APPENDIX III: Fisheries Descriptions

This appendix is broken into two parts: Part A describes commercial fisheries that have documented interactions with marine mammals in the Atlantic Ocean; and Part B describes commercial fisheries that have documented interaction with marine mammals in the Gulf of Mexico. A complete list of all known fisheries for both oceanic regions is published in the Federal Register, vol. 68, No. 135, 2003. The fishery descriptions for the 2005 stock assessment report are based on the 2003 List of Fisheries designations because this document was originally compiled when the 2005 List of Fisheries was still at the proposal stage. The 2006 SAR will reflect the 2005 List of Fisheries designations. Each part of this appendix contains three sections: : I) data sources used to document marine mammal mortality/entanglements and commercial fishing effort trip locations, II) fishery descriptions for Category I, II and III fisheries that have documented interactions with marine mammals and their historical level of observer coverage, and III) historical fishery descriptions.

Part A. Description of U.S Atlantic Commercial Fisheries

I. Data Sources

Items 1-5 describe sources of marine mammal mortality, serious injury or entanglement data; items 6-8 describe the sources of commercial fishing effort data used to summarize different components of each fishery (i.e. active number of permit holders, total effort, temporal and spatial distribution) and generate maps depicting the location and amount of fishing effort.

1. Northeast Region Fisheries Observer Program

In 1989 a Fisheries Observer Program was implemented in the Northeast Region (Maine-Rhode Island) to document incidental bycatch of marine mammals in the Northeast Region Multi-species Gillnet Fishery. In 1993 sampling was expanded to observe bycatch of marine mammals in Gillnet Fisheries in the Mid-Atlantic Region (New York-North Carolina). The Northeast Fisheries Observer Program (NEFOB) has since been expanded to sample multiple gear types in both the Northeast and Mid-Atlantic Regions for documenting and monitoring interactions of marine mammals, sea turtles and finfish bycatch attributed to commercial fishing operations. At sea Observers onboard commercial fishing vessels collect data on fishing operations, gear and vessel characteristics, kept and discarded catch composition, bycatch of protected species, animal biology, and habitat (NMFS-NEFSC, 2003).

2. Southeast Region Fishery Observer Programs

Three Fishery Observer Programs are managed by the Southeast Fisheries Science Center (SEFSC) that observe commercial fishery activity in U.S. Atlantic waters. The Pelagic Longline Observer Program (POP) administers a mandatory observer program for the U.S. Atlantic Large Pelagics Longline Fishery. The program has been in place since 1992 and randomly allocates observer effort by eleven geographic fishing areas proportional to total reported effort in each area and quarter. Observer coverage levels are mandated under the Highly Migratory Species Fisheries Management Plan (HMS FMP, 50 CFR Part 635). The second program is the Shark Drift Gillnet Observer Program that observes the U.S. Southeast Atlantic Shark Gillnet Fishery. The Observer Program is mandated under the HMS FMP, the Atlantic Large Whale Take Reduction Plan (ALWTRP) (50 CFR Part 229), and the Biological Opinion under Section 7 of the Endangered Species Act. Observers are deployed on any active fishing vessel reporting shark drift gillnet effort. The third program is the Southeastern Shrimp Otter Trawl Fishery Observer Program. This is a voluntary program administered by SEFSC in cooperation with the Gulf and South Atlantic Fisheries Foundation. The program is funding and project dependent, therefore observer coverage is not necessarily randomly allocated across the fishery. The total level of observer coverage for this program is <<1% of the total fishery effort. In each Observer Program, the observers record information on the total target species catch, the number and type of interactions with protected species (including both marine mammals and sea turtles), and biological information on species caught.

3. Regional Marine Mammal Stranding Networks

The Northeast and Southeast Region Stranding Networks are components of the Marine Mammal Health and Stranding Response Program (MMHSRP). The goals of the MMHSRP are to facilitate collection and dissemination of data, assess health trends in marine mammals, correlate health with other biological and environmental parameters, and coordinate effective responses to unusual mortality events (Becker *et al.* 1994). Since 1997, the Northeast Region Marine Mammal Stranding Network has been collecting and storing data on marine mammal strandings and entanglements that

occur between the states of Maine and North Carolina. The Southeast Region Strandings Program is responsible for data collection and stranding response coordination along the Atlantic coast from South Carolina to Florida and along the U.S. Gulf of Mexico coast from Florida through Texas. Prior to 1997, stranding and entanglement data were maintained by the New England Aquarium and the National Museum of Natural History, Washington D.C. Volunteer participants, acting under a letter of agreement, collect data on stranded animals that include: species; event date and location; details of the event (i.e. signs of human interaction) and determination on cause of death; animal disposition; morphology; and biological samples. Collected data are reported to the appropriate Regional Stranding Network Coordinator and are maintained in regional and national databases.

4. Marine Mammal Authorization Program

Commercial fishing vessels engaging in Category I or II fisheries are required to register under the Marine Mammal Authorization Program (MMAP) in order to lawfully capture a marine mammal incidental to fishing operations. All vessel owners, regardless of the category of fishery they are operating in, are required to report all incidental injuries and mortalities of marine mammals that have occurred as a result of fishing operations (NMFS-OPR, 2003). Events are reported by fishermen on Mortality/Injury forms then submitted to and maintained by the NMFS Office of Protected Resources. The data reported include: captain and vessel demographics; gear type and target species; date, time and location of event; type of interaction; animal species; mortality or injury code; and number of interactions.

5. Other Data Sources for Protected Species Interactions/Entanglements/Ship Strikes

In addition to the above, data on fishery interactions, entanglements, and vessel collisions with large cetaceans are reported from a variety of other sources including the New England Aquarium (Boston, MA); Center for Coastal Studies (Provincetown, MA); U.S. Coast Guard; whale watch vessels; and Canadian Department of Fisheries and Oceans (DFO). These data, photographs, etc. are maintained by the Protected Species Branch at the Northeast Fisheries Science Center (NEFSC) and the SEFSC.

6. Northeast Region Vessel Trip Reports

The Northeast Region Vessel Trip Report Data Collection System is a mandatory, but self-reported commercial fishing effort database (Wigley, *et al.* 1998). The data collected include: species kept and discarded; gear types used; trip location; trip departure and landing dates; port; and vessel and gear characteristics. The reporting of these data is mandatory only for vessels fishing under a federal permit.

7. Southeast Region Fisheries Logbook System

The Fisheries Logbook System (FLS) is maintained at the SEFSC and manages data submitted from mandatory Fishing Vessel Logbook Programs under several FMPs. In 1986 a comprehensive logbook program was initiated for the Large Pelagics Longline Fishery and this reporting became mandatory in 1992. Logbook reporting has also been initiated since the early 1990s for a number of other fisheries including: Reef Fish Fisheries; Snapper-Grouper Complex Fisheries; federally managed Shark Fisheries; and King and Spanish Mackerel Fisheries. In each case, vessel captains are required to submit information on the fishing location, the amount and type of fishing gear used, the total amount of fishing effort (e.g., gear sets) during a given trip, the total weight and composition of the catch, and the disposition of the catch during each unit of effort (e.g., kept, released alive, released dead). FLS data are used to estimate the total amount of fishing effort in the fishery and thus expand bycatch rate estimates from observer data to estimates of the total incidental take of marine mammal species in a given fishery.

8. Northeast Region Dealer Reported Data

The Northeast Region Dealer Database houses trip level fishery statistics on fish species landed by market category, vessel ID, permit number, port location and date of landing, and gear type utilized. The data are collected by both federally permitted seafood dealers and NMFS port agents. Data are considered to represent a census of both vessels actively fishing with a federal permit and total fish landings. It also includes vessels that fish with a state permit (excluding the state of North Carolina) that land a federally managed species. Some states submit the same trip level data to the Northeast Region, but contrary to the data submitted by federally permitted seafood dealers, the trip level data reported by individual states does not include unique vessel and permit information. Therefore, the estimated number of active permit holders reported within this appendix should be considered a minimum estimate.

II. U.S Atlantic Commercial Fisheries

Northeast Sink Gillnet

Target Species: Atlantic Cod, Haddock, Pollock, Yellowtail Flounder, Winter Flounder, Witch Flounder, American Plaice, Windowpane Flounder, Spiny Dogfish, Monkfish, Silver Hake, Red Hake, White Hake, Ocean Pout, and Skate spp.

Number of Permit Holders: To Be Determined

Number of Active Permit Holders: In 2002 there were 361active federal permits reported in the Northeast Region (ME-CT) Dealer Reported Landings Database.

Total Effort: Total metric tons of fish landed from 1998 to 2003 were 22,933, 18,681, 14,487, 14,634, 15,201, and 17,680 respectively (NMFS). Data on total quantity of gear fished (i.e., number of sets) are not reliable, therefore will not be reported here. Total days absent from port or days at sea are yet to be determined. Figures documenting approximate gillnet trip locations are not yet available.

Temporal and Spatial Distribution: Effort is distributed throughout the Gulf of Maine, Georges Bank, and Southern New England Regions. Effort occurs year-round with a peak during May, June, and July primarily on the continental shelf region in depths ranging from 30 to 750 feet. Some nets are set in water depths greater than 800 feet. Figures 1-5 and 21-25 document the distribution of sets and marine mammal interactions observed from 1999 to 2003 respectively.

Gear Characteristics: The Northeast Sink Gillnet Fishery is dominated by a bottom-tending net (sink). Less than 1% of the fishery utilizes a drift gillnet (not tending the ocean bottom). Monofilament twine is the dominant material used with stretched mesh sizes ranging from 6 to 12 inches. String lengths range from 600 to 10,500 feet long. The mesh size and string length vary by the primary fish species targeted for catch.

Management and Regulations: The Northeast Sink Gillnet Fishery is listed as a Category I fishery (68 FR 41725, 50 CFR Part 229). This gear is managed by several federal and state FMPs that range from Maine to Connecticut. The relevant FMPs include, but may not be limited to: the Northeast Multi-species (FR 67, CFR Part 648); Monkfish (FR 68(81), 50 CFR Part 648); Spiny Dogfish (FR 65(7), 50 CFR Part 648); Summer Flounder, Scup and Black Sea Bass (FR 68(1), 50 CFR part 648); Atlantic Bluefish (FR 68(91), 50 CFR Part 648); and Northeast Skate Complex (FR 68(160), 50 CFR part 648). These fisheries are primarily managed by total allowable catch (TACs); individual trip limits (i.e., quotas); effort caps (i.e., limited number of days at sea per vessel); time and area closures; and gear restrictions.

Observer Coverage: During the period 1990 to 2003, estimated observer coverage (number of trips observed/total commercial trips reported) was 1%, 6%, 7%, 5%, 7%, 5%, 4%, 6%, 5%, 6%, 6%, 4%, 2%, and 3% respectively.

Comments: Effort patterns in this fishery are heavily influenced by pinger requirements, marine mammal time/area closures, fish time/area closures, and gear restrictions due to fish conservation measures, the ALWTRP, and the Harbor Porpoise Take Reduction Plan (HPTRP).

Protected Species Interactions: Harbor Porpoise, White-sided Dolphin, Harbor Seal, Gray Seal, Harp Seal, Hooded Seal, Long-finned Pilot Whale, Humpback Whale, Right Whale, Offshore Bottlenose Dolphin, Risso's Dolphin, and Common Dolphin. Not mentioned here are possible interactions with sea turtles and sea birds.

Bay of Fundy Sink Gillnet

Target Species: Atlantic Cod and other groundfish.

Number of Permit Holders: To Be Determined

Number of Active Permit Holders: To Be Determined

Total Effort: To Be Determined

Temporal and Spatial Distribution: In Canadian waters the Gillnet Fishery occurs during the summer and early autumn months mostly in the western portion of the Bay of Fundy.

Gear Characteristics: Typical gillnet strings are 300 m long (three 100 m panels), 4 m deep, with stretched mesh size of 15 cm, strand diameter of 0.57-0.60mm, and are usually set at a depth of about 100 m for 24 hours.

Management and Regulations: To Be Determined

Observer Coverage: During the period 1994 to 2001, the estimated observer coverage of the Grand Manan portion of the sink gillnet fishery was 0.49, 0.89, 0.8, 0.8, 0.24, 0.11, 0.41, and 0.56. The fishery was not observed during 2002 and 2003. There is a proposal to observe the fishery during 2004.

Comments: Marine mammals in Canadian waters are regulated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). DFO Maritimes Region has developed a Harbour Porpoise Conservation Strategy that has set a maximum take of 110 Harbor Porpoise per year in the Bay of Fundy. Bycatch mitigation measures include acoustic pingers and nylon barium-sulphate netting that target cetacean and sea bird bycatch reduction goals, and fishery effort restrictions that target fish management goals.

Protected Species Interactions: Documented interactions with Harbor Porpoise and sea birds.

Mid-Atlantic Coastal Gillnet

Target Species: Monkfish, Spiny and Smooth Dogfish, Bluefish, Weakfish, Menhaden, Spot, Croaker, Striped Bass, Coastal Sharks, Spanish Mackerel, King Mackerel, American Shad, Black Drum, and Skate spp.

Number of Permit Holders: To Be Determined

Number of Active Permit Holders: To Be Determined

Total Effort: Total metric tons of fish landed from 1998 to 2003 were 15,494, 19,130, 16,333, 14,855, 13,389 and 13,107, respectively (NMFS). Data on total quantity of gear fished (i.e., number of sets) are not reliable, therefore will not be reported here. During 1998 it was estimated that 302 full- and part-time sink gillnet vessels and an undetermined number of drift gillnet vessels participated in this fishery. This is the number of unique vessels in the Commercial Landings Database (Weighout) that reported catch from this fishery during 1998 from the states of Connecticut to North Carolina. This does not include a small percentage of records where the vessel number was missing. Figures documenting approximate gillnet trip locations are not yet available.

Temporal and Spatial Distribution: This fishery operates year-round, extending from New York to North Carolina. It's comprised of a combination of small vessels that target a variety of fish species. This fishery can be prosecuted right off the beach (6 feet) or in nearshore coastal waters to offshore waters (250 feet). Figures 6-10 and 26-30 document the distribution of sets and marine mammal interactions observed from 1999 to 2003 respectively.

Gear Characteristics: The Mid-Atlantic Gillnet Fishery utilizes both drift and sink gillnets. These nets are most frequently attached to the bottom, although unanchored drift or sink nets are also utilized to target specific species. Monofilament twine is the dominant material used with stretched mesh sizes ranging from 2.5 to 12 inches. String lengths range from 150 to 8400 feet long. The mesh size and string length vary by the primary fish species targeted for catch.

Management and Regulations: The Mid-Atlantic Coastal Gillnet Fishery is listed as a Category I fishery (68 FR 41725, 50 CFR Part 229). This gear is managed by several federal FMPs and Inter-State Fishery Management Plans (ISFMP's) managed by the Atlantic States Marine Fisheries Commission (ASMFC). This fishery ranges from New York to North Carolina. The relevant FMPs include, but may not be limited to: Atlantic Bluefish (FR 68(91), 50 CFR Part 648); Weakfish (FR 68(191), 50 CFR 697); Shad and River Herring (ASMFC ISFMP 2002); Striped Bass (FR68(202), 50 CFR part 697); Spanish Mackerel (FR 65(92), 50 CFR 622); Monkfish (FR 68(81), 50 CFR Part 648); Spiny Dogfish (FR 65(7), 50 CFR Part 648); Summer Flounder, Scup and Black Sea Bass (FR 68(1), 50 CFR part 648); Northeast Skate Complex (FR 68(160), 50 CFR part 648); and Atlantic Coastal Sharks (FR 68(247), 50 CFR 600-635). These fisheries are primarily managed by TACs; individual trip limits (i.e., quotas); effort caps (i.e., limited number of days at sea per vessel); time and area closures; and gear restrictions.

Observer Coverage: During the period 1995 to 2003, the estimated observer coverage was 5%, 4%, 3%, 5%, 2%, 2%, 2%, 1%, and 1% respectively.

Comments: Effort patterns in this fishery are heavily influenced by marine mammal time/area closures, gear restrictions due to fish conservation measures, the ALWTRP, and the HPTRP. A Coastal Bottlenose Dolphin Take Reduction Plan is pending. When enacted it will impact how some Mid-Atlantic Coastal Gillnet Fisheries may be prosecuted (i.e., gear restrictions).

Protected Species Interactions: Harbor Porpoise, White-sided Dolphin, Harbor Seal, Gray Seal, Harp Seal, Humpback Whale, Right Whale, Coastal Bottlenose Dolphin, Offshore Bottlenose Dolphin, Common Dolphin, and Long-Finned and Short-Finned Pilot Whale. Not mentioned here are possible interactions with sea turtles and sea birds.

Atlantic Squid, Mackerel, Butterfish Trawl

Target Species: Atlantic Mackerel, *Loligo* Squid, *Illex* Squid, and Atlantic Butterfish

Number of Permit Holders: To Be Determined

Number of Active Permit Holders: To Be Determined

Total Effort: Total effort, measured in trips, for the domestic Atlantic Mackerel Fishery from 1998 to 2003 was 299, 270, 104, 184, 340, and 279, respectively (NMFS). Total effort, measured in trips, for the *Illex* Squid Fishery from 1998 to 2003 was 412, 141, 108, 51, 39, and 103, respectively (NMFS). Total effort, measured in trips, for the *Loligo* Squid Fishery from 1998 to 2003 was 1,048, 495, 529, 413, 3,585, and 1,848, respectively (NMFS). Atlantic Butterfish is a bycatch (non-directed) fishery, therefore effort on this species will not be reported. The number of days absent from port, or days at sea, are yet to be determined. Figures documenting approximate trawl trip locations are not yet available.

Temporal and Spatial Distribution: Because of spatial and temporal differences in the harvesting of *Illex* and *Loligo* Squid and Atlantic Mackerel, each one of these sub-fisheries are described separately. Figures 11-15 and 31-35 document the distribution of tows and marine mammal interactions observed from 1999 to 2003 respectively.

***Illex* Squid**

The U.S. domestic fishery for *Illex* Squid, ranging from Southern New England to Cape Hatteras, North Carolina, reflects patterns in the seasonal distribution of *Illex* Squid (*Illex illecebrosus*). *Illex* is harvested offshore (along or outside of the 100m isobath), mainly by small-mesh otter trawlers when the Squid are distributed in continental shelf and slope waters during the summer months (June-September) (Clark 1998).

***Loligo* Squid**

The U.S. domestic fishery for *Loligo* Squid (*Loligo pealeii*) occurs mainly in Southern New England and Mid-Atlantic waters. Fishery patterns reflect *Loligo* seasonal distribution, therefore most effort is directed offshore near the edge of the continental shelf during the fall and winter months (October-March) and inshore during the spring and summer months (April-September) (Clark 1998).

Atlantic Mackerel

The U.S. domestic fishery for Atlantic Mackerel (*Scomber scombrus*) occurs primarily in the Southern New England and Mid-Atlantic waters between the months of January and May (Clark 1998). An Atlantic Mackerel Trawl Fishery also occurs in the Gulf of Maine during the summer and fall months (May-December) (Clark 1998).

Atlantic Butterfish

Atlantic Butterfish (*Peprilus triacanthus*) undergo a northerly inshore migration during the summer months, a southerly offshore migration during the winter months, and are mainly caught as bycatch to the directed Squid and Mackerel Fisheries. Fishery observers suggest that a significant amount of Atlantic Butterfish discarding occurs at sea.

Gear Characteristics: The *Illex* and *Loligo* Squid Fisheries are dominated by small-mesh otter trawls, but substantial landings of *Loligo* Squid are also taken by inshore pound nets and fish traps during the spring and summer months (Clark 1998). The Atlantic Mackerel Fishery is prosecuted by both mid-water (pelagic) and bottom trawls.

Management and Regulations: The Atlantic Squid, Mackerel, Butterfish Trawl Fishery is listed as a Category I (68 FR 41725, 50 CFR Part 229). The Mid-Atlantic Mackerel and Squid Trawl Fisheries were combined into the Atlantic Mid-Water Trawl Fishery in the revised proposed list of fisheries in 1995. The Mackerel Trawl Fishery had been classified as a Category II fishery since 1990. The Squid Fishery was originally classified as a Category II fishery in 1990, but was reclassified as a Category III fishery in 1992. The combined fishery was then reclassified as a Category II fishery in 1995. This fishery is managed by the federal Squid, Mackerel, Butterfish FMP. The *Illex* and *Loligo* Squid Fisheries are managed by moratorium permits, gear and area restrictions, quotas, and trip limits. The Atlantic Mackerel and Atlantic Butterfish Fisheries are managed by an annual quota system.

Observer Coverage: Estimated observer coverage in the Atlantic Mackerel, *Loligo* Squid, and *Illex* Squid Fisheries is measured by number of trips observed/total commercial trips reported. During 1996 to 2003, estimated observer coverage in the *Illex* Fishery was 3.7%, 6.21%, 0.97%, 2.84%, 11.11%, 0.00%, 0.00%, and 8.74%, respectively. During 1996-2003, estimated observer coverage of the offshore *Loligo* Fishery was 0.03%, 0.50%, 0.78%, 0.86%, 1.08%, 1.25%, 0.5%, and 0.64%, respectively. During 1996-2003, estimated observer coverage of the inshore *Loligo* Fishery was 0.02%, 2.10%, 0.47%, 0.51%, 0.59%, 0.47%, 0.38%, and 0.66%, respectively. During 1997-2003, estimated observer coverage of the domestic Atlantic Mackerel Fishery was 0.79%, 0.00%, 1.13%, 4.9%, 3.4%, 0.64%, and 0.00%, respectively. Mandatory 100% observer coverage is required on any Joint Venture (JV) fishing operation. The most recent Atlantic Mackerel JV fishing activity occurred in 1998 and 2002 where 152 and 62 transfers from USA vessels were observed respectively. Only the net transfer operations from the USA vessel to the foreign processing vessel are observed. The actual net towing and hauling operations conducted on the USA vessel are not observed.

Comments: Mobile Gear Restricted Areas (GRAs) were put in place for fishery management purposes in November 2000. The intent of the GRAs is to reduce bycatch of scup. The GRAs are spread out in time and space along the edge of the Southern New England and Mid-Atlantic continental shelf region (between 100 and 1000 meters). These seasonal closures are targeted at trawl gear with small-mesh sizes (<4.5 inches stretched). The Atlantic Herring and Atlantic Mackerel Trawl Fisheries are exempt from the GRAs. Access to the GRAs to harvest non-exempt species (*Loligo* Squid, Black Sea Bass, and Silver Hake) can be granted by a special permit. For detailed information regarding GRAs refer to (FR69(9), 50 CFR Part 648).

Protected Species Interactions: White-sided Dolphin, Common Dolphin, Long-finned Pilot Whale, and Short-finned Pilot Whale. Not mentioned here are possible interactions with sea turtles and sea birds.

North Atlantic Bottom Trawl

Target Species: Atlantic Cod, Haddock, Pollock, Yellowtail Flounder, Winter Flounder, Witch Flounder, American Plaice, Atlantic Halibut, Redfish, Windowpane Flounder, Summer Flounder, Spiny Dogfish, Monkfish, Silver Hake, Red Hake, White Hake, Ocean Pout, and Skate spp.

Number of Permit Holders: To Be Determined

Number of Active Permit Holders: In 2002 there were 803 active federal permits reported in the Northeast Region Dealer Reported Landings Database.

Total Effort: Total effort, measured in trips, for the North Atlantic Bottom Trawl Fishery from 1998 to 2003 was 13,263, 10,795, 12,625, 12,384, 11,855, and 11,577, respectively (NMFS). An average mean of 970 (CV=0.04) vessels (full- and part time) participated annually in the fishery during 1989-1993. The number of days absent from port, or days at sea, are yet to be determined. Figures documenting approximate trawl trip locations are not yet available.

Temporal and Spatial Distribution: Effort occurs year-round with a peak during May, June, and July primarily on the continental shelf and is distributed throughout the Gulf of Maine, Georges Bank, and Southern New England Regions. Figures documenting locations of observed sets and incidental bycatch are not yet available.

Gear Characteristics: To Be Determined

Management and Regulations: The North Atlantic Bottom Trawl Fishery is listed as a Category III fishery (68 FR 41725, 50 CFR Part 229). This gear is managed by several federal and state FMPs that range from Maine to Connecticut. The

relevant FMPs include, but may not be limited to: the Northeast Multi-species (FR 67, CFR Part 648); Monkfish (FR 68(81), 50 CFR Part 648); Spiny Dogfish (FR 65(7), 50 CFR Part 648); Summer Flounder, Scup and Black Sea Bass (FR 68(1), 50 CFR part 648); Atlantic Bluefish (FR 68(91), 50 CFR Part 648); and Northeast Skate Complex (FR 68(160), 50 CFR part 648). These fisheries are primarily managed by TACs; individual trip limits (i.e., quotas); effort caps (i.e., limited number of days at sea per vessel); time and area closures; and gear restrictions.

Observer Coverage: During the period 1994 to 2003, estimated observer coverage was 0.4%, 1.1%, 0.2%, 0.2%, 0.1%, 0.3%, 0.4%, 0.4%, 2%, and 2.79%, respectively. Vessels in the North Atlantic Bottom Trawl Fishery, a Category III fishery under the MMPA, were observed in order to meet fishery management needs rather than monitoring for bycatch of marine mammals.

Comments:

Protected Species Interactions: White-sided Dolphin, Common Dolphin, Harbor Seal, and Harp Seal. Not mentioned here are possible interactions with sea turtles and sea birds.

Mid-Atlantic Mixed Species Trawl

Target Species: Include, but are not limited to, Monkfish, Summer Flounder (Fluke), Winter Flounder, Silver Hake (Whiting), Spiny and Smooth Dogfish, Scup, and Black Sea Bass

Number of Permit Holders: To Be Determined

Number of Active Permit Holders: To Be Determined

Total Effort: Total effort, measured in trips, for the Mid-Atlantic Mixed Species Trawl from 1998 to 2003 was 27,521, 26,525, 24,362, 27,890, 28,103, and 25,725, respectively (NMFS). The number of days absent from port, or days at sea, are yet to be determined. Figures documenting approximate trawl trip locations are not yet available.

Temporal and Spatial Distribution: This fishery occurs year-round from Cape Cod, Massachusetts to Cape Hatteras, North Carolina. Figures 16-20 and 36-40 document the distribution of tows and marine mammal interactions observed from 1999 to 2003 respectively.

Gear Characteristics: To Be Determined

Management and Regulations: The Mid-Atlantic Mixed Species Trawl Fishery is listed as a Category III fishery (68 FR 41725, 50 CFR Part 229). This gear is managed by several federal and state FMPs that range from Massachusetts to North Carolina. The relevant FMPs include, but may not be limited to, Monkfish (FR 68(81), 50 CFR Part 648); Spiny Dogfish (FR 65(7), 50 CFR Part 648); Summer Flounder, Scup, and Black Sea Bass (FR 68(1), 50 CFR part 648); and Northeast Skate Complex (FR 68(160), 50 CFR part 648).

Observer Coverage: During the period 1996 to 2003, estimated observer coverage was 0.24%, 0.22%, 0.15%, 0.14%, 0.35%, 0.41% , 0.53%, and 0.87%, respectively.

Comments:

Protected Species Interactions: Common Dolphin and Long-finned Pilot Whale. Not mentioned here are possible 1interactions with sea turtles and sea birds.

1 Defined in FR list of fisheries as 1) Atlantic herring mid-water trawl (including pair trawl), 2) Gulf of Maine Atlantic herring purse seine, and 3) Gulf of Maine herring and Atlantic mackerel stop seine/weir

Northeast Atlantic (Gulf of Maine/Georges Bank) Atlantic Herring Fishery[1]

Target Species: Atlantic Herring

Gear Characteristics: Historically, the Atlantic Herring resource was harvested by the Distant Water Fleet (DWF) until the fishery collapsed in the late 1970's. There has been no DWF since then. A domestic fleet has been harvesting the Atlantic Herring resource utilizing both fixed and mobile gears. Only a small percentage of the resource is currently harvested by fixed gear due to a combination of reduced availability and less use of fixed gear (Clark 1998). The majority of the resource is currently harvested by domestic mid-water (pelagic) trawls (single and paired) and purse seines.

Management and Regulations: Atlantic herring are managed jointly by the MAFMC and ASMFC as one migratory stock complex. There has been a domestic resurgence in a directed fishery on the adult stock due to the recovery of the adult stock biomass. The Atlantic Herring Mid-Water Trawl Fishery is a Category II fishery. The Atlantic Herring Purse Seine Fishery is a Category III fishery (68 FR 41725, 50 CFR Part 229).

Temporal and Spatial Distribution: The current fishery occurs during the summer months when the resource is distributed throughout the Gulf of Maine and Georges Bank regions. The stock continues on a southerly migration into Mid-Atlantic waters during the winter months.

Observer Coverage: There were no domestic mid-water trawl trips observed in 1997 or 1998, 3 trips in 1999 (1 single; 2 paired), 13 trips in 2000 (12 single; 1 paired), no trips in 2001 or 2002, and 63 trips in 2003. A U.S. JV Mid-Water (pelagic) Trawl Fishery was conducted on Georges Bank from August to December 2001. A total allowable landings of foreign fishery (TALFF) was also granted during the same time period. Ten vessels (3 foreign and 7 American), fishing both single and paired mid-water trawls, participated in the 2001 Atlantic Herring JV Fishery. Two out of the three foreign vessels also participated in the 2001 TALFF and fished with paired mid-water trawls. The NMFS maintained 74% observer coverage (243 hauls) on the JV transfers and 100% observer coverage (114 hauls) on the foreign vessels granted a TALFF.

Comments: Mobile Gear Restricted Areas (GRAs) were put in place for fishery management purposes in November 2000. The intent of the GRAs is to reduce bycatch of Scup. The GRAs are spread out in time and space along the edge of the Southern New England and Mid-Atlantic continental shelf region (between 100 and 1000 meters). These seasonal closures are targeted at trawl gear with small-mesh sizes (<4.5 inches stretched). The Atlantic Herring and Atlantic Mackerel Trawl Fisheries are exempt from the GRAs. For detailed information regarding GRAs refer to (FR69(9), 50 CFR Part 648).

Protected Species Interactions: White-sided Dolphin and Long-finned Pilot Whale. There were no marine mammal takes observed from the domestic Mid-Water Trawl Fishery trips during the period 1997 to 2002. Not mentioned here are possible interactions with sea turtles and sea birds.

Bay of Fundy Herring Weir

Target Species: Atlantic Herring

Number of Permit Holders: According to Canadian DFO officials, for 1998 there were 225 licenses for herring weirs on the New Brunswick and Nova Scotia sides of the Bay of Fundy (60 from Grand Manan Island, 95 from Deer and Campobello Islands, 30 from Passamaquoddy Bay, 35 from the East Charlotte area, and 5 from the Saint John area). The number of licenses has been fairly consistent since 1985 (Ed Trippel, pers. comm.)

Number of Active Permit Holders: In 2002 around Grand Manan Island, the only area surveyed for active weirs, there were 22 active weirs. In 2003 the number of active weirs included: 20 around Grand Manan Island, 9 around the Wolves Islands, 10 around Campobello Island, 2 at Deer Island, and 43 in Passamaquoddy Bay and the western Bay of Fundy. The numbers in the eastern Bay of Fundy are unknown, but some do exist.

Total Effort: Effort is difficult to measure. Weirs may or may not have twine (i.e., be actively fishing) on them in a given year and the amount of time the twine is up varies from year to year. Most weirs tend to fish (i.e., have twine on them) during July, August, and September. Some fishermen keep their twine on longer, into October and November, if it is a good year or there haven't been any storms providing incentive to take the twine down. Effort cannot simply be measured

by multiplying the number of weirs with twine times the average number of fishing days (this will provide a very generous estimation of effort) because if a weir fills up with fish the fisherman will pull up the drop (close the net at the mouth) which prevents loss of fish, but also means no new fish can get in, therefore the weir is not actively fishing during that period.

Temporal and Spatial Distribution: In Canadian waters, the Herring Weir Fishery occurs from May to October along the southwestern shore of the Bay of Fundy, and is scattered along the coasts of western Nova Scotia.

Gear Characteristics: Weirs are large, heart-shaped structures (roughly 100 feet across) consisting of long wooden stakes (50-80 feet) pounded 3-6 feet into the sea floor and surrounded by a mesh net (the "twine") of about ¾ inch stretch mesh. Weirs are typically located within 100-400 feet of shore. The twine runs from the sea floor to the surface, and the only opening (the "mouth") is positioned close to shore. Herring swimming along the shore at night, encounter a fence (net of the same twine from sea floor to surface) that runs from the weir to the shoreline and directs the fish into the weir. At dawn, the weir fisherman tends the weir and if Herring are present, he/she may close off the weir until the fish can be harvested. Harvesting takes place when the tidal current is the slackest, usually just before low tide. A large net ("seine") is deployed inside the weir, and, much like a purse seine, it is drawn up to the surface so that the fish become concentrated. They are then pumped out with a vacuum hose into the waiting carrier for transport to the processing plant.

Management and Regulations: To Be Determined

Observer Coverage: From mid-July to early September, on a daily basis, scientists from the Grand Manan Whale & Seabird Research Station check only the weirs around Grand Manan Island for the presence of cetaceans.

Comments: Marine mammals occasionally swim into weirs, in which they can breathe and move about. Marine mammals are vulnerable during the harvesting/seining process where they can become tangled in the seine and suffocate if care is not taken to remove them from the net or to remove them from the weir prior to the onset of the seining process. Small marine mammals, like porpoises, can be removed from the net, lifted into small boats, and taken out of the weir for release without interrupting the seining process. Larger marine mammals, such as whales, must be removed from the weir either through the creation of a large enough escape hole in the back of the weir (taking down the twine and removing some poles) or sometimes by sweeping them out with a specialized mammal net, although this approach carries with it a few more risks to the animal than the "escape hole" technique.

Through the cooperation of weir fishermen and the Grand Manan Whale & Seabird Research Station, weir-associated mortality of cetaceans is relatively low. Over 91% of all entrapped porpoises, dolphins and whales are successfully released from weirs around Grand Manan Island. Thus the total number of entrapments (which can vary annually from 6 to 312) is in no way reflective or indicative of cetacean mortality caused by this fishery.

Protected Species Interactions: Documented interactions with Harbor Porpoise, Humpback Whales, and Minke Whales. Right Whales are also vulnerable to entrapment, though very rarely. The last two Minke whales in a Grand Manan weir were safely released, unharmed, through the partial disassembly of the weir.

Northeast/Mid-Atlantic American Lobster Trap/Pot

There are three distinctly identified stock areas for the American lobster: 1) Gulf of Maine, 2) south of Cape Cod to Long Island Sound, and 3) Georges Bank and south to Cape Hatteras. In 1997, there were 3,431 vessels holding licenses to harvest lobsters in federal waters, 2,674 vessels licensed to use lobster pot gear in state waters, 675 vessels licensed to use bottom trawls and approximately 100 licenses to use dredge gear to harvest lobsters. In 2000, there were 7,539 vessels from Maine to North Carolina holding licenses. Lobsters are taken primarily by traps, with about 2-3% of the harvest being taken by mobile gear (trawlers and dredges). About 80% of lobsters were harvested from state waters. The offshore fishery in federal waters has developed in the past 10 to 15 years, largely due to technological improvements in equipment and lower competition in the offshore areas. In January 1997, NMFS changed the classification of the Gulf of Maine and Mid-Atlantic Lobster Pot Fisheries from Category III to Category I (1997 List of Fisheries 62FR33, January 2, 1997) based on examination of 1990 to 1994 stranding and entanglement records of large whales (including Right, Humpback and Minke Whales). This fishery is operating under regulations from the ALWTRP (July 22, 1997; 62 FR 39157) and the federal American Lobster FMP (December 6, 1999; 64 FR 68228).

Atlantic Ocean, Caribbean, Gulf of Mexico Large Pelagics Longline

Target Species: Large pelagic fish species including: Swordfish, Yellowfin Tuna, Bigeye Tuna, Bluefin Tuna, Albacore Tuna, Dolphin Fish, Shortfin Mako Shark, and a variety of other shark species.

Number of Permit Holders: < 200

Number of Active Permit Holders: The number of active fishing vessels in the Pelagic Longline Fishery has been declining since a peak number of 338 vessels reporting longline effort during 1993. Over the period between 1996 and 2001, the mean number of vessels reporting effort to the FLS was 216. The number of vessels reporting effort in the entire U.S. Atlantic including the Gulf of Mexico during 2002 was 148. The total number of fishing vessels reporting effort in the Gulf of Mexico during 2002 was 68, though some of these vessels likely also reported fishing effort in other areas (Garrison 2003a).

Total Effort: The total fishing effort in the Atlantic component of the Pelagic Longline Fishery has been declining since a peak reported effort of 12,318 sets (7.41 million hooks) during 1995. The mean effort reported to the FLS between 1996 and 2001 was 8,273 sets (5.03 million hooks). During 2002, the total reported fishing effort in the Atlantic Ocean component of the fishery was 4,998 sets and 3.63 million hooks (Garrison 2003a).

Temporal and Spatial Distribution: Fishing effort occurs year round and operates in waters both inside and outside the U.S. EEZ throughout Atlantic, Caribbean and Gulf of Mexico waters. The "Atlantic" component of the fleet operates both in coastal and continental shelf waters along the U.S. Atlantic coast from Florida to Massachusetts. The fleet also operates in distant waters of the Atlantic including the central equatorial Atlantic Ocean and the Canadian Grand Banks. Fishing effort is reported in 11 defined fishing areas including the Gulf of Mexico. During 2002, the majority of fishing effort in the Atlantic has been reported in the Mid-Atlantic Bight (MAB, 1,347 sets), Florida East Coast (FEC, 931 sets), and South Atlantic Bight (SAB, 790 sets) fishing areas (Garrison 2003a).

Gear Characteristics: The pelagic longline gear consists of a mainline of >700-lb test monofilament typically ranging between 10 and 45 miles long. At regular intervals along the mainline, bullet-shaped floats are suspended and long sections of the gear are marked by "high-flyers" or radio beacons. Suspended from the mainline are long gangion lines of 200 to 400-lb test monofilament that are typically 100 to 200 feet in length. Fishing depths are most typically between 40 and 120 feet. Hooks of various sizes are attached by a steel swivel leader. Hooks may be of the straight shank "J" type hook or circle shaped hooks and the hook end may be offset from the shank. A variety of bait types are used depending on the target species, but most typically include whole, frozen squid or fish baits such as sardine or mackerel. A combination of different hook and bait types may be used on a single set. Longline sets targeting tunas are typically set at dawn and soak throughout the day with recovery near dusk. Those sets targeting swordfish are more typically night sets. The total amount of time the gear remains in the water including set, soak, and haul times is typically 10-14 hours.

Management and Regulations: The Large Pelagics Longline Fishery is listed as a Category I fishery under the MMPA due to frequently observed interactions with marine mammals (68 FR 41725, 50 CFR Part 229). The directed fishery is managed under the FMP for Atlantic Tunas, Swordfish, and Sharks (HMS FMP, 50 CFR Part 635). The fishery has also been the focus of management actions relating to bycatch of billfish. Amendment One to the Atlantic Billfish FMP also pertains to the Large Pelagics Longline Fishery and is consistent with the regulations in the HMS FMP. This fishery is also regulated under the Endangered Species Act resulting from frequent interactions with sea turtle species including both Loggerhead and Leatherback Turtles in the Atlantic and Gulf of Mexico.

Observer Coverage: The Pelagic Longline Observer Program (POP) is a mandatory observer program managed by the SEFSC that has been in place since 1992. Observers are placed upon randomly selected vessels with total observer effort allocated on a geographic basis proportional to the total amount of fishing effort reported by the fleet. The target observer coverage level was 5% of reported sets through 2001, and has recently been elevated to 8% of total sets. Between 1996 and 2001, observer coverage as a percentage of reported sets in the Atlantic component of the fishery was 2%, 3%, 3%, 4%, 4%, and 4% . The observer coverage during 2002 was 3.8% of reported sets; however, coverage was as high as 14% in some areas and seasons (Garrison 2003a). These values do not include the experimental portion of the fishery in the NED area, which was 100% of sets during 2001-2002.

Comments: This fishery has been the subject of numerous management actions over the last four years associated with bycatch of both billfish and sea turtles. These changes have resulted in a reduction of overall fishery effort and changes in

the behaviors of the fishery. The most significant change was the closure of the Northeast Distant Water (NED) area off the Canadian Grand Banks and near the Azores as of June 1, 2001 (50 CFR Part 635). An experimental fishery was conducted in this area during both 2001 and 2002 to evaluate gear characteristics and fishing practices that increase the bycatch rate of sea turtles. Several marine mammals, primarily Risso's Dolphins, were seriously injured during this experimental fishery. In addition, there have been a number of time-area closures since late 2000 including year-round closures in the DeSoto Canyon area in the Gulf of Mexico and the Florida East Coast area; and additional seasonal closures in the Charleston Bump area and off of New Jersey (NMFS, 2003). Additionally, a ban on the use of live fish bait was initiated in 1999 due to concerns over billfish bycatch. The majority of interactions with marine mammals in this fishery have been with Pilot Whales and Risso's Dolphin. These interactions primarily occurred along the shelf break in the Mid-Atlantic Bight region during the third and fourth quarters (Garrison 2003a).

Protected Species Interactions: Humpback Whale, Minke Whale, Risso's Dolphin, Long-finned Pilot Whale, Short-finned Pilot Whale, Common Dolphin, Atlantic Spotted Dolphin, Pantropical Spotted Dolphin, Striped Dolphin, Offshore Bottlenose Dolphin, Pygmy Sperm Whale, and Harbor Porpoise. Not mentioned here are possible interactions with sea turtles and sea birds.

Southeastern U.S. Atlantic Shark Gillnet

Target Species: Large and small coastal sharks including: Blacktip, Blacknose, Finetooth, Bonnethead, and Sharpnose Sharks

Number of Permit Holders: 6

Number of Active Permit Holders: 6

Total Effort: During the period from 1998 to 2001, the fishing effort reported to the FLS by vessels operating in the Shark Gillnet Fishery averaged 317 sets annually. The size of the fleet and total reported effort has been declining in the last three years. The total reported fishing effort by the six vessels operating in the fleet was 217 sets during 2002. However, there is direct evidence of under-reporting as some observed sets were not reported to the FLS system. In addition, these vessels also prosecute other fisheries, and it is not possible to distinguish between trips targeting sharks from those targeting other finfish. The total fishing effort in this fleet therefore remains uncertain (Garrison 2003b).

Temporal and Spatial Distribution: The Shark Drift Gillnet Fleet operates in the coastal waters of Florida and Georgia. During the period from 15 November to 31 March, fishing effort is restricted to waters south of 27°51'N latitude under the provisions of the ALWTRP. One vessel operates in waters off Key West, Florida during winter months. During the remainder of the year, the fishery effort is concentrated in waters off Cape Canaveral, Florida and southern Georgia (Carlson and Baremore 2002).

Gear Characteristics: The Shark Gillnet Fishery is characterized by large-mesh (5-10 inches) nets that are typically greater than 1500 feet long. The fleet has traditionally employed long, night-time drift sets with durations greater than 10 hours. However, in recent years, an increasing proportion of the fishing effort consists of "strike sets" in which schools of sharks are targeted and encircled. Strike sets are of much shorter duration (typically < 1 hour) than drift sets and generally have very low bycatch of non-target species (Carlson and Baremore 2002). Approximately 50% of the fishing effort observed during 2002 was strike sets.

Management and Regulations: The Shark Drift Gillnet Fishery is listed as a Category II fishery under the MMPA due to occasional interactions with marine mammals (68 FR 41725, 50 CFR Part 229). The directed fishery effort is managed under an amendment to the HMS FMP (50 CFR Part 635, 66 FR 17370 March 30, 2001) that mandates observer coverage outside of the season, defined by the ALWTRP, at levels sufficient to achieve precise estimates (coefficient of variation < 0.3) of marine mammal and sea turtle bycatch. The fishery is also managed under the ALWTRP (50 CFR Part 229, 67 FR 1133), which includes seasonal restriction of fishing effort below 27°51'N latitude during 15 November - 31 March and 100% observer coverage during this period. Similar provisions are also included in the Biological Opinion on the fishery under section 7 of the Endangered Species Act.

Observer Coverage: A dedicated observer program for the Shark Drift Gillnet Fishery has been in place since 1998. Due to the provisions of the ALWTRP, observer coverage has been high during winter months since 2000. However, due to limits on available resources, observer coverage outside of this period was generally low (< 5%) prior to 2000. During

2002, the observer coverage during January-March was 59% of reported effort and 34% of reported effort during the remainder of the year. However, given the uncertainties surrounding the level of reported effort in the FLS, these estimates of observer coverage are highly uncertain. The Shark Drift Gillnet Observer Program attempted to cover 100% of shark gillnet trips by the fleet during 2002 (Carlson and Baremore 2002, Garrison 2003b).

Comments: There is a significant level of uncertainty surrounding estimating the total level of effort in this fishery. There is direct evidence of inconsistency in reporting. It is not possible to distinguish trips targeting sharks from those targeting other fish species, and it is not possible to distinguish strike sets from drift sets in the logbook data. However, the overall marine mammal and sea turtle bycatch rate is very low, therefore it is unlikely that even severe biases would result in large increases in the estimated total protected species bycatch in this fishery. In addition to marine mammal interactions, this fishery has been the subject of management concern due to recent interactions with endangered sea turtles including Leatherback and Loggerhead Turtles.

Protected Species Interactions: Coastal Bottlenose Dolphin and Atlantic Spotted Dolphin

Atlantic Blue Crab Trap/Pot

The Blue Crab Trap/Pot Fishery is broadly distributed in estuarine and nearshore coastal waters throughout the Mid-Atlantic. The fishery is estimated to have >16,000 participants deploying gear on a year-round basis. Pots are baited with fish or poultry and are typically set in rows in shallow water. The pot position is marked by either a floating or sinking buoy line attached to a surface buoy. In recent years, reports of strandings with evidence of interactions between Bottlenose Dolphins and both recreational and commercial Crab Pot Fisheries have been increasing in the Southeast region (McFee and Brooks 1998). Interactions with crab pots appear to generally involve a dolphin becoming wrapped in the buoy line. The total number of these interactions and associated mortality rates has not been documented. The fishery has been defined as a Category II fishery in the 2003 List of Fisheries (68 FR 41725, 50 CFR Part 229).

Mid-Atlantic Haul/Beach Seine

A Beach Seine Fishery operates along northern North Carolina beaches targeting Striped Bass, Mullet, Spot, Weakfish, Sea Trout, and Bluefish. The fishery operates on the Outer Banks of North Carolina primarily in the spring (April-June) and fall (October-December). It uses two primary gear types: a “beach anchored gill net” and a “beach seine”. Both systems utilize a small net anchored to the beach. The beach seine system also uses a bunt and a wash net that are attached to the beach and are in the surf (Steve et al. 2001). The North Carolina Beach Seine Fishery has been observed since April 7, 1998 by the NMFS Fisheries Sampling Program (Observer Program) based at the NEFSC. Through 2001, there were 101 sets observed during the winter season (Nov-Apr) and 65 sets observed during the summer season (May-Oct). There were no sets observed during the summer of 2001. The fishery has been observed to interact with Coastal Bottlenose Dolphin. This fishery is defined as a Category II fishery in the 2003 List of Fisheries (68 FR 41725, 50 CFR Part 229) and has been the subject of management actions under the developing Atlantic Bottlenose Dolphin Take Reduction Plan.

North Carolina Long Haul Seine

The Long Haul Seine is an estuarine fishery operating in North Carolina waters with 10-15 participants statewide. The seine consists of a 1000-1200 yard long net pulled by two boats for distances of 1-2 nautical miles (Steve *et al.,* 2001). The fishery targets Weakfish, Spot, and Croaker and operates in Pamlico and Core sounds and tributaries. The fishery operates primarily between June and October. Occasional interactions with Coastal Bottlenose Dolphins have been reported, and the fishery is listed as a Category II fishery in the 2003 List of Fisheries (68 FR 41725, 50 CFR Part 229).

North Carolina Roe Mullet Stop Net

The Stop Net Fishery is unique to Bogue Banks, North Carolina and is currently operated by two crews including approximately 20 fishers each (Steve *et al.* 2001). The gear consists of a stationary, multi-filament anchored net extended perpendicular to the beach to stop the alongshore migration of Striped Mullet. Once the catch accumulates near the end of the stop net, a beach haul seine is used to capture fish and bring them ashore. The stop net is traditionally left in the water for 1 to 5 days during the fishery season from October to November (Steve *et al.* 2001). Interactions between this fishery and Coastal Bottlenose Dolphins have been reported; however, the total number of interactions has not been estimated. The Stop Net Fishery is listed as a Category II fishery in the 2003 List of Fisheries (68 FR 41725, 50 CFR Part 229).

Virginia Pound Net

Pound Nets are a stationary gear fished in nearshore coastal and estuarine waters of Virginia. The gear consists of a large mesh lead posted perpendicular to the shoreline extending outward to the corral, or "heart", where the catch accumulates. Target species included Weakfish, Spot, and Croaker. Occasional interactions with Coastal Bottlenose Dolphins have been observed. Data from the Chesapeake Bay suggests that the likelihood of Bottlenose Dolphin entanglement in pound net leads may be affected by the mesh size of the lead net (Bellmund *et al.* 1997), but the information is not conclusive. Stranded Bottlenose Dolphins have also shown evidence of interactions with pound nets. The fishery was classified as a Category II fishery in the 2003 List of Fisheries (68 FR 41725, 50 CFR Part 229).

Atlantic Menhaden Purse Seine

Between 1994 and 1997, two fleets of 9-10 vessels each operated out of two processing facilities in Reedville Beach, Virginia and one fleet of 2-6 vessels operated out of a Beaufort, North Carolina processing facility. Most of the sets occurred within three miles of shore during this time. Since 1998, only one plant has been operational in Virginia with a total fleet of 10 vessels, and the fleet in Beaufort has been reduced to two vessels. The majority of the effort occurs off North Carolina from November through January, moving northward during warmer months to southern New England. Occasional interactions with Coastal Bottlenose Dolphins have been recorded historically in this fishery. However, there is no observer coverage in this fishery, and the level of incidental interactions with marine mammals is undocumented. The Atlantic Menhaden Purse Seine Fishery is listed as Category III in the 2003 List of Fisheries (68 FR 41725, 50 CFR Part 229).

Southeastern U.S. Atlantic Shrimp Trawl

The Shrimp Trawl Fishery operates from North Carolina through northern Florida virtually year-round, moving seasonally up and down the coast. A recent estimate of fishing effort based upon state dealer trip reports included approximately 23,000 shrimping trips (Epperly *et al.* 2002). The gear consists of relatively fine-meshed trawls typically fished in a paired fashion on either side of a fishing vessel. Effort occurs in both estuarine and nearshore coastal waters. The Shrimp Trawl Fishery has long been the focus of management actions associated with significant bycatch of both fish species and sea turtles. Observer coverage is typically very sparse and non-systematic. Occasional interactions with Bottlenose Dolphins have been observed, and there is infrequent evidence of interactions from stranded animals. The Shrimp Trawl fishery is listed as a Category III fishery in the 2003 List of Fisheries (68 FR 41725, 50 CFR Part 229).

III. Historical Fishery Descriptions

Atlantic foreign mackerel

Prior to 1977, there was no documentation of marine mammal bycatch in DWF activities off the Northeast coast of the U.S. With implementation of the Magnuson Fisheries Conservation and Management Act (MFCMA) in that year, an Observer Program was established which recorded fishery data and information on incidental bycatch of marine mammals. DWF effort in the U.S. Atlantic Exclusive Economic Zone (EEZ) under MFCMA had been directed primarily towards Atlantic Mackerel and Squid. From 1977 through 1982, an average mean of 120 different foreign vessels per year (range 102-161) operated within the U.S. Atlantic EEZ. In 1982, there were 112 different foreign vessels; 16%, or 18, were Japanese Tuna longline vessels operating along the U.S. east coast. This was the first year that the Northeast Regional Observer Program assumed responsibility for observer coverage of the longline vessels. Between 1983 and 1991, the numbers of foreign vessels operating within the U.S. Atlantic EEZ each year were 67, 52, 62, 33, 27, 26, 14, 13, and 9 respectively. Between 1983 and 1988, the numbers of DWF vessels included 3, 5, 7, 6, 8, and 8 respectively, Japanese longline vessels. Observer coverage on DWF vessels was 25-35% during 1977-1982, and increased to 58%, 86%, 95% and 98%, respectively, in 1983-1986. One hundred percent observer coverage was maintained during 1987-1991. Foreign fishing operations for Squid ceased at the end of the 1986 fishing season and for Mackerel at the end of the 1991 season.

Pelagic Drift Gillnet

In 1996 and 1997, NMFS issued management regulations which prohibited the operation of this fishery in 1997. The fishery operated during 1998. Then, in January 1999 NMFS issued a Final Rule to prohibit the use of drift net gear in the North Atlantic Swordfish Fishery (50 CFR Part 630). In 1986, NMFS established a mandatory self-reported fisheries information system for Large Pelagic Fisheries. Data files are maintained at the SEFSC. The estimated total number of

hauls in the Atlantic Pelagic Drift Gillnet Fishery increased from 714 in 1989 to 1,144 in 1990; thereafter, with the introduction of quotas, effort was severely reduced. The estimated number of hauls from 1991 to 1996 was 233, 243, 232, 197, 164, and 149 respectively. Fifty-nine different vessels participated in this fishery at one time or another between 1989 and 1993. In 1994 to 1998 there were 11, 12, 10, 0, and 11 vessels, respectively, in the fishery. Observer coverage, expressed as percent of sets observed, was 8% in 1989, 6% in 1990, 20% in 1991, 40% in 1992, 42% in 1993, 87% in 1994, 99% in 1995, 64% in 1996, no fishery in 1997, and 99% coverage during 1998. Observer coverage dropped during 1996 because some vessels were deemed too small or unsafe by the contractor that provided observer coverage to NMFS. Fishing effort was concentrated along the southern edge of Georges Bank and off Cape Hatteras, North Carolina. Examination of the species composition of the catch and locations of the fishery throughout the year suggest that the Drift Gillnet Fishery was stratified into two strata: a southern, or winter, stratum and a northern, or summer, stratum.

Atlantic Tuna Purse Seine

The Tuna Purse Seine Fishery occurring between Cape Cod, Massachusetts and Cape Hatteras, North Carolina is directed at small and medium Bluefin and Skipjack Tuna for the canning industry, while the fishery north of Cape Cod, Massachusetts is directed at large medium and giant Bluefin Tuna. These two fisheries are entirely separate from other Atlantic Tuna Purse Seine Fisheries. Spotter aircraft are used to locate fish schools. The official start date, set by regulation, is August 15. Individual Vessel Quotas (IVQs) and a limited access system prevent a derby fishery situation. Catch rates for large medium and giant Tuna are high and consequently, the season usually only lasts a few weeks. The 1996 regulations allocated 250MT (5 IVQs) with a minimum of 90% giants and 10% large mediums.

Limited observer data is available for the Atlantic Tuna Purse Seine Fishery. Out of 45 total trips made in 1996, 43 trips (95.6%) were observed. Forty-four sets were made on the 43 observed trips and all sets were observed. A total of 136 days were covered. No trips were observed during 1997 through 1999. Two trips (seven hauls) were observed in October 2000 in the Great South Channel Region. Four trips were observed in September 2001. No marine mammals were observed taken during these trips.

Atlantic Tuna Pelagic Pair Trawl

The Pelagic Pair Trawl Fishery operated as an experimental fishery from 1991 to 1995, with an estimated 171 hauls in 1991, 536 in 1992, 586 in 1993, 407 in 1994, and 440 in 1995. This fishery ceased operations in 1996 when NMFS rejected a petition to consider pair trawl gear as an authorized gear type in the Atlantic Tuna Fishery. The fishery operated from August to November in 1991, from June to November in 1992, from June to October in 1993 (Northridge 1996), and from mid-summer to December in 1994 and 1995. Sea sampling began in October of 1992 (Gerrior et al. 1994) where 48 sets (9% of the total) were sampled. In 1993, 102 hauls (17% of the total) were sampled. In 1994 and 1995, 52% (212) and 55% (238), respectively, of the sets were observed. Nineteen vessels have operated in this fishery. The fishery operated in the area between 35°N to 41°N and 69°W to 72°W. Approximately 50% of the total effort was within a one degree square at 39°N, 72°W, around Hudson Canyon, from 1991 to 1993. Examination of the 1991-1993 locations and species composition of the bycatch, showed little seasonal change for the six months of operation and did not warrant any seasonal or areal stratification of this fishery (Northridge 1996). During the 1994 and 1995 Experimental Pelagic Pair Trawl Fishing Seasons, fishing gear experiments were conducted to collect data on environmental parameters, gear behavior, and gear handling practices to evaluate factors affecting catch and bycatch (Goudey 1995, 1996), but the results were inconclusive.

Part B. Description of U.S. Gulf of Mexico Fisheries

I. Data Sources

Items 1 and 2 describe sources of marine mammal mortality, serious injury or entanglement data, and item 3 describes the source of commercial fishing effort data used to generate maps depicting the location and amount of fishing effort and the numbers of active permit holders. In general, commercial fisheries in the Gulf of Mexico have had little directed observer coverage and the level of fishing effort for most fisheries that may interact with marine mammals is either not reported or highly uncertain. With the exception of the Large Pelagics Longline Fishery, no incidental take estimates are possible for Gulf of Mexico commercial fisheries.

1. Southeast Region Fishery Observer Programs

Two fishery observer programs are managed by the SEFSC that observe commercial fishery activity in the U.S. Gulf of Mexico. The Pelagic Longline Observer Program (POP) administers a mandatory observer program for the U.S.

Atlantic Large Pelagics Longline Fishery. The program has been in place since 1992, and randomly allocates observer effort by eleven geographic fishing areas proportional to total reported effort in each area and quarter. Observer coverage levels are mandated under the Highly Migratory Species FMP (HMS FMP, 50 CFR Part 635). The second is the Southeastern Shrimp Otter Trawl Fishery Observer Program. This is a voluntary program administered by SEFSC in cooperation with the Gulf and South Atlantic Fisheries Foundation. The program is funding and project dependent, and therefore observer coverage is not necessarily randomly allocated across the fishery. The total level of observer coverage for this program is <<1% of the total fishery effort. In each Observer Program the observers record information on the total target species catch, the number and type of interactions with protected species including both marine mammals and sea turtles, and biological information on species caught.

2. Regional Marine Mammal Stranding Networks

The Southeast Regional Stranding Network is a component of the Marine Mammal Health and Stranding Response Program (MMHSRP). The goals of the MMHSRP are to facilitate collection and dissemination of data, assess health trends in marine mammals, correlate health with other biological and environmental parameters, and coordinate effective responses to unusual mortality events (Becker *et al.* 1994). The Southeast Region Strandings Program is responsible for data collection and stranding response coordination along the U.S. Gulf of Mexico coast from Florida through Texas. Prior to 1997, stranding and entanglement data were maintained by the New England Aquarium and the National Museum of Natural History, Washington, D.C. Volunteer participants, acting under a letter of agreement with NOAA Fisheries, collect data on stranded animals that include: species; event date and location; details of the event including evidence of human interactions; determinations of the cause of death; animal disposition; morphology; and biological samples. Collected data are reported to the appropriate Regional Stranding Network Coordinator and are maintained in regional and national databases.

3. Southeast Region Fisheries Logbook System

The FLS is maintained at the SEFSC and manages data submitted from mandatory fishing vessel logbook programs under several FMPs. In 1986, a comprehensive logbook program was initiated for the Large Pelagics Longline Fisheries, and this reporting became mandatory in 1992. Logbook reporting has also been initiated since the early 1990s for a number of other fisheries including: Reef Fish Fisheries; Snapper-Grouper Complex Fisheries; federally managed Shark Fisheries; and King and Spanish Mackerel Fisheries. In each case, vessel captains are required to submit information on the fishing location, the amount and type of fishing gear used, the total amount of fishing effort (e.g., gear sets) during a given trip, the total weight and composition of the catch, and the disposition of the catch during each unit of effort (e.g., kept, released alive, released dead). FLS data are used to estimate the total amount of fishing effort in the fishery and thus expand bycatch rate estimates from observer data to estimates of the total incidental take of marine mammal species in a given fishery.

II. Gulf of Mexico Commercial Fisheries

Atlantic Ocean, Caribbean, Gulf of Mexico Large Pelagics Longline

Target Species: Large pelagic fish species including: Swordfish, Yellowfin Tuna, Bigeye Tuna, Bluefin Tuna, Albacore Tuna, Dolphin Fish, Shortfin Mako Shark, and a variety of other shark species.

Number of Permit Holders: < 200

Number of Active Permit Holders: The number of active fishing vessels in the pelagic longline fishery has been declining since a peak number of 338 vessels reporting longline effort during 1993. Over the period from 1996 to 2001, the average number of vessels reporting effort to the fishery logbook system was 216. The number of vessels reporting effort in the entire U.S. Atlantic including the Gulf of Mexico during 2002 was 148. The total number of fishing vessels reporting effort in the Gulf of Mexico during 2002 was 68, though some of these vessels likely also reported fishing effort in other areas (Garrison 2003a).

Total Effort: The total fishing effort in the Gulf of Mexico component of the Pelagic Longline Fishery has remained steady or increased slightly since 1992 and has ranged between 2.5 and 3.7 million hooks. The average effort reported to the FLS between 1996 and 2001 was 4,710 sets and 3.46 million hooks. During 2002, the total reported fishing effort in the Gulf of Mexico component of the fishery was 4,721 sets and 3.48 million hooks (Garrison 2003a.

Temporal and Spatial Distribution: Fishing effort occurs year round and operates in waters both inside and outside the U.S. EEZ throughout Atlantic, Caribbean and Gulf of Mexico waters. The Gulf of Mexico component of the fleet operates both in continental shelf and deep continental slope waters from Florida to Texas.

Gear Characteristics: The pelagic longline gear consists of a mainline of >700-lb test monofilament typically ranging between 10 and 45 miles long. At regular intervals along the mainline, bullet-shaped floats are suspended and long sections of the gear are marked by "high-flyers" or radio beacons. Suspended from the mainline are long gangion lines of 200 to 400-lb test monofilament that are typically 100 to 200 feet in length. Fishing depths are most typically between 40 and 120 feet. Hooks of various sizes are attached by a steel swivel leader. Hooks may be of the straight shank "J" type hook or circle shaped hooks and the hook end may be offset from the shank. A variety of bait types are used depending on the target species, but most typically include whole, frozen squid or fish baits such as sardine or mackerel. A combination of different hook and bait types may be used on a single set. Longline sets targeting tunas are typically set at dawn and soak throughout the day with recovery near dusk. Those sets targeting swordfish are more typically night sets. The total amount of time the gear remains in the water including set, soak, and haul times is typically 10-14 hours.

Management and Regulations: The Large Pelagics Longline Fishery is listed as a Category I fishery under the MMPA due to frequently observed interactions with marine mammals (68 FR 41725, 50 CFR Part 229). The directed fishery is managed under the FMP for Atlantic Tunas, Swordfish, and Sharks (Highly Migratory Species FMP, 50 CFR Part 635). The fishery has also been the focus of management actions relating to bycatch of billfish. Amendment One to the Atlantic Billfish FMP also pertains to the Large Pelagics Longline Fishery and is consistent with the regulations in the Highly Migratory Species FMP. This fishery is also regulated under the Endangered Species Act resulting from frequent interactions with endangered sea turtle species including both Loggerhead and Leatherback Turtles in the Atlantic and Gulf of Mexico.

Observer Coverage: The Pelagic Longline Observer Program (POP) is a mandatory observer program managed by the SEFSC that has been in place since 1992. Observers are placed upon randomly selected vessels with total observer effort allocated on a geographic basis proportional to the total amount of fishing effort reported by the fleet. The target observer coverage level was 5% of reported sets through 2001, and has recently been elevated to 8% of total sets. Between 1996 and 2001, observer coverage of reported sets in the Gulf of Mexico component of the fishery was 3%, 3%, 2%, 4%, 4%, and 4%. Observer coverage in the Gulf of Mexico during 2002 was 3.28% of reported sets; however, coverage was as high as 4.4% in some seasons (Garrison 2003a).

Comments: This fishery has been the subject of numerous management actions over the last four years associated with bycatch of both billfish and sea turtles. These changes have resulted in a reduction of overall fishery effort and in the behaviors of the fishery. The most significant change was the closure of the Northeast Distant Water Area off the Canadian Grand Banks and near the Azores as of June 1, 2001 (50 CFR Part 635). In the Gulf of Mexico, a year round closure was implemented in two areas in DeSoto Canyon (NMFS, 2003). Additionally, a ban on the use of live fish bait was initiated in 1999 due to concerns over billfish bycatch. The majority of interactions with marine mammals in this fishery in the Gulf of Mexico have been with Risso's Dolphin (Garrison 2003a).

Protected Species Interactions: Gulf of Mexico stocks of Risso's Dolphin, Pantropical Spotted Dolphin, Atlantic Spotted Dolphin, Offshore Bottlenose Dolphin

Gulf of Mexico Shrimp Trawl

The Shrimp Trawl Fishery operates along the Gulf coast of the U.S. virtually year round. Hundreds of thousands of fishing trips are reported annually in the Gulf of Mexico with effort occurring in estuarine, nearshore coastal, and offshore continental shelf waters (Epperly *et al.* 2002). The gear consists of relatively fine-meshed trawls typically fished in a paired fashion on either side of a fishing vessel. Observer coverage is typically very sparse and is not systematic. The Shrimp Trawl Fishery has long been the focus of management actions associated with significant bycatch of both fish species and sea turtles. Occasional interactions with Bottlenose Dolphins have been observed in the Atlantic component of this fishery, and there is infrequent evidence of interactions from stranded animals. The Shrimp Trawl Fishery is listed as a Category III fishery in the 2003 List of Fisheries (68 FR 41725, 50 CFR Part 229).

Gulf of Mexico Blue Crab Trap/Pot Fisheries

The Blue Crab Trap/Pot Fishery is broadly distributed in estuarine and nearshore coastal waters along the Gulf coast. The fishery is estimated to have approximately 4,000 participants deploying gear on a year-round basis (68 FR 41725). Pots

are baited with fish or poultry and are typically set in rows in shallow water. Pot position is marked by either a floating or sinking buoy line attached to a surface buoy. In recent years, reports of strandings in the Atlantic with evidence of interactions between Bottlenose Dolphins and both recreational and commercial Crab Pot Fisheries have been increasing in the Southeast region (McFee and Brooks 1998). Interactions with crab pots appear to generally involve a Dolphin becoming wrapped in the buoy line. The total number of these interactions and associated mortality rates has not been documented. The fishery has been defined as a Category III fishery in the 2003 List of Fisheries (68 FR 41725, 50 CFR Part 229).

Gulf of Mexico Menhaden Fishery

This fishery operates in coastal waters along the Gulf coast, with the majority of fishing effort concentrated off Louisiana. Fishing effort occurs both in bays, sounds, and in nearshore coastal waters. Between 1994 and 1998, fishery effort averaged approximately 23,000 sets annually (Smith *et al.* 2002). No observer data is available for the Gulf of Mexico Menhaden Fishery; however, interactions with Coastal Bottlenose Dolphins have been reported historically in Louisiana and for the similar Atlantic Menhaden Fishery. The fishery has been defined as a Category III fishery in the 2003 List of Fisheries (68 FR 41725, 50 CFR Part 229).

Gulf of Mexico Gillnet Fisheries

Gillnets are not used in Texas, and large gillnets were excluded from Florida state waters after July 1995, but fixed and runaround gillnets are currently in use in Louisiana, Mississippi, and Alabama. These fisheries, for the most part, operate year around. They are state-controlled and licensed, and vary widely in intensity and target species. No marine mammal mortalities associated with Gillnet Fisheries have been reported in these states, but stranding data suggest that marine mammal interactions with gillnets do occur, causing mortality and serious injury. There are no effort or observer data available for these fisheries. The Gulf of Mexico Gillnet Fisheries are listed as Category II fisheries in the 2003 List of Fisheries (68 FR 41725, 50 CFR Part 229).

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Appendix III: Fishery Descriptions - List of Figures

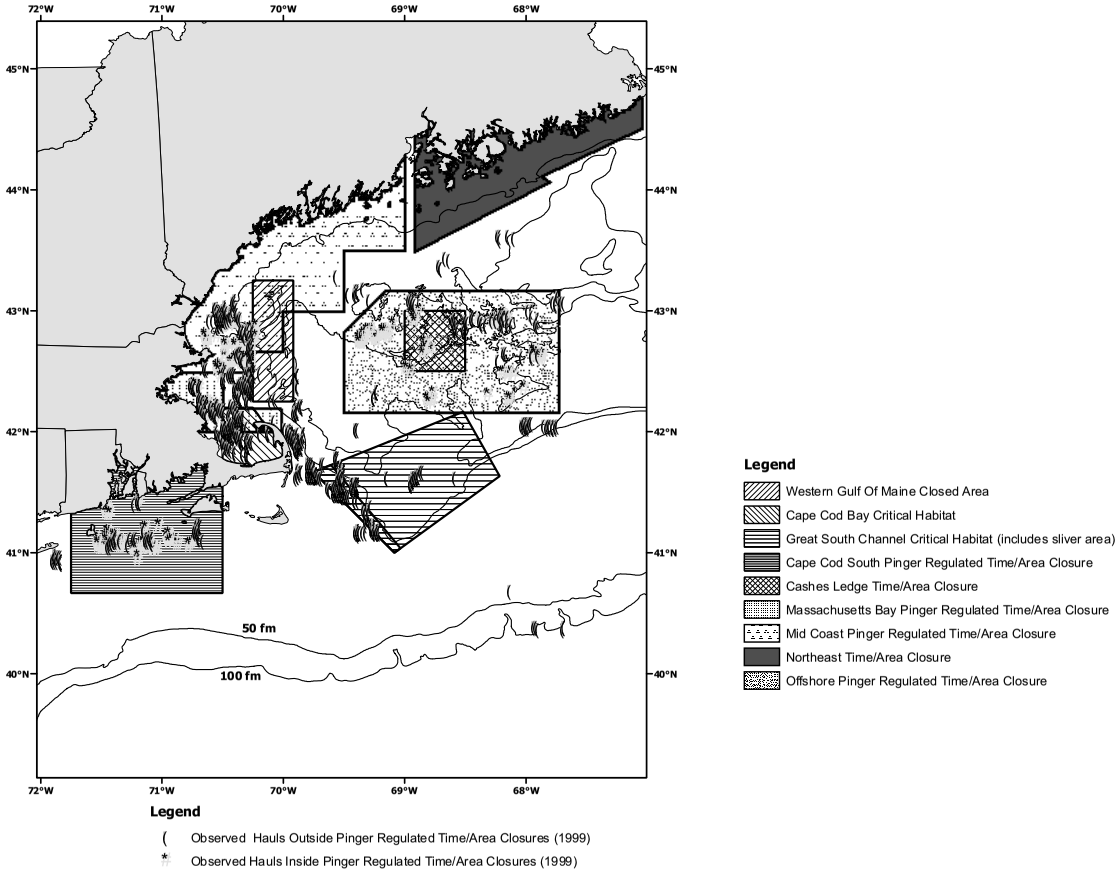
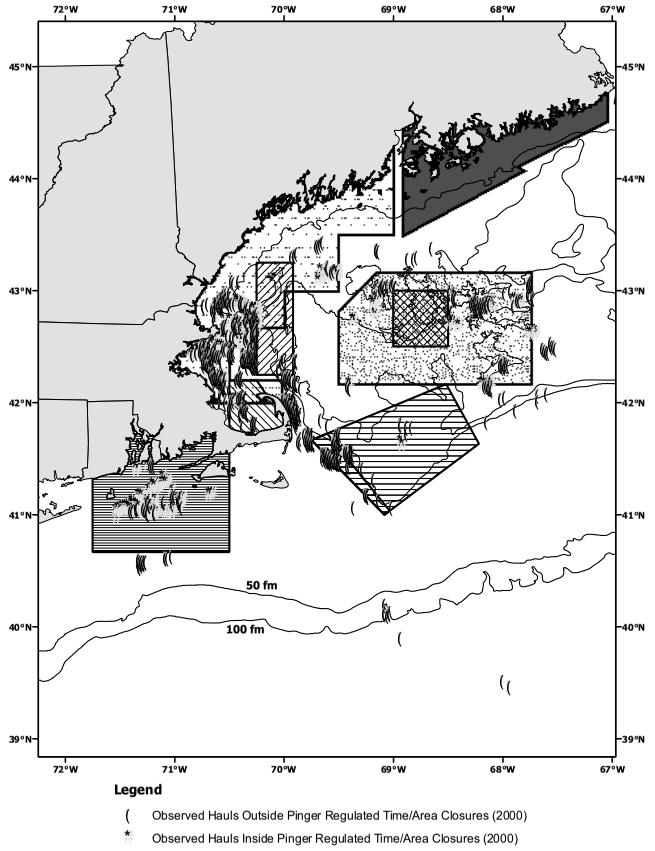


Figure 1. Northeast sink gillnet hauls observed in 1999.



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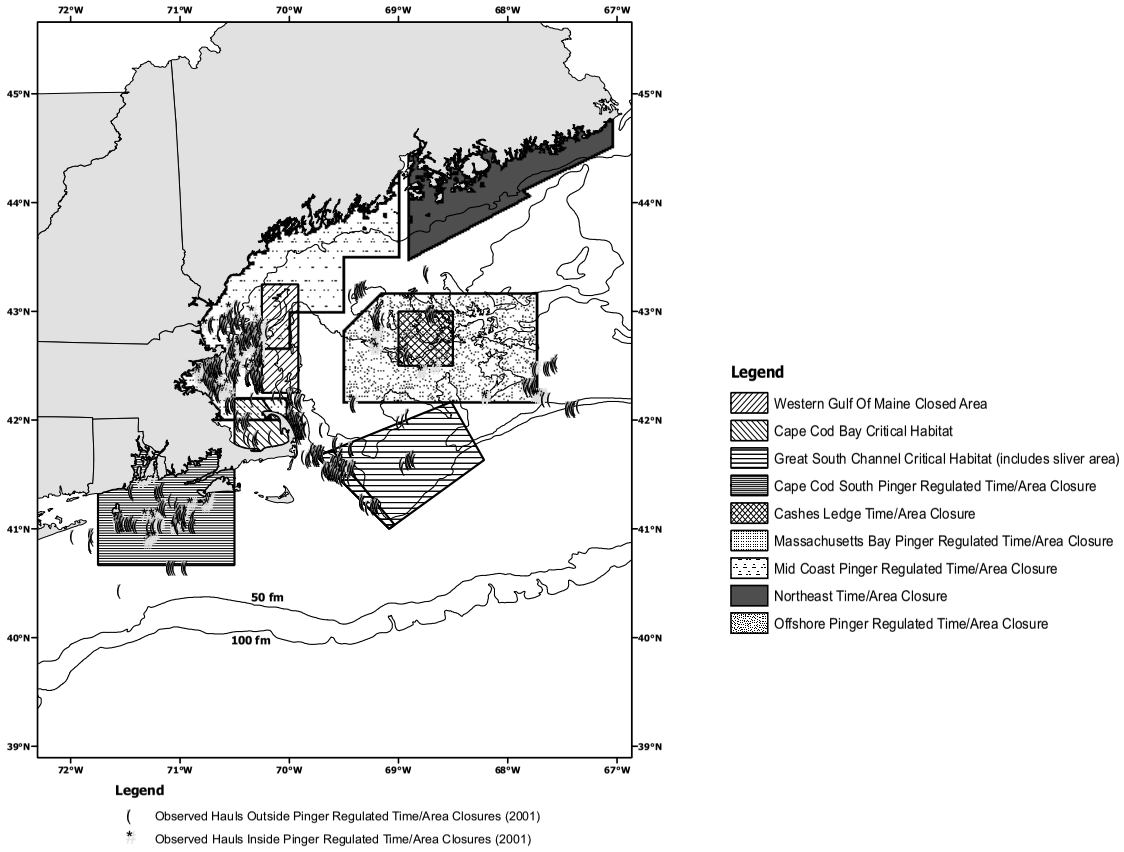

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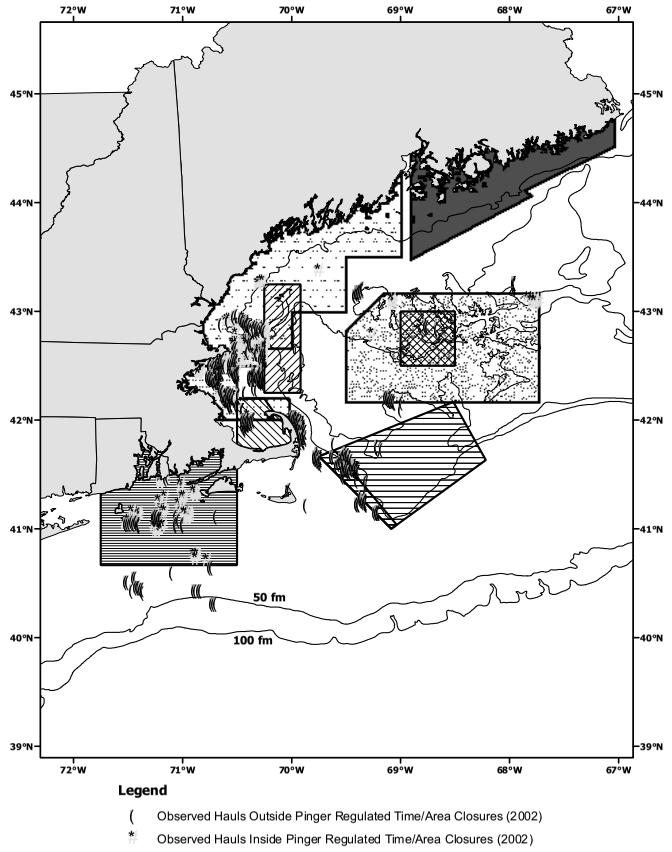

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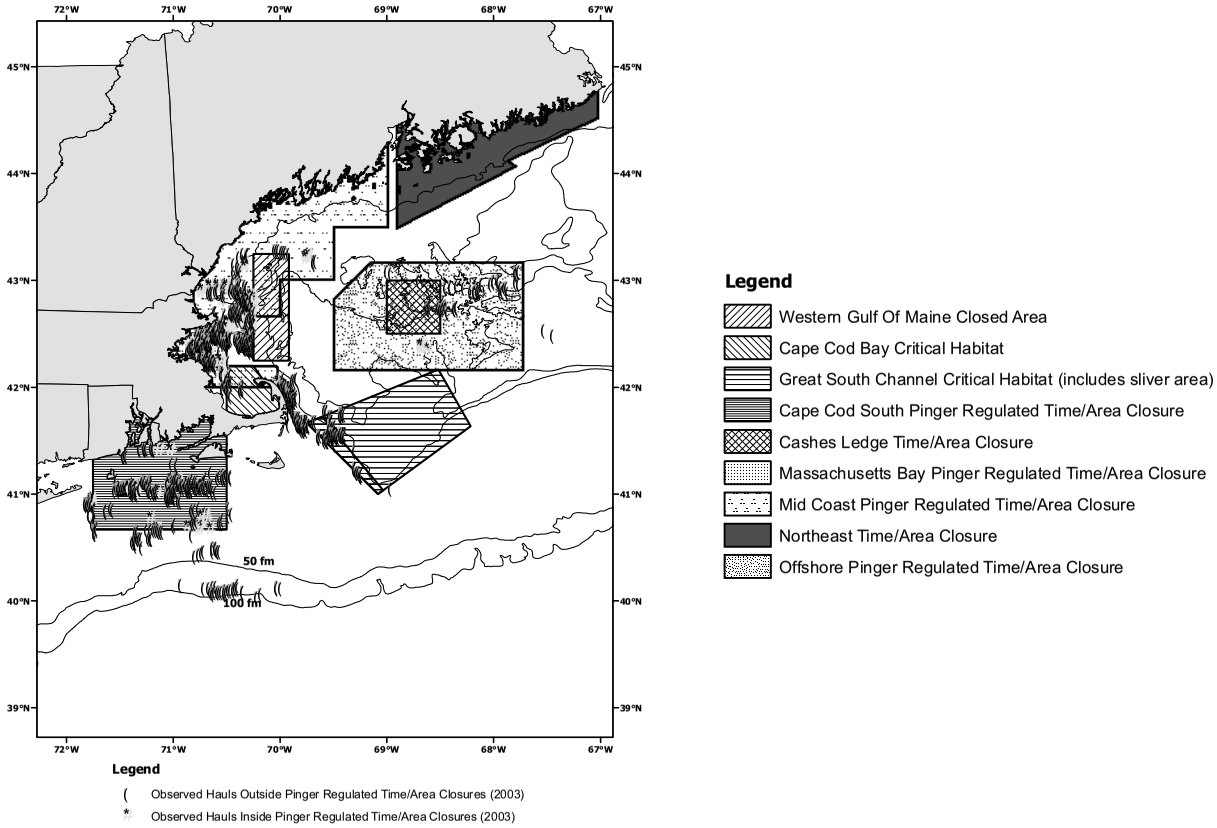

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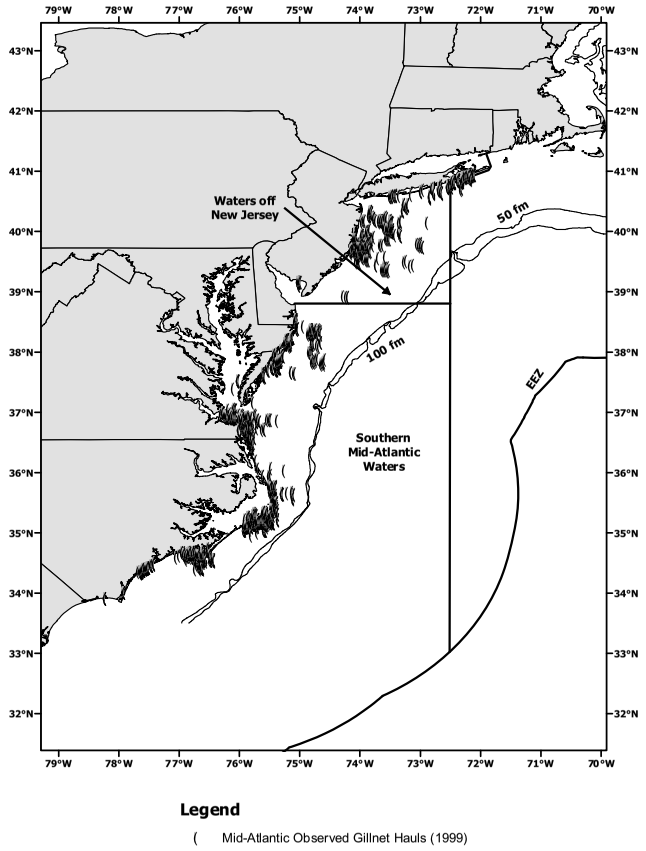

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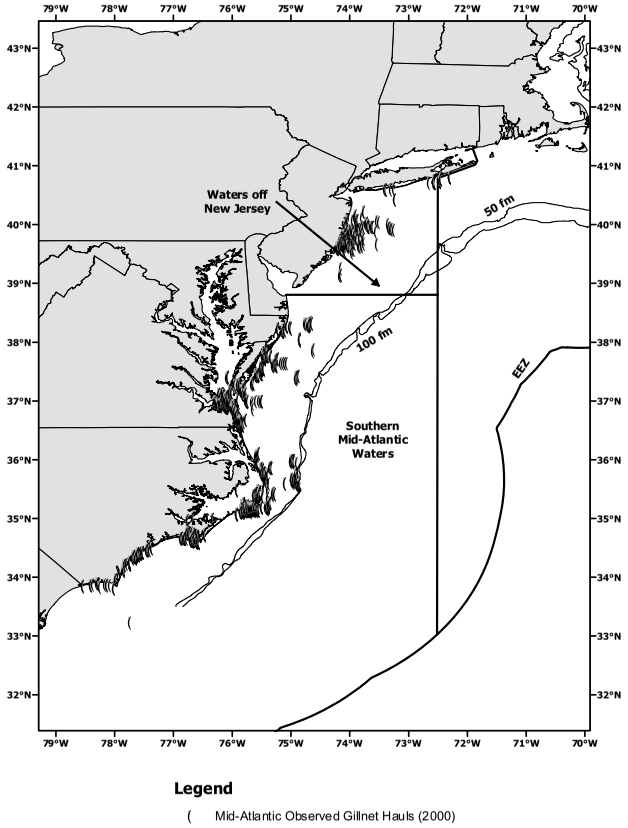

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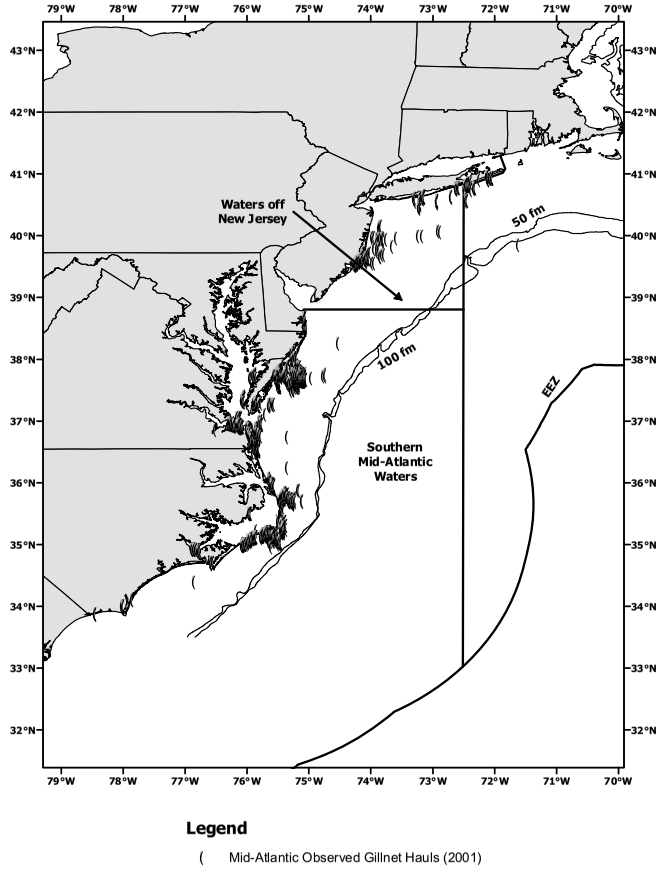

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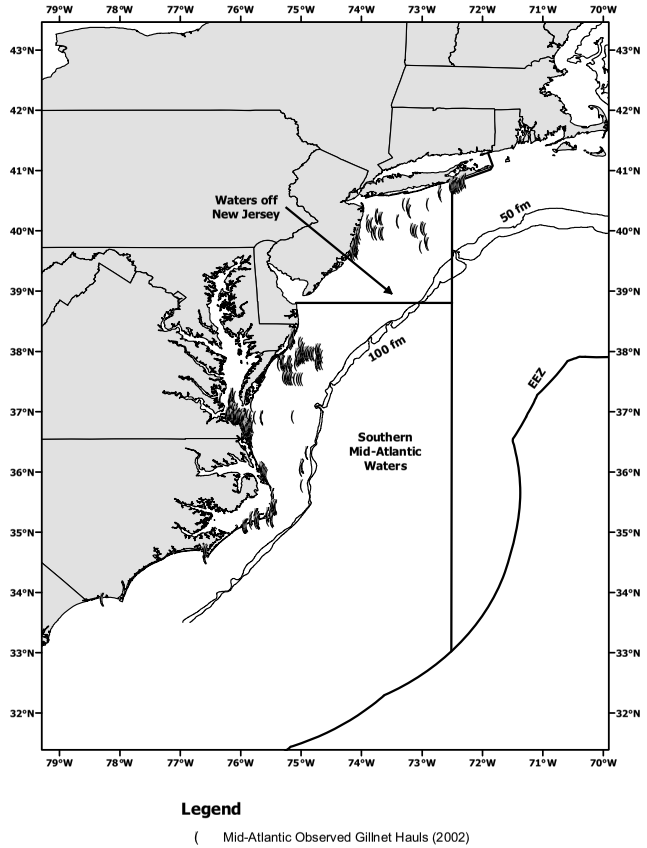

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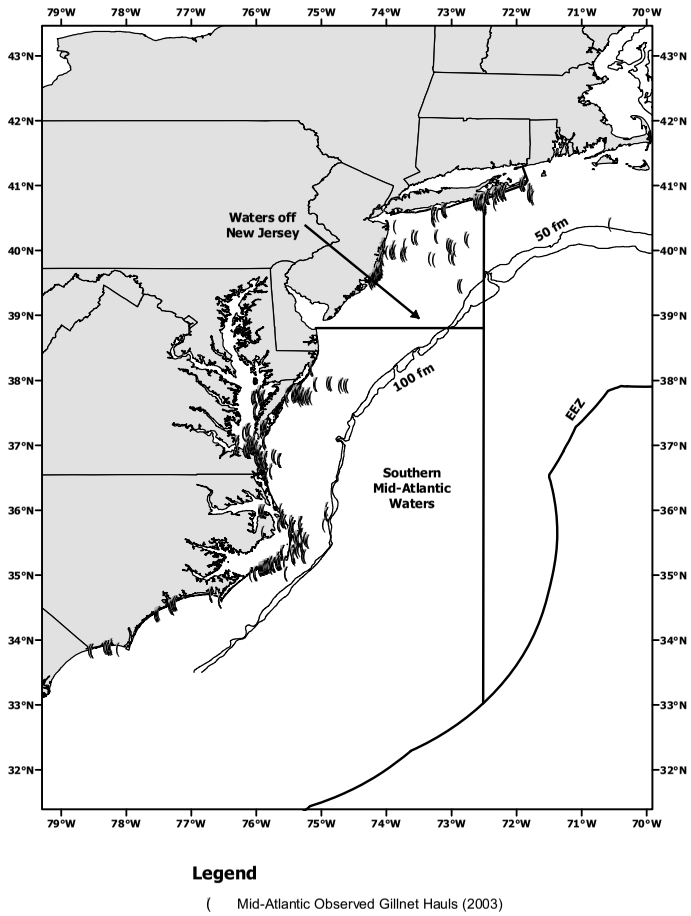

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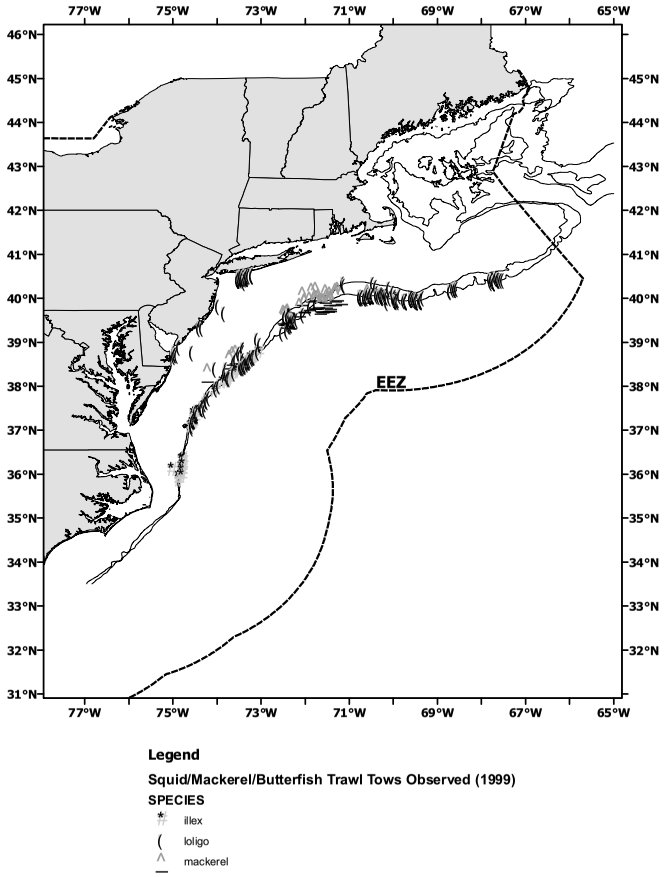
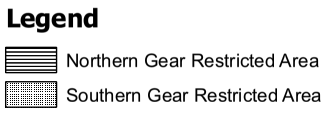




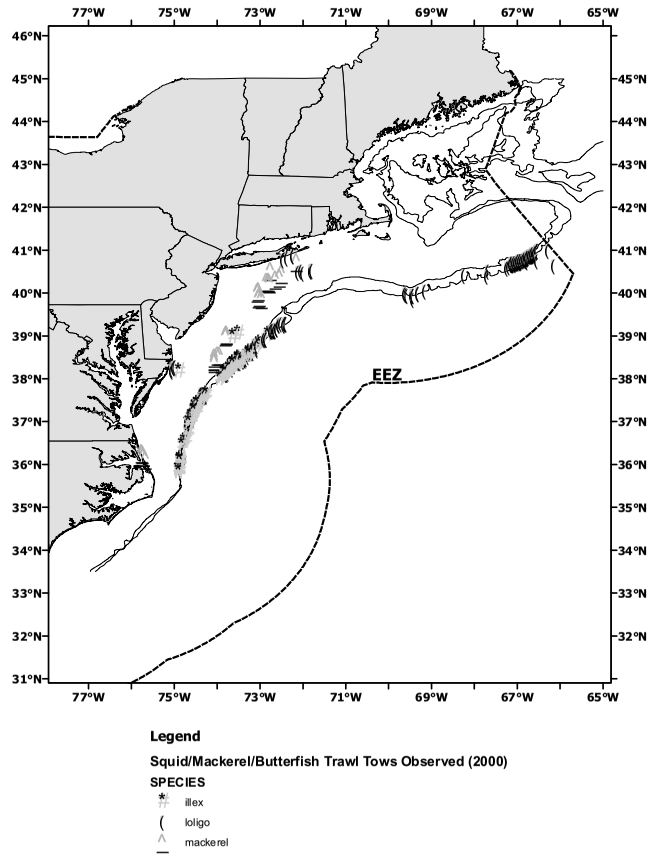


Figure 11. Squid/Mackerel/Butterfish tows observed in 1999.

Figure 12. Squid/Mackerel/Butterfish tows observed in 2000.

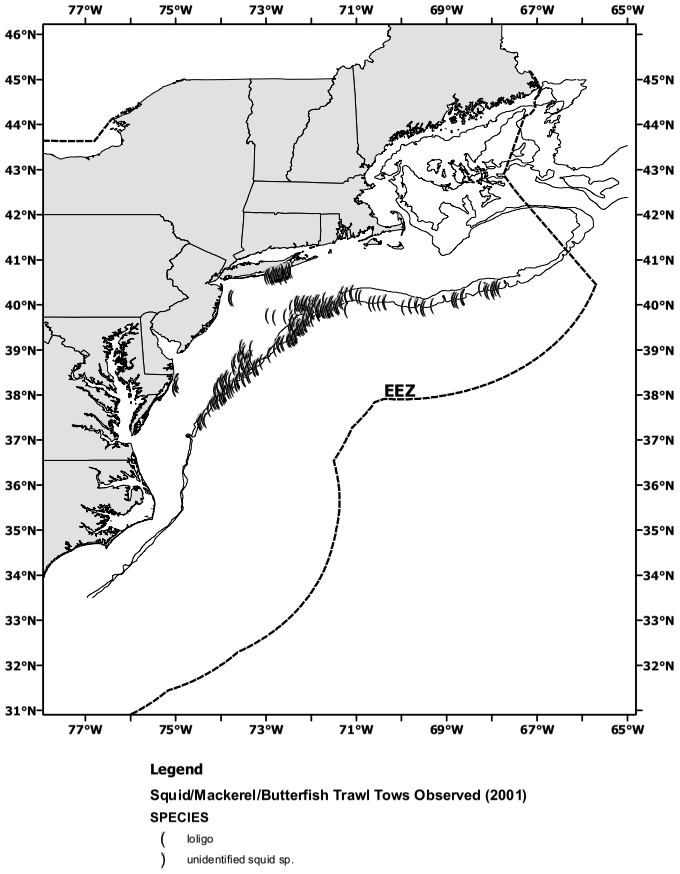
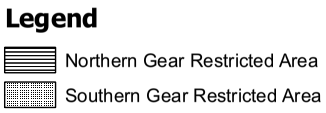
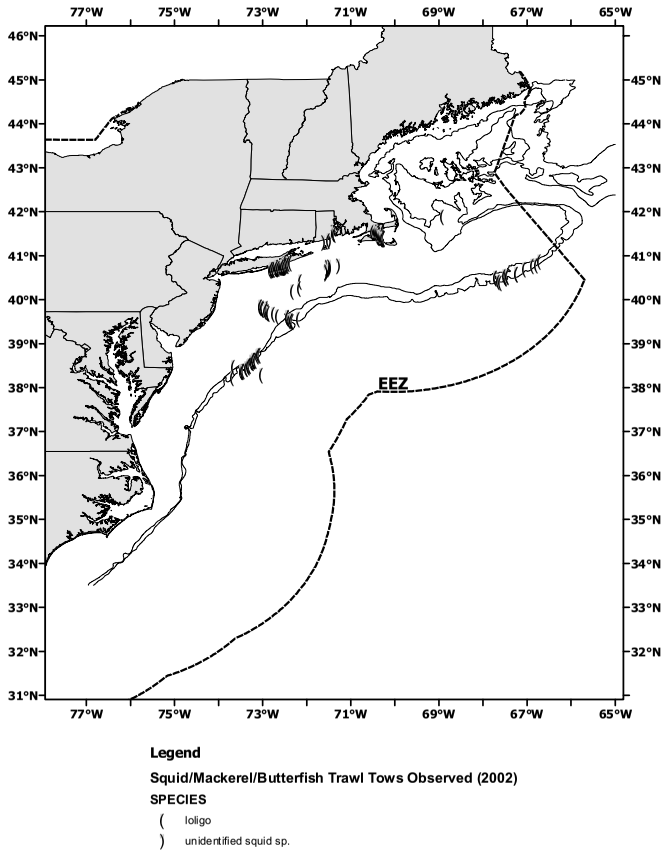


Figure 13. Squid/Mackerel/Butterfish tows observed in 2002.





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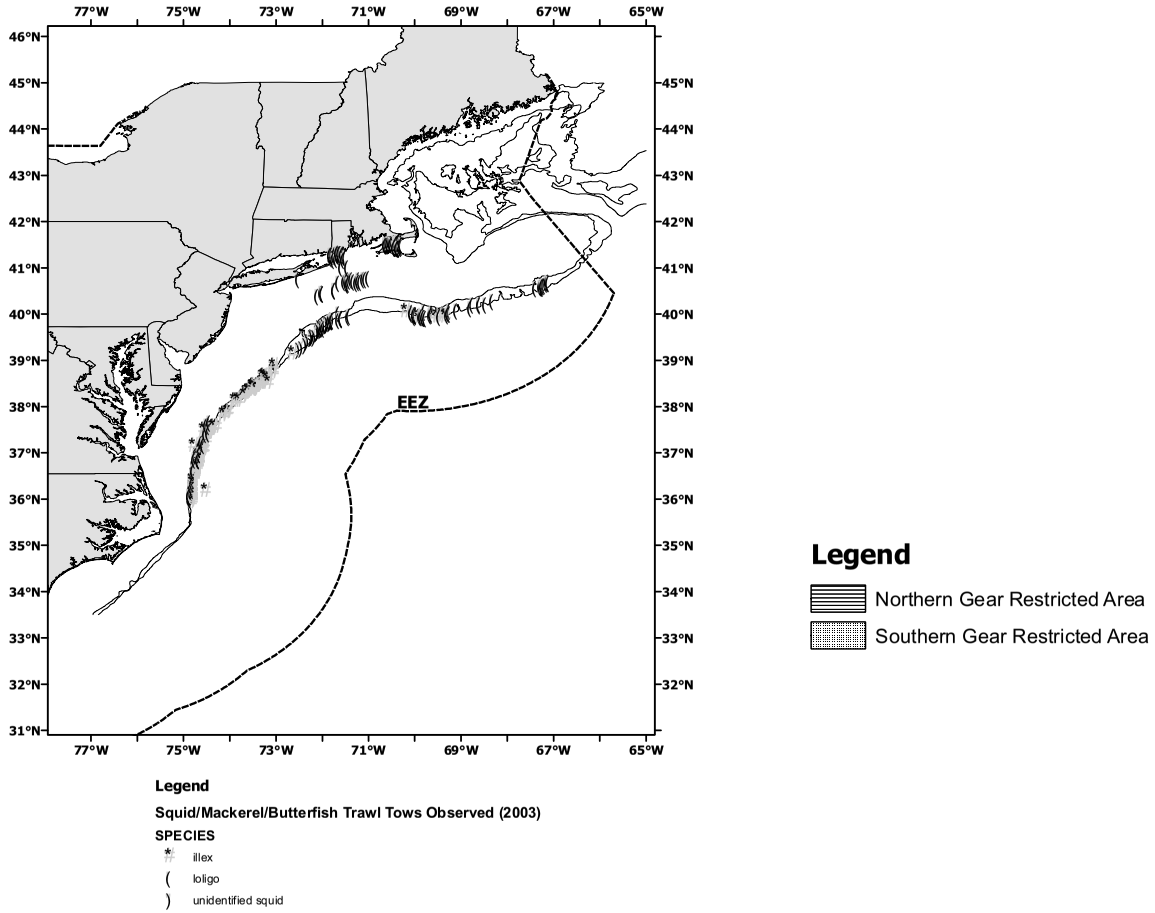

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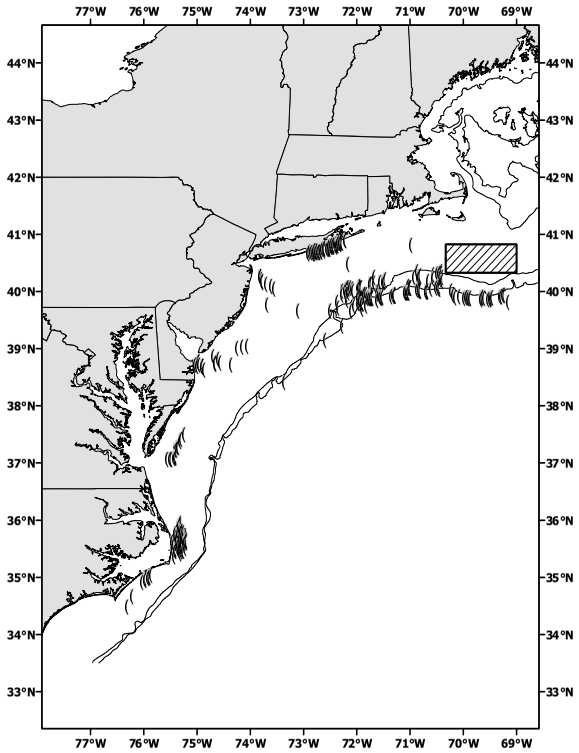
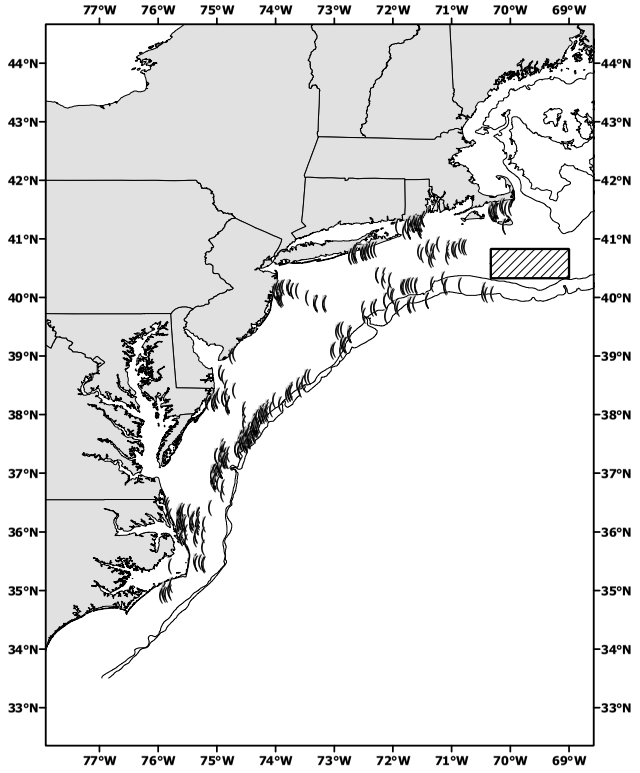


(Mid-Atlantic Mixed Species Trawl Observed Tows (1999)

Figure 16. Mid-Atlantic Mixed Species trawl tows observed in 1999.

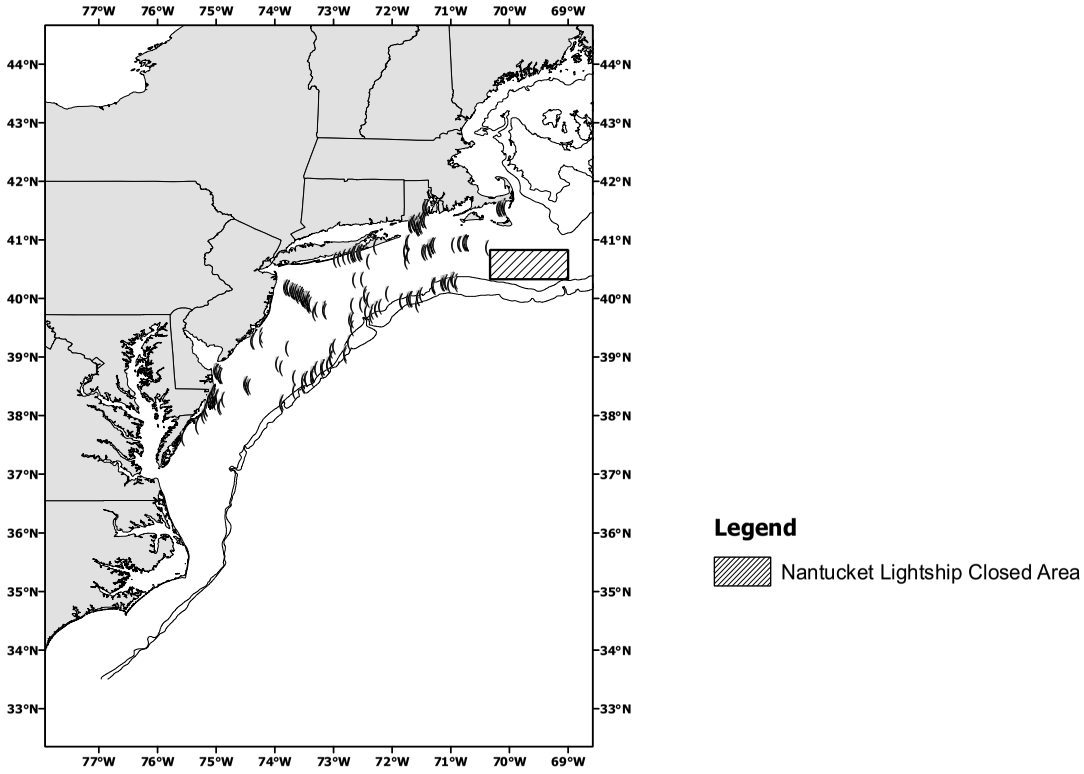
Legend

Nantucket Lightship Closed Area



(Mid-Atlantic Mixed Species Trawl Observed Tows (2000)

Figure 17. Mid-Atlantic Mixed Species trawl tows tows observed in 2000.



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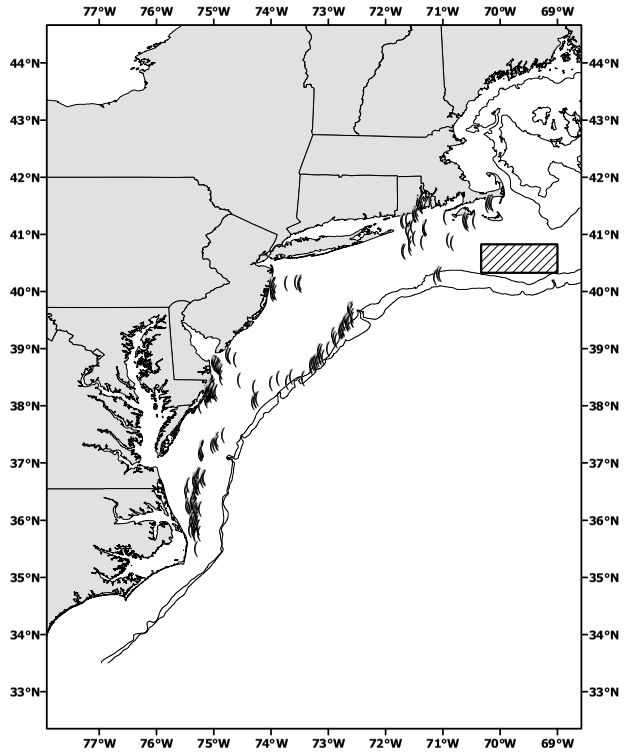

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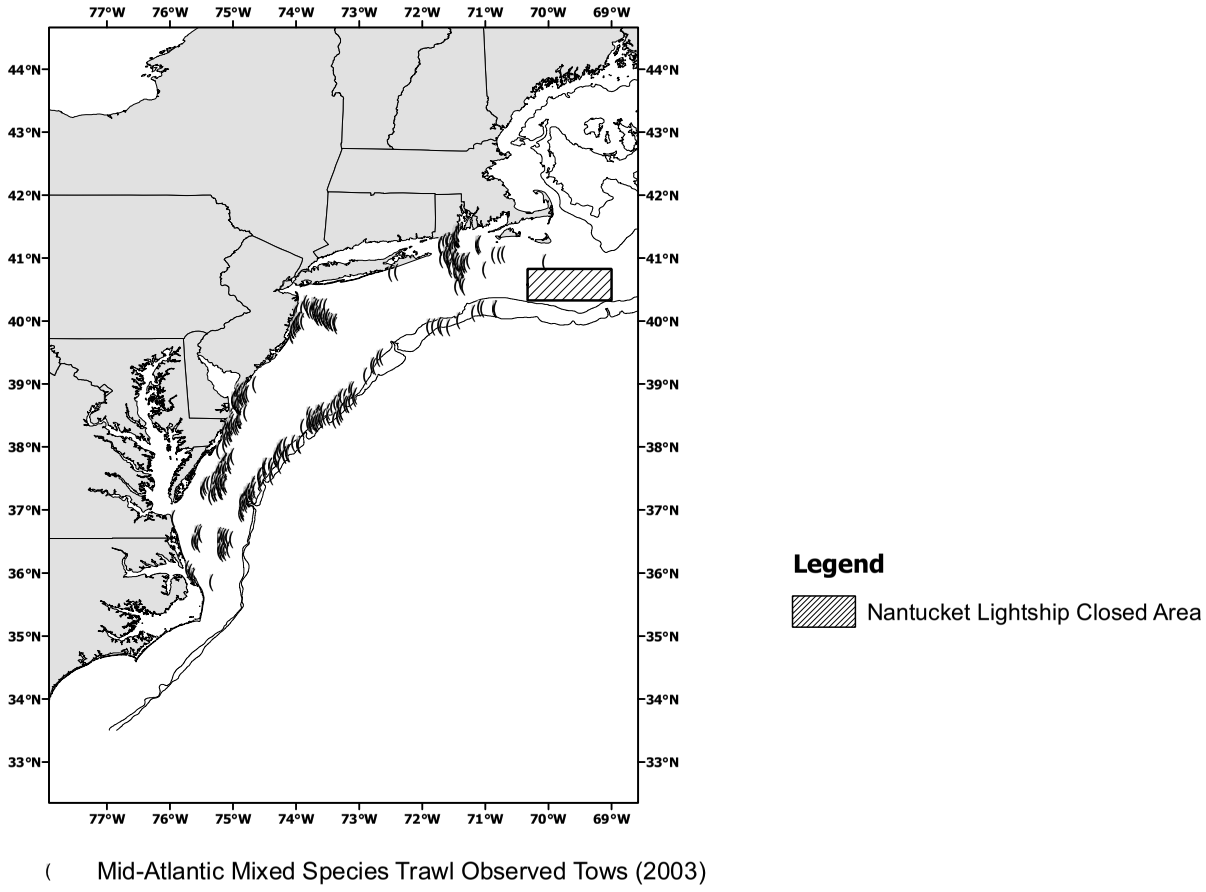

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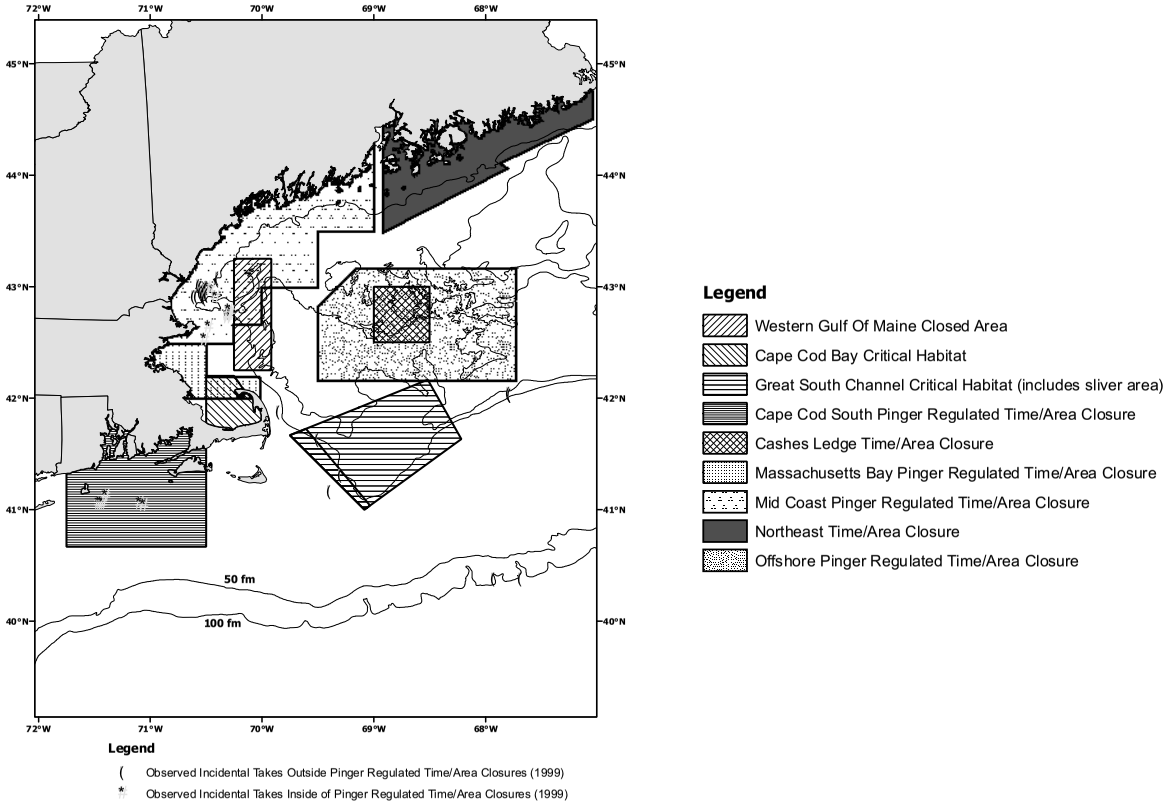
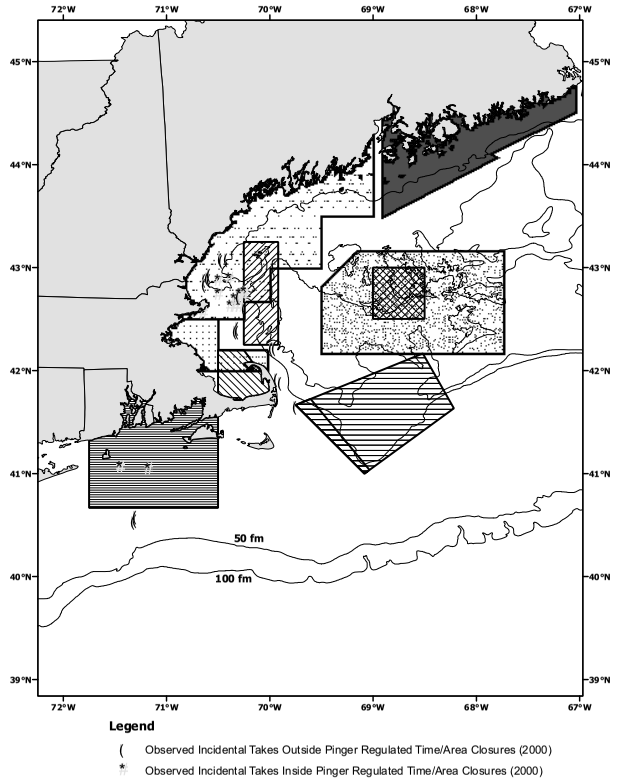


Figure 21. Observed incidental takes in the Northeast sink gillnet fishery in 1999.



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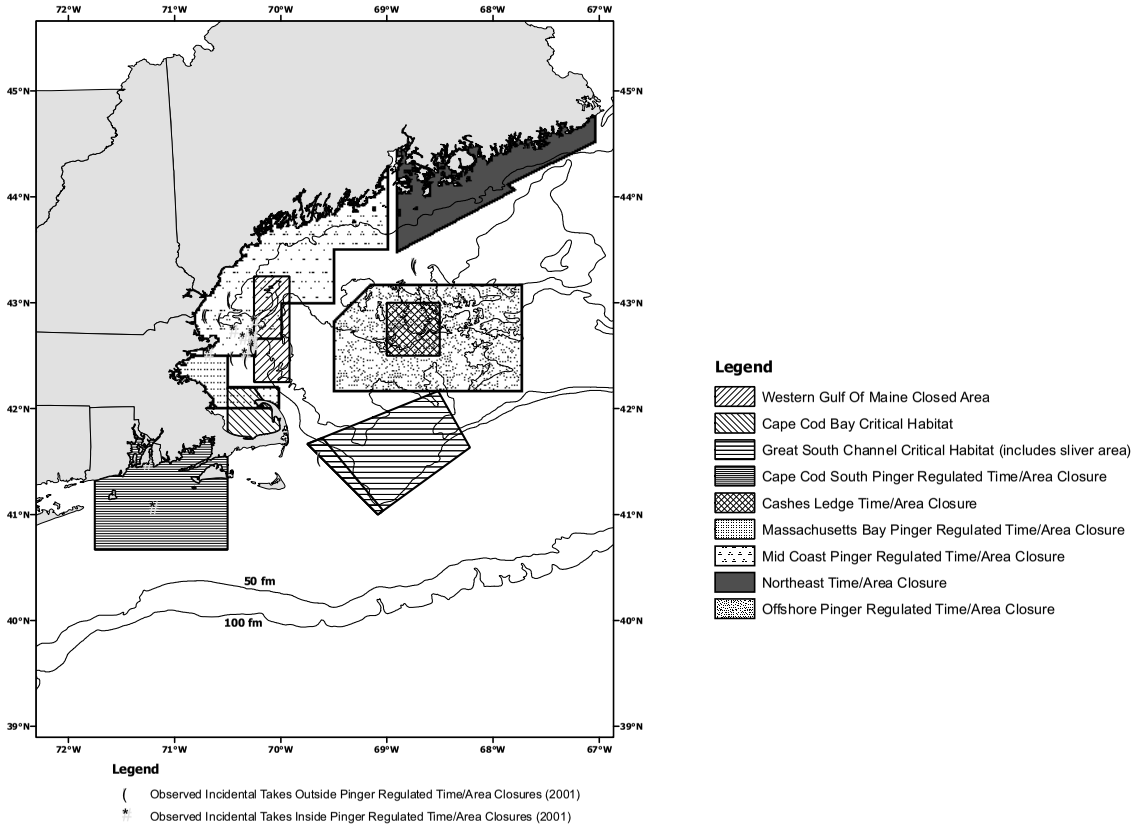

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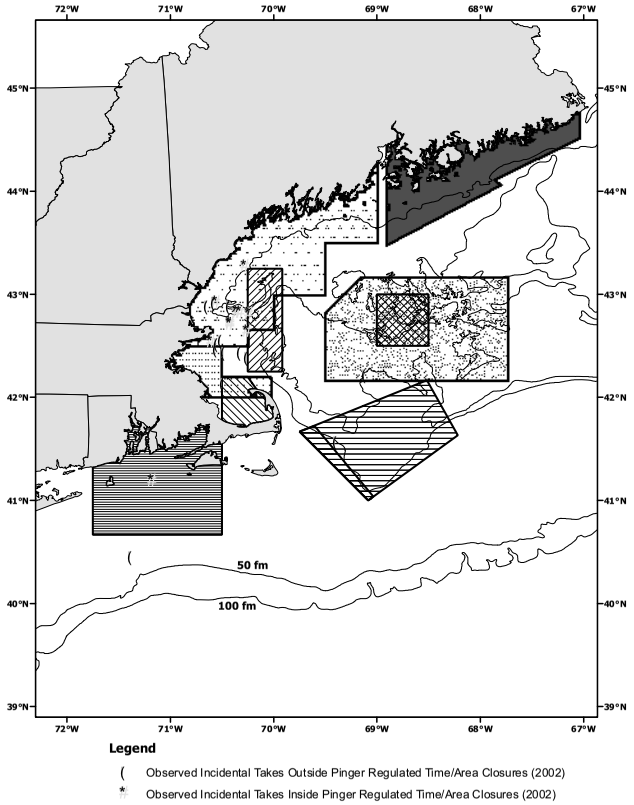

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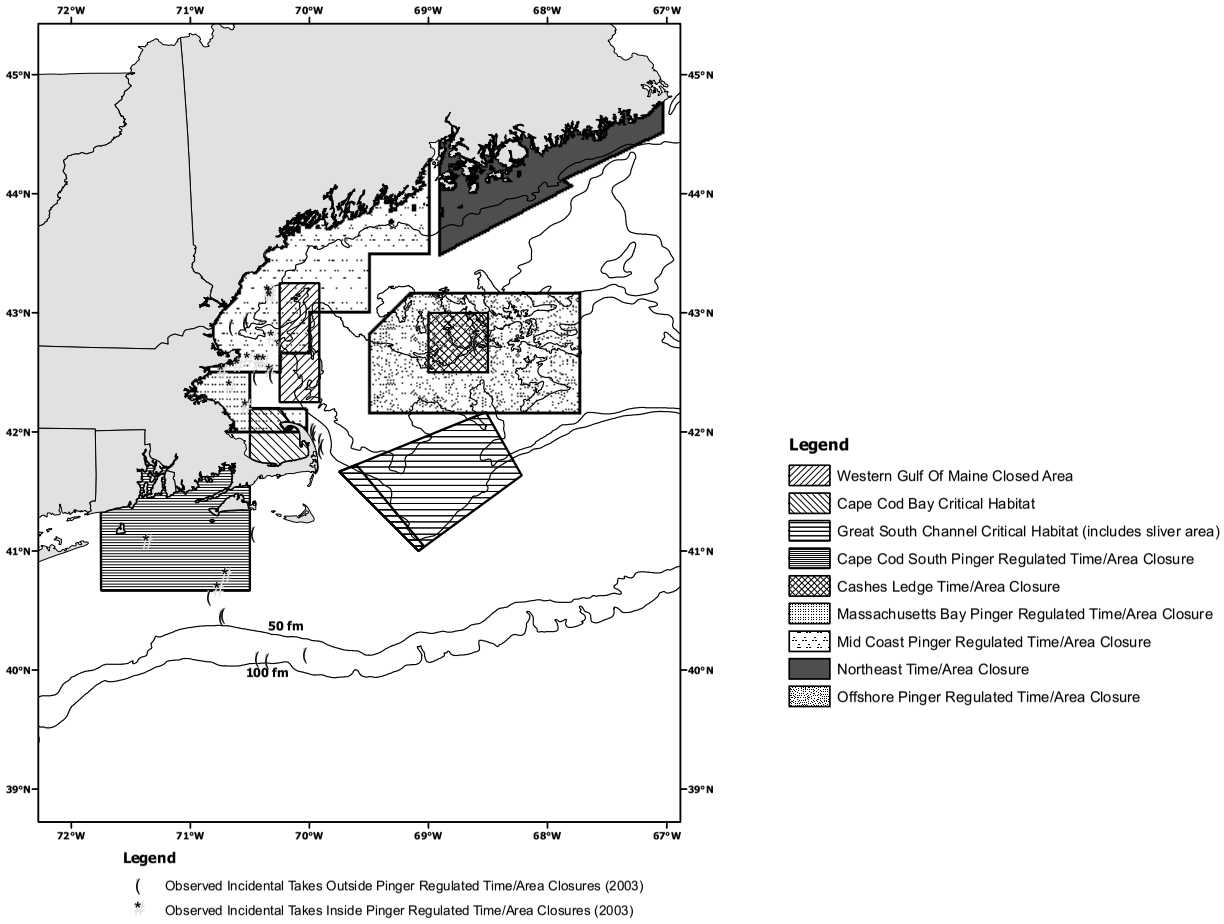

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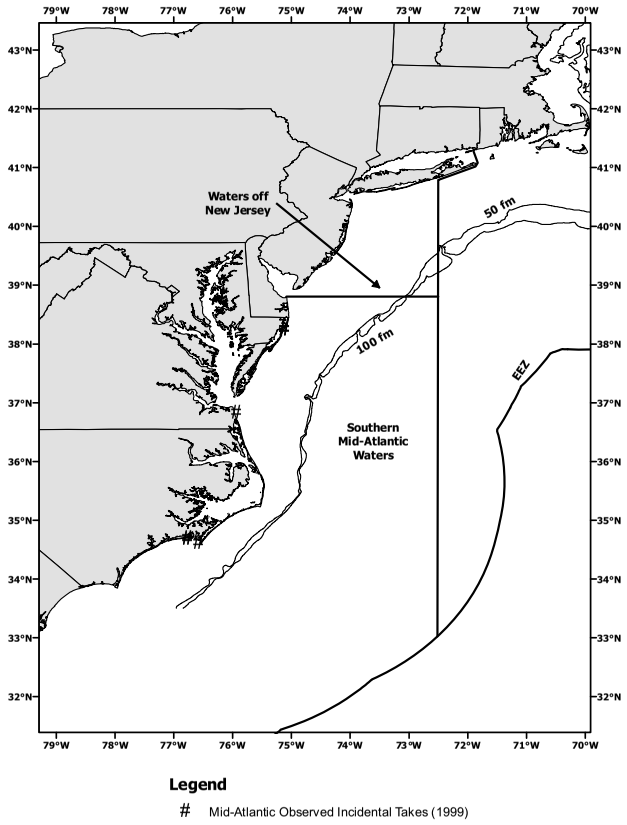
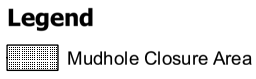


Figure 26. Observed incidental takes in the Mid-Atlantic coastal gillnet fishery in 1999.



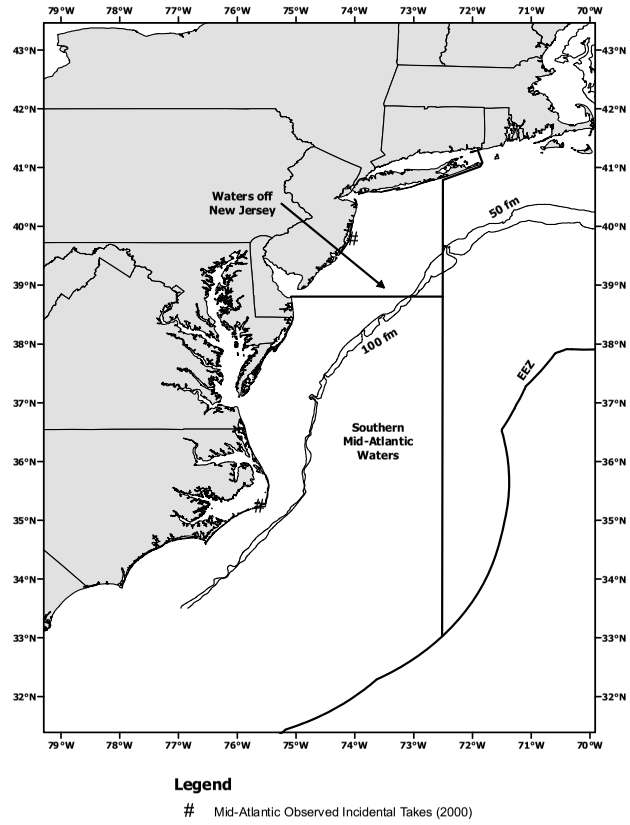
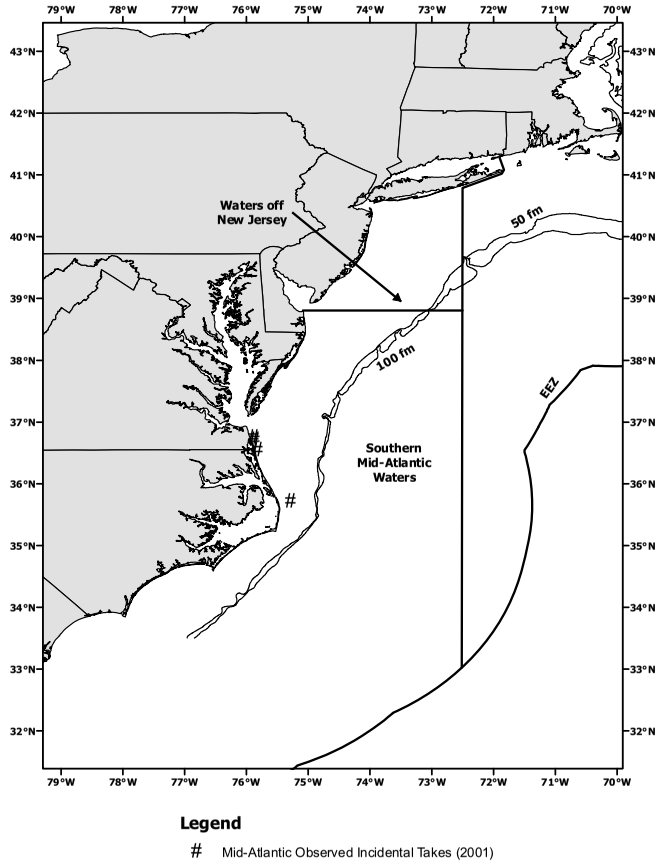


Figure 27. Observed incidental takes in the Mid-Atlantic coastal gillnet fishery in 2000.



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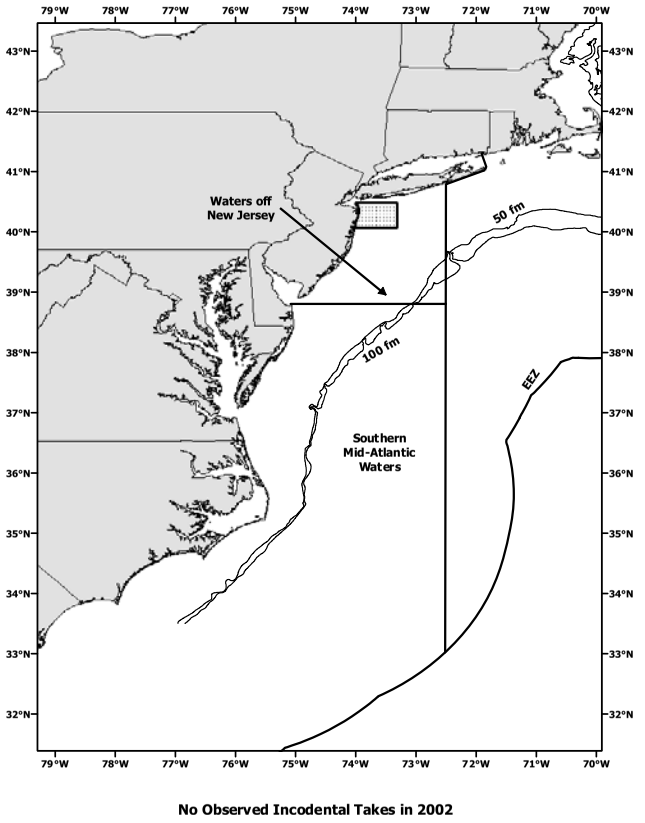

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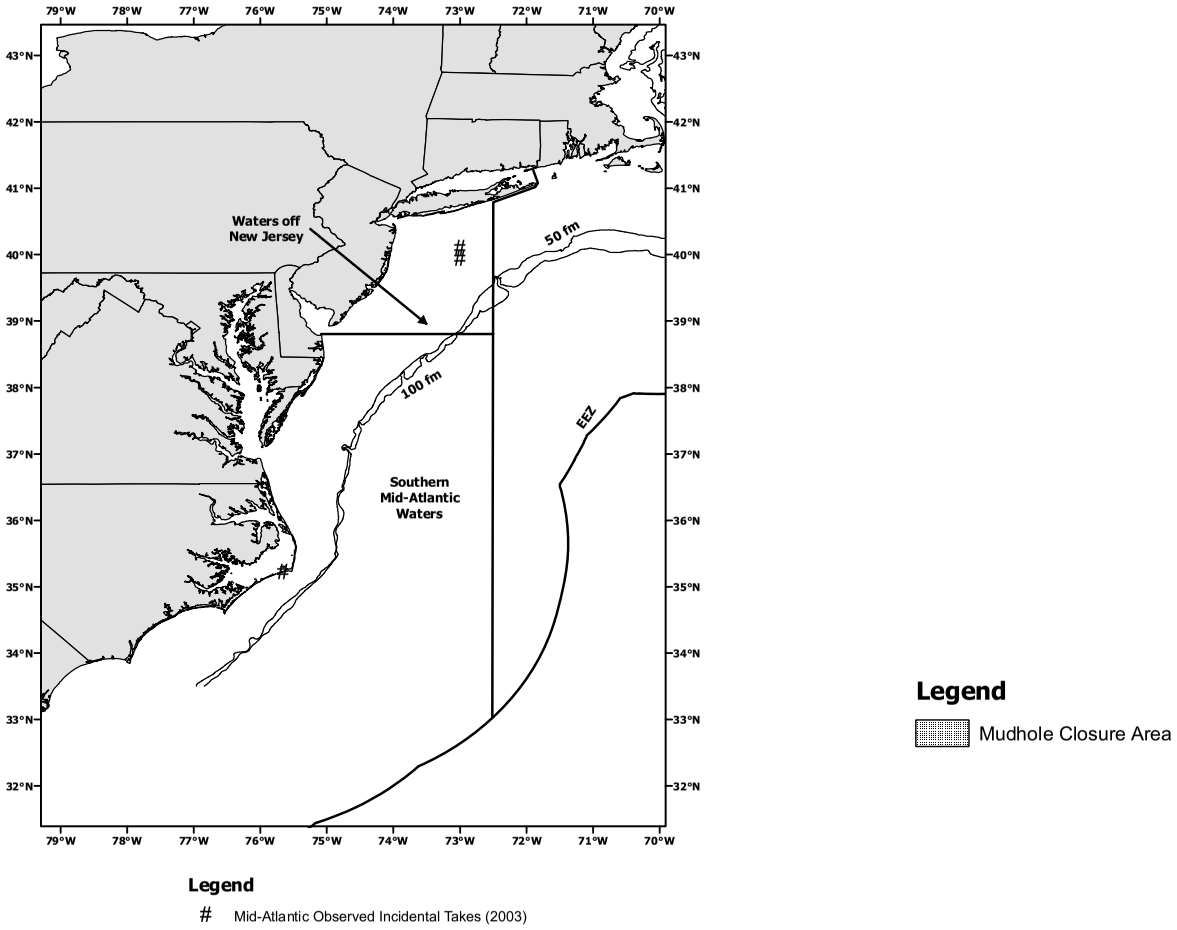
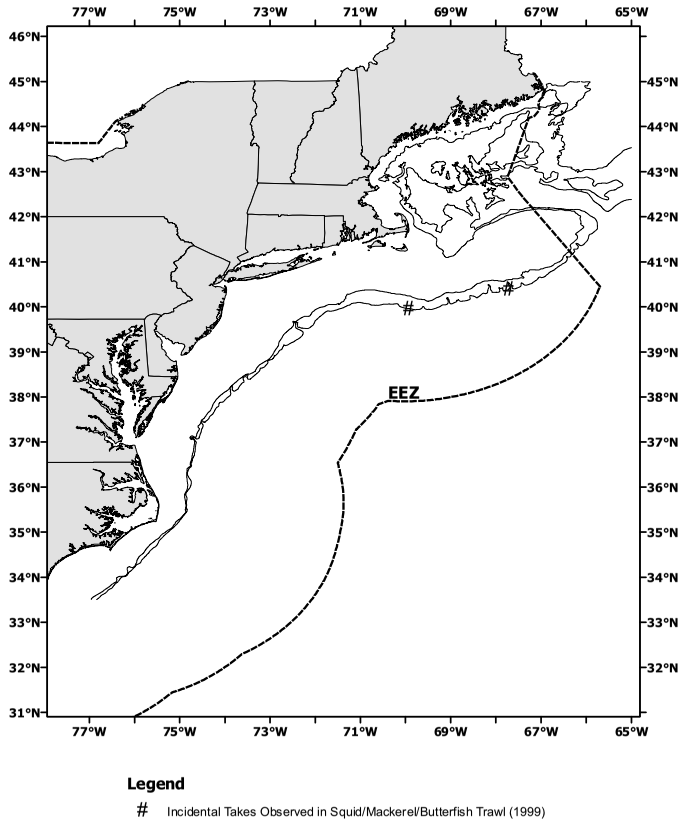
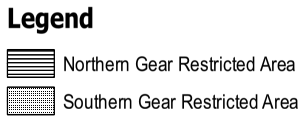


Figure 30. Observed incidental takes in the Mid-Atlantic coastal gillnet fishery in 2003.





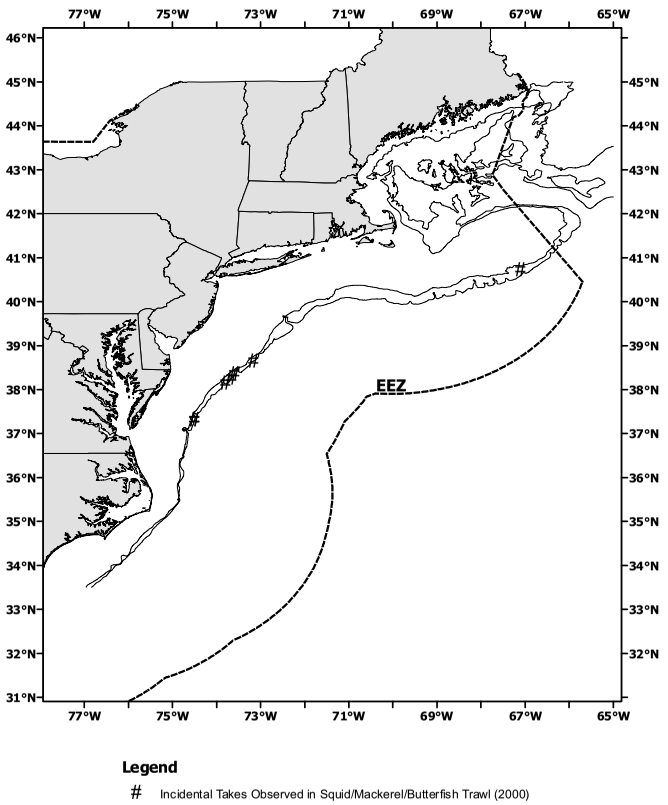


Figure 31. Observed incidental takes in the Squid/ Mackerel/Butterfish fishery in 1999.

Figure 32. Observed incidental takes in the Squid/ Mackerel/Butterfish fishery in 2000.

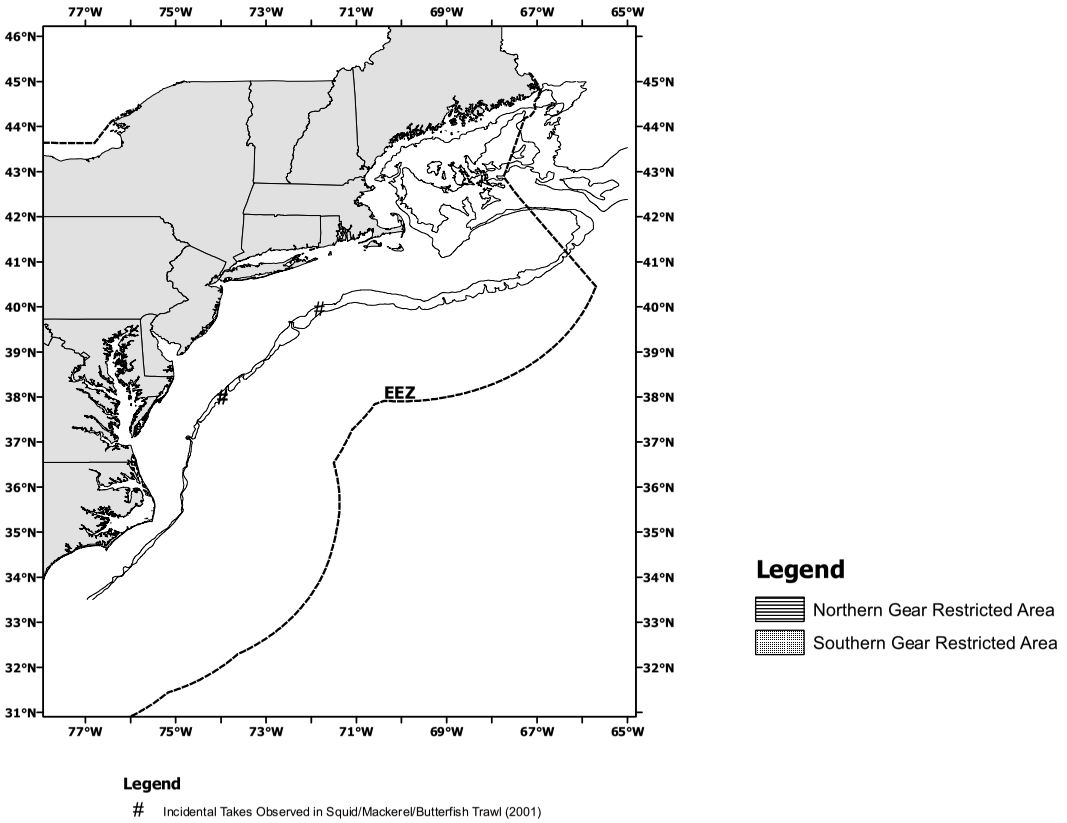


Figure 33. Observed incidental takes in the Squid/ Mackerel/Butterfish fishery in 2001.

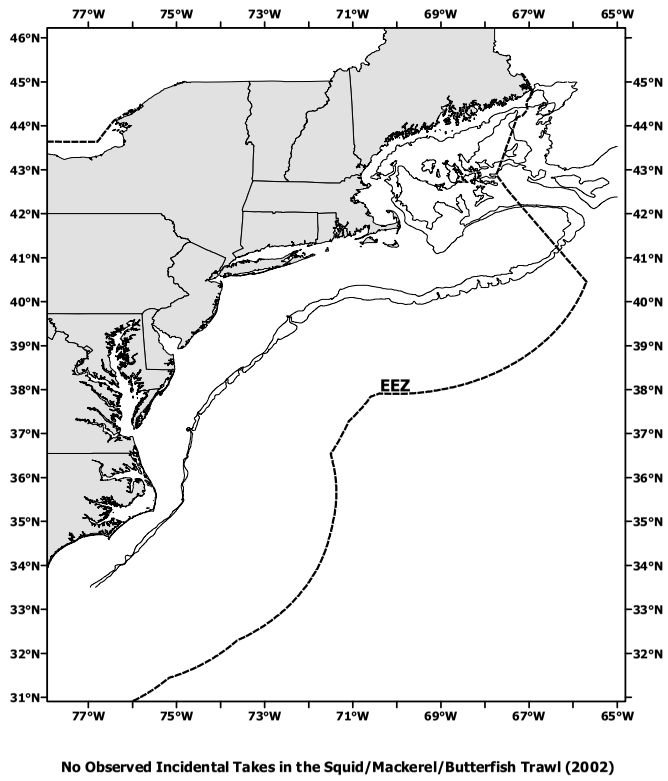


Figure 34. Observed incidental takes in the Squid/ Mackerel/Butterfish fishery in 2002.

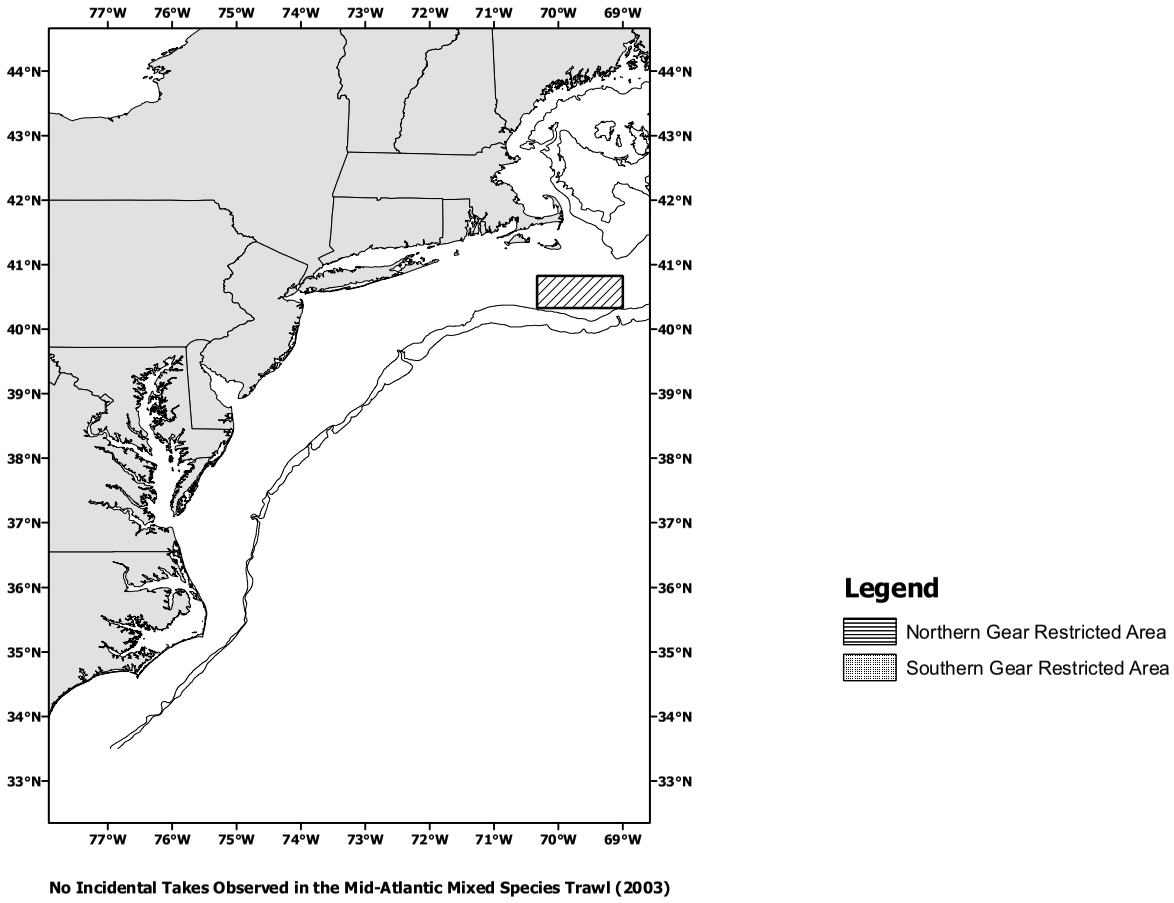


Figure 35. Observed incidental takes in the Squid/Mackerel/ Butterfish fishery in 2003.

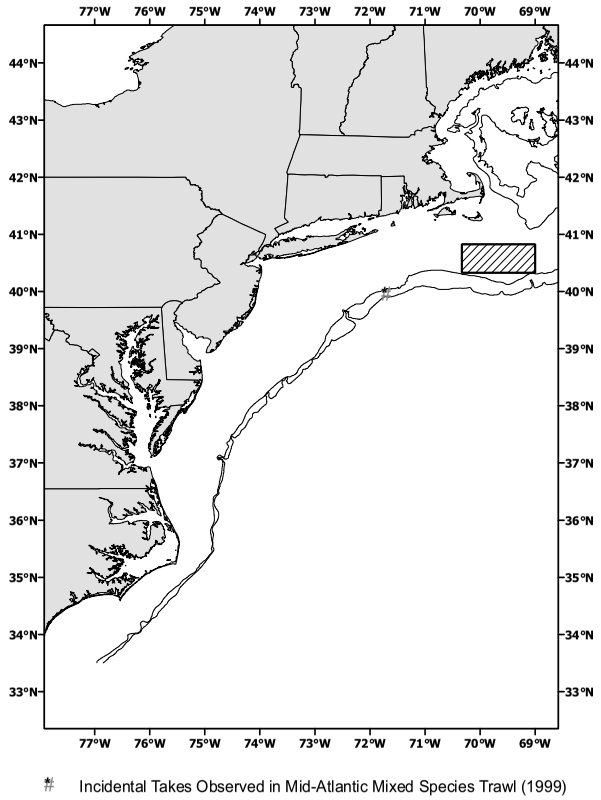


Figure 36. Observed takes in the Mid-Atlantic Mixed Species trawl fishery in 1999.

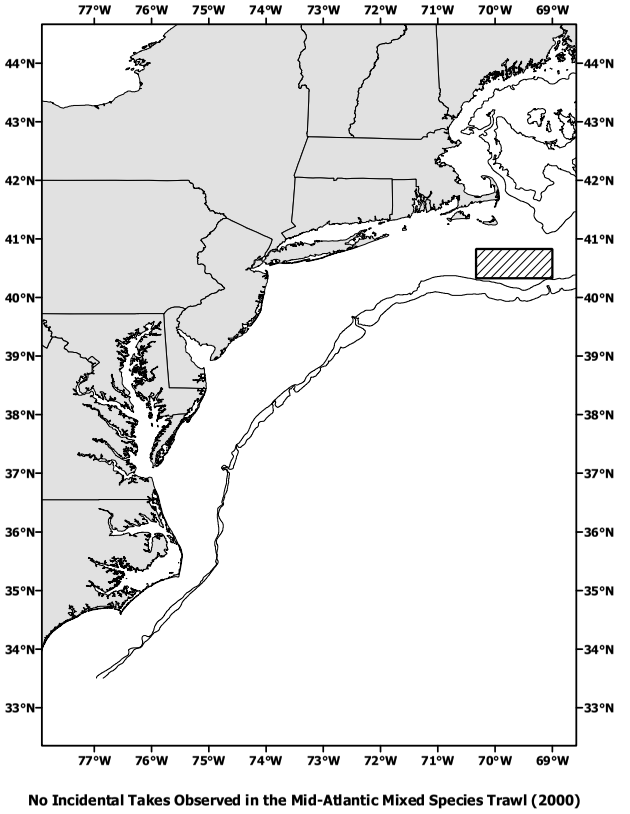


Figure 37. Observed takes in the Mid-Atlantic Mixed Species trawl fishery in 2000.

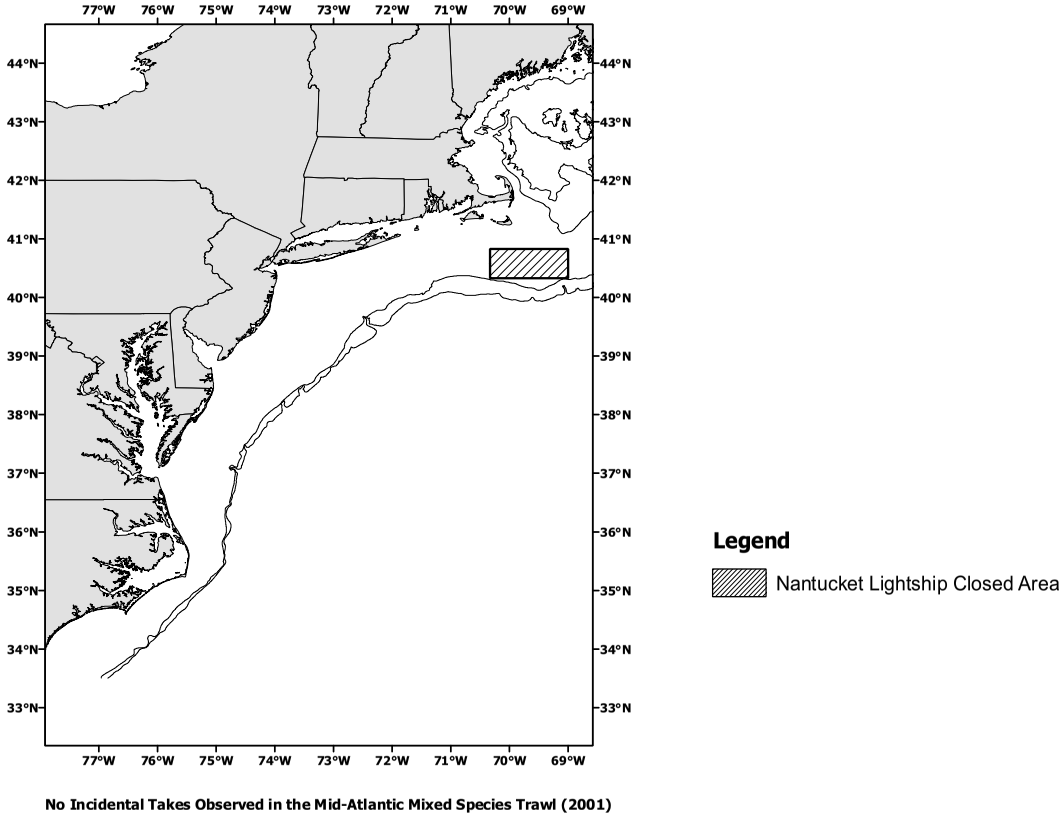


Figure 38. Observed takes in the Mid-Atlantic Mixed Species trawl fishery in 2001.

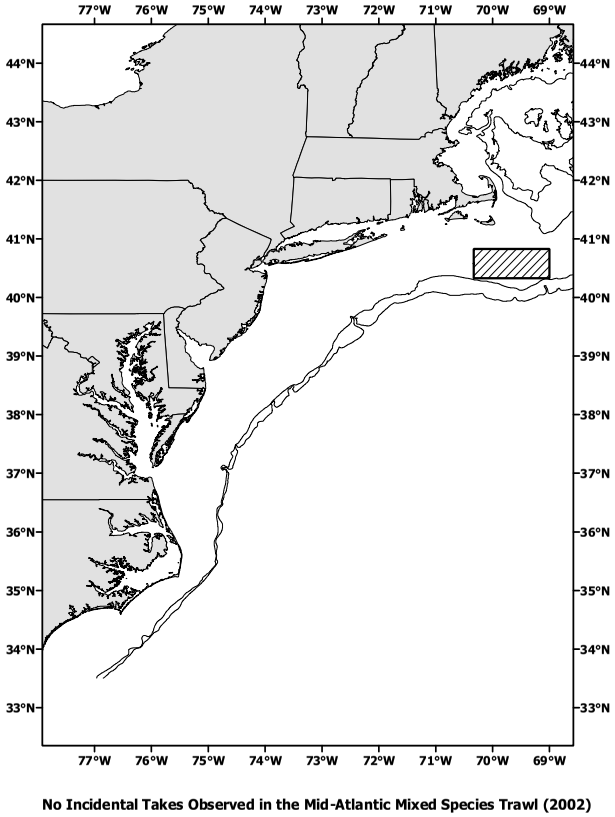


Figure 39. Observed takes in the Mid-Atlantic Mixed Species trawl fishery in 2002.

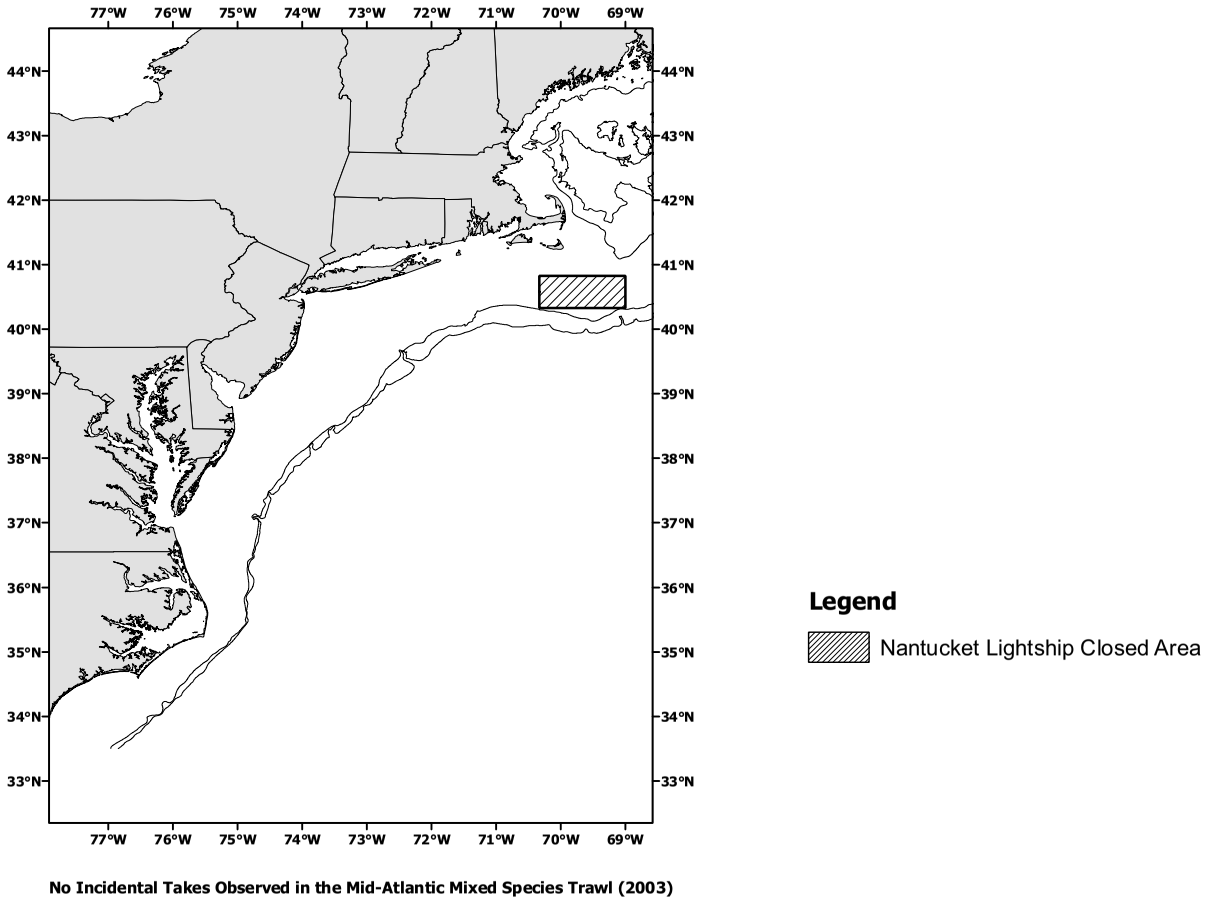


Figure 40. Observed takes in the Mid-Atlantic Mixed Species trawl fishery in 2003.