Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901-3910
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: January 14, 2016

To: Summer Flounder, Scup, and Black Sea Bass Advisory Panel and Mackerel, Squid Butterfish Advisory Panel

From: Julia Beaty

Subject: Scup GRA Framework Alternatives

Background

In 2000 the Council implemented two Gear Restricted Areas (GRAs) for scup. The GRAs were designed to reduce scup discards in small mesh fisheries. The Council modified the boundaries of the GRAs in late 2000, in 2001, and in 2005. The current boundaries are shown in Figure 1. Under the current regulations, trawl vessels in the Southern GRA from January 1 through March 15 that fish for or possess longfin squid, black sea bass, and silver hake/whiting (listed in the regulations as "non-exempt species") must fish with nets that have a minimum mesh size of 5.0-inch diamond mesh, applied throughout the codend for at least 75 continuous meshes forward of the terminus of the net.[1] The same applies for trawl vessels in the Northern GRA from November 1 through December 31 (50 CFR 648.124).

The Council discussed a framework action to modify the scup GRAs at their February and April 2014 meetings. In June 2014 the Council postponed further development of the framework until completion of the Deep Sea Corals Amendment. The Council took final action on the coral amendment in June 2015, voting to prohibit the use of all bottom-tending gear in one broad coral zone and fifteen discrete coral zones, some of which intersect the scup GRAs.

In December 2015 the Council considered a Northeast Fisheries Science Center (NEFSC) analysis of the scup GRAs (described in the next section) as well as past Advisory Panel (AP) input on the GRAs before approving a range of alternatives for the framework.

This document includes descriptions of the approved framework alternatives and is meant to inform discussions at the January 20, 2016 meeting of the Summer Flounder, Scup, and Black Sea Bass AP and the Mackerel, Squid, and Butterfish AP.

[1] For trawl nets with codends (including an extension) of fewer than 75 meshes, the entire trawl net must have a minimum mesh size of 5.0 inches (12.7 cm) throughout the net.

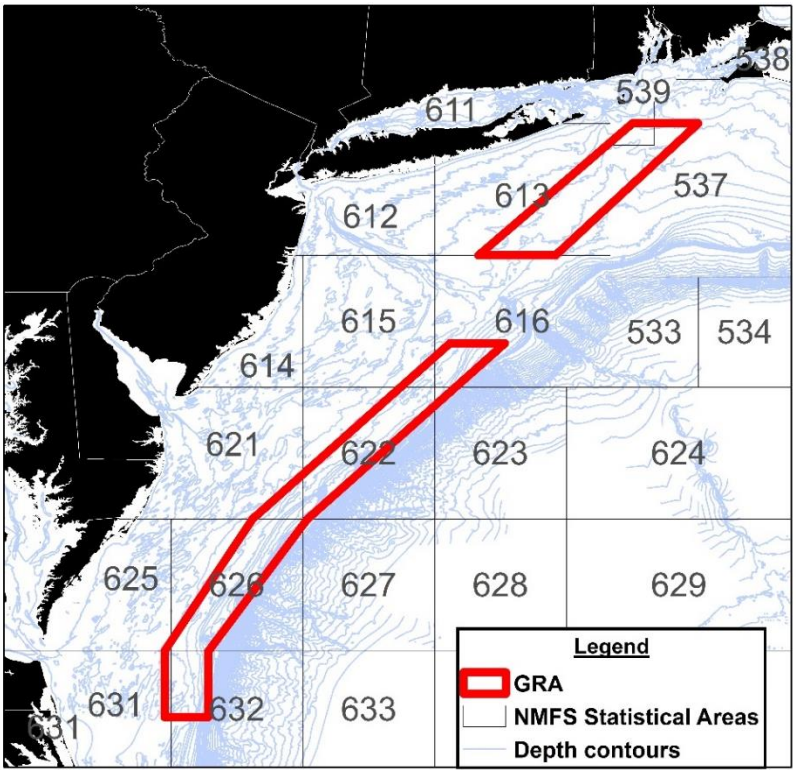


Figure 1: Boundaries of current scup Gear Restricted Areas (GRAs).

Analysis

The GRA framework alternatives approved by the Council are largely derived from a recent NEFSC analysis of the GRAs, which used observer data on discards through 2013. This analysis shows that most of the observed scup discards in commercial fisheries occurred in small mesh (i.e. smaller than the minimum mesh size required in the directed commercial scup fishery) tows in NMFS statistical areas that now include the GRAs. Since implementation of the GRAs in 2001, scup discards in those areas have declined. The NEFSC analysis suggests that "the GRAs have likely reduced the discard mortality of small scup and are responsible for the improved post-recruitment survival of these small scup" (Terceiro and Miller 2014).

Statistical areas 611 and 538 have accounted for relatively high discards outside of the GRAs from 1989 through 2014. Very few scup discards have been observed in statistical area 632 (currently included in the Southern GRA). The largest remaining sources of scup discards are small mesh trips during times of the year when the GRAs are not in effect (e.g. areas 538, 539, 611, and 613 during the second and third quarters of the year). Relatively high discards also occurred in statistical area 616 during the first quarter of the year, when the Southern GRA is in effect. These relatively high discards likely mostly occurred in trips in statistical area 616 but outside of the Southern GRA (Mark Terceiro, personal communication).

Alternatives

The Council approved a range of alternatives for the GRA framework during their December 2015 meeting. These alternatives are identical to those considered by the Council in April 2014, with the exception of alternative 3b, which the Council added in December 2015. Each alternative is described in more detail below.

Alternative 1: No action/*status quo*

Alternative 1a: *Status quo* Northern GRA

Alternative 1a is the *status quo*/no action alternative for the Northern GRA. Under this alternative, the regulations for the Northern GRA would remain unchanged.

Alternative 1b: *Status quo* Southern GRA

Alternative 1b is the *status quo*/no action alternative for the Southern GRA. Under this alternative, the regulations for the Southern GRA would remain unchanged.

Alternative 2: Expand the Northern GRA to include more of statistical area 613

The Council approved a single alternative which would modify the boundaries of the Northern GRA. This alternative would expand the Northern GRA into statistical area 613. This alternative is based on the NEFSC analysis of the scup GRAs (Tercerio and Miller 2014) and 2014 discard information (Mark Tercerio, personal communication), which show that during 2010-2014, on average, about half of the scup discards in squid and small-mesh[2] fisheries in the Northern GRA areas during the fourth quarter of the year[3] occurred in statistical area 613. During 2009, about 77% of scup discards in small and squid mesh fisheries in Northern GRA areas during the last quarter from the year came from area 613 (Figure 2). Although statistical area 613 contributed to a relatively high amount of scup discards in the Northern GRA, scup discards in small and squid mesh fisheries in the Northern GRA areas and months were relatively low overall in 2010-2014, especially when compared to 1989-1995 (Figure 2).

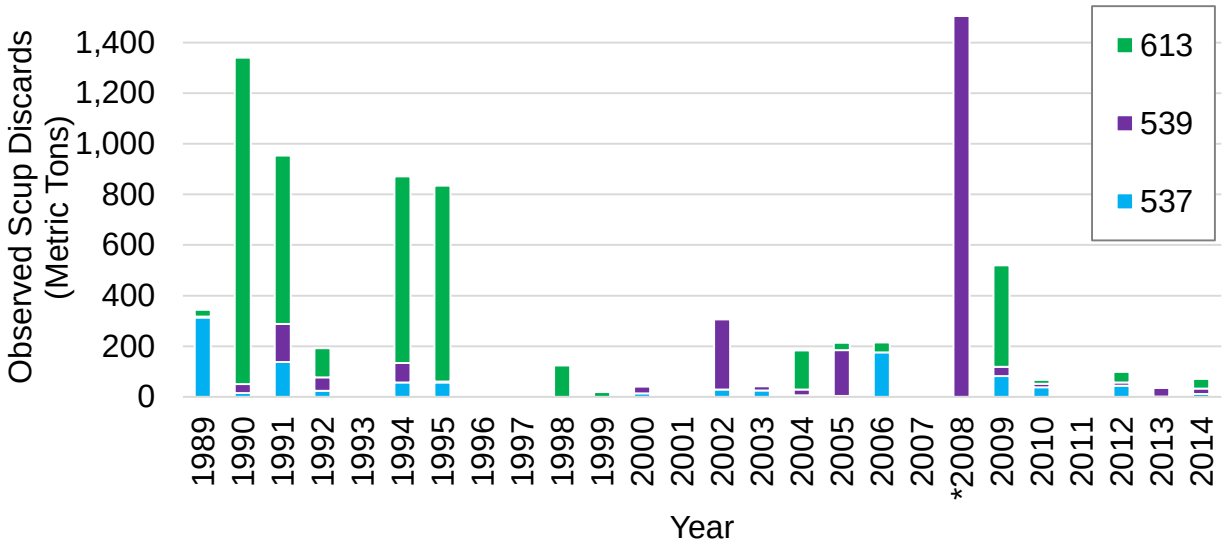
Figure 3 shows an example of possible Northern GRA boundaries under this alternative. If implemented as shown in Figure 3, this alternative would represent a 63% increase in the size of the Northern GRA, compared to the *status quo* Northern GRA (Table 1).

Table 1: Approximate size of Northern GRA alternatives.

Alternative	Area (square kilometers)	Area (square nautical miles)	Difference from status quo Northern GRA
1a: *Status quo* Northern GRA	5,108	1,489	0%
2: Expand Northern GRA into statistical area 613	8,350	2,434	+63%

[2] The NEFSC analysis of scup discards defines “small mesh” as mesh that is smaller than the minimum mesh required in the directed scup fishery (4.5 inches from 1996 until 2005, and 5.0 inches after 2005) but larger than the mesh that is typically used in the longfin squid fishery (2.125 inches). “Squid mesh” is defined as mesh that is smaller than 2.125 inches (Terceiro and Miller 2014).

[3] Discard estimates referenced in this document are based on the discard estimation methodology used in the NEFSC white paper on scup discards (Terceiro and Miller 2014) and in the 2015 scup benchmark stock assessment (NEFSC 2015). These discard estimates are aggregated by NMFS statistical area, by mesh size category (squid, small, and large), and by calendar quarter.



*Discards in 2008 totaled 7,417 mt

Figure 2: Observed scup discards in small and squid mesh trips in the Northern GRA statistical areas (statistical areas 537, 539, and 613) during the fourth quarter of the year from 1989 through 2014.

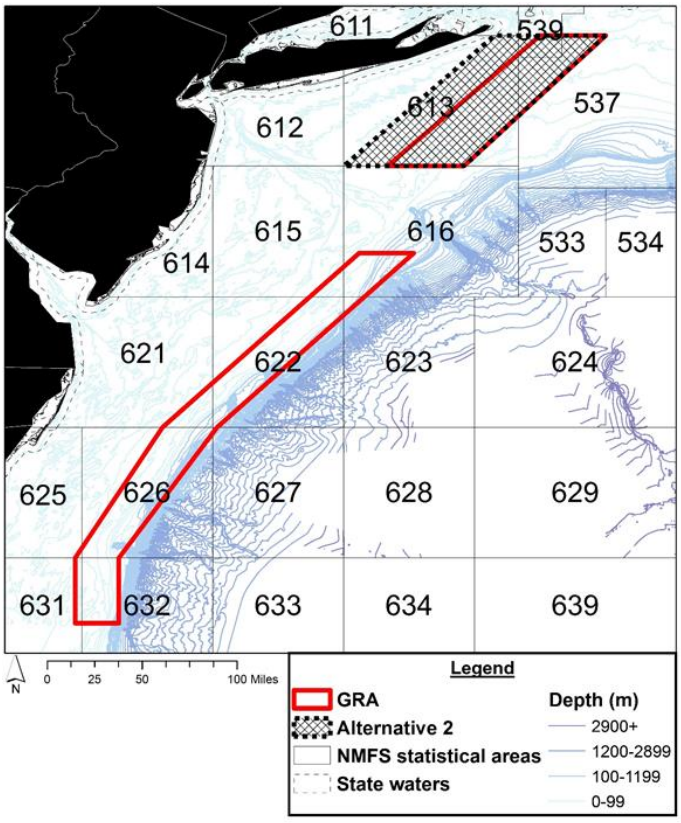


Figure 3: An example of a modification to the boundaries of the Northern GRA to encompass more of statistical area 613 (alternative 2).

Alternative 3: Modify the area of the Southern GRA

Alternative 3 includes four sub-alternatives to modify the area of the Southern GRA. Under these alternatives, the area of the Southern GRA could decrease by as much as 15% (alternative 3c) or increase by as much as 28% (under alternative 3d; Table 2).

Table 2: Approximate size of Southern GRA alternatives.

Alternative	Area (square kilometers)	Area (square nautical miles)	Difference from *status quo* Southern GRA
1b: *Status quo* Southern GRA	10,690	3,117	0%
3a: Southern GRA modification proposed by Hank Lackner	9,901	2,887	-7%
3b: Alternative 3a with modification for coral zones	9,837	2,868	-8%
3c: Remove statistical area 632 from Southern GRA	9,039	2,635	-15%
3d: Expand Southern GRA into statistical area 616	13,707	3,996	+28%

Alternative 3a: Modify Southern GRA eastern boundary to align with that proposed by Hank Lackner

Alternative 3a would modify the eastern boundary of the Southern GRA based on a proposal by Hank Lackner, a commercial scup and longfin squid fisherman and a member of both the Council's Mackerel, Squid, and Butterfish AP and the Council's Summer Flounder, Scup, and Black Sea Bass AP. This modification is intended to restore access to certain canyon areas for longfin squid fishing. This modification represents about a 7% decrease in the size of the Southern GRA (Table 2, Figure 4).

Alternative 3b: Modify the Southern GRA eastern boundary to align with that proposed by Hank Lackner with modifications for coral zone boundaries

Alternative 3b would modify the eastern boundary of the Southern GRA as proposed by Hank Lackner (described in previous section) and would also remove areas of overlap with the deep sea coral discrete zones. All bottom tending gear, including the trawl gear subject to the scup GRA regulations, is prohibited in the coral zones year-round. This modification represents about an 8% decrease in the size of the Southern GRA (Table 2, Figure 5).

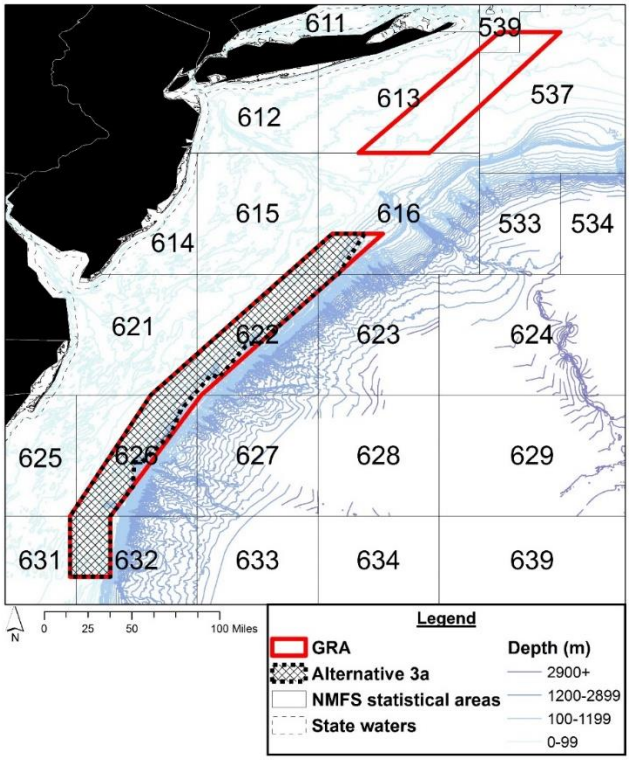


Figure 4: Southern GRA boundary modification proposed by Hank Lackner (alternative 3a), shown with the current scup GRA boundaries.

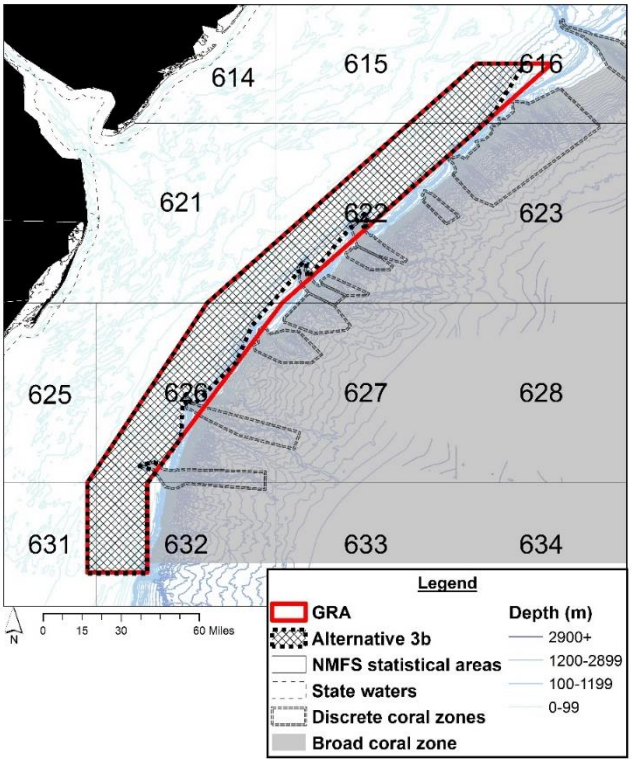


Figure 5: Southern GRA boundary modification proposed by Hank Lackner with modifications for deep sea coral boundaries (alternative 3b), shown with the current Southern GRA boundaries.

Alternative 3c: Remove statistical area 632 from the Southern GRA

Alternative 3c would remove statistical area 632 from the Southern GRA. Between 1989 and 2013, very small amounts of scup discards have been observed in statistical area 632 (Terceiro and Miller 2014). It is expected that this area could be removed from the Southern GRA with minimal impacts to the scup stock. This alternative would result in about a 15% decrease in the size of the Southern GRA (Table 2, Figure 6).

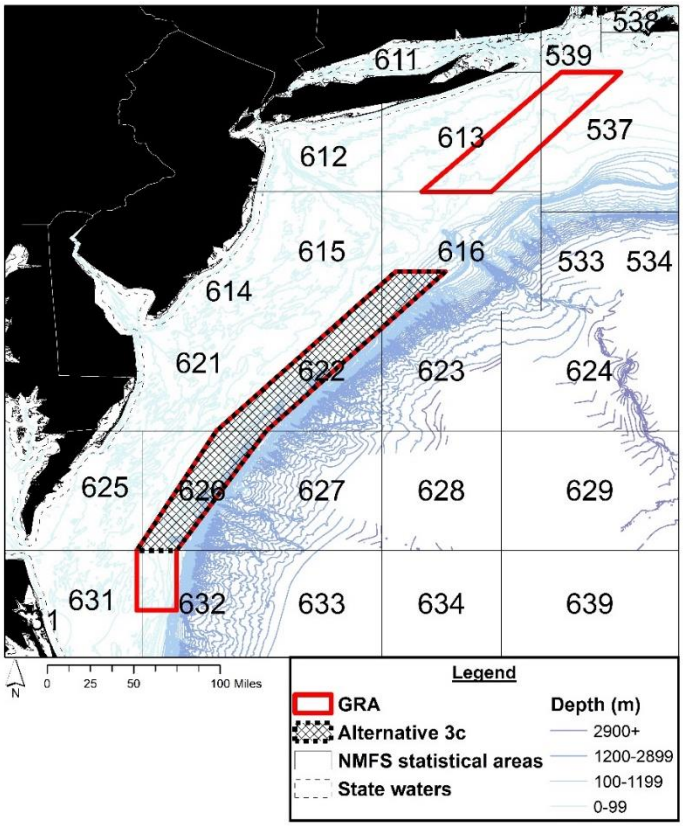


Figure 6: The boundaries of the Southern GRA with statistical area 632 removed (alternative 3c) shown with the current GRA boundaries.

Alternative 3d: Expand the Southern GRA to include more of statistical area 616

Under alternative 3d, the boundaries of the Southern GRA would be modified to include more of statistical area 616. Statistical area 616 accounted for the majority of scup discards within the GRAs from 1989 through 2013. Area 616 continued to have relatively high amounts of scup discards after implementation of the GRAs in 2000 (Figure 7; Terceiro and Miller 2014).

When the GRAs were first implemented in May 2000, both GRAs were much larger than their current configuration and the Southern GRA included about half of statistical area 616. Many fishing industry members expressed concern that the GRAs would cause severe economic hardships due to their large size. The GRA boundaries were modified

shortly after their initial implementation to address this concern. Under this first modification, effective December 2000, both GRAs were greatly reduced in size. Additionally, a second Northern GRA was added, which mostly fell within statistical area 616. These modifications were predicted to cause a 10% increase in scup discards but result in a 45% smaller reduction in revenues, compared to the previously implemented GRAs (65 *Federal Register* 65818, November 2, 2000).

Figure 8 shows an example of how the Southern GRA could be expanded into statistical area 616 under this alternative. The boundaries shown in Figure 8 are based on the boundaries of the second Northern GRA, as implemented in December 2000. The Southern GRA boundaries shown in Figure 8 represent a 28% increase in the size of the Southern GRA.

Area 616 includes Hudson Canyon, a productive fishing area for many species. Many fishing industry members opposed the inclusion of this area in the GRAs, as implemented in May 2000 and December 2000, citing severe negative economic impacts. Hudson Canyon was removed from the scup GRAs, effective March 2001 (66 *Federal Register* 12902, March 1, 2001).

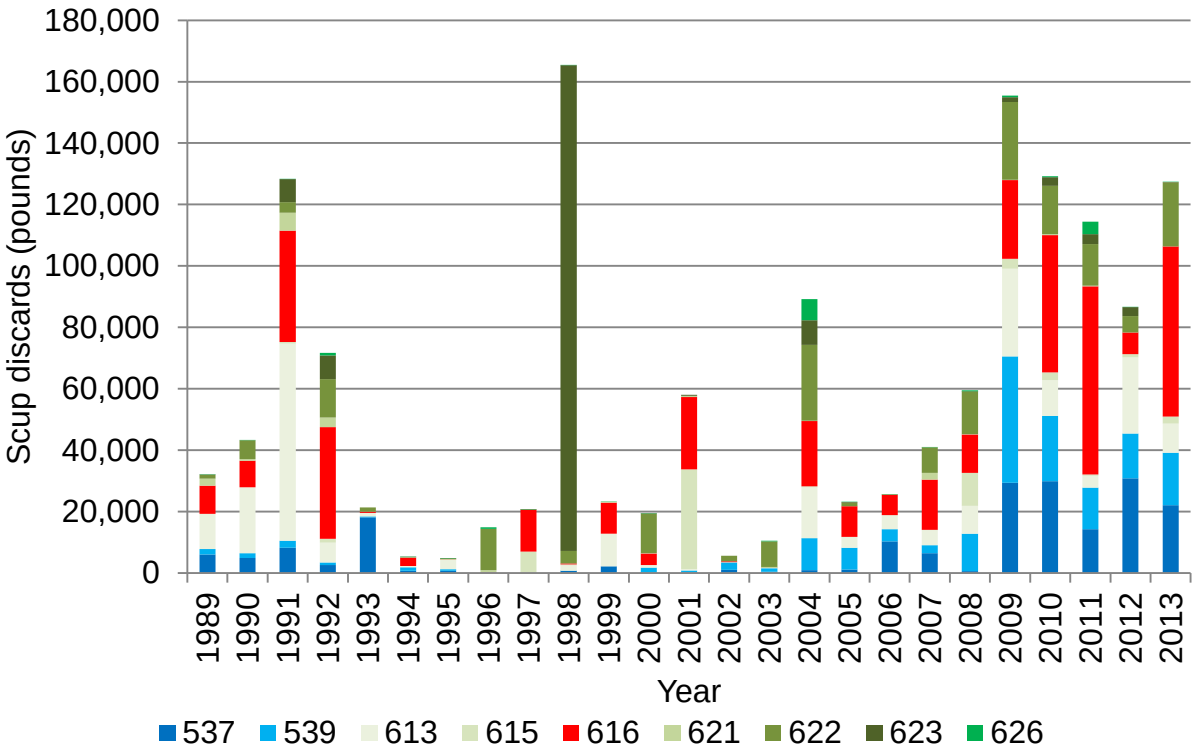


Figure 7: Observed scup discards in statistical areas within the GRAs with time series totals greater than 10,000 pounds (from Terceiro and Miller 2014). Northern GRA statistical areas are shown in shades of blue. Southern GRA statistical areas are shown in shades of green, with the exception of statistical area 616, which is shown in red to highlight that area's relatively high contribution to scup discards in the GRA areas in recent years. Over 90% of scup discards in 1998 came from a single tow in area 623 which discarded an estimated150,000 pounds of scup.

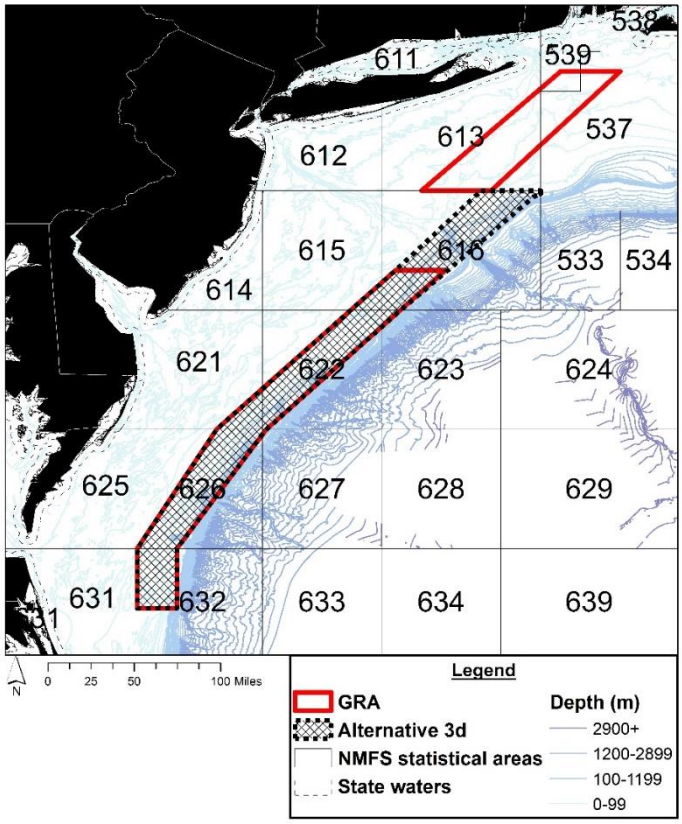


Figure 8: The boundaries of the Southern GRA expanded into statistical area 616 (alternative 3d) shown with the current GRA boundaries.

Alternative 4: Eliminate the Scup GRAs

Alternative 4a: Eliminate the Northern GRA

Under alternative 4a, the Northern GRA would be eliminated from the regulations.

Alternative 4b: Eliminate the Southern GRA

Under alternative 4b, the Southern GRA would be eliminated from the regulations.

References

NEFSC (Northeast Fisheries Science Center). 2015. 60th Northeast Regional Stock Assessment Workshop (60th SAW) Assessment Report. *Northeast Fisheries Science Center Reference Document* 15-08; 870 p. Available at: http://www.nefsc.noaa.gov/saw/reports.html

Tercerio, M. and A. Miller. 2014. Commercial fishery scup discarding and the Gear Restricted Areas (GRAs). Unpublished working paper from the NEFSC Population Dynamics Branch. Available in briefing materials at: http://www.mafmc.org/briefing/december-2015