.

The PDT met on October 7, 2015 to review these estimates and drafted the consensus statement below. More details will be provided during the presentation of this recommendation at the SSC meeting on October 13, 2015.

By consensus, the Scallop PDT recommends that the model estimates for OFL and ABC for 2016 and 2017 be presented to the SSC; however, the PDT recommends that the OFL and ABC should be set at the 2016 values for both years. While biomass is expected to increase dramatically in 2017 the PDT is concerned that the model may be seriously underestimating natural mortality of juvenile scallops in high density areas. The last time there was high densities of scallops in Elephant Trunk (2003) there was very high natural mortality of juvenile scallops; such density-dependent natural mortality is not built into the current forecasting model. If higher than normal natural mortality occurs, these estimates will be overestimated, especially for 2017. There are practical management risks with setting the 2017 default values high and potentially needing to later correct them. The IFQ allocations for the LAGC fishery and observer set-aside program are based on the ABC/ACL value and those go into effect at the start of the fishing year.

Table 1 – Scallop PDT recommendation for OFL and ABC for Framework 27, Fishing years 2016 and 2017 (default) (2015 provided for reference only)

Year	ABC Land	ABC Disc	ABC Total	OFL Land	OFL Disc	OFL Total
2016	37,852	17,885	55,737	45,997	22,421	68,418
2017	37,852	17,885	55,737	45,997	22,421	68,418

Note: 2017 default is the same as 2016 estimates

Table 2 – Original model estimates for OFL and ABC for Framework 27

Year	GBBms	MABms	TotBms	ExplBms	ABC Land	Discards	ABC Total	OFL Land	Discards	OFL Total
2015	90704	106024	196728	57009	*25352**	*6107**	*31459**			*38061**
2016	142690	169354	312044	76302	37852	17885	55737	45997	22421	68418
2017	165102	202141	367243	153333	62929	19460	82389	76084	23604	99688
**2015 ABC and OFL from FW 26*										

Background

There was a benchmark assessment for Atlantic sea scallop in 2014 (SARC59). Through 2013 the biomass estimate was well above its target, and overfishing was not occurring. The PDT updated these reference points through 2015 and concluded that biomass has continued to increase, and fishing mortality has declined, and hence is still below the threshold (Figure 1 and Figure 2).

There are some indications that the models may be overestimating biomass, especially in areas with high densities of juvenile scallops. The model currently assumes constant natural mortality (0.16 on GB and 0.2 in the Mid-Atlantic on all sizes except the plus group). However, the PDT believes that natural mortality of juveniles is higher in areas of high density. In 2003, there was a very large set of scallops in Elephant Trunk. The area was closed but biomass declined rapidly in the absence of fishing based on subsequent survey results. Natural mortality seems to be much higher than 20% in this area with high densities of small scallops (Figure 3). While natural mortality is uncertain, the PDT believes that the current estimate of 20% is too low for high density areas, resulting in optimistic biomass estimates for these areas.

In addition to uncertainty related to the assumption of natural mortality, there is also uncertainty related to the estimate of biomass in general. In 2015 there were multiple surveys conducted, including very intensive surveys in some areas with high densities of small scallops. However, there is still uncertainty in the estimates and in some cases the variation between estimates is considerable. This is not surprising since the survey methods and coverage levels are different. In the end the results are averaged together for the final biomass estimate, but this uncertainty should be considered as well.

Finally, there are practical reasons why it may not be advantageous to have ABC increase dramatically in 2017. Framework 27 is a one year action and the OFL and ABC estimates will be reviewed again next year. Therefore, FY2017 is default only and will be in place at the start of the fishing year (currently March 1) until a subsequent action replaces it. Some fishery specifications are determined directly from the ABC/ACL value (i.e. general category IFQ and observer set-aside). The PDT believes that the 2016 survey results may have lower biomass estimates than the current projections. Therefore, default allocations based on the optimistic projections may need to be reduced. This can have negative impacts and cause confusion for the participants in the fishery.

For all these reasons the PDT recommends that the same OFL and ABC values be set for FY2016 and FY2017 (default). FY2017 values will be revisited next year and can be adjusted accordingly based on more updated survey and fishery information.

Figure 1 – Total biomass through 2015 (with MA and GB subareas), estimated by the updated CASA model

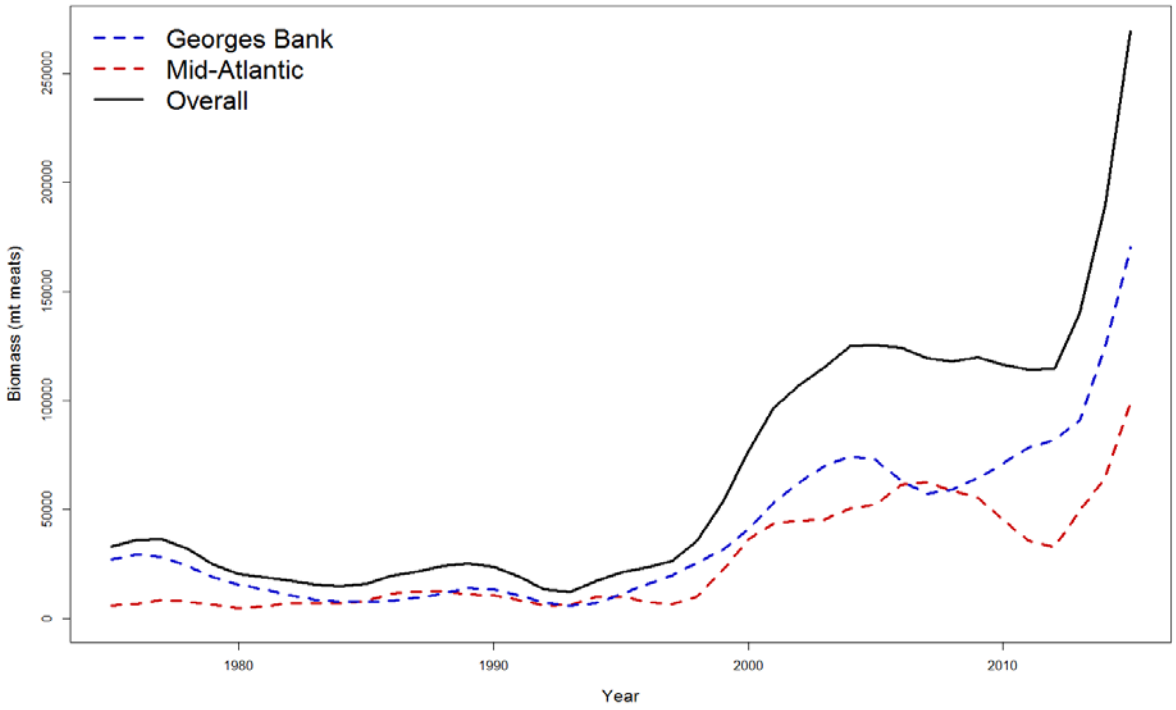

Figure 2 – Total estimate of fishing mortality through 2015 (with MA and GB subareas), estimated by the updated CASA model

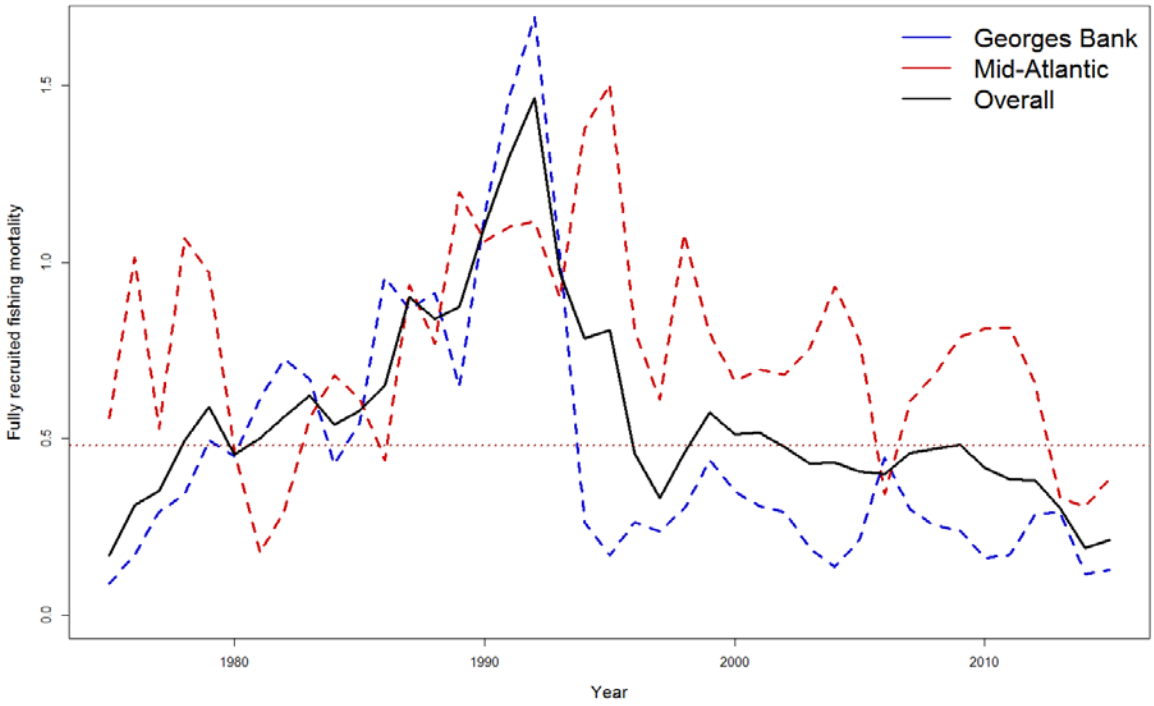

Figure 3 – Shell height frequencies from dredge surveys (2003-2007) for the Elephant Trunk rotational area