

**Reconsideration of
the Scope of
Vessel Monitoring System Requirements
in the Atlantic Pelagic Longline Fishery**

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I. INTRODUCTION

By order dated September 25, 2000, the U.S. District Court for the District of Columbia instructed the National Marine Fisheries Service (NMFS) to “undertake further consideration of the scope of the [Vessel Monitoring System (VMS)] requirements in light of any attendant relevant conservation benefits.”¹ Pursuant to that order, NMFS has further considered and analyzed the scope of VMS requirements in the Atlantic highly migratory species (HMS) pelagic longline fishery in light of relevant conservation requirements.

On remand, NMFS took the following actions, which are further detailed in this document. On January 10, 2001, NMFS published a request for comments on options for implementing VMS requirements in the Atlantic HMS pelagic longline fishery (66 FR 1907) (Appendix A). The agency received and considered seven comments from vessel owners and their fishing organization, environmental advocacy groups, a fishery management council member, and a VMS distributor (Appendix B). The agency summarized all time/area closures in the Atlantic HMS pelagic longline fishery to date. NMFS also examined monitoring and enforcement in the fishery, the limits of conventional methods, and the applications of VMS. NMFS also conducted an analysis of HMS pelagic longline vessels to determine whether the VMS requirement could be restricted to a subset of HMS pelagic longline vessels. The agency also reviewed other aspects of HMS conservation and management where VMS has relevance. During this reconsideration, NMFS considered information that became available after the rule requiring VMS was originally published.

II. CLOSED AREAS

At present, the Atlantic HMS pelagic longline fishery is subject to four discrete time/area closures that are designed to reduce bycatch in the pelagic longline fishery by prohibiting pelagic longline fishing for HMS in those areas during specified times. These closures affect offshore fishing areas up to 200 nautical miles (nm) from shore (see Figure 1). Those closures are as follows: (1) Florida East Coast: 50,720 nm² year-round; (2) Charleston Bump: 49,090 nm² from February through April each year; (3) DeSoto Canyon: 32,860 nm² year-round; and (4) the Northeastern United States: 21,600 nm² during the month of June each year.² 50 CFR 635.21(c)(2). The regulations allow

¹ Blue Water Fisherman’s Association v. Mineta, 122 F. Supp. 2d 150 (D.D.C. 2000). The VMS requirement was published on May 28, 1999 (64 FR 29090). See also 50 CFR 635.69

² The Northeastern United States closure was upheld by this Court in this instant case. Blue Water Fisherman’s Association v. Mineta, 122 F. Supp. 2d 150 (D.D.C. 2000). The Florida East Coast, Charleston Bump, and DeSoto Canyon closures are the subject of a lawsuit pending before this Court. National Coalition for Marine Conservation, et al. v. Evans, No. 99CV01692 (RWR); The Billfish Foundation, et al. v. Evans, No. 00CV02086 (RWR); A Fisherman’s Best, Inc., et al. v. Evans, No. 00-3096 RWR (consolidated) (D.D.C.)

pelagic longline vessels to transit closed areas, provided that they do not have pelagic longline gear on board³. If a vessel is found in a closed area with pelagic longline gear on board, it is a rebuttable presumption that any fish on board were harvested in the closed area with pelagic longline gear. 50 CFR 635.21(c).

In addition to the four time/area closures to reduce HMS bycatch, NMFS implemented a fifth closed area pursuant to a June 14, 2001, Biological Opinion (BiOp) (NMFS, 2001a) resulting from formal consultation under the Endangered Species Act (ESA). The BiOp concluded that the HMS pelagic longline fishery is likely to jeopardize the continued existence of leatherback and loggerhead sea turtles. Closure of the Northeast Distant Statistical Sampling area (NED) was identified as part of a Reasonable and Prudent Alternative (RPA) that will allow the Atlantic pelagic longline fishery to continue operating. The emergency regulation implementing the RPA closes approximately 2,631,000 nm² on the high seas⁴ to U.S. fishing vessels (66 FR 36711; July 13, 2001).⁵ These areas must be enforced to ensure that no fishing takes place, in order to achieve conservation goals. See Section VII for additional information about the requirements of the BiOp.

III. MONITORING AND ENFORCEMENT

Monitoring and enforcement are essential components of fisheries management. Monitoring fishing vessels facilitates enforcement of NMFS' conservation and management regulations by enabling detection of violations. Monitoring also promotes compliance by having a general deterrent effect. Lack of proper monitoring and enforcement makes it difficult to gauge the effectiveness of conservation and management measures and may compromise their success. In the case of overfished stocks, success is necessary to prevent in order to prevent further overfishing and subsequent decline to dangerously low stock levels.

Conventional monitoring of the Atlantic HMS pelagic longline fishery is carried out by National Oceanic and Atmospheric Administration (NOAA) enforcement personnel, who conduct at-sea boardings, aerial fly-overs, and dockside investigations on a random or targeted basis. Time/area closures have been enforced by boat and air patrol in the past.

³ A pelagic longline is considered to be on board if a power-operated longline hauler, a mainline, floats capable of supporting the mainline, and leaders (gangions) with hooks are on board. 50 CFR 635.21(c). If any of these items are removed from the vessel, the vessel no longer has pelagic longline on board.

⁴ "High seas" means the waters beyond the territorial waters or Exclusive Economic Zone (EEZ) of any nation.

⁵ Less than 10 percent of this area (approximately 168,000 nm²) is actively used by pelagic longline vessels (for swordfish fishing).

The Biological Opinion is the subject of a legal challenge. Blue Water Fisherman's Association, et al. v. National Marine Fisheries Service, et al., No. 00-CV-12313-NG (D. Mass.)

With respect to dockside investigations, there are approximately 312 swordfish dealers on the U.S. Atlantic and Gulf coasts to which longline vessels may offload (NMFS, 2001b). The number of dealers and their wide-range makes it difficult for NMFS to track possible offloading dates and locations in order to enforce conservation measures.

At present, there are 43 NMFS agents and officers covering the Atlantic Ocean from Maine to Puerto Rico, and an additional 15 agents and officers to cover the Gulf of Mexico from Texas to western Florida. These officers and agents also are responsible for enforcing all conservation regulations in the HMS pelagic longline fishery and other fisheries in these areas (e.g. size limits, trip limits, and reporting). They also are responsible for monitoring all the other fisheries in those areas that are regulated by NMFS, not just the HMS pelagic longline fishery.

The U.S. Coast Guard also provides human resources, cutters, aircraft, and small boats for fisheries enforcement. However, fisheries enforcement is one aspect of Coast Guard activities; they also have navigation, defense, search and rescue, and other missions that compete for Coast Guard resource hours. In Fiscal Year (FY) 2000, fisheries enforcement constituted approximately 15% of cutter resource hours. These cutter resource hours were allocated to enforcement activities for about 40 fishery management plans, marine sanctuaries, protection of the U.S. Exclusive Economic Zone (EEZ) from foreign encroachment, and the enforcement of international fishery agreements to which the United States is a party.⁶

Highly migratory species span the Atlantic Ocean from one side to the other, as well as the Gulf of Mexico, Caribbean Sea, and Mediterranean Sea. More so than with species with a smaller geographic range, the vast range of HMS and the broad operating area of the HMS pelagic longline fishery present a significant challenge to enforcement and highlight the limitations of conventional monitoring alone. At least some of the U.S. Atlantic HMS pelagic longline fleet is capable of following HMS beyond the U.S. EEZ onto the high seas. As a practical matter, it is very difficult for enforcement personnel to effectively monitor the full operational range of the U.S. pelagic longline fleet without having some method of detecting a vessel's location. With respect to pelagic longline time/area closures in particular, the size of the closed areas make the likelihood of detection through conventional surveillance methods rather small.

IV. APPLICATION OF VMS IN ENFORCEMENT OF HMS PELAGIC LONGLINE FISHERY

The wide-ranging nature of the swordfish and tuna fishing grounds and the HMS pelagic longline fleet make that fishery a suitable candidate for tracking with VMS (Proulx,

⁶ Given the demand for its finite resources, the U.S. Coast Guard supports VMS as a technology that allows for surveillance of closed areas while freeing up conventional monitoring resources to patrol other areas and to respond to VMS-driven information.

1997). VMS would leverage the agency's limited enforcement resources by enabling personnel to easily monitor the location of any vessel while at sea or as the vessel approaches port for offloading. Better monitoring in turn would assist in a host of enforcement functions, such as enforcement of closed areas, deterring illegal fishing, increased efficiency of surveillance patrols, providing probable cause for obtaining a search warrant in enforcement investigations, and supporting enforcement of other regulations such as closed seasons once a quota has been reached. The Food and Agriculture Organization (FAO) Technical Guidelines for Responsible Fisheries (FAO, 1998) provide additional details of these applications. In addition, the VMS requirement has led NMFS to relax other fishery regulations to the benefit of fishermen. For example, in certain cases, vessels with VMS are now permitted to delay offloading after a seasonal closure. 50 CFR 635.28(c)(1)(i)(A). Delayed offloading has positive economic benefits to longline fishermen (e.g., usually results in higher prices).

With respect to enforcement of time/area closures, the unique "signature" pattern generated by VMS transmissions from pelagic longline vessels during the setting and hauling of fishing gear⁷ will allow enforcement personnel to monitor the closed areas for fishing violations while still allowing vessels to transit the closed areas. The Fishery Management Plan for Atlantic Tunas, Swordfish and Sharks (HMS FMP; NMFS, 1999) considered the use of VMS in the development of the time/area closures considered in the FMP, including the one ultimately adopted (Northeastern United States closure). HMS FMP, Chapter 3, pp. 264, 296. The subsequent regulations implementing the East Florida Coast, De Soto Canyon, and Charleston Bump closures also contemplated the existence of VMS as an important component for enforcement of the time/area closures. (NMFS, 2000). All of these regulations were crafted to allow fishermen to traverse a closed area to return to port. However, the regulations make it a rebuttable presumption that any fish on board a vessel found inside a closed area with pelagic longline gear on board were caught in the closed area. 50 CFR 635.21(c). The vessel's VMS transmission signal pattern would be useful for the fisherman to demonstrate that the vessel was only traversing the closed area rather than fishing in it.⁸

VMS technology has increased the coverage and effectiveness of surveillance and enforcement efforts. VMS could provide virtually 100% coverage of the Atlantic pelagic longline fleet for a fraction of the costs of conventional surveillance methods. (NOAA OLE, no date). In the Western Pacific (Hawaii) longline fishery, which is subject to

⁷ A VMS signature is created by connecting the dots plotted by hourly submission of vessel positions and speed. If a vessel is moving in a straight line at a constant speed, the positions will appear as an evenly spaced line on a nautical chart. If the vessel changes its speed over time to set a longline, for example, the hourly points which represent positions will be unevenly spaced. As a result, longline vessels reporting hourly positions of setting gear at night at slow speed, drifting with the gear in the current, and hauling gear at a slow speed in the morning, will have a distinct "signature" on a nautical chart.

⁸ One public comment received during the reconsideration period indicated that VMS would protect longline fishermen who fish outside closed areas but must traverse the closed area to return to port.

time/area closures and where VMS is required of all licensed vessels, there have been at least 20 cases involving closed area violations in the last five years. All of these cases were initiated by VMS and would not have been detected using conventional U.S. Coast Guard search techniques. In general, VMS could facilitate complete monitoring of the U.S. Atlantic HMS pelagic longline fleet and at-sea enforcement of conservation and management measures (Tangeman, 2000).

V. ANALYSIS OF ALTERNATIVES REGARDING THE SCOPE OF VMS

While it did not question the appropriateness of VMS for monitoring and enforcing time/area closures, the Court found that the administrative record did not provide support for a blanket VMS requirement for all pelagic longline vessels, nor did the record establish why the requirement could not be more tailored so that it applied to only those pelagic longline vessels geographically located near an established time/area closure. Accordingly, the Court remanded for reconsideration of the scope of VMS requirements in light of the relevant conservation benefits.

In an effort to document the fishing patterns of the pelagic longline fleet, this section contains NMFS' analysis of various alternatives to the fleet-wide VMS requirement. Because all U.S. Atlantic HMS pelagic longline vessels have lawful access to the same fishing areas in the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico, there is no pre-existing exclusive subset of pelagic longline vessels that fish near the closed areas.⁹ The agency's goal in the analysis that follows was to determine whether it could identify a discrete subset of pelagic longline vessels that fish near time/area closures, so as to allow the agency to apply the VMS requirement to a subset of pelagic longline vessels rather than fleet-wide.¹⁰ *Note: Each alternative below applies to vessels issued a directed or incidental swordfish permit and that have used pelagic longline gear in the recent past.*

A. Description of Alternatives

Alternative 1. Require all vessels to have VMS on board and report to NMFS when pelagic longline gear is on board (status quo).

This is the alternative that was selected in the HMS FMP (NMFS, 1999). This would be a fleet-wide requirement and would require approximately 450 vessels to acquire VMS and

⁹ The potential mobility of pelagic longline vessels pursuing HMS was contemplated in the agency's development of the VMS requirement during the HMS FMP process. As the preamble of the proposed rule indicates, the "VMS requirement would be extended to all vessels in the pelagic longline fleet...because *any vessel* could fish off...Florida at any given time." 64 FR 3161 (Jan. 20, 1999) (Column 1, first full paragraph)(emphasis added).

¹⁰ Because the closures are recent, NMFS developed alternatives based on historical fishing patterns of the vessels.

report to NMFS year-round whenever at sea with pelagic longline gear on board.¹¹ Vessels issued a directed or incidental swordfish permit but that do not use pelagic longline gear would not be required to obtain a VMS.

Alternative 2. Require vessels over 60 feet in length to have VMS on board and report to NMFS year-round.

This alternative would require only the larger U.S. vessels that use pelagic longline gear to acquire VMS and report to NMFS year-round whenever at sea with pelagic longline gear on board. This alternative is based on the International Commission for the Conservation of Atlantic Tunas (ICCAT) recommendation for a VMS pilot program that calls for VMS on the greater of ten percent or ten vessels over 24 meters (approximately 78 feet) in length fishing on the high seas to identify the usefulness of this technology towards ICCAT's conservation requirements. This alternative based on vessel length is more inclusive than the ICCAT recommendation (60 feet versus 78 feet as the cut-off) in an effort to have VMS on all U.S. vessels that fish on the high seas.¹² This alternative would affect approximately 170 vessels or 40 percent of the U.S. pelagic longline fleet.

Alternative 3. Require vessels homeported in South Carolina, Florida, Georgia, and Alabama to have VMS on board and report to NMFS year-round.

This alternative would require only vessels that are "homeported" in states near the East Florida Coast, Charleston Bump, and DeSoto Canyon closed areas (Figure 1) to acquire VMS and report to NMFS year-round whenever at sea with pelagic longline gear on board, due to these vessels' easy access to those closed areas. Based on the number of vessels homeported in these states, this alternative would affect approximately 145 permit holders or 33 percent of the fleet (NMFS, 2001).

Alternative 4. Require vessels homeported in New Jersey and New York to have VMS on board and report to NMFS during May-July.

This alternative would require only vessels homeported in states near the Northeastern United States closure (Figure 1) in the mid-Atlantic to acquire VMS and report to NMFS from May through July whenever at sea with pelagic longline gear on board, due to these vessels' easy access to that closed area. Based on the number of vessel owners

¹¹ "Active" pelagic longline vessels generally are at sea about 20 days a month (depending on the season and size of vessel). In 1999, the most recent for which we have complete data, only about 193 of the approximately 450 permitted vessels were active in the fishery (Cramer and Adams, 2001). Therefore, NMFS expects that less than 200 vessels would need to purchase VMS. Inactive vessels would not need to buy a VMS unless and until they left port with pelagic longline gear on board.

¹² For example, some of the vessels that have fished in the NED in recent years are greater than 60 feet and smaller than 78 feet.

homeported in these states, this alternative would affect approximately 97 permit holders or 22 percent of the fleet (NMFS, 2001).

Alternative 5. Require vessels that reported pelagic longline sets in 1998 or 1999 in what are now closed areas (Figure 1) to have VMS on board and report to NMFS when pelagic longline gear is on board.

This alternative would require VMS on vessels that fished in or near what are now the closed areas before those closed areas went into effect. This alternative assumes that those vessels would continue to fish in the area outside, but near to, the closed areas. This alternative could affect up to 242 vessels or 55 percent of the fleet.

B. *Materials and Methods Used in Analysis*

To assess whether there is a subset (“sector”) of the pelagic longline fleet that can be managed with regard to VMS under separate regulations, NMFS first identified the active fleet; those vessels which would be likely to buy a VMS in order to comply with status quo regulations. To assess whether there is a discernible subset of pelagic longline vessels that fish near the closed areas, NMFS examined reported pelagic longline sets in 1998 and 1999 by vessels that possessed a swordfish directed or incidental limited access permit as of March 22, 2001.¹³ One hundred eighty-four (184) vessels both reported landings during this time period and held a limited access permit.¹⁴ These vessels are referred to as the “active” fleet. Information regarding sets came from pelagic logbook data reported by fishermen and maintained by the Southeast Fisheries Science Center in Miami, Florida.

NMFS then developed analyses based on several subsets of vessels using “homeport” and vessel length information on the swordfish permit application/renewal forms submitted by fishermen to the Southeast Regional Office in St. Petersburg, Florida (where permits are processed). A homeport is the city and state where the vessel is customarily kept. The agency then examined the vessels’ fishing locations relative to their homeport state.

¹³ The limited access program for swordfish was implemented in 1999. Directed and incidental swordfish permit holders may use pelagic longline gear provided that they also hold a shark limited access permit and a tuna longline permit.

NMFS used updated permit holder information in its reconsideration of the scope of the VMS requirement because current permit holders are the entities that will be affected by the results. It is possible that the homeport of the vessel in 1998 and 1999 (years from which pelagic longline sets were examined) is different than the homeport of the vessel in 2001 (year during which current permit holders were identified). For example, some vessels may have been sold to owners with different homeports or the vessel owner may have moved the vessel to another homeport in the interim. However, NMFS does not believe that this discrepancy is large or that it would have a significant impact on the results of the analyses.

¹⁴ The other 266 vessels in the fleet did not report landings during that time and therefore were not considered further in the analysis.

NMFS' hypothesis for the alternatives based on homeport (Alternatives 3 and 4) was that vessels would have fished near their homeport state. The alternative based on vessel length (Alternative 2) was considered because larger vessels can travel long distances easier and potentially, in a safer manner, than smaller vessels, with greater potential to fish near several closed areas in a year.

To analyze each alternative, NMFS divided the Atlantic Ocean and Gulf of Mexico into six fishing areas (Figure 2). Each fishing area was assigned a number from 1 to 6. For convenience, these areas are based roughly on the common statistical areas used by Cramer and Adams (2001) (Figure 3) but modified so that the boundaries of the fishing areas coincide with the latitude/longitude of a nearby state boundary line. For example, fishing area 2 (Figure 2) is based on the "Florida East Coast" statistical area in Figure 3, except that the north boundary line of the Florida East Coast area was moved north to coincide with the Florida-Georgia state boundary line, and the western boundary line of the Florida East Coast area was moved farther west to match up to the Florida-Alabama state boundary. The four statistical areas that do not border the U.S. mainland coastline (Northeast Distant, Sargasso, North Central Atlantic, and Caribbean) were combined into one fishing area (area 6).

Each state bordering the Atlantic Ocean and Gulf of Mexico was assigned the same number that corresponds to the number of the fishing area located directly off its coast. For example, Georgia = 3, Florida = 2. The fishing area that has the same number as the vessel's state of homeport is deemed to be the "homeport fishing area" for that vessel. For example, a vessel whose homeport state is Texas would have a "homeport fishing area" that ranged throughout the western Gulf of Mexico west of 87° 30' W (fishing area 1). If it fished in any other area, it fished outside its homeport fishing area.

Using the reported homeport and set locations,¹⁵ each vessel was assigned the appropriate homeport fishing area and each of its reported sets was designated to the appropriate fishing area. Using these designations, it was possible to determine the mobility of the vessels by comparing the vessel's homeport fishing area/state to where the vessel's fishing sets occurred. This allowed an analysis of whether a vessel fished exclusively "near" its state of homeport (i.e., fishing only in its homeport fishing area) or whether it also ventured beyond its homeport fishing area. This was calculated by subtracting the number of the vessel's homeport state from the number of the fishing area where the fishing sets occurred. For example, if a vessel homeported in Texas (fishing area 1) reported pelagic longline sets in fishing area 3, it was deemed to have fished 2 fishing areas away from its state of homeport ($3 - 1 = 2$).

This method gives a good general indication of a vessel's mobility and in some cases the degree of mobility. As to degree, this method works better in some cases than in others. It appears to work well for states such as Texas, which is in the middle of the fishing area

¹⁵ "Set location" refers to the location where the fishing gear was set.

zone. However, it is a less accurate indicator of degree of mobility in the case of a vessel homeported near the border of two states, such as Florida and Georgia. In that case, a vessel may be just as likely to fish in the area next to its homeport fishing area as in the area designated as its homeport fishing area. On the other end of the spectrum, this method could show that a vessel homeported in Massachusetts fished just one area away from its homeport fishing area when in fact that vessel might have been fishing as far away as the Caribbean. Thus, it is important to consider not only if the vessel fished in its homeport fishing area, but also where the vessel fished in relation to its homeport fishing area. Accordingly, for each alternative NMFS examined the number of sets that occurred in each fishing area and the homeport state of the vessels fishing those sets.

C. *Results of Analysis*

Table 1 shows, under each alternative, how many vessels were homeported in each state. Tables 2-6 and Figures 4-8 summarize the results of the five alternatives considered. The results are also summarized below.

Alternative 1. Require all vessels to have VMS on board and report to NMFS when pelagic longline gear is on board (status quo).

Under this alternative, all 184 vessels that both reported fishing in 1998 and/or 1999 (“active” longline vessels) and currently hold a directed or incidental swordfish permit were examined (Table 1). Almost 75 percent of all the active vessels were homeported in Florida, Louisiana, and New Jersey (Table 1). The 184 vessels examined under this alternative reported fishing 21,481 fishing sets throughout the Atlantic, Gulf of Mexico, and Caribbean, of which 53 percent (11,349 sets) occurred in fishing areas 1 and 2 (Figure 4). As expected, most of the sets in these two areas (10,398) were conducted by fishing vessels homeported in Florida and Louisiana. Each of the other four fishing areas had 8 to 16 percent of all the sets (Figure 4). It is interesting to note that vessels homeported in Louisiana did not fish off the east coast of the United States (fishing areas 3, 4, or 5); vessels homeported in New Jersey did not fish in the western Gulf of Mexico (fishing area 1); and vessels homeported in Florida fished in all 6 fishing areas.

Of the 184 vessels examined under this alternative, approximately 65 percent fished outside their homeport fishing area at some point and approximately 38 percent fished exclusively in either their homeport fishing area or the fishing area next to it (Table 2). These data, along with the information above, indicate that the hypothesis that longline vessels fish in or next to their homeport does not hold true for most of the vessels examined. Most of the vessels examined, while they may have fished in or next to their homeport area, fished in other fishing areas as well. Additionally, over 18 percent of the vessels examined were very wide-ranging in that they fished in three or more fishing areas, including their homeport fishing area (Table 2).

Alternative 2. Require vessels over 60 feet to have VMS on board and report to NMFS year-round.

Eighty of the active vessels (44 percent) were reported as over 60 feet in length (Table 1)¹⁶. These largest vessels conducted 11,849 fishing sets, of which 45 percent were in the western Gulf of Mexico and 21 percent were offshore, outside the U.S. EEZ (fishing area 6; Figure 5). Each of the other fishing areas had between six and 11 percent of all the fishing sets. As with Alternative 1, vessels homeported in Florida, Louisiana, and New Jersey were highlighted because they account for approximately 74 percent of all the vessels examined under this alternative (Table 1). NMFS notes again that none of the vessels greater than 60 feet and homeported in Louisiana reported fishing along the East Coast; none homeported in New Jersey reported fishing in the western Gulf of Mexico; and vessels homeported in Florida fished in all fishing areas.

Of the largest vessels in the fleet, most (69 percent) fished in areas outside their homeport fishing area at some point; only 27 vessels (34 percent) fished exclusively in either their homeport fishing area or the fishing area next to it (Table 3). Twenty percent of the 80 vessels over 60 feet in length fished in three or more fishing areas. Thus, the data presented here indicate that many vessels greater than 60 feet do not fish exclusively in or next to their homeport. This result was expected for these larger vessels. However, the data also indicate that these larger vessels are just as likely to fish exclusively in or next to their homeport fishing area as the other “active” vessels (all sizes combined) examined under Alternative 1 (34 and 38 percent, respectively).

Alternative 3. Require vessels homeported in South Carolina, Florida, Georgia, and Alabama to have VMS on board and report to NMFS year-round.

Eighty (80) vessels reported either Florida or South Carolina as their homeport state (no vessels homeported in Georgia or Alabama that had reported pelagic longline sets in 1998 or 1999; Table 1). These 80 vessels reported 9,268 sets, of which half took place off the coast of Florida and 17 and 18 percent were in fishing areas 3 and 1, respectively (Figure 6). Each of the other fishing areas had between 2 and 12 percent of the sets.

Of these 80 vessels, 69 percent fished in areas outside their homeport fishing area at some point; only 27 (34 percent) fished exclusively in either their homeport fishing area or the fishing area next to it (Table 4). Nineteen percent of the 80 vessels fished in three or more areas (Table 4). As with Alternatives 1 and 2, these data indicate that while vessels fish in or next to their homeport fishing area, many of these vessels also fish in other areas. However, the data presented in Figure 6 also indicate that while South Carolina and Florida-based vessels do fish in other areas, they do not fish in those other areas as often as they fish in or next to their homeport fishing area.

¹⁶ The average length of these vessels was 70 feet.

Alternative 4. Require vessels homeported in New Jersey and New York to have VMS on board and report to NMFS during May-July.

Thirty-one (31) of the 184 vessels reported New Jersey or New York as their homeport state (Table 1). These vessels conducted 3,872 sets, of which 26 percent were in fishing area 4 and 35 percent were in fishing area 5 (Figure 7). No vessels homeported in New Jersey or New York fished in the western Gulf of Mexico (fishing area 1). Each of the other fishing areas had between 8 and 19 percent of all the sets. Similar to Alternative 3 above, these data indicate that most of the sets conducted occurred in or next to the homeport fishing area (80 percent).

Of the 31 vessels examined under this alternative, 84 percent fished in areas outside their homeport fishing area at some point; seven vessels (22 percent) fished exclusively in either their homeport fishing area or the fishing area next to it (Table 5). Twenty-two percent of the 31 vessels homeported in these states fished in three areas (no vessels fished more than three areas) (Table 5). Interestingly, fewer New Jersey and New York-based vessels fished exclusively in one area than vessels in other groups examined in the above alternatives. These data suggest that vessels homeported in New York and New Jersey are, in general, fairly mobile and do not rely on only one fishing area.

Alternative 5. Require vessels that reported pelagic longline sets in 1998 or 1999 in what are now closed areas (Figure 1) to have VMS on board and report to NMFS when pelagic longline gear is on board.

One hundred and thirty-five (135) vessels fished in what is now a closed area between 1998 and 1999 (24 of these vessels fished exclusively in what are now closed areas; 111 fished in both open and closed areas; Tables 1 and 6). These vessels reported conducting 16,603 sets; 31 percent of the sets were off the coast of Florida, 21 percent were just north of there (fishing area 3), and 18 percent were in the western Gulf of Mexico (Figure 8). Each of the other areas had between 8 and 13 percent of all the sets conducted. Vessels homeported in Florida, Louisiana, and New Jersey are highlighted because they comprise approximately 80 percent of all the vessels examined under this alternative. As indicated above, vessels homeported in Louisiana did not report fishing off the east coast of the United States (fishing areas 3,4, or 5) ; vessels homeported in New Jersey did not report fishing in the western Gulf of Mexico, and vessels homeported in Florida fished in all fishing areas.

Seventy percent of the vessels that fished in the now-closed areas fished in areas outside their homeport fishing area at some point. Forty-nine of those 135 vessels (36 percent) fished exclusively in one area, either their homeport fishing area or the area next to it, and about half the vessels fished in both their homeport fishing area and the area next to it (Table 6). Ten percent of the 135 vessels fished in three or more fishing areas. These data indicate that the fishing patterns of vessels that at one point fished in what is now a closed area are similar to the fishing patterns of the entire active Atlantic pelagic longline

fleet. These data also indicate that about three-quarters of the active fleet at some point fished in what is now a closed area.

D. *Discussion of Results*

Among all active vessels, 18 percent fished in more than three fishing areas and 65 percent fished outside their homeport fishing area at some point in time. Alternative 1 (applying VMS requirements to all active vessels) would ensure that all vessels that *could* fish near a closed area (and may do so in the future) will have VMS on board, thereby avoiding any uncertainty as to whether a vessel is fishing near or in a closed area without VMS onboard. The biggest disadvantage of implementation of Alternative 1 is that it would require VMS on vessels that may never fish near a closed area.

With respect to Alternative 2 above, which would require VMS on vessels over 60 feet in length, 69 percent of the vessels of 60 feet fished within one fishing area of their homeport fishing area. Thus, while vessels over 60 feet in length could travel a large distance, it appears that over two-thirds of them did not. Based on this analysis, this subset of pelagic longline vessels has not been markedly more mobile than the rest of the fleet. Given the current design of time/area closures and recent fishing patterns, this section of the fleet does not appear to be a logical target to single out for VMS regulations.

Requiring VMS on only those vessels homeported in states near closed areas (Alternatives 3 and 4) or those vessels that fished in what are now closed areas (Alternative 5) is problematic for several reasons. As a preliminary matter, all the alternatives assume that future fishing patterns can be predicted based on past fishing patterns as reported in logbooks. While this may be a reasonable assumption for a variable that cannot be easily changed (e.g. vessel length¹⁷) or for examining the general behavior of the entire fleet, this may not be a reasonable assumption for a variable that can be easily changed (e.g. homeport or fishing area). The fact that the impact of the closed areas on fishing patterns is not yet known adds another dimension to predicting future patterns based on past fishing patterns and past homeport.

Moreover, to the extent that future fishing behavior can be predicted from past fishing behavior, these alternatives will likely be underinclusive, i.e., they may exclude from the VMS requirement some vessels that fish near the closed areas. For example, the analyses show that of the 135 vessels that fished in what are now the closed areas, 70 percent fished in areas outside their homeport fishing area at some point. These could be vessels

¹⁷ Under limited access, vessels with directed swordfish permits or directed shark permits are subject to upgrading restrictions. Specifically, under 50 CFR 635.4 (1)(ii) vessel owners may not increase the length of a vessel for a particular permit by more than 10 percent. There are no restrictions on reducing the length of the vessel. Given this, there are two basic ways a vessel owner can change the size of his/her vessel. They can either transfer their permit to another vessel within the upgrading restrictions or have the work done on their current vessel. Both methods can be expensive and time consuming.

that are not homeported near the closed area but fished in the closed areas or vessels that are homeported near the closed areas and moved up and down the coastline according to the season.

The alternatives based on homeport could be overinclusive at the same time: 69 percent of the vessels homeported in Florida or South Carolina fished in areas outside their homeport fishing areas at some point and 84 percent of the vessels homeported in New Jersey or New York fished outside their homeported areas at some point. Thus, many of the vessels homeported near the closed areas actually fished in areas that are not near the closed areas near their homeport.

Finally, the alternatives based on homeport state could become quickly outdated if the VMS requirement is based upon state of homeport. Permit holders are free to change their designated homeport state and it is possible that they would do so to avoid a VMS requirement. It is not particularly useful to manage the HMS pelagic longline fishery by vessel homeport state, because homeport does not reflect the vessel docking or fishing location; many vessels typically follow the migrations of the target species, namely swordfish. These migrations vary depending on environmental factors. Furthermore, it is difficult to estimate the conservation benefits (or likewise, the economic impacts) when applying management measures to a sector of the fleet based on homeport because fishing permits are transferable. That is, if 10 vessels based in Louisiana sell their permits as a result of new closed area regulations, the vessel owners purchasing the permits may be based out of New Jersey.

Requiring VMS on vessels that had reported pelagic longline sets between 1998 and 1999 in what are now closed areas (Alternative 5) does not assume that these vessels will continue to fish in the exact same areas (where doing so would be unlawful), but it does assume that these vessels will continue to fish in the general vicinity, perhaps around the perimeter of the closure boundaries. In the case of the year-round Florida closure, NMFS predicted that fishing families would likely relocate to new communities, rather than extend considerably the length of the voyage to the fishing grounds in order to fish the closure boundaries, due to safety concerns. Therefore, a vessel homeported in Florida might now be fishing out of Maryland, without having changed its "homeport". In addition, fishermen will react to the varied fish migrations. As with the alternatives based on homeport state, Alternative 5 could be both underinclusive and overinclusive as to the vessels that fall under the VMS requirement: on the one hand, Alternative 5 would require VMS on vessels that fished in those areas during 1998-99 even if they will not do so in the future, yet on the other hand it would fail to capture vessels that will fish near the closed areas simply because they did not have reported longline sets during 1998-99 or did not report fishing near or in the closed areas from 1998-99.

E. *Other Considerations*

Another factor to consider in the case of partial fleet alternatives is cost. Monitoring vessels that report their positions via VMS will cost considerable staff, technical

infrastructure, and funding. These costs to establish and maintain a VMS program are largely fixed and therefore will be the same for either a full or partial Atlantic pelagic longline VMS program. Moreover, if these resources are devoted to a partial VMS program, the agency's resources will have to be allocated between the VMS program and conventional monitoring of closed areas but without any corresponding reduction in the need for conventional monitoring. The result would be a reduction in the already limited resources available for the latter.

For example, if only vessels homeported in Florida, Georgia, South Carolina and Alabama are required to have VMS and enforcement personnel are assigned to monitor these vessels near the closed area using VMS technology, these agents would not be available to conventionally monitor vessels homeported in North Carolina that have moved south in the winter to fish in waters off the coast of Florida but are not required to have VMS. Such a vessel would be able to move in and out of a closed area virtually undetected unless enforcement was conducting conventional surveillance in that particular area. Given limited funding resources, the agency must choose between VMS and a full-scale conventional surveillance and monitoring strategy. VMS tracking is significantly less expensive and affords comprehensive monitoring of closed areas.

The concept of VMS for all operating vessels in a particular fleet is not without precedent. The Western Pacific (Hawaii) longline fishery regulations require VMS for all operating vessels. This requirement was based on the results of an experimental pilot program that was the first large-scale test of VMS technology in a U.S. domestic fishery (NMFS, 1997). Based on the outcome of the pilot program, all U.S. vessels using pelagic longline gear must carry and operate the VMS equipment as a condition of obtaining a Hawaii limited access permit to fish and operate out of Hawaii ports. Several law enforcement cases relating to violations of closed areas in the Western Pacific were initiated by VMS; those violations would not have been detected without VMS. Large closed areas are fully monitored in a cost-effective manner, despite the wide range of this fleet (similar to the Atlantic pelagic longline fishery) (62 FR 35448; July 1, 1997). The level of surveillance coverage in the Hawaii longline fishery due to VMS far surpasses what would be possible with conventional methods alone.

ICCAT member nations and other countries have implemented fleet-wide VMS requirements to address conservation concerns by tracking vessels throughout the range of the fleet so that no vessel can avoid detection of illegal activities (e.g., Japan, Korea, Australia, China, Russia, New Zealand, Ireland, Norway, Sweden, Canada, Iceland, Mexico, Korea, Indonesia, and the EU). (ICCAT/SCRS, 1995). The FAO also supports fleet-wide application of VMS requirements (FAO, 1998).

F. *Conclusions of the Analyses*

Based on its additional analysis and reconsideration, it is NMFS' conclusion that narrowing the scope of vessels that must carry VMS on the basis of vessel length, homeport state, or past fishing behavior near a closed area will not ensure that vessels

fishing near the closed areas in the future will have VMS on board. The analyses above illustrate that neither vessel size nor homeport are useful characteristics by which to judge whether a particular vessel will fish near a closed area; therefore they cannot be used to tailor the VMS requirement in a manner that captures the group of vessels that fish near the closed areas. Fishing location does not appear to be related solely to the homeport of the vessel or vessel length. Other variable factors, such as the location of the fish, weather and market conditions, and fuel costs, likely play a large part in the decision of where to fish. This analysis did not reveal a characteristic that could be readily used to tailor the VMS requirement to only vessels that fish near the closed areas. In short, there is no way to precisely predict which vessels will fish near a closed area in the future, particularly because the closures were recently implemented and fishermen continue to respond to them by changing their fishing patterns, the fleet and its target fish are highly migratory, and transferable permits create an unknown factor related to future fishery participants.

Because vessels can and apparently do fish near (and previously, in) the closed areas without regard to vessel size or homeport state, requiring VMS on all vessels that leave port with pelagic longline gear on board (status quo regulation) is the only way to ensure that a VMS will be on board a vessel that is fishing near a closed area and therefore available as a monitoring and enforcement tool. While this alternative is likely to be overinclusive in scope, it is preferable to the alternatives that risk underinclusiveness. Any alternative that is underinclusive will limit the value of VMS in monitoring and enforcement. An alternative that is both underinclusive and overinclusive at the same time also could generate perceptions among the regulated community that the agency is engaging in unfair and arbitrary treatment.

It is emphasized that this selected alternative does not require VMS on all vessels with a permit authorizing them to use pelagic longline gear (swordfish, tuna, or shark limited access permits); rather, only vessels that leave port with pelagic longline gear *on board* would have to comply with the VMS requirement.¹⁸ If fishermen with these permits choose to target swordfish, tunas, or sharks with other gear types in the closed areas, they would not be subject to VMS requirements. Finally, the agency rejects a self-policing alternative whereby vessel owners and operators would determine for themselves whether to carry VMS based on whether they will fish near a closed area, however “near” may be defined. This alternative would have the same enforcement problems as the closed areas themselves.

VI. VMS AND OTHER RELEVANT MANAGEMENT AND CONSERVATION BENEFITS

¹⁸ Only about 193 of the approximately 450 HMS permitted longline vessels are active (Cramer and Adams, 2001). Inactive vessels would not have to acquire VMS unless and until they left port with pelagic longline gear on board.

Although the VMS requirement in the HMS pelagic longline fishery was established for the primary purpose of enforcing time/area closures, improved monitoring that VMS technology affords will promote conservation in other ways as well. Below are several conservation and management measures for which VMS will have enforcement implications.

A. *Domestic Management and Conservation*

1. Quotas

NMFS has established quotas for various HMS, many of which are overfished. Domestic quotas for some HMS are based on levels set by ICCAT for its members pursuant to an international rebuilding plan. This includes Atlantic bluefin tuna and North Atlantic swordfish. Each Atlantic harvesting nation is responsible for reporting its swordfish landings annually to ICCAT. NMFS also has set quotas for HMS that are not managed by ICCAT, such as large coastal, small coastal, and pelagic sharks. 50 CFR 635.27. In addition, NMFS monitors landings of other species for which international quotas have been set but for which current U.S. landings are well below those quotas (e.g., Northern albacore tuna, Southern albacore tuna).

In the case of swordfish, ICCAT sets harvest levels to rebuild the overfished North Atlantic swordfish stock and maintain the fully fished South Atlantic stock at a healthy level. The North and South Atlantic swordfish stocks are divided by regulation at 5° N. latitude. In the past, the North Atlantic swordfish quota has been filled and the fishery closed. In contrast, the South Atlantic swordfish quota is rarely reached. Thus there is the potential, after the North Atlantic swordfish fishery has closed, for vessels to fish just north of the dividing line yet report their swordfish landings as coming from the South Atlantic rather than the North Atlantic. With conventional monitoring, it is difficult to verify whether the swordfish were harvested from the South Atlantic stock. VMS would allow NMFS to monitor vessel traffic across the swordfish stock management boundary and accurately pinpoint vessel location with respect to the 5° N. latitude line. This would promote conservation by deterring vessels from reporting their landings as South Atlantic swordfish if the gear had not been set south of the 5° N. latitude line, thus supporting necessary conservation of the overfished North Atlantic stock.

2. Minimum Size Requirements

NMFS has established minimum size limits for some HMS. For example, the minimum size for North and South Atlantic swordfish is 29 inches or 33 lb. dressed weight. 50 CFR 635.20(f)(1). To discourage fishing in areas where high rates of undersized swordfish are encountered, the regulation requires fishermen to discard all undersized swordfish, dead or alive.

As explained in Section III, dockside monitoring and at-sea boardings are important to ensure that fishermen do not retain undersized fish and sell them. Canadian fishery

managers recently expressed concern that the United States does not sufficiently monitor U.S. longline offloads for quota and size limit monitoring. VMS would provide enforcement agents with timing and vessel location as the vessel approaches port so that staff can be dispatched to the docks for enforcement activities, in many cases before the vessel arrives.

3. Bycatch Limits

NMFS has established rigid bycatch limits in the pelagic longline fishery to protect the severely depleted west Atlantic bluefin tuna stock and the overfished North Atlantic swordfish stock. The limits provide an incentive for fishermen to avoid these species when longlining for other species (e.g., avoid swordfish when yellowfin tuna longlining with an Incidental swordfish permit and avoid bluefin tuna when longlining with any permit). Dockside monitoring aided by VMS (as discussed above) provides an effective means of inspecting the longline catch and enforcing longline bycatch limits.

4. Gear Requirements for Endangered Species

NMFS requires pelagic longline fishing vessels to carry on board a line cutter and dipnet to facilitate the release of fishing gear from entangled or hooked sea turtles. 66 FR 17370 (March 30, 2001). The purpose of this regulation is to reduce the level of mortality and serious injury associated with the incidental catch of endangered sea turtles. VMS would enable enforcement personnel to locate vessels at sea or meet the vessels as they return to port for gear compliance spot checks.

5. Monitoring U.S. Fishing Activities beyond the U.S. EEZ

United States pelagic longline vessels reportedly fish off the coasts of foreign countries either on the high seas or in a foreign EEZ through a contract or lease agreement with companies in the foreign nation (e.g., Namibia, Brazil, Barbados). Under these agreements, some U.S. vessels offload in other countries. However, these vessels remain subject to U.S. laws (e.g., U.S. domestic quotas and minimum sizes). United States enforcement agents are at a disadvantage, as it is difficult if not impossible to even discover these activities abroad. Moreover, U.S. enforcement agents do not have authority to issue citations or apprehend U.S. fishermen on foreign soil without first obtaining a statement of no objection from the host nation, and often there is not sufficient advance notice to arrange for a cooperative agreement should the need arise. VMS would inform NMFS of the locations of U.S. fishing vessels at all times, enabling coordination with the foreign government's enforcement personnel if necessary. With knowledge of vessels' offloading activities, NMFS could develop agreements with other countries whereby local agents could monitor offloading activities.

B. *International Management and Conservation*

The HMS pelagic longline fishery also raises international considerations, as HMS (and the fishing vessels) range throughout the Atlantic Ocean, Mediterranean Sea, Caribbean Sea, and Gulf of Mexico and are the subject of international agreements. Although some of those agreements are voluntary (not binding) or have not yet entered into force, they illustrate the importance placed upon monitoring and enforcement in the international context/on the high seas and therefore have bearing on the agency's decision regarding VMS.

The increasing mobility of fishing fleets, including the pelagic longline fleet, calls for global conservation and enforcement initiatives. International cooperation is necessary to protect stocks that are vulnerable to fishing gears from many nations. The FAO began to address these concerns by generating discussion on the use of VMS among fishery managers and scientists. One outcome of that effort was a publication of technical guidelines for VMS in an effort to stimulate discussions about international VMS standards (FAO, 1998). U.S. fisheries enforcement personnel contributed to that effort and continue to work internationally to develop international VMS standards and data exchange formats and protocols.

1. International Commission for the Conservation of Atlantic Tunas

As a member of ICCAT, the United States is obligated to carry out the recommendations of ICCAT.¹⁹ ICCAT recognized the utility of VMS with a 1997 recommendation for the establishment of a three-year pilot program in which 10% of vessels greater than 24 meters in length and fishing for ICCAT species on the high seas carry VMS (10 vessel minimum) (see also Federal Defendant's Combined Memorandum in Opposition to Plaintiffs' Motion for Summary Judgment and In Support of Cross-Motion for Summary Judgment at pp. 54-56.)

2. Conservation of Straddling and Highly Migratory Fish Stocks

The United Nations Conference on Straddling Stocks and Highly Migratory Fish Stocks developed the Agreement for the Implementation of the Provisions of the UNCLOS Relating to the Conservation of Straddling Fish Stocks and Highly Migratory Fish Stocks (Straddling Stocks Agreement). A/CONF.164/37 (8 September 1995). Although not yet entered into force, the Straddling Stocks Agreement states that "in order to conserve and manage straddling fish stocks and highly migratory fish stocks, coastal States and States fishing on the high seas shall, in giving effect to their duty to cooperate in accordance with the Convention. . . implement and enforce conservation and management measures through effective monitoring, control and surveillance." Part II, Art. 5. The Straddling

¹⁹ The United States implements ICCAT recommendations through the Atlantic Tunas Convention Act.

Stocks Agreement deals more extensively with monitoring, compliance, and enforcement, and specifically contemplates the use of VMS. See Part V, Art. 18, 3(g)(iii); see generally Part V, Art. 18 and Part VI, Art. 19.

3. Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas

Under the FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, signed by the United States, each party must take measures to ensure that fishing vessels carrying the party's flag do not engage in any activity that undermines the effectiveness of international conservation and management measures. Art. III, 1(a)-(b).

4. FAO International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing

The FAO International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing was developed to provide member States with comprehensive, effective, and transparent measures to prevent, deter, and eliminate IUU fishing. Included in the plan is a recommendation that States implement, where appropriate, a VMS requirement in accordance with relevant national, regional, or international standards. The plan also states that a flag State should ensure, before it registers a fishing vessel, that it can exercise responsibility to ensure that the vessel does not engage in IUU fishing.

VII. ADDITIONAL RELEVANT INFORMATION

The following information postdates the VMS regulations published in May 1999 (64 FR 29090). However, it was available and relevant during the agency's court-ordered reconsideration of VMS in the Atlantic HMS pelagic longline fishery. The information offers further support for fleet-wide VMS monitoring to effectively and comprehensively monitor the fishery for conservation and management purposes:

A. *Illegal, Unreported, and Unregulated Activities*

At the November 2000 ICCAT meeting, increased attention was brought to the issue of IUU catches of tunas by Atlantic pelagic longline vessels. While none of the IUU vessels was thought to be a U.S. vessel, the meeting highlighted the importance of having an effective means to monitor the activities of all U.S. longline vessels wherever they are. At the 2000 ICCAT meeting, the U.S. Delegation to ICCAT learned that a U.S. longline vessel was operating in a manner not consistent with international conservation and management measures by fishing for East Atlantic bluefin tuna in the Mediterranean Sea (an area closed to U.S. vessels) and not reporting this activity to NMFS. Although this was not technically an IUU activity, the United States had not been aware of this activity. If the vessel had been monitored with VMS, the United States would have been able to

identify this vessel, question its activities, and prevent unreported landings of the overfished East Atlantic bluefin tuna stock.

There have been specific instances of U.S. pelagic longline vessels fishing outside the U.S. EEZ, including instances where fishermen inadvertently report Mexican (illegal) fishing locations in their logbooks. In addition, vessels have illegally fished in Bahamian waters. Another U.S. vessel is known to have fished recently off the coast of Namibia and offloaded swordfish in that country. Though not all extra-territorial activities are illegal in nature, VMS would ensure detection of these vessels' locations, thereby enabling prompt investigations by enforcement personnel rather than leaving detection to chance surveillance encounters or word of mouth.

B. *Endangered Species Conservation*

In 1999, the Atlantic pelagic longline fishery exceeded its incidental take level for endangered leatherback and threatened loggerhead sea turtles. NMFS considered the impacts of the fishery on threatened and endangered species such as loggerhead and leatherback turtles and large whales and issued the June 14, 2001 BiOp (NMFS, 2001). The BiOp concluded that the Atlantic HMS pelagic longline fishery is likely to jeopardize the continued existence of leatherback and loggerhead sea turtles. As indicated in Section II of this document, the BiOp identified closure of the a large area in the Northwest Atlantic Ocean (NED) and an experimental fishery in that area as part of a Reasonable and Prudent Alternative to enable continued operation of the fishery (See Figure 3). Accordingly, NMFS implemented a closure in the NED, effective July 15, 2001. (66 FR 36711; July 13, 2001). The preferred fishing locations in the NED are more than 500 miles from the U.S. mainland. VMS would effectively monitor compliance with the closure without the need for boat and air patrol 24 hours a day.

The BiOp also requires NMFS to establish an outreach program to educate fishermen on methods to protect endangered species. In the past, public meetings with fishermen have not been effective due to low attendance related to fishing schedules. VMS could help NMFS implement a dockside education program by providing fishery managers with NMFS with near-real time information about offloading times and locations.

C. *Time/Area Closures*

As discussed in Section II of this document, NMFS established three additional time/area closures to reduce bycatch in the Atlantic HMS pelagic longline fishery following adoption of the Northeastern U.S. closure in the HMS FMP (NMFS, 1999) and 1999 implementing regulations, as well as the NED closure identified in the BiOp.

D. *Live Bait Ban*

Effective September 1, 2000, NMFS prohibited the use of live bait and the presence of wells or tanks on board to maintain live bait in the Gulf of Mexico (65 FR 47214; August

1, 2000). VMS would allow enforcement to locate vessels for at-sea or dockside inspections to enforce this prohibition.

E. *Cost Update*

Since the final regulations requiring VMS were published in 1999, the manufacturers of approved units have lowered the costs of the units. The latest cost estimates for hardware (VMS unit and antenna) range between \$1,800 and \$2,500. (The estimated costs in 1999 were between \$1,800 and \$3,800. Installation cost estimates remain at \$100-\$750 and communications costs remain at \$1-\$5/day.) Thus, while the conservation and management benefits of VMS continue, the costs have decreased.

F. *Funding Update*

Prior to 2001, there was no agency funding to cover the costs of VMS programs. The 2001 budget (Oct 1, 2000-Sept. 30, 2001) contained \$1.3 million for the NOAA Office for Law Enforcement (OLE) to pay for VMS-related personnel and equipment/infrastructure. However, a hiring freeze prevented use of the funds to hire more personnel, and spending caps and criteria that limited spending for equipment based on the previous year's expenditures prevented the agency from using the money to purchase VMS-related equipment.

OLE's budget request for 2002 includes \$6.1 million for VMS program funding. In recognition of the benefits of VMS for enforcement and compliance levels, OLE's goal is to implement a government-funded national VMS program that will provide the necessary infrastructure for VMS programs in all NMFS-regulated fisheries. (NOAA OLE, no date). The requested funding would cover new personnel, servers, monitoring stations, database integration, research and development, and a web server. The requested funding also would cover the acquisition, installation, and annual communications costs for approximately 466 OLE-owned VMS units for use in various fisheries across the nation.

Although NMFS is aware of the possibility that it may have the funding to provide VMS units to HMS fishermen in the future, it is too uncertain an outcome to depend upon. First, the budget request may not be approved. Second, if authorized expenditures are again based on previous years' expenditures, OLE may not be able to use the funds on VMS-related items. Third, VMS is being considered as a requirement in several fisheries, amounting to over 4,400 vessels. Thus it is not clear that the HMS pelagic longline vessels would receive any of the NMFS-funded VMS units. Finally, even if all of these contingencies are favorably resolved and NMFS is able to purchase the units and assign them to HMS pelagic longline vessels, the process could take up to two years to be in place. NMFS is not prepared to delay the VMS requirement in the HMS fishery until then, particularly in light of the uncertainty that it will come to pass.

VIII. SUMMARY

NMFS' analysis of the Atlantic HMS pelagic longline fleet confirms that a VMS requirement for all active pelagic longline vessels is necessary to achieve conservation goals. The analysis indicates that vessel length or vessel homeport are not variables that can be used to successfully predict whether or not fishermen will fish near the closed areas. Thus, narrowing the scope of the VMS requirement based on vessel length or homeport will not ensure that vessels fishing with pelagic longline gear near the closed areas in the future will have VMS on board. Given this, the wide range of the species, and the wide range of the vessels, requiring VMS on all vessels is necessary to attain fully the conservation benefits of an at-sea monitoring program. Additionally, past success with a fleet-wide VMS requirement in other fisheries substantiates its value in improving monitoring and compliance in the pelagic longline fishery. Anything less than the fleet-wide requirement would limit the potential effectiveness of time/area closures and virtually eliminate the leverage VMS affords the agency's limited resources. The VMS requirement also benefits the fishermen in terms of delayed offloading and the ability to transit a closed area and show that the fish on board were not caught in the closed area. Besides aiding in the enforcement and monitoring of closed areas, VMS has relevance to other domestic conservation measures and international considerations including monitoring the extent of IUU activities by U.S. vessels and monitoring the landings of fish that count against the United States' portion of internationally negotiated quota levels. Thus, after reconsidering the costs and benefits of VMS and the alternatives that could potentially narrow the scope of the VMS requirement, NMFS has determined that a fleet-wide requirement is appropriate for the pelagic longline fishery.

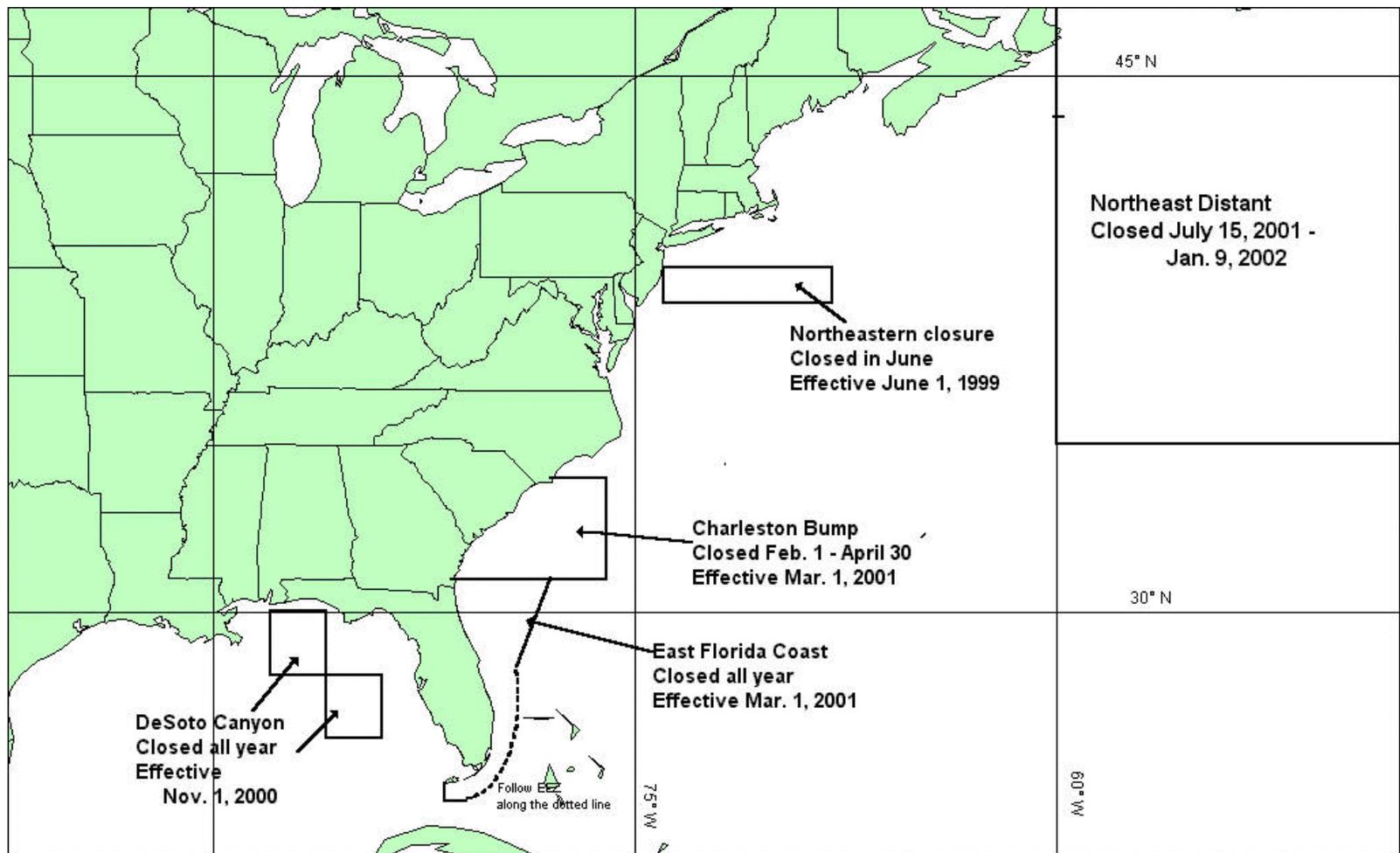


Figure 1. Areas closed to U.S. vessels using pelagic longline gear as of July 2001.

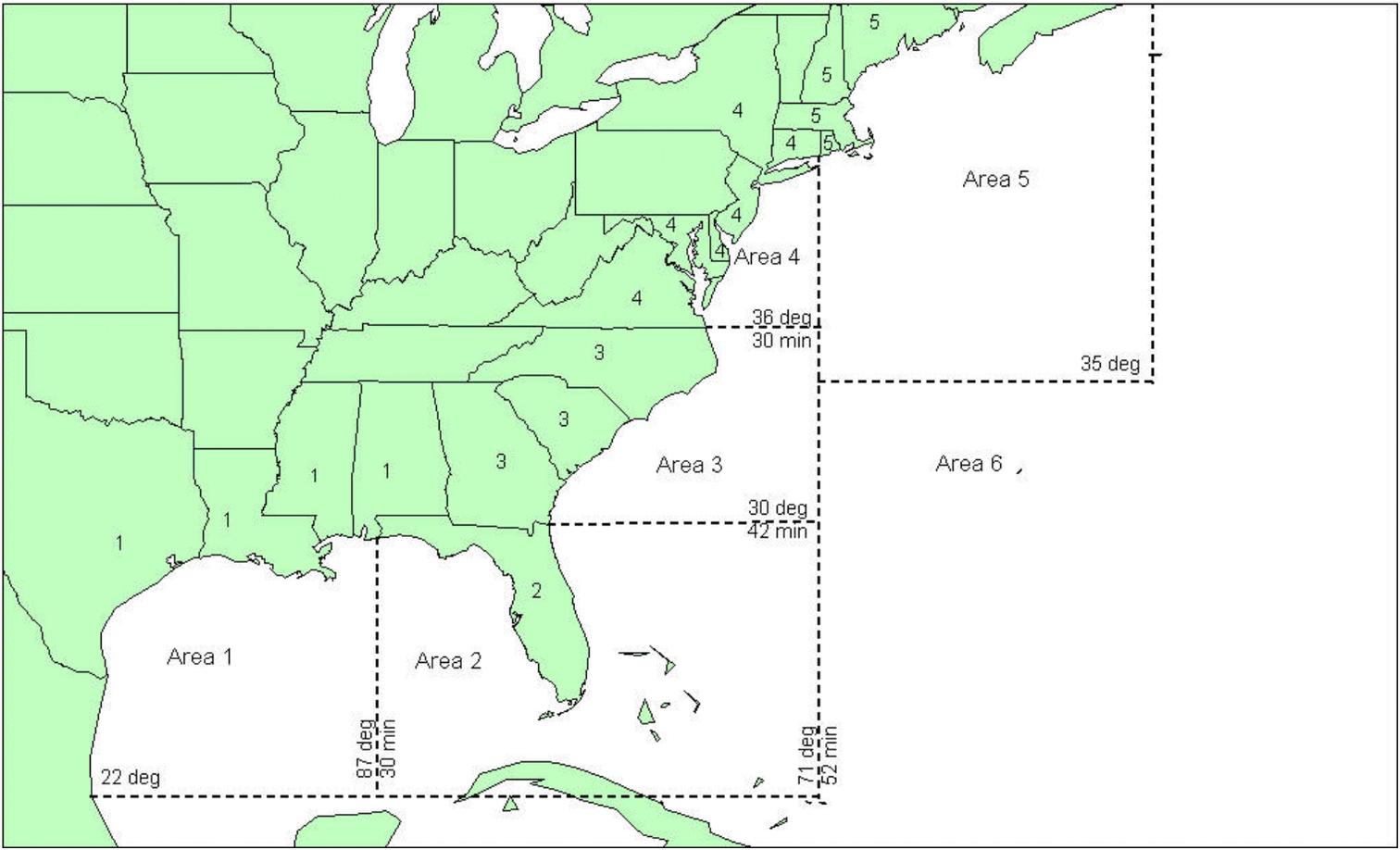


Figure 2. Areas used in analyses to compare vessel homeport state with vessel’s fishing areas.

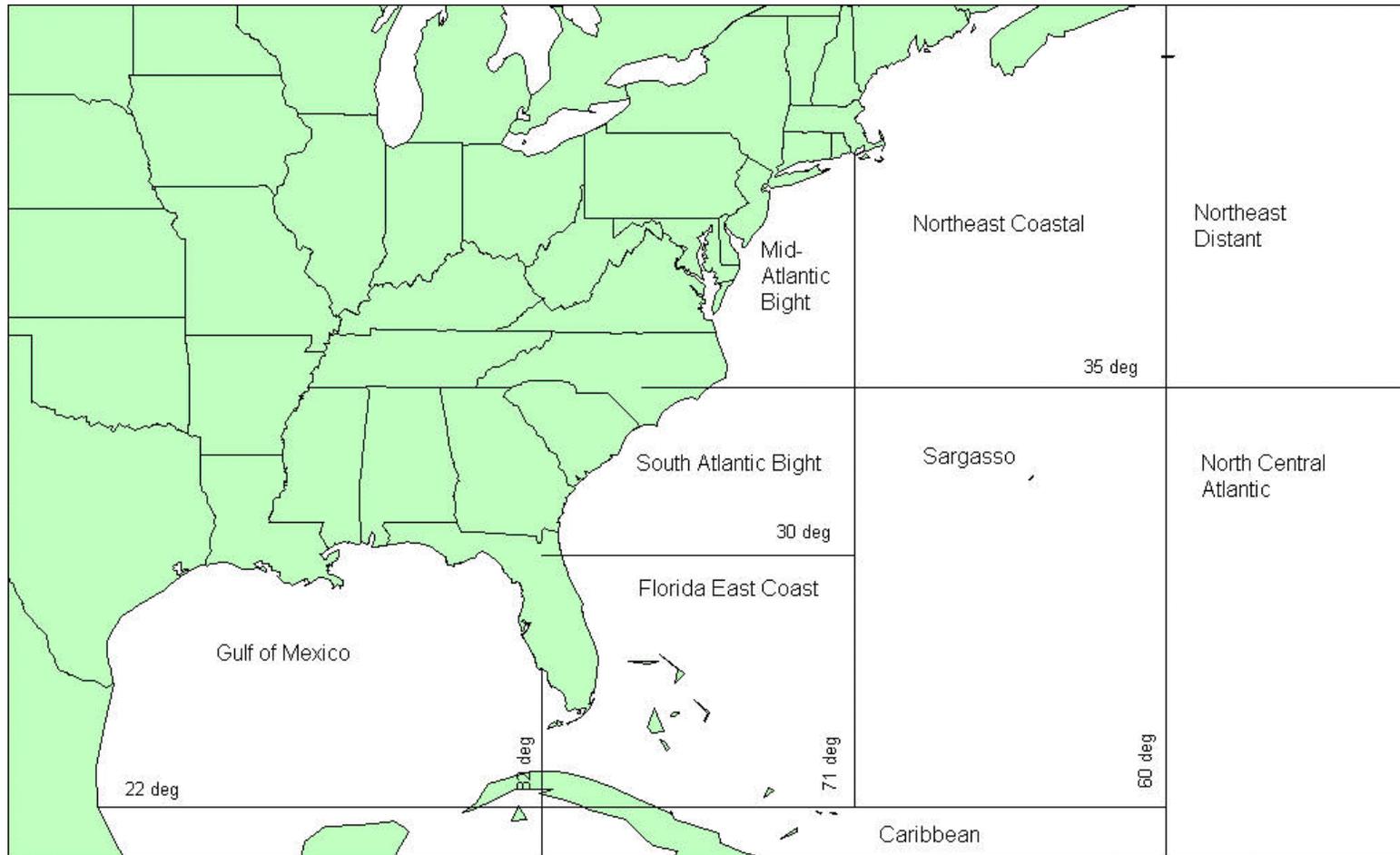


Figure 3. Statistical areas commonly used in the pelagic longline fishery. Source: Cramer and Adams, 2001.

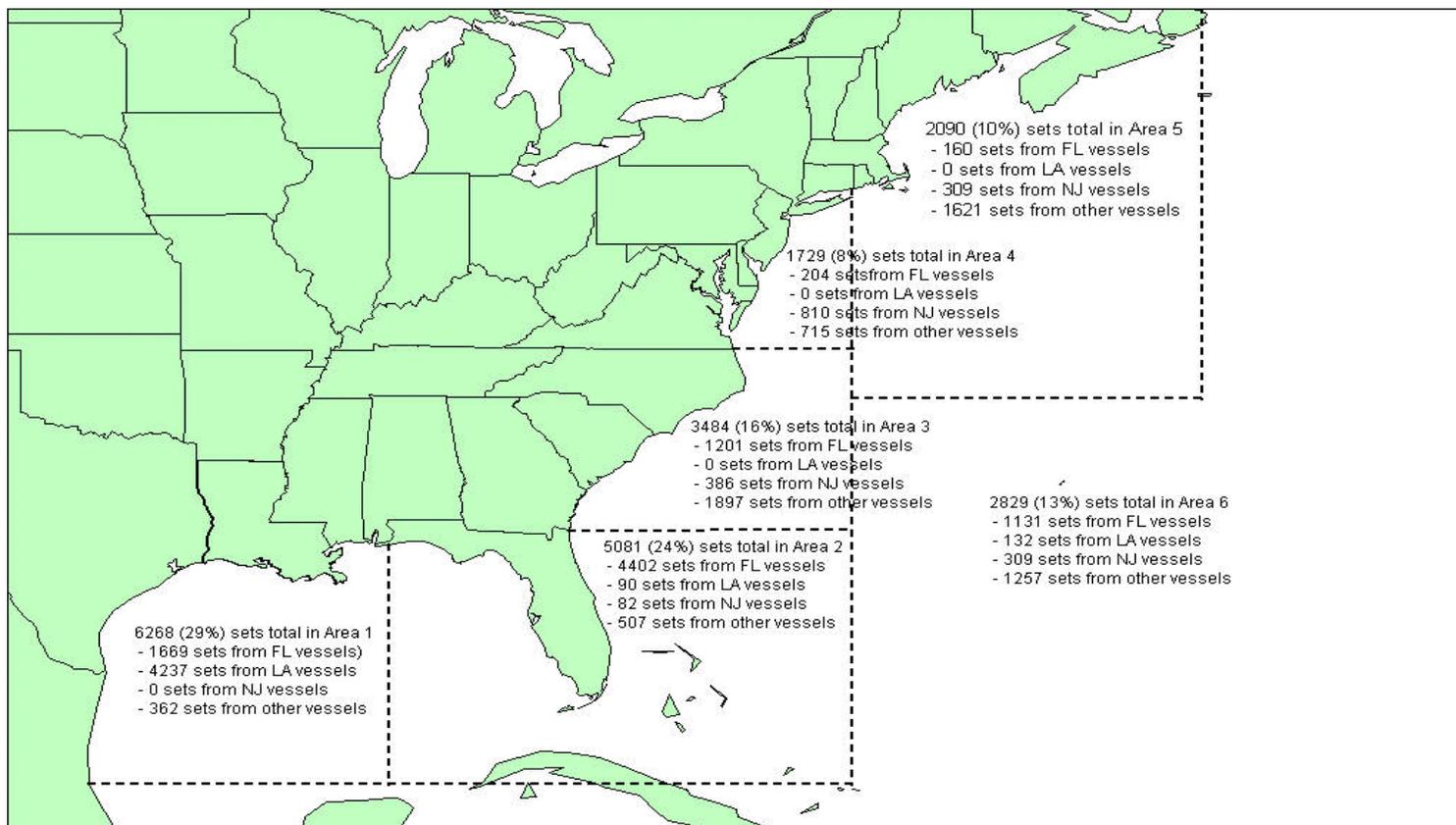


Figure 4. Map showing in which fishing area the 21,481 fishing sets conducted by the 184 vessels examined under Alternative 1 occurred. Vessels homeported in Florida, Louisiana, and New Jersey are highlighted because they account for almost 75 percent of all vessels examined. Fishing set data is reported in the pelagic logbook by fishermen and is maintained by the Southeast Fisheries Science Center.

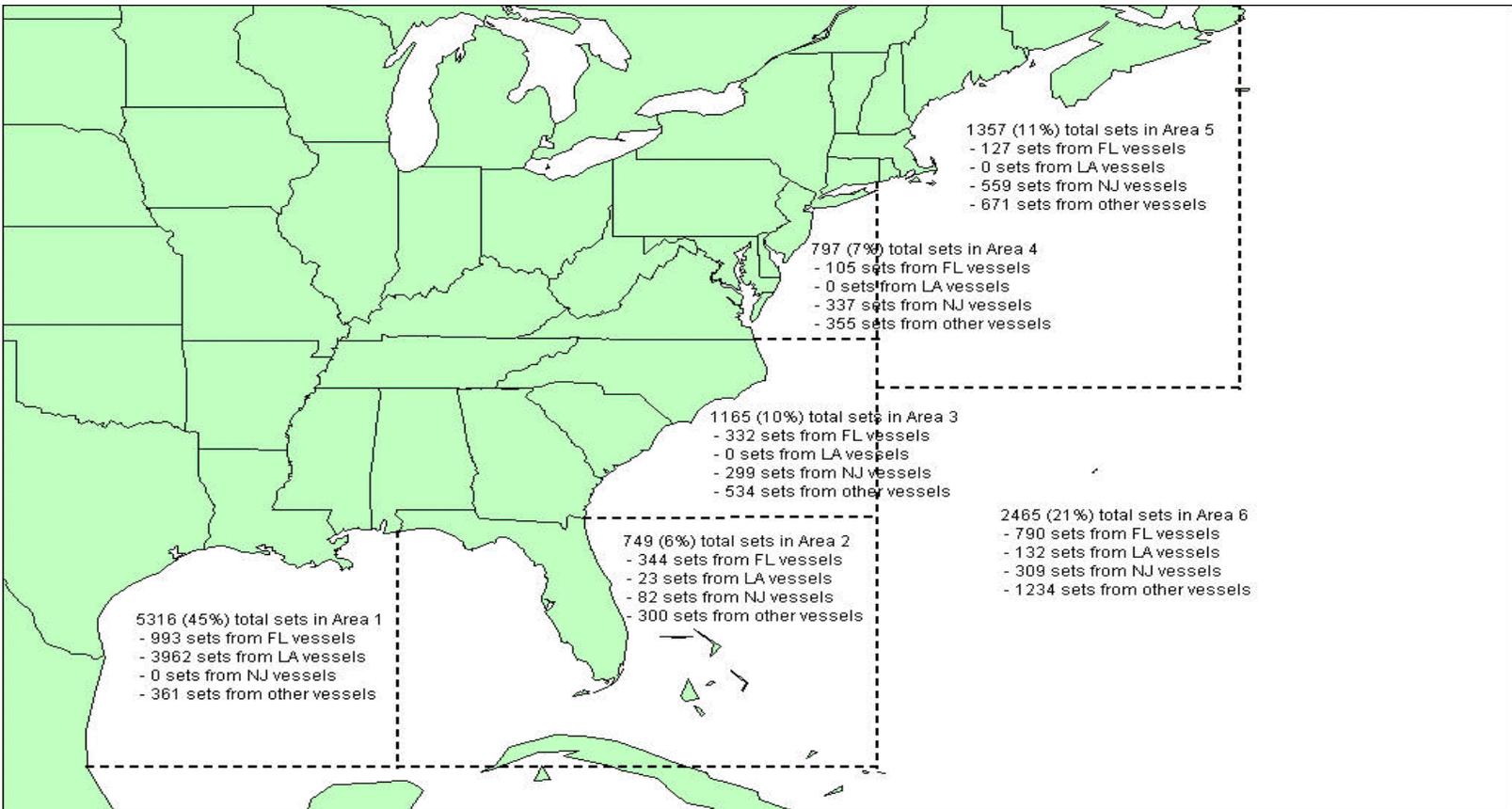


Figure 5. Map showing in which fishing area the 11,849 fishing sets conducted by the 80 vessels under Alternative 2 that were at least 60 feet in length occurred. Vessels homeported in Florida, Louisiana, and New Jersey are highlighted because they account for approximately 74 percent of all the vessels examined under Alternative 2. Fishing set data is reported in the pelagic logbook by fishermen and is maintained by the Southeast Fisheries Science Center.

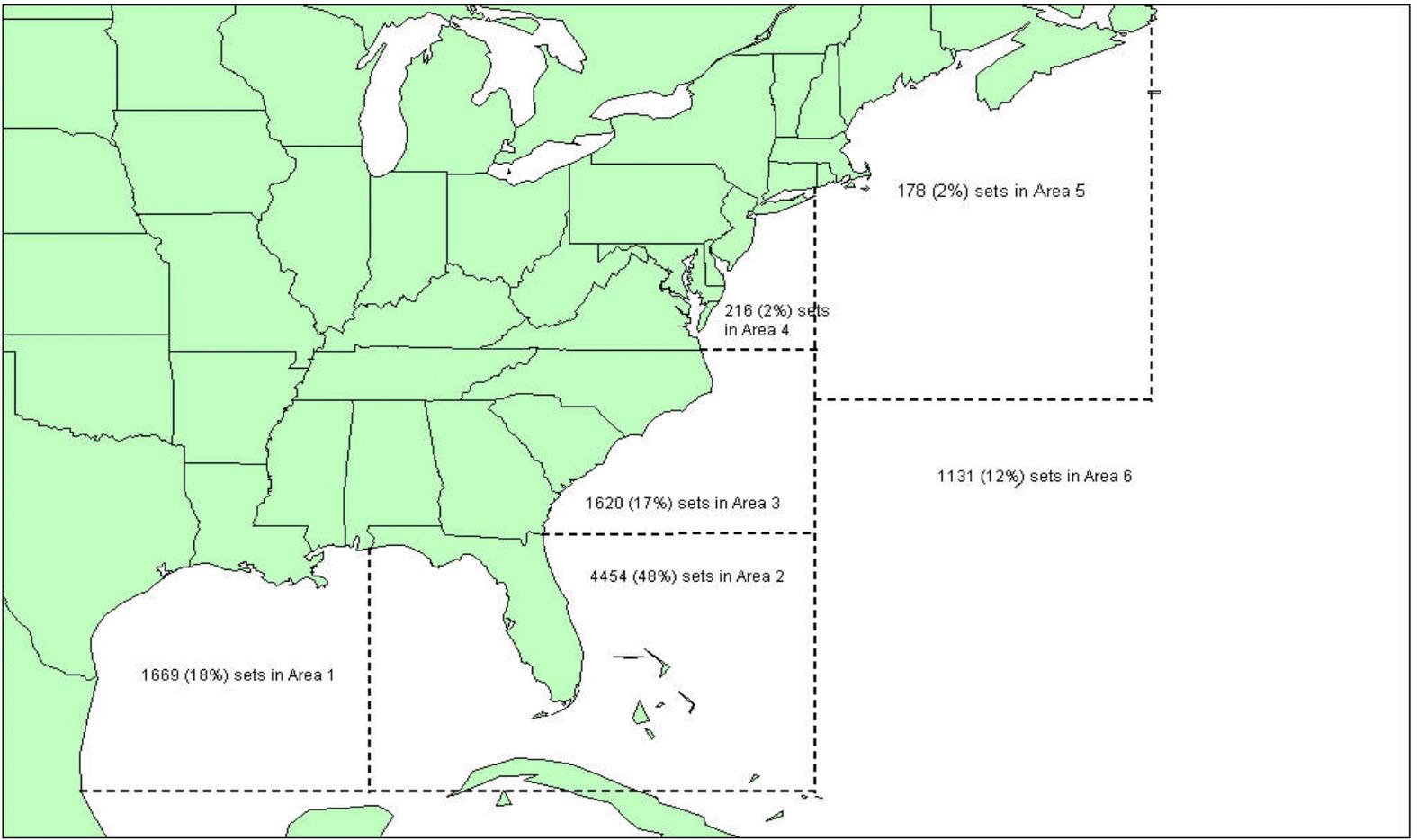


Figure 6. Map showing in which fishing area the 9,268 fishing sets conducted by the 80 vessels under Alternative 3 that were homeported in Florida or South Carolina. Fishing set data is reported in the pelagic logbook by fishermen and is maintained by the Southeast Fisheries Science Center.

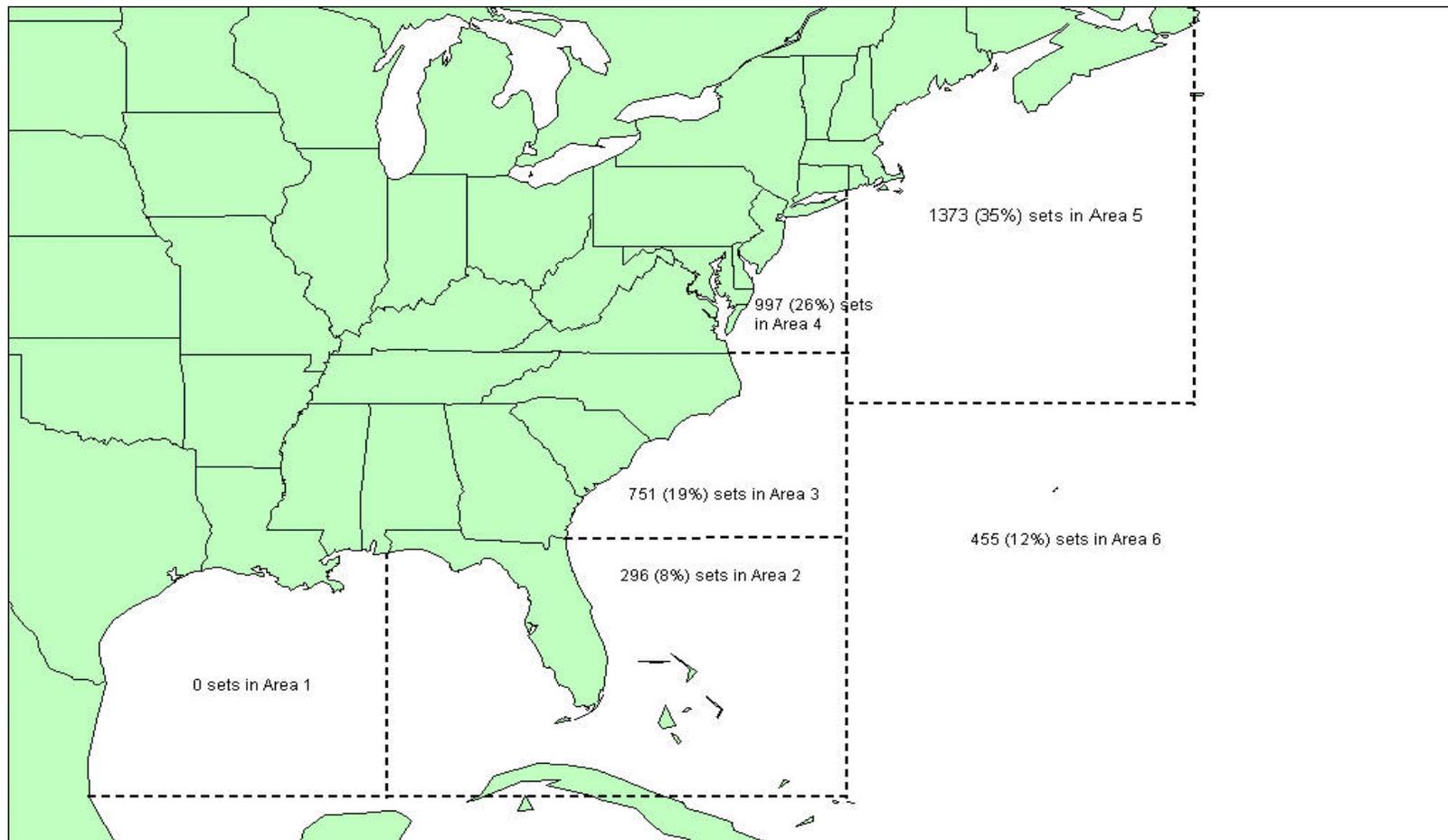


Figure 7. Map showing in which fishing area the 3,872 fishing sets conducted by the 31 vessels under Alternative 4 that were homeported in New York or New Jersey. Fishing set data is reported in the pelagic logbook by fishermen and is maintained by the Southeast Fisheries Science Center.

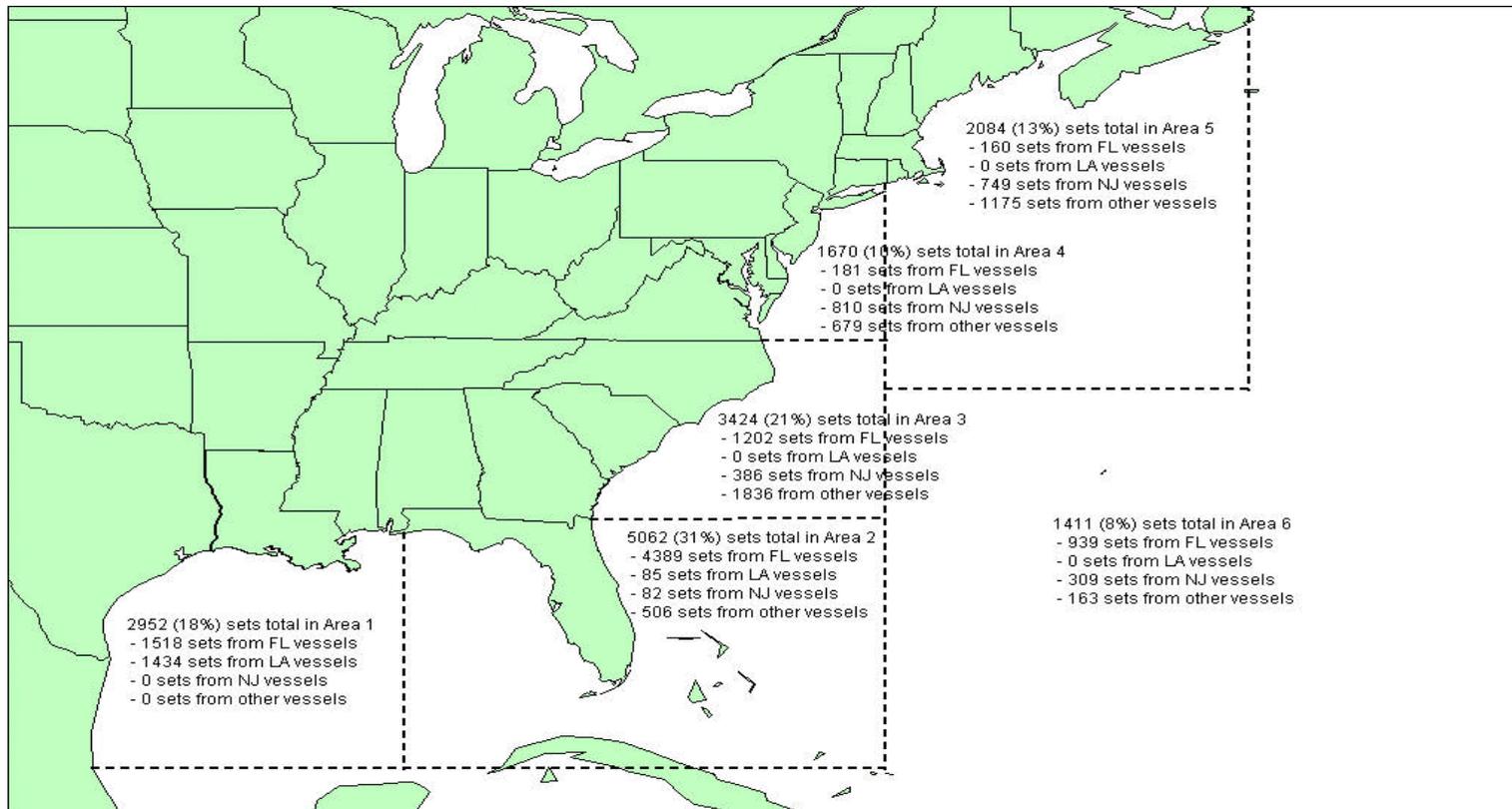


Figure 8. Map showing in which fishing area the 16,603 fishing sets conducted by the 135 vessels under Alternative 5 that, at some point, fished in what are now closed areas. This data includes all the sets by these vessels, not just those sets that were conducted in the closed areas. Vessels homeported in Florida, Louisiana, and New Jersey are highlighted because they account for almost 80 percent of all the vessels examined under this alternative. Fishing set data is reported in the pelagic logbook by fishermen and is maintained by the Southeast Fisheries Science Center.

Table 1. The number of vessels homeported in each state that were examined under each alternative. States not listed did not have any vessels that met the criteria and were examined.

Homeport State	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
DE	2	2	-	-	0
FL	77	17	77	-	72
LA	38	33	-	-	14
MA	1	1	-	-	0
MD	4	2	-	-	2
ME	3	1	-	-	1
NC	11	1	-	-	6
NJ	22	9	-	22	22
NY	9	3	-	9	9
PA	3	3	-	-	1
RI	2	1	-	-	2
SC	3	1	3	-	3
TX	6	5	-	-	0
VA	3	1	-	-	3
Total	184	80	80	31	135

Table 2. Summary of the locations where all 184 vessels examined fished. Data is from the permit database as of 3/22/01 and the pelagic logbook database for 1998 and 1999.

Number of areas Fished	Description	Number of vessels	Percent out of all 184 vessels examined
1	Fished in one area exclusively	75	40.8
	Fished in homeport area only	65	35.3
	Fished next to homeport area only	5	2.7
	Did not fish in homeport area or the area next to it	5	2.7
2	Fished in two areas	76	41.3
	Fished in homeport and the area next to it	64	34.8
	Fished in homeport and somewhere other than the area next to it	6	3.3
	Did not fish in homeport	6	3.3
	Did not fish in homeport or in the area next to it	2	1.1
3	Fished in three areas	24	13.0
	Fished in homeport, next to, and somewhere else	23	12.5
	Did not fish in homeport	1	0.5
4	Fished in four areas	3	2.2
5	Fished in five areas	6	3.3

Table 3. Summary of the 80 vessels examined that were over 60 feet in length. Data is from the permit database as of 3/22/01 and the pelagic logbook database for 1998 and 1999.

Number of areas Fished	Description	Number of vessels	Percent out of all 184 vessels examined
	Vessels under 60 feet	104	56.5
	Vessels over 60 feet	80	43.5
1	Fished in one area exclusively	32	17.4
	Fished in homeport area only	25	13.6
	Fished next to homeport area only	2	1.1
	Did not fish in homeport area or the area next to it	5	2.7
2	Fished in two areas	32	17.4
	Fished in homeport and the area next to it	28	15.2
	Fished in homeport and somewhere other than the area next to it	0	0.0
	Did not fish in homeport	4	2.2
	Did not fish in homeport or in the area next to it	2	1.1
3	Fished in three areas	11	6.0
	Fished in homeport, next to, and somewhere else	10	5.4
	Did not fish in homeport	1	0.5
4	Fished in four areas	1	0.5
5	Fished in five areas	4	2.2

Table 4. Summary of the 80 vessels examined that were homeported in South Carolina, Florida, Georgia, or Alabama. Data is from the permit database as of 3/22/01 and the pelagic logbook database for 1998 and 1999. There were no active vessels in 1998 and 1999 that have homeports in Georgia or Alabama.

Number of areas Fished	Description	Number of vessels	Percent out of 184 vessels
	Vessels homeported in FL or SC	80	43.5
1	Fished in one area exclusively	28	15.2
	Fished in homeport area only	25	13.6
	Fished next to homeport area only	2	1.1
	Did not fish in homeport area or the area next to it	1	0.5
2	Fished in two areas	37	20.1
	Fished in homeport and the area next to it	26	14.1
	Fished in homeport and somewhere other than the area next to it	6	3.3
	Did not fish in homeport	5	2.7
	Did not fish in homeport or in the area next to it	2	1.1
3	Fished in three areas	7	3.8
	Fished in homeport, next to, and somewhere else	7	3.8
	Did not fish in homeport	0	0.0
4	Fished in four areas	2	1.1
5	Fished in five areas	6	3.3

Table 5. Summary of the 31 vessels examined that were homeported in New Jersey or New York. Data is from the permit database as of 3/22/01 and the pelagic logbook database for 1998 and 1999.

Number of areas Fished	Description	Number of vessels	Percent out of 184 vessels
	Vessels homeported in NJ or NY	31	16.8
1	Fished in one area exclusively	7	3.8
	Fished in homeport area only	5	2.7
	Fished next to homeport area only	2	1.1
	Did not fish in homeport area or the area next to it	0	0.0
2	Fished in two areas	17	9.2
	Fished in homeport and the area next to it	17	9.2
	Fished in homeport and somewhere other than the area next to it	0	0.0
	Did not fish in homeport	0	0.0
	Did not fish in homeport or in the area next to it	0	0.0
3	Fished in three areas	7	3.8
	Fished in homeport, next to, and somewhere else	7	3.8
	Did not fish in homeport	0	0.0
4	Fished in four areas	0	0.0
5	Fished in five areas	0	0.0

Table 6. Summary of 135 vessels that fished in the closed areas outlined in Figure 1. Data is from the permit database as of 3/22/01 and the pelagic logbook database for 1998 and 1999.

Number of areas Fished	Description	Number of vessels	Percent out of 184 vessels
	Fished in open areas exclusively	49	26.6
	Fished in closed areas exclusively	24	13.0
	Fished in open and closed areas	111	60.3
1	Fished in one area exclusively	52	28.3
	Fished in homeport area only	40	21.7
	Fished next to homeport area only	9	4.9
	Did not fish in homeport area or the area next to it	3	1.6
2	Fished in two areas	70	38.0
	Fished in homeport and the area next to it	66	48.9
	Fished in homeport and somewhere other than the area next to it	3	1.6
	Did not fish in homeport	1	0.5
	Did not fish in homeport or in the area next to it	0	0.0
3	Fished in three areas	8	4.3
	Fished in homeport, next to, and somewhere else	7	5.2
	Did not fish in homeport	1	0.5
4	Fished in four areas	5	2.7
5	Fished in five areas	0	0.0

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APPENDIX A. Federal Register Notice of Reconsideration of VMS Requirements (66 FR 1907; January 10, 2001)

APPENDIX B. Summary of Public Comments Submitted in Response to January 10, 2001, Notice of Reconsideration of VMS Requirements and NMFS' Responses.

Comment 1: Delay of VMS requirements: NMFS should postpone action on VMS until a full year's data has been collected on all fishing sectors or at least until litigation on the Florida east coast closure is final; NMFS should not wait for public comment on this [Federal Register] notice and should proceed immediately to respond to the Court; Delay in VMS requirements forced some fishermen to unnecessarily spend money on VMS units; those who complied with the law and paid for units should be reimbursed.

Response: NMFS delayed implementation of VMS requirements in the Atlantic pelagic longline fishery to allow fishermen time to comply with the regulations. The delay that resulted from the Court Order was necessary to address the Court's remand instructions. Beyond that, the agency does not agree that further delay is warranted. While some fishermen purchased VMS units in compliance with the regulations prior to the Court order, NMFS is not able to reimburse fishermen for their costs. However, NMFS hopes that its Reconsideration of the Scope of VMS will satisfy the Court and that the VMS regulations will go into effect.

Comment 2: Scope of VMS: NMFS should support use of ICCAT VMS Pilot Program rather than fleet-wide VMS by seeking not more than 10 volunteers for this pilot; Existing VMS regulations would directly support ICCAT's objectives; Apply VMS requirements to vessels fishing near the Northeast Distant (NED) areas.

Response: NMFS' objectives are broader than those of the ICCAT recommendation for a VMS pilot program, which calls for VMS on the greater of ten percent or ten vessels over 24 meters (78 feet) in length fishing on the high seas to identify the usefulness of this technology towards ICCAT's conservation requirements. The agency established VMS as a fleet-wide requirement as an enforcement tool for domestic closure areas and to monitor far-ranging vessels year-round. NMFS already conducted a pilot project in the Hawaii-based longline fleet. Based on that experience, NMFS sought the use of VMS fleet-wide to address existing international and domestic conservation requirements. NMFS determined that the existing VMS regulations are consistent with the ICCAT recommendation. This determination was upheld by the Court that remanded this case for reconsideration.

The comment recommending VMS on vessels fishing near the NED is presumably to protect sea turtles. However vessels that are capable of traveling thousands of miles to the NED could be homeported anywhere along the East and Gulf Coasts or in the Caribbean, so it is impossible to identify a homeport-based alternative that would apply only (and to all) to vessels fishing in the NED. Limiting VMS to vessels over a certain length, such as 60 feet (on the assumption that these larger vessels are the ones that travel to the NED) is not viable either because it does not address the need to monitor other closed areas that are closer to shore.

Comment 3: Financial impact: VMS requirements are useful but enforcement agencies should bear the costs associated with VMS (hardware, communications, and tracking costs); NMFS should provide loans or prepaid units; VMS is part of the cost of doing business; NMFS should not spend its money on VMS units; VMS is cheaper than other enforcement techniques; cost of VMS is minimal when compared to the costs of other fishing gear.

Response: NMFS does not currently have the funding to provide units to all pelagic longline fishermen or pay for the comprehensive VMS program. NMFS agrees that VMS is a cost-effective enforcement tool and that the relative costs of VMS are small in comparison to other fishing costs.

Comment 4: Application to pelagic longline fleet: VMS would be acceptable to the fishing industry if it were used in conjunction with marine reserves and all vessels were required to have it; VMS should only be required on vessels that fish near restricted areas; VMS should be required on all Atlantic longliners and all other commercial vessels; Require VMS on all vessels using ports within 300 miles of any closed area and all vessels that have landed fish from the Northeast Distant Area.

Response: Currently, closed areas in the HMS fisheries apply only to pelagic longline gear. If other gear types become subject to closed areas, NMFS would consider alternatives to implement an efficient enforcement strategy. Moreover, of all the Atlantic HMS fleets, only pelagic longline vessels range into international waters. Pelagic longline vessels are the most mobile and far-ranging of all HMS fleets. Most ports used by pelagic longline vessels are within a 300-mile range of a closed area, so a fleet-wide requirement is not very different from such an alternative.

Comment 5: Benefits/Costs to fishermen: Longline fishermen have been singled out and unfairly treated. The costs discriminate against owners who cannot afford to purchase the units; VMS can be purchased at a relatively low initial cost, with low usage costs; VMS helps fishermen to cross closed areas with fish on board without risk of being investigated; economic benefits may outweigh burdens in some cases; Improved safety for fishermen.

Response: NMFS agrees that VMS is a cost-effective method that supplements traditional surveillance methods that have limited effectiveness in the context of monitoring the pelagic longline fishery. Pelagic longline fishermen have not been singled out arbitrarily; fishermen in other U.S. fisheries (e.g., Northeast multispecies and scallop fisheries) and from other countries are required to use VMS in order to participate in the harvest of a public resource. Benefits to fishermen may exceed costs in the long-term, because fishermen can delay offloading (and therefore fish longer) as long as they have VMS operating on board.

Comment 6: VMS is unnecessary because longline fishermen are already obeying the laws (e.g., Northeast Coastal closed area for bluefin tuna); VMS is necessary; Enforcement is not possible without VMS.

Response: Not all longline fishermen comply with fisheries regulations all the time. In recent years, there have been a number of enforcement cases involving violations of HMS regulations by longline fishermen. For example, one case involved the illegal entrance of a U.S. longline vessel into the Bahamian EEZ. Moreover, the wide range of the fleet and the limited enforcement resources make it difficult to detect violations in the absence of VMS. The technology provides a relatively low-cost way to enforce closed areas in a comprehensive manner.

Comment 7: VMS vs. traditional surveillance methods: VMS regulations will not work because fishermen can use other gear in these areas; Only traditional surveillance methods will work; VMS has worked well in Hawaii and in the Gulf of Mexico.

Response: The closed area regulations do not prohibit fishermen from fishing with other gear types in those areas. In fact, it could be beneficial to some fishermen to continue to fish in these areas with other fishing gears. NMFS agrees that VMS has worked well to aid enforcement in Hawaii and the Gulf of Mexico. VMS also is used world-wide to manage sustainable fisheries.

Comment 8: Reliability of VMS technology: Technology in VMS is not dependable. Vessels should not be required to return to port when units fail; Can NMFS guarantee that repairs will never delay fishermen?

Response: NMFS cannot guarantee that units will never fail, however, past experience with the Hawaii longline fishery has shown that the technology is dependable in most cases. NMFS has established detailed standards for VMS equipment used in the HMS fishery. Those standards take into account system dependability.

Comment 9: Data collection: VMS is a duplicate of report data; VMS could be used to collect better data (e.g., location of tuna bycatch); VMS can be used as a management tool to get a database on effort and demographics; VMS units have other uses, (i.e., two way email, personal tracking of boats, etc.)

Response: VMS is not necessarily a duplication of logbook report data, as demonstrated by the existence of enforcement cases involving the submission of fraudulent logbook reports. Even if VMS data on vessel location is duplicative, it is valuable because the data is reported in near real-time, in contrast to logbook reports. NMFS scientists have shown that logbook reports are not always accurate, particularly as they relate to bycatch. NMFS is considering the use of VMS via electronic logbook reporting to collect bycatch data in near real time. Such a program would require the purchase of a laptop computer or similar device.

Comment 10: VMS proposal is an invasion into private concerns.

Response: In order to conserve and manage fishery resources, it is the responsibility of the United States to monitor its fishing vessels. All data is subject to confidentiality laws and guidelines of the National Oceanic and Atmospheric Administration.

Comment 11: Require the VMS units to transmit location reports only if a vessel is inside a closed area or another country's EEZ in order to reduce operating costs (i.e., "trigger" reports); Lower the frequency of required VMS reports (currently set at hourly intervals).

Response: NMFS considered these options in the past and rejected them (NMFS, 1998). With respect to the trigger report option, feasibility is low. Currently, the programming capability for trigger reports does not exist for devices approved by NOAA for the HMS fleet. A cell phone device exists that has that capability, and NMFS asked the manufacturer about coupling the cell phone with a NOAA-approved transceiver to achieve the result referred to in the comment. However, NMFS is not aware of a commercially available device. Additionally, that approach would almost double VMS costs. Finally, trigger reports would not assist in the enforcement of other regulations.

Both trigger reports and increased reporting intervals would create considerable ambiguity regarding the status of the device and the vessel during those times of no transmission (i.e., whether the device was operating in legal areas, or whether the device simply had not been turned on or was in some manner malfunctioning). Near real-time vessel position and status or activity is important for monitoring and enforcement, as it allows enforcement personnel to be dispatched to the vessel's site and is necessary for personnel to meet vessels for enforcement purposes as the vessels arrive at port. The Hawaii longline fishery VMS regulation requires one-hour reporting intervals for monitoring activities of longline vessels, and that scheme has proven effective for enforcement.