Discussion Paper on
Planned Amendments to the
Harbor Porpoise Take Reduction Plan by
NOAA's National Marine Fisheries Service

November 2007

INTRODUCTION

In response to an increase in harbor porpoise (*Phocoena phocoena*) bycatch in commercial gillnet fisheries, NOAA's National Marine Fisheries Service ("NMFS") has prepared a list of possible amendments and corrections to the regulations implementing the Harbor Porpoise Take Reduction Plan ("Plan"). This discussion document consists of three sections. The first section, Possible Amendments to Address Current Bycatch, describes regulatory amendments that would focus on reducing bycatch in several critical areas determined by recent observer information. The second section, Possible Technical Amendments to the Plan, describes recommended regulatory text corrections and clarifications that have been identified since the implementation of the Plan. The third section, Scientific Research, focuses on conducting scientific research in areas managed by the Plan. The purpose of the preceding possible amendments would be to correct inaccuracies in the regulatory text of the Plan and to enhance the regulations to achieve a bycatch level that is once again below the potential biological removal ("PBR") level. The items addressed in this document are for discussion purposes only and are intended to guide the Harbor Porpoise Take Reduction Team ("Team") discussions at its December 2007 meeting.

POSSIBLE AMENDMENTS TO ADDRESS CURRENT BYCATCH

Background

Prior to the development of the Plan, the bycatch estimate of the Gulf of Maine/Bay of Fundy stock of harbor porpoises exceeded 1500 animals per year in U.S. gillnet fisheries. After implementation of the Plan in 1998 (63 FR 66464, December 2, 1998), harbor porpoise bycatch decreased to below the PBR level, as shown in Table 1. Since the most recent Plan modification to exempted waters in 2001 (66 FR 2336, January 11, 2001), harbor porpoise bycatch had remained below PBR.

Table 1: Gulf of Maine/Bay of Fundy Harbor Porpoise Population Resultant from the Plan

Years	Best Estimated Population Size	PBR	Mean Annual Mortality
1994-1998[1]	54,300 animals	483 animals/year	1,521 animals/year
1999-2001[2]	89,700 animals	747 animals/year	310 animals/year

[1] Waring, G.T., Quintal, J. M., Swartz, S. L. (2000). U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2005. NOAA Technical Memorandum NMFS –NE-162.
[2] Waring, G.T., Pace, R. M., Quintal, J. M., Fairfield, C. P., and Maze-Foley, K. (2004). U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2003. NOAA Technical Memorandum NMFS –NE-182.

More recent Stock Assessment Reports show that the number of harbor porpoise takes is increasing, moving closer to PBR rather than declining toward the long-term Zero Mortality Rate Goal (ZMRG), which is 10% of PBR (approximately 75 animals). Currently, the draft 2007 Stock Assessment Report (covering the years 2001-2005) indicates that harbor porpoise bycatch is above PBR (Table 2).

Table 2: Gulf of Maine/Bay of Fundy Harbor Porpoise Mortality since Plan Implementation

Years	Best Estimated Population Size	PBR	Mean Annual Mortality
1999-2003[3]	89,700 animals	747 animals/year	417 animals/year
2000-2004[4]	89,700 animals	747 animals/year	515 animals/year
2001-2005[5]	89,054 animals	610 animals/year	652 animals/year

Observer information collected from January 2005 to June 2006 has indicated an increase in harbor porpoise bycatch throughout the geographic area covered by the Plan. In some instances, these takes occurred in gear that was not in compliance with the regulations. In the Gulf of Maine, non-compliance included both the absence and improper use of acoustic deterrent devices (also referred to as pingers). In addition, fishing vessel trip report data from January 2005 through June 2006 have indicated vessels fishing in Plan management areas when gillnets are prohibited, such as during the month of March in the Massachusetts Bay Closure Area. In the Mid-Atlantic, non-compliance with the regulations included exceeding the allowable number of nets per gillnet string.

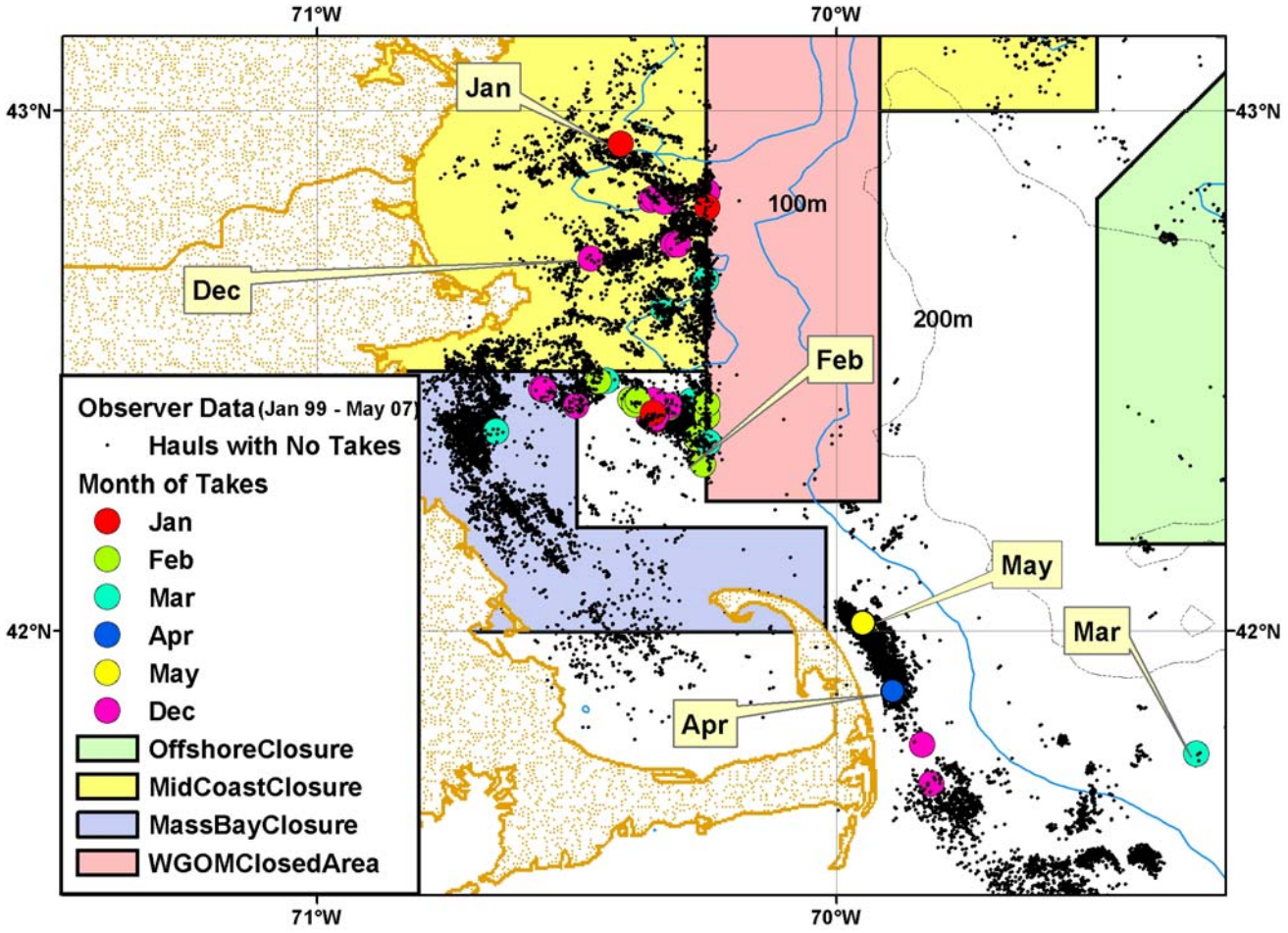
Possible Regulatory Amendments

The following possible amendments to the Plan are intended to reduce harbor porpoise bycatch below the PBR level. Although the following are possible actions identified by NMFS, the purpose of these proposed amendments is to solicit discussion from the Team.

Item 1 Observer and Vessel Trip Report data collected from January 2005 to June 2006 indicate a highly concentrated level of bycatch and gillnet fishing effort in the area off the coast of Massachusetts, bounded on the north by the Mid-Coast Closure Area, on the west and south by the Massachusetts Bay Closure Area, and on the east by the Northeast Multispecies FMP Western Gulf of Maine Closure Area (Figure 1). Additionally, in 50 CFR 229.33(a)(3), Massachusetts Bay Closure Area, point MB5 (Cape Cod Shoreline, 70°00'W.) does not intersect the Cape Cod Shoreline at its intended latitude coordinate of 42°00'N.

[3] Waring, G.T., Josephson, E., Fairfield, C. P., and Maze-Foley, K. (2006). U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2005. NOAA Technical Memorandum NMFS –NE-194.
[4] Waring, G.T., Josephson, E., Fairfield, C. P., and Maze-Foley, K. (2007). U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2006. NOAA Technical Memorandum NMFS –NE-201.
[5] Waring, G.T., *et al*. (2007) U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2007 Draft.

Figure 1: Location of gillnet fishing effort and observed harbor porpoise takes from January 1999 through May 2007 in the Massachusetts Bay and Mid-Coast Closure Areas, as well as the area east of the Massachusetts Bay Closure Area and west of the Western Gulf of Maine Closure Area (multispecies). Observed harbor porpoise takes were recorded from December through May.

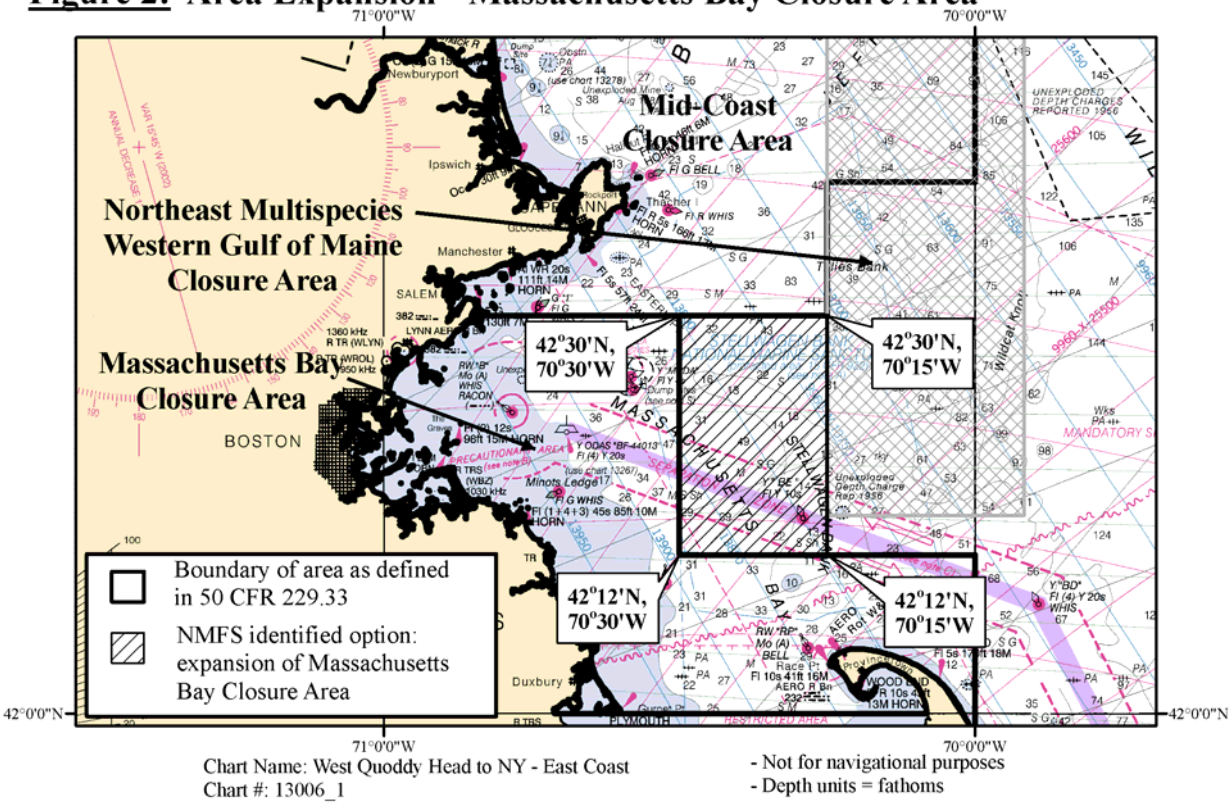


NMFS-Identified Option: In an effort to reduce bycatch by extending the deterring effect of pingers to this area, the Massachusetts Bay Closure Area could be expanded eastward to the western boundary of the Western Gulf of Maine Closure Area (Figure 2). Coordinate MB5 could also be changed from [Cape Cod Shoreline, 70°00'W] to [42°00'N, 70°00'W]. As a result, a line would extend west along 42°00'N from the point [42°00'N, 70°00'W] to the Cape Cod Shoreline at [42°00'N, 70°01.16'W]. In addition, shoreline points could be replaced with true coordinates. The coordinates outlining the Massachusetts Bay Closure Area could be revised as follows (amended coordinates are in bold):

Massachusetts Bay Closure Area

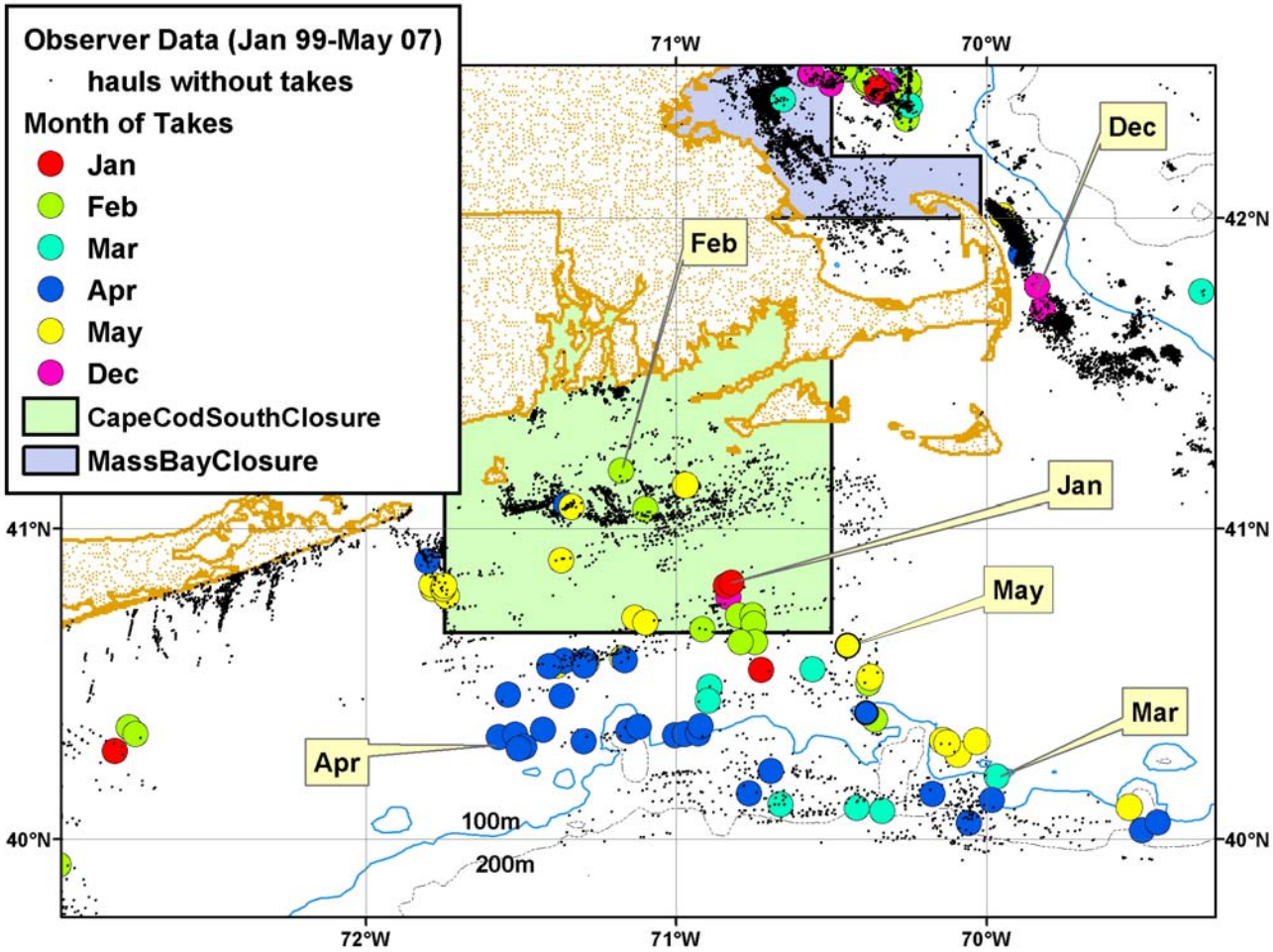
Point	N. Lat.	W. Long.
MB1	42°30’	**70°50’**
MB2	42°30’	**70°15’**
MB3	42°12’	**70°15’**
MB4	42°12’	70°00’
MB5	**42°00’**	70°00’
MB6	**42°00’**	**70°01.16’**
MB7	42°00’	**70°04.8’**
MB8	42°00’	**70°42.2’**

Figure 2: Area Expansion - Massachusetts Bay Closure Area



Item 2 Observer and Vessel Trip Report data collected from January 2005 to June 2006 indicate an increased level of bycatch and gillnet fishing effort in the area off the coast of Rhode Island and southern Massachusetts, south of the Cape Cod South Closure Area, from January through May (Figure 3). Additionally, in 50 CFR 229.33(a)(4), Cape Cod South Closure Area, the eastern boundary of the closure area (70°30’W) passes through Martha’s Vineyard.

Figure 3: Location of gillnet fishing effort and observed harbor porpoise takes from January 1999 through May 2007 in the Cape Cod South Closure Area and south of this area. Observed harbor porpoise takes were recorded from December through May.



NMFS-Identified Option: In an effort to reduce bycatch in this area, the Cape Cod South Closure Area could be expanded southward to encompass the area in which harbor porpoise bycatch has been documented. Also, the eastern boundary of the Cape Cod South Closure Area could be limited to the area bound by specific points at the northern and southern shores of Martha's Vineyard. In addition, shoreline points could be replaced with true coordinates. The latitude line corresponding with the southern coordinates outlining the Cape Cod South Closure Area (shown in bold in the table below) would be moved southward from 40°40'N to a line to be determined by NMFS, NEFSC, and the Team. A suggested southern boundary will be provided at the December 2007 HPTRT meeting.

Cape Cod South Closure Area

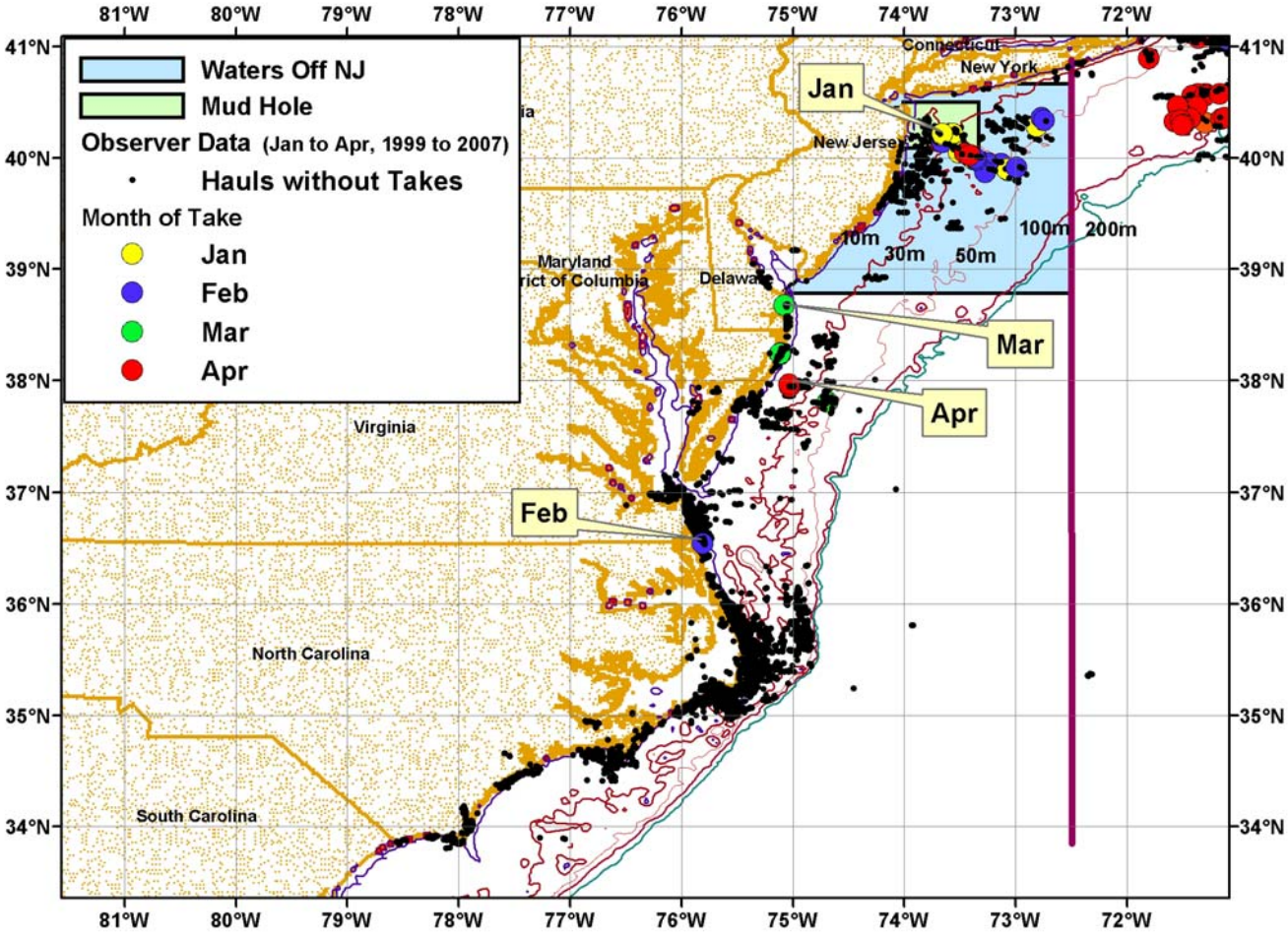
Point	N. Lat.	W. Long.
CCS1	**41°19.6'**	71°45'
CCS2	**40°XX'**	71°45'
CCS3	**40°XX'**	70°30'
CCS4	**41°20.85'**	70°30'
CCS5	**41°23.1'**	70°30'
CCS6	**41°33.1'**	70°30'

Item 3 A requirement was established for the Mid-Atlantic component of the plan (50 CFR 229.34), effective on January 1, 2000, that all gillnets must be properly tagged. In 50 CFR 229.3(q), "Prohibitions", the regulatory text states, *"Net tag requirement. Beginning on January 1, 2000, all gillnets fished, hauled, possessed, or deployed during the times and areas specified below must have one tag per net, with one tag secured to every other bridle of every net and with one tag secured to every other bridle of every net within a string of nets. This applies to small mesh and large mesh gillnet gear in New Jersey waters from January 1 through April 30 or in southern Mid-Atlantic waters from February 1 through April 30. The owner or operator of fishing vessels must indicate to NMFS the number of gillnet tags that they are requesting up to the maximum number of nets allowed in those paragraphs and must include a check for the cost of the tags. Vessel owners and operators will be given notice with instructions informing them of the costs associated with this tagging requirement and directions for obtaining tags. Tag numbers will be unique for each vessel and recorded on a certificate. The vessel operator must produce the certificate and all net tags upon request by an authorized officer."* The net tagging requirement is also described for each Mid-Atlantic management area in 50 CFR 229.34(c)(1)(vi), 50 CFR 229.34(c)(2)(vi), and 50 CFR 229.34(c)(3)(vi), and is also found at 50 CFR 229.3(p). Although in effect through the implementation of the Plan, the preceding has not been realized through NMFS.

NMFS-Identified Option: NMFS recommends that the Team re-examine the net tagging requirement. One alternative could be to combine the tagging requirement of the Plan with the current Monkfish FMP tagging requirement for large mesh gillnets in the Mid-Atlantic which, under 50 CFR 648.92(a)(8)(ii), states, *"Tagging requirements. Beginning May 1, 2000, all gillnets fished, hauled, possessed, or deployed by a vessel fishing for monkfish under a monkfish DAS must have one monkfish tag per net, with one tag secured to every other bridle of every net within a string of nets. Tags must be obtained as described in §648.4. A vessel operator must account for all net tags upon request by an authorized officer."* Please note that under the current Monkfish FMP regulations at 50 CFR 648.92(a)(8)(i), a net number of 160 nets per vessel is established, whereas the HPTRP regulations at 50 CFR 229.34(c)(1)(iv) and 50 CFR 229.34(c)(3)(iv) establish a net number of 80 nets per vessel for large mesh gillnets in the Mid-Atlantic. In addition, this option does not address net tagging for small mesh (greater than 5 inches to less than 7 inches) gillnets.

Item 4 Based on observer data collected from January 2005 to June 2006, a concentrated number of harbor porpoise takes have occurred in the northern Waters off New Jersey within the period of time during which the area's annual management measures were in effect (January 1 through April 30) (Figure 4). Additionally, the observer data have indicated the frequent occurrence of takes both in gillnet gear that has exceeded the number of allowable nets per gillnet string (13 nets per string in Southern Mid-Atlantic waters and Mudhole and 16 nets per string in Waters off New Jersey for large mesh gillnets, and 10 nets per string in Waters off New Jersey and Mudhole and 7 nets per string in Southern Mid-Atlantic waters for small mesh gillnets) and 12 inch mesh gillnets that had soak times approaching 14 days. There were no observed takes during the Mudhole closure (February 15 through March 15) in 2005 or 2006.

Figure 4: Location of gillnet fishing effort and observed harbor porpoise takes from January to April, 1999 through 2007, in the Waters off New Jersey, Mudhole, and Southern Mid-Atlantic Waters. Observed harbor porpoise takes were recorded from January through April.



NMFS-Identified Option: Due to the occurrence of takes in the Waters off New Jersey during the time in which the area's annual management measures are in effect, an expansion of the time during which the area is in effect may not apply. Two options for addressing harbor porpoise bycatch in this area could include implementing seasonal pinger use requirements for gillnet gear in this area in lieu of the current gear modification requirements and/or expanding the boundaries of the Mudhole Closure Area spatially and/or temporally. Since the Mudhole Closure Area is fully contained within the Waters off New Jersey area, expansion of the Mudhole would depend on when and where harbor porpoise takes are occurring in the Waters off New Jersey area. NMFS requests that the Team examine the various factors involved in the occurrence of these takes and recommend potential solutions.

Item 5 Based on observer data collected from January 2005 to June 2006, a low percentage of gillnet gear in the Gulf of Maine is deployed with working pingers. As a result, NMFS took several steps to increase the awareness of and compliance with the pinger requirements of the Plan. A series of outreach meetings were conducted along the east coast between October 2006 and January 2007, during which newly created outreach material and revised pinger training certificates were disseminated. The purpose of the outreach meetings was to provide an overview of the Plan and its management measures, to give an update on its status, and to provide pinger certification training to attendees. In conjunction with these meetings, NMFS coordinated increased enforcement effort in the Gulf of Maine with a specific focus on the presence and proper deployment of pingers. These actions by NMFS are consistent with recommendations made by the Gulf of Maine Harbor Porpoise Take Reduction Team at the December 2000 meeting that NMFS should identify non-compliance, use observer data to extract information about the fishery rather than individual fishermen, develop an enforcement plan, and board vessels at sea to inspect pinger compliance. NMFS has implemented each of the first three recommendations from this list and has now focused on the fourth.

NMFS-Identified Option: To improve the enforcement capability of at-sea pinger detection, NMFS plans to purchase five PRS-275 Pinger Receiver units from RJE International, Inc., and will test the effectiveness of these pinger testers during use by enforcement partners over a period of at least one year. In preliminary testing in Downeast Maine, the pinger tester returned promising results, effectively detecting the presence of functional pingers on set gillnet gear at depths of approximately 600 feet. Reliable pinger testing is critical for effective enforcement of the pinger requirements of the Plan.

POSSIBLE TECHNICAL AMENDMENTS TO THE PLAN

The items described below are potential regulatory text corrections and clarifications that have been identified since the implementation of the Plan.

Item 6 In 50 CFR 229.33(b)(2), "Pinger attachment", the regulatory text states, *"An operating and functional pinger must be attached at the end of each string of the gillnets and at the bridle of every net within a string of nets."* Since pingers are most effective up to a

radius of 300 feet, deterrence is reduced if a net string has pingers spaced at intervals that exceed 300 feet. Also, Northeast Multispecies FMP regulations specify a maximum gillnet panel length of 300 feet (50 CFR 648.80(a)(3)(iv)).

Correction: NMFS recommends that the text of 50 CFR 229.33(b)(2) be replaced with the following, which specifies a maximum allowable distance between pingers on a net string: *Pinger attachment. An operating and functional pinger must be attached at the end of each string of gillnets and at the bridle of every net within a string of nets, or every 300 feet on a gillnet panel that exceeds 300 feet in length.*

Item 7 In 50 CFR 229.33, the points outlining each of the Plan closure areas are identified with the appropriate latitude and longitude coordinates. In instances where the closure areas intersect the shoreline (Northeast, Mid-Coast, Massachusetts Bay, and Cape Cod South Closure Areas), the coordinates of the shoreline points are not given. NMFS would like to clarify these area boundaries by providing coordinates where the management areas intersect the shoreline.

Correction: NMFS recommends that the tables of coordinates of the Northeast (50 CFR 229.33(a)(1)) and Mid-Coast (50 CFR 229.33(a)(2)) Closure Areas be replaced with the following tables, respectively (please note that the amended coordinates are in bold):

Northeast Closure Area

Point	N. Lat.	W. Long.
NE1	**44°27.3’**	68°55’
NE2	43°29.6’	68°55’
NE3	44°04.4’	67°48.7’
NE4	44°06.9’	67°52.8’
NE5	44°31.2’	67°02.7’
NE6	**44°45.8’**	67°02.7’

Mid-Coast Closure Area

Point	N. Lat.	W. Long.
MC1	42°30’	**70°50.1’**
MC2	42°30’	70°15’
MC3	42°40’	70°15’
MC4	42°40’	70°00’
MC5	43°00’	70°00’
MC6	43°00’	69°30’
MC7	43°30’	69°30’
MC8	43°30’	69°00’
MC9	**44°17.8’**	69°00’

Item 8 In 50 CFR 229.33(a)(2), "Mid-Coast Closure Area", the regulatory text states the gillnet fishing restrictions of the management area but does not include an exemption for gillnets equipped with pingers as is described in each of the other pinger areas of the Gulf of Maine. The text currently states that the Mid-Coast Closure Area prohibits gillnet fishing, although the final rule implementing the Plan (63 FR 66466, 12/2/98) establishes the Mid-Coast closure as a pingers-only area from September 15 through May 31.

Correction: NMFS recommends that the text of 50 CFR 229.33(a)(2) cite the pinger exemption in this closure area described in 50 CFR 229.33(d)(1) as follows: *Mid-coast Closure Area. From September 15 through May 31, it is prohibited to fish with, set, haul back, possess on board a vessel unless stowed, or fail to remove sink gillnet gear or gillnet gear capable of catching multispecies from the Mid-coast Closure Area,* ***except with the use of pingers as provided in paragraph (d)(1) of this section****. This prohibition does not apply to a single pelagic gillnet (as described and used as set forth in §648.81(f)(2)(ii) of this title). The Mid-Coast Closure Area is the area bounded by straight lines connecting the following points in the order stated:*

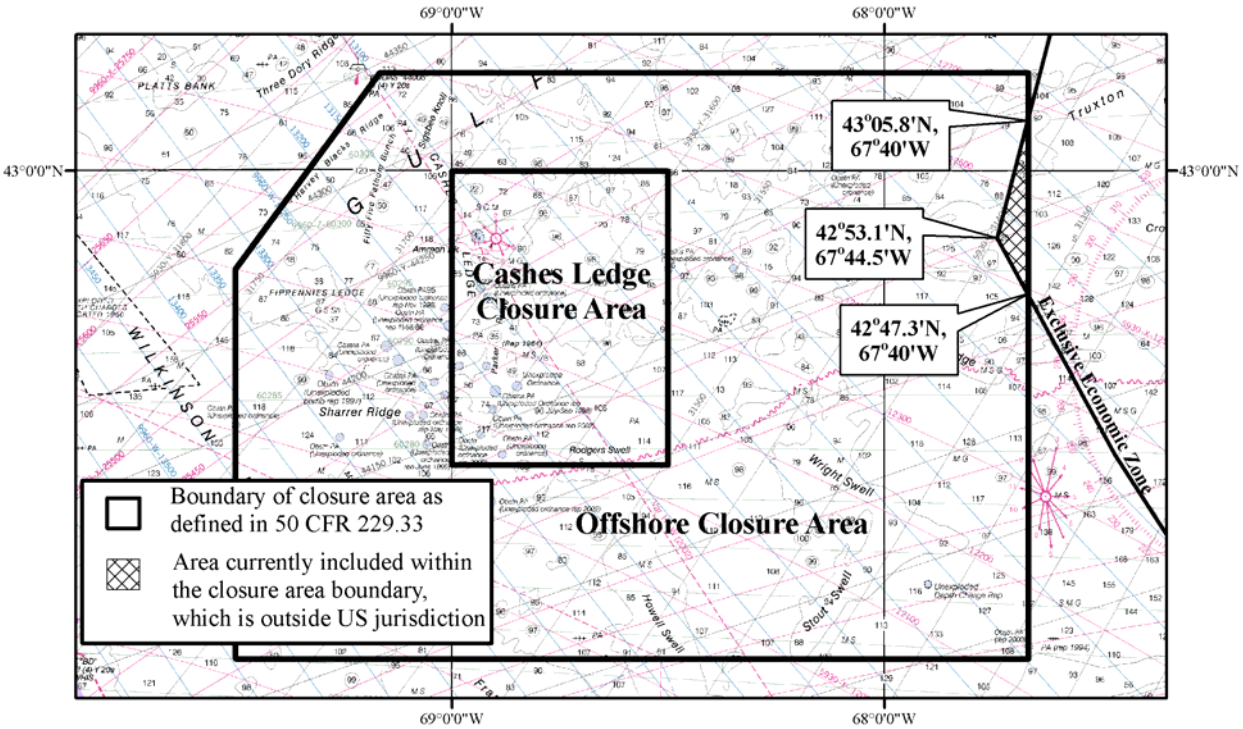
Item 9 In 50 CFR 229.33(a)(5), Offshore Closure Area, the line between points OFS3 and OFS4 on the eastern side of the closure area passes east of the boundary of the Exclusive Economic Zone.

Correction: NMFS recommends that an additional 3 points be added to the closure area to create a line that follows along the boundary of the Exclusive Economic Zone from points OFS3 to OFS7 but does not cross to the east of 67°40'W Longitude (Figure 5). In addition, the final coordinate, which would be named OFS9, is renamed OFS1, to indicate that the closure area is geographically enclosed. The revised table of coordinates is as follows (please note that amended points are in bold):

Offshore Closure Area

Point	N. Lat.	W. Long.
OFS1	42°50'	69°30'
OFS2	43°10'	69°10'
OFS3	43°10'	67°40'
OFS4	**43°05.8'**	**67°40'**
OFS5	**42°53.1'**	**67°44.5'**
OFS6	**42°47.3'**	**67°40'**
OFS7	42°10'	67°40'
OFS8	42°10'	69°30'
OFS1	42°50'	69°30'

Figure 5: Definition Clarification - Offshore Closure Area



Item 10 In 50 CFR 229.33(a)(6), Cashes Ledge Closure Area, the final point of the closure area, CL5, is the same coordinate as the first point of the closure area, CL1. This indicates that the closure area is geographically enclosed.

Correction: NMFS recommends that the final point of the Cashes Ledge Closure Area, CL5, be renamed CL1, which further clarifies that the Cashes Ledge Closure Area is an enclosed rectangular area. NMFS recommends that the table of coordinates describing the Cashes Ledge Closure Area be replaced with the following (please note that the amended point is in bold):

Cashes Ledge Closure Area

Point	N. Lat.	W. Long.
CL1	42°30’	69°00’
CL2	42°30’	68°30’
CL3	43°00’	68°30’
CL4	43°00’	69°00’
CL1	42°30’	69°00’

Item 11 In 50 CFR 229.34, the text varies between use of the terms "New Jersey Waters" and "Waters off New Jersey." NMFS would like to make the text consistent throughout the regulations.

Correction: NMFS recommends that existing usage of the term "New Jersey Waters" (see 50 CFR 229.34(b)(1) and 50 CFR 229.3(q)) be replaced with the term "Waters off New Jersey."

Item 12 In the Mid-Atlantic (50 CFR 229.34), the gear modifications regulations specify maximum floatline length and maximum net size, which indirectly specifies the limit of maximum nets per string. However, a maximum number of nets per string limit is not overtly specified in the regulations. In addition, observer data collected from January 2005 to June 2006 indicate that a large percentage of gillnet gear exceeds the maximum allowable number of net panels per net string, which may or may not be due to the ambiguity of this language.

Correction: NMFS recommends that the gear modifications regulations found at 50 CFR 229.34(c) specify the maximum number of nets per string of nets in the Waters off New Jersey, Mudhole, and Southern Mid-Atlantic waters. This would require the addition of the following text for the three Mid-Atlantic areas, respectively; 50 CFR 229.34(c)(1)(vii): *Nets per string. The net string does not exceed 16 nets and, if the gear is used in the Mudhole, the net string does not exceed 13 nets when using a net with length of 300 feet;* the addition of 50 CFR 229.34(c)(2)(vii): *Nets per string. The net string does not exceed 10 nets when using a net with length of 300 feet;* the addition of 50 CFR 229.34(c)(3)(vii): *Nets per string. The net string does not exceed 13 nets per string when using a net with length of 300 feet. This includes the Mudhole;* and the addition of 50 CFR 229.34(c)(4)(vii): *Nets per string. The net string does not exceed 7 nets when using a net with length of 300 feet.*

Item 13 The description of the exempted waters of the Mid-Atlantic in 50 CFR 229.34(a)(2), states, *"All waters landward of the first bridge over any embayment, harbor, or inlet will be exempted."* The regulations proceed to identify additional embayments, harbors, and inlets that are also exempt from the Plan regulations. This includes waters landward of a line extending south from Chincoteague, VA to Ship Shoal Inlet; this line crosses the 3 nautical mile state waters line. The Bottlenose Dolphin Take Reduction Plan utilizes Harbor Porpoise Take Reduction Plan exempted waters in the Mid-Atlantic (50 CFR 229.35(c)), except exempted waters landward of the 72 COLREGS demarcation lines for the inlets that fall between Chincoteague, VA to Ship Shoal Inlet. These inlets include Chincoteague, Assawoman, Gargathy, Metompkin, Wachapreague, Quinby, Great Machipongo, Sand Shoal, New, and Ship Shoal inlets.

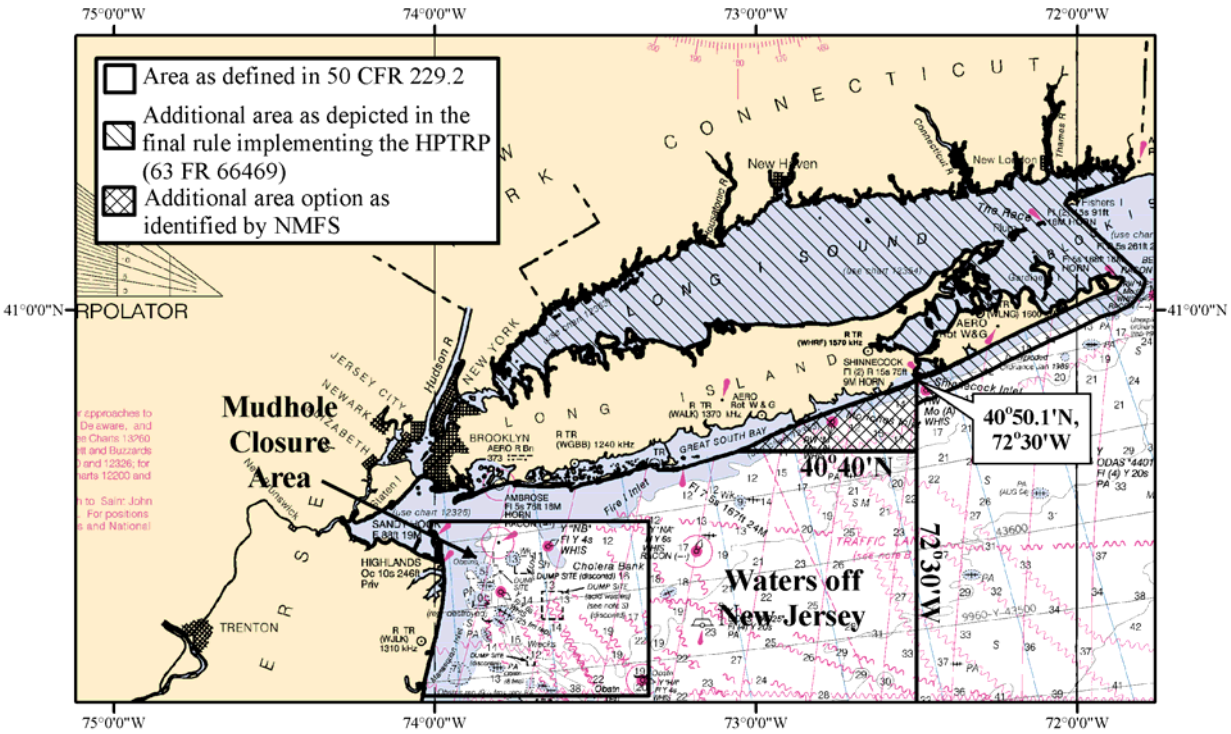
Correction: NMFS recommends that the exempted waters of the Mid-Atlantic be modified to be consistent with the exempted waters described in the Bottlenose Dolphin Take Reduction Plan. This would require the exempted area of Chincoteague south to Ship Shoal Inlet in Virginia to be changed to waters landward of the 72 COLREGS demarcation lines for the inlets noted above. NMFS recommends that the existing

regulatory text pertaining to this exempted area, stated as, *"37°52' N 75°24.30' W TO 37°11.90' N 75°48.30' W (Chincoteague to Ship Shoal Inlet)"* be replaced with the following: *All marine and tidal waters landward of the 72 COLREGS demarcation line (International Regulations for Preventing Collisions at Sea, 1972), as depicted or noted on nautical charts published by NOAA (Coast Charts 1:80,000 scale), and as described in 33 CFR part 80. (Chincoteague to Ship Shoal Inlet)*

Item 14 In 50 CFR 229.2, the boundary of the Waters off New Jersey is defined as, *"all state and Federal waters off New Jersey, bounded on the north by a line extending eastward from the southern shoreline of Long Island, NY at 40°40' N. latitude, on the south by a line extending eastward from the northern shoreline of Delaware at 38°47' N. latitude (the latitude that corresponds with Cape Henlopen, DE), and on the east by the 72°30' W. longitude."* However, the Final Rule implementing the Harbor Porpoise Take Reduction Plan (63 FR 66469) and all current NMFS graphics depict the northeast boundary of Waters off New Jersey as a line along 72°30'W. longitude, following northeast along the coast of Long Island, NY along the 3 nautical mile line, northwest to the western coast of Fishers Island, NY, and northeast to Watch Hill, RI. NMFS would like to correct the inconsistency between the regulatory text and the graphic depiction of this area.

Correction: NMFS recommends that the existing definition of Waters off New Jersey be replaced with the following: *Waters off New Jersey means all state and Federal waters off New Jersey, bounded on the east by a line extending from the point [40°50.1'N, 72°30'W] at the southern shore on Long Island, NY southward to [38°47'N, 72°30'W], and on the south by a line extending eastward from [38°47'N, 75°05'W] to [38°47'N, 72°30'W]. This area includes the Mudhole.* This definition would remove the existing regulatory northeast boundary of the Waters off New Jersey at [40°40'N, 72°30'W] and extend it northward to the south shore of Long Island, NY at [40°50.1'N, 72°30'W] (Figure 6). The northern boundary would become the southern shoreline of Long Island, NY and the eastern boundary would remain the line along 72°30'W longitude. This revised definition would make the boundary of the Waters off New Jersey consistent with 50 CFR 229.34(a)(1), Regulated Waters, which states, *"The regulations in this section apply to all waters in the Mid-Atlantic bounded on the east by 72°30' W. longitude and on the south by the North Carolina/South Carolina border (33°51' N. latitude), except for the areas exempted in paragraph (a)(2) of this section*." This definition would also be consistent with the boundary of the List of Fisheries definition of the Mid-Atlantic gillnet fishery.

Figure 6: Definition Clarification - Waters off New Jersey



Item 15 In 50 CFR 229.2, Definitions, Mudhole, the northwest corner of the closure area, defined by, *"the point 40°30' N. latitude where it intersects with the shoreline of New Jersey"* is not depicted as such in the Final Rule implementing the Plan (63 FR 66469, 12/2/98) or on closure area charts provided by NMFS because the line 40°30' N latitude does not intersect with the shoreline of New Jersey. Rather, the latitude line 40°30'N corresponds with the shoreline of Staten Island, NY. The northwest boundary of the Mudhole is regularly depicted as being defined by [40°30' N, 74°00' W], which is a point that falls in the waters north of the coastline of Sandy Hook, NJ (Figure 7).

Correction: NMFS recommends that the definition in the regulatory text of 50 CFR 229.2, Mudhole, be changed to the following: *Mudhole means waters off the coast of New Jersey bounded from the point [40°28.1' N, 74°00'W] north to [40°30' N, 74°00'W], then east to [40°30' N, 73°20' W], then south to [40°05' N, 73°20' W], and west to [40°05' N, 74°02' W].* This definition would be consistent with current Mudhole graphics, including the graphic in the final rule implementing the Plan. Note that in Figure 4, the shaded area is **<u>not</u>** included in the HPTRP regulations nor is it being recommended for inclusion.

Figure 7: Definition Clarification - Mudhole

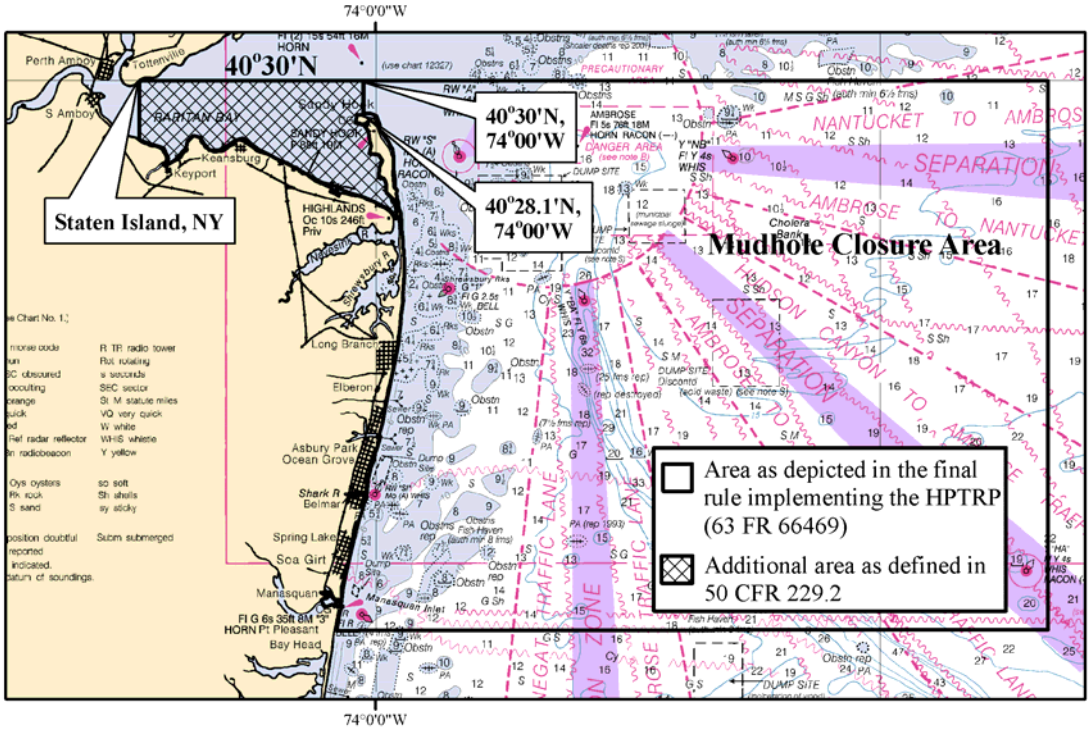


Chart Name: NY Approaches - Nantucket Shoals to Five Fathom Bank
Chart #: 12300_1

- Not for navigational purposes
- Depth units = fathoms

Item 16 In 50 CFR 229.34(c)(4), Southern Mid-Atlantic waters, the regulatory text states, *"Southern Mid-Atlantic waters—small mesh gillnet gear requirements and limitations. From February 1 through April 30 of each year, no person may fish with, set, haul back, possess on board a vessel unless stowed, or fail to remove any small mesh gillnet gear in* ***waters off New Jersey****, unless the gear complies with the specified gear characteristics."*

Correction: NMFS recommends replacing the above bold text with *Southern Mid-Atlantic waters*.

Item 17 In 50 CFR 229.2, Definitions, for Southern Mid-Atlantic waters, the coordinates of points at which the boundaries of the closure area intersect with the shoreline are not explicitly stated. In addition, the Plan identifies the southern boundary of the Southern Mid-Atlantic waters as the border of North Carolina and South Carolina at the line 33°51' N latitude, which, after close examination, appears to extend into South Carolina. In 50 CFR 622.2 (Fisheries of the Caribbean, Gulf, and South Atlantic – Definitions and Acronyms), the NC/SC border is identified more accurately as occurring at *"the border station on Bird Island at 33°51'07.9" N. lat., 78'32'32.6" W. long."*

Correction: NMFS recommends that the text of 50 CFR 229.2, Southern Mid-Atlantic waters, be replaced with the following, which identifies shoreline coordinates and more accurately depicts the North Carolina/South Carolina border as described in 50 CFR

622.2: *Southern Mid-Atlantic waters means all state and Federal waters off the States of Delaware, Maryland, Virginia, and North Carolina, bounded on the north by a line extending eastward from the northern shoreline of Delaware at [38°47' N, 75°05' W], east to [38°47' N, 72°30' W], south to [33°51.13' N, 72°30' W], and west to its intersection with the shoreline of the North Carolina/South Carolina border at [33°51.13' N, 78°32.54' W]* (which is the conversion of 33°51'07.9" N, 78°32'32.6" W into decimal minutes).

SCIENTIFIC RESEARCH

The items described within this section identify and prioritize scientific research needs to further conservation efforts by the Team. NMFS has also identified a shortcoming within the regulatory scheme of the Plan that limits researchers' abilities to conduct gear research that may provide additional options to address interactions with gillnet fisheries.

Priority Gear Research

Item 18 After implementation of the Plan in 1998, meetings of the Team (Gulf of Maine in December 1999 and December 2000; Mid-Atlantic in January 2000 and November 2000) recommended research and experimentation of the effectiveness of alternative options for deterring harbor porpoises. These recommendations have consistently mentioned researching the effectiveness of high-density reflective gillnets in the Gulf of Maine. Additionally, during the recent harbor porpoise outreach meetings (October 2006 through January 2007), northeast and mid-Atlantic gillnet fishermen asked about the status of reflective gillnet research. Theoretically, reflective nets, commonly constructed of nylon with a 3% by volume (10% by weight) barium sulfate filler, enhance the detection of gillnets by the porpoises' echolocation. In related research in the Bay of Fundy, barium sulfate gillnets have been shown to reduce harbor porpoise entanglement[6] when compared to typical monofilament nets, but it is unknown whether the reduction resulted from the acoustic reflectivity or the increased stiffness of the barium sulfate gillnets.[7] More research is needed on the nature of the Gulf of Maine/Bay of Fundy stock of harbor porpoises' interactions with gillnet gear to determine the factors involved in the potential reduction of bycatch in barium sulfate gillnets.

NMFS-Identified Option: NMFS recently submitted a proposal to the NMFS fiscal year 2007 Reducing Bycatch budget line for gear modification research in the area south of the Cape Cod South Closure Area. Proposals are reviewed by a panel of experts at NMFS and members of the National Working Group on Fishing Gear Technology. This research would consist of an experiment to determine the effectiveness of 1.05mm twine size gillnets and barium sulfate gillnets at reducing the bycatch of harbor porpoises when compared to typical large mesh gillnet gear used in the Mid-Atlantic (0.90mm twine size and 12 inch mesh). NMFS requests that the Team continue the discussion of the use and

[6] Trippel, E. A., Holy, N. L., Palka, D. L., Shepherd, T. D., Melvin, G. D., and Terhune, J. M. (2003). Nylon barium sulfate gillnet reduces porpoise and seabird mortality. *Marine Mammal Science* 19:240-243.
[7] Cox, T.M., Read, A. J. (2004). Echolocation behavior of harbor porpoises *Phocoena phocoena* around chemically enhanced gillnets. *Marine Ecology Progress Series* 279:275-282.

research of barium sulfate gillnets pertaining to the Gulf of Maine and Mid-Atlantic components of the Plan.

Item 19 Members of the gillnet fishing industry expressed concern during the NMFS outreach meetings about what is believed to be the tendency of seals to be attracted to gillnets equipped with pingers, thus creating a 'dinner bell' effect. One potential solution may be the use of pingers that emit a higher frequency sound (above 10 ±2 kHz), within the audible range of harbor porpoises but above the audible range of seals, which would maintain harbor porpoise deterrence without attracting seals. During the December 1999 meeting of the Gulf of Maine Team, the Team recommended researching the use of pingers that broadcast at 50 kHz to 100 kHz. A recent experiment conducted in the North Sea observed that a specific pinger model commonly used in the Gulf of Maine caused a small school of herring to increase its swimming speed. This experiment also suggested that higher frequency pingers reduce the likelihood of an interaction between pingers and fish species.[8]

NMFS-Identified Option: NMFS requests that the Team continue its discussion on pinger frequency research and revisit the issue of priority gear research regarding the Gulf of Maine and Mid-Atlantic components of the Plan.

Research within Management Areas

Item 20 The current regulations prohibit experimentation of alternative methods of reducing harbor porpoise bycatch in Plan management areas when the areas are in effect. In addition, discussions with the NMFS Permits Division indicated that a scientific research permit could not be issued to allow for research inside the Plan management areas unless the Plan contained a provision for experimental testing or experimental fisheries to test gear modifications different from those required under the Plan. This has restricted progress of harbor porpoise deterrent and gear modification research in the Gulf of Maine and Mid-Atlantic areas. In order to compare the effectiveness of an alternative bycatch reduction method or device with currently required bycatch reduction methods, testing would have to be done during the times when harbor porpoises are present (i.e. during the times that the management areas are in effect). Limited testing on alternative bycatch reduction methods such as the use of barium sulfate gillnets to reduce harbor porpoise bycatch has been conducted in other areas such as the Bay of Fundy. Results have demonstrated lower harbor porpoise bycatch in barium sulfate gillnets when compared to standard monofilament gillnets, although the cause is unclear.

In 50 CFR 229.33(e), the regulations contain a provision for "*other special measures*" which authorizes revision of the Plan's regulations if the harbor porpoise bycatch is above the PBR level despite the required gear modifications (including pingers) and location of the closure areas. Although this provision could potentially be used to authorize experimentation, at the time the Plan was implemented, NMFS had not

[8] Kastelein, R. A., van der Heul, S., van der Veen, J., Verboom, W. C., Jennings, N., de Haan, D., Reijnders, R. J. H. (2007). Effects of acoustic alarms, designed to reduce small cetacean bycatch in gillnet fisheries, on the behaviour of North Sea fish species in a large tank. *Marine Environmental Research* 64:160-180.

specified the procedures through which such experimentation would be authorized, or the criteria under which it would be reviewed relative to Plan objectives.

NMFS-Identified Option: In an effort to facilitate scientific research on harbor porpoise bycatch reduction methods and devices, NMFS believes that a research component should be added to the Plan. This would include a provision to allow research to be conducted within the Plan management areas so long as this research was authorized through a NMFS scientific research permit. A permit could be acquired through the existing permit application process administered by the NMFS Permits Division. The application would be managed in the same manner as other scientific research permit applications, which include a regional review and public comment period after publication of an announcement in the Federal Register.