

# **Southern Mid-Atlantic Management Area: Harbor Porpoise Bycatch Patterns during June 2007 to May 2012**

Joshua Hatch  
Integrated Statistics, Inc.  
Woods Hole, MA 02543

## **Summary**

The Northeast Fishery Observer Program (NEFOP) gillnet data collected during June 1, 2007 and May 31, 2012 in the Southern Mid-Atlantic Management Area (MA) were examined to document patterns in the observer coverage, harbor porpoise bycatch, and compliance to the two harbor porpoise Take Reduction Plans (HPTRP). Since June 2007, harbor porpoise bycatch rates for the Southern Mid-Atlantic Management Area (MA) were relatively low compared to other HPTRP management areas. Only two incidental takes of harbor porpoise were recorded out of 562 observed-gillnet hauls. One take occurred during March 2009 targeting monkfish (*Lophius americanus*), and the other take occurred during February 2011 targeting spiny dogfish (*Squalus acanthis*).

The take observed during March 2009 occurred on a vessel that was compliant with the then-current regulations for large-mesh gillnets, as put forth by the harbor porpoise take reduction plan (HPTRP) effective December 2, 1998. However, the take observed on February 2011 was non-compliant with contemporary regulations for small-mesh gillnets, as outlined in the 2010 HPTRP (Federal Register Volume 75, Number 33: February 19, 2010) effective March 22, 2010. The violations consisted of using 8 net panels per string, with a mandated maximum of 7 net panels per string, and a floatline length of 2,428 feet, with a mandated maximum of 2,118 feet.

Overall, compliance levels for hauls using large- and small-mesh gillnets within the Southern Mid-Atlantic MA were similar for years before and after implementation of the 2010 HPTRP. Several hauls were observed during time-area closures for large-mesh gillnets with 20, 5, and 3 hauls occurring in the Southern Mid-Atlantic MA during 2008, 2009, and 2010 respectively, although no takes were recorded on these hauls. The majority of non-compliance for large-mesh gillnets since June 2007 came from violations to floatline length, twine size, number of net panels per string, and use of tie downs. Majority of non-compliance for small-mesh gillnets since June 2007 came from violations to twine and net size, and to a lesser extent floatline length and number of net panels per string.

## **Data**

The Northeast Fishery Observer Program (NEFOP) gillnet data that were collected during June 1, 2007 and May 31, 2012 in the Southern Mid-Atlantic Management Area (MA)

---

*This information is distributed solely to inform discussions of the Harbor Porpoise Take Reduction Team, and is subject to future review and revision. It has not been formally disseminated by NOAA. It does not represent any final agency determination or policy.*

were examined to document patterns in the observer coverage, harbor porpoise bycatch, and compliance to the two harbor porpoise Take Reduction Plans (HPTRP). The NEFOP data were divided into two time periods. The first time period (referred to as “afterTRT”), June 1, 2007 – March 31, 2010, was managed under the 1998 HPTRP (Table 1), and covers the time period after the time period that was provided to the last harbor porpoise take reduction team (HPTRT) meeting to before the implementation of the 2010 HPTRP (Table 1). The second time period (referred to as “newTRP”), April 1, 2010 to May 31, 2012, was managed under the 2010 HPTRP and covers the time since its implementation to the present. Only observed hauls that are within jurisdiction of the HPTRP were included in this analysis (e.g. inshore hauls were excluded), unless otherwise specified.

## **Observer Coverage**

During 2007 – 2012, the Southern Mid-Atlantic MA was observed year round by NEFOP, with coverage levels tending to be lower during summer months (Figure 1). Between June 1, 2007 and May 31, 2012, harbor porpoise bycatch was only observed during February and March. Hence, further analyses only focused on hauls that fell under the jurisdiction of the HPTRP in this MA (January to April), as these times, areas, and gear characteristics are the most influential to incidental takes of harbor porpoise.

In the Southern Mid-Atlantic MA during the first time period (afterTRT), 358 hauls were observed on 82 trips for 36 vessels (Table 2; Figure 2). This is relative to 204 observed hauls on 66 trips for 31 vessels during the newTRP period (Table 2; Figure 3).

## **General Bycatch Patterns**

Of the 562 hauls observed during June 2007 through May 2012 in the Southern Mid-Atlantic MA, only two hauls were recorded as taking a single harbor porpoise, with each bycatch event occurring in different time periods. One harbor porpoise was observed during afterTRT in March 2009 in a haul that targeted monkfish (*Lophius americanus*) in large-mesh, and the other harbor porpoise was observed during newTRP in February 2011 in a haul that targeted spiny dogfish (*Squalus acanthias*) in small-mesh (Tables 2 and 3). The overall bycatch rates in this MA during the two time periods (afterTRT vs newTRP) were similar. Given there were only two observed takes, comparing bycatch rates is of limited use, as is discussing bycatch rate patterns.

## **Compliance**

### ***Small Mesh***

From June 2007 to May 2012 there were 253 observed hauls (from 56 trips on 28 vessels) using small-mesh gillnets in the Southern Mid-Atlantic MA. Of those, 146 operated in the afterTRT period and 107 operated during the newTRP period (Table 3). One incidental take of a

single harbor porpoise was observed on a haul using small-mesh gillnet gear, which was also out of compliance with the HPTRP, and occurred during the newTRP period. The observed incidental take was on a vessel using small-mesh gillnets with the following gear characteristics: 1) no tie downs, 2) floatline length of 2,428 ft, 3) twine size of 0.90 mm, 4) average net length of 300 ft, and 5) 8 net panels per string.

Out of 146 hauls operating in the Southern Mid-Atlantic MA during afterTRT, 44 were out of compliance with the then-current HPTRP, and all were targeting bluefish (Table 4). Most notably, hauls tended not to comply with recommended twine and net size regulations, with 22% non-compliance for twine size (0.70-0.81 mm) and 8% non-compliance for net size (300-400 feet). Overall, there was 70% compliance (30% non-compliant) for observed hauls using small-mesh gillnets in the Southern Mid-Atlantic MA during afterTRT.

Out of 107 observed hauls operating in the Southern Mid-Atlantic MA during newTRP (Table 4), 33 were out of compliance with the 2010 HPTRP, and were targeting a variety of fish species (i.e. spiny dogfish, kingfish, smooth dogfish, and Atlantic bonito). Most notably, hauls tended not to comply with recommended twine and net size regulations, with 15% non-compliance for both twine and net size. There was increased non-compliance for regulations stipulating floatline length and the number of net panels allowed per string, with 9% non-compliance for floatline length and number of nets in a string, compared to complete compliance for these regulations prior to the implementation of the 2010 HPTRP (Table 5). Overall, there was 69% compliance for observed hauls using small-mesh gillnets in the Southern Mid-Atlantic MA during newTRP. For more information on the compliance during the 2007 and 2008 fishing seasons see Orphanides et al. (2009) and Orphanides (2010).

### ***Large Mesh***

From June 2007 to May 2012 there were 281 observed hauls (from 83 trips on 25 vessels) using large-mesh gillnets in the Southern Mid-Atlantic MA. Of those, 184 operated during the afterTRT period and 97 operated during the newTRP period (Table 6). One incidental take of a single harbor porpoise was observed on a haul using large-mesh gillnet gear, which was compliant with the then-current HPTRP, and occurred during the afterTRT period. The observed incidental take was on a vessel using large-mesh gillnets with the following gear characteristics: 1) tie downs of 48 in length, 2) floatline length of 3,600 ft, 3) twine size of 0.90 mm, 4) average net length of 300 ft, and 5) 12 net panels per string.

Out of 184 observed hauls operating in the Southern Mid-Atlantic MA during afterTRT, 80 were out of compliance with the then-current HPTRP (Table 6), and were targeting a variety of fish species (i.e. monkfish, striped bass, smooth dogfish, and spiny dogfish). Most notably, hauls tended not to comply with recommended floatline length (906-6600 ft), twine size (0.57-0.90 mm), number of net panels per string (3-22), and use of tie downs, with 17% non-

compliance for floatline length and number of net panels per string, 16% non-compliance for use of tie downs, and 14% non-compliance for twine size (Table 5). Overall, there was 57% compliance for observed hauls using large-mesh gillnets in the Southern Mid-Atlantic MA during the afterTRT period.

Out of 97 hauls operating in the Southern Mid-Atlantic MA during the newTRP period, 50 were out of compliance with the contemporary HPTRP (Table 6), and were predominately targeting monkfish (with several hauls targeting smooth dogfish). Most notably, hauls tended not to comply with recommended floatline length (906-5164 ft), twine size (0.70-0.90 mm), and number of net panels per string (3-17), with 27% non-compliance for floatline length, 26% non-compliance for number of net panels per string, and 24% non-compliance for twine size (Table 5). Overall, there was 48% compliance for observed hauls using large-mesh gillnets in the Southern Mid-Atlantic MA during newTRP. For more information on the compliance during the 2007 and 2008 fishing seasons see Orphanides et al. (2009) and Orphanides (2010).

### **Correlated Factors**

Because there were only two takes, a bycatch rate model was not developed.

### **References**

Orphanides, CD, Wetmore S, Johnson A. 2009. Update on harbor porpoise take reduction plan monitoring initiatives: Compliance and consequential bycatch rates from June 2007 through May 2008; Pinger tester development and enforcement from January 2008 through July of 2009. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 09-14; 16 p. Available from: Water Street, Woods Hole, MA 02543-1026, or online at <http://www.nefsc.noaa.gov/nefsc/publications/>

Orphanides, CD. 2010. Update on harbor porpoise take reduction plan monitoring initiatives: Compliance and consequential bycatch rates from June 2008 through May 2009. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 10-22; 23 p. Available from: Water Street, Woods Hole, MA 02543-1026, or online at <http://www.nefsc.noaa.gov/nefsc/publications/>

**Table 1:** 1998 and 2010 Harbor Porpoise Take Reduction Plans (HPTRP) for the Southern Mid-Atlantic and New Jersey Management Areas. For more information on the 1998 and 2010 HPTRP regulations, see the NOAA Fisheries Service Northeast Regional Office’s HPTRP website at: [http://www.nero.noaa.gov/prot\\_res/porptrp/](http://www.nero.noaa.gov/prot_res/porptrp/). (A) Regulations pertaining to the large mesh (7 – 18 in) gillnet fisheries. (B) Regulations pertaining to the small mesh (>5 - <7 in) gillnet fisheries. Highlighted cells indicated differences between the two plans.

<b>A. LARGE MESH GILLNETS (7 inches to 18 inches)</b>		
	<b>1998 HPTRP</b>	<b>2010 HPTRP</b>
Floatline length:		
NJ Mudholes (North and South)	<= 3,900 ft	<= 3,900 ft
NJ waters (excluding the Mudholes)	<= 4,800 ft	<= 4,800 ft
Southern Mid-Atlantic waters	<= 3,900 ft	<= 3,900 ft
Twine Size	>= 0.90 mm	>= 0.90 mm
Tie Downs	Required; spaced not more than 15 ft apart along floatline; not more than 48 inches in length	Required; spaced not more than <u>24 ft apart</u> along floatline; not more than 48 inches in length
Net Number per Vessel	<= 80 nets	<= 80 nets
Net Size	<= 300 ft	<= 300 ft
Number of Nets within a String:		
NJ North and South Mudholes	<= 13 nets	<= 13 nets
NJ waters (excluding the Mudholes)	<= 16 nets	<= 16 nets
Southern Mid-Atlantic waters	<= 13 nets	<= 13 nets
Time/Area Closures:		
NJ waters (including the Mudholes)	Closed from Apr 1 – 20	Closed from Apr 1 – 20
NJ North Mudhole	Closed from Feb 15 – Mar 15, April 1 - 20	Closed from Feb 15 – Mar 15, April 1 - 20
NJ South Mudhole		Closed from Feb 1 – Mar 15, April 1 -20
Southern Mid-Atlantic waters	Closed from Feb 15 – Mar 15	Closed from Feb 15 – Mar 15
Gear Modification Requirements:		
NJ waters (excluding the Mudholes)	Jan 1 – Mar 31 and Apr 21 – 30	Jan 1 – Mar 31 and Apr 21 – 30
NJ North Mudhole	Jan 1 – Feb 14; Mar 16 – 31; and Apr 21 – 30	Jan 1 – Feb 14; Mar 16 – 31; and Apr 21 – 30
NJ South Mudhole		Jan 1 – 31; Mar 16 – 31; and Apr 21 – 30
Southern Mid-Atlantic waters	Feb 1 – 14 and Mar 16 – Apr 30	Feb 1 – 14 and Mar 16 – Apr 30

**B. SMALL MESH GILLNETS (> 5 inches to < 7 inches)**

	<b>1998 HPTRP</b>	<b>2010 HPTRP</b>
Floatline length:		
NJ waters (including the Mudholes)	<= 3,000 ft	<= 3,000 ft
Southern Mid-Atlantic waters	<= 2,118 ft	<= 2,118 ft
Twine Size	>= 0.81 mm	>= 0.81 mm
Tie Downs	Prohibited	Prohibited
Net Number per Vessel	<= 45 nets	<= 45 nets
Net Size	<= 300 ft	<= 300 ft
Number of Nets within a Net String		
NJ Waters (including the Mudholes)	<= 10 nets	<= 10 nets
Southern Mid-Atlantic waters	<= 7 nets	<= 7 nets
Time/Area Closures:		
NJ North Mudhole	Closed from Feb 15 - Mar 15	Closed from Feb 15 - Mar 15
NJ South Mudhole		Closed from Feb 1 - Mar 15
Gear Modification Requirements:		
NJ waters (excluding Mudholes)	Jan 1 – Apr 30	Jan 1 – Apr 30
NJ North Mudhole	Jan 1 – Feb 14 and Mar 16 – Apr 30	Jan 1 – Feb 14 and Mar 16 – Apr 30
NJ South Mudhole		Jan 1 – Jan 31 and Mar 16 – Apr 30
Southern Mid-Atlantic waters	Feb 1 – Apr 30	Feb 1 – Apr 30

**Table 2: Descriptive statistics for harbor porpoise (*Phocoena phocoena*) bycatch events in the Southern Mid-Atlantic Management Area from June 2007 through May 2012, by year and time period. Only observed hauls that are within the HPTRP's jurisdiction are included (January – May of each year).**

	afterTRT					newTRP			
	≥ June 2007	2008	2009	< Apr 2010	Total	≥Apr 2010	2011	≤ May 2012	Total
Number of observed hauls	0	160	166	32	358	50	75	79	204
Number of observed trips	0	33	39	10	82	16	25	25	66
Number of observed vessels	0	23	21	7	36	11	18	13	31
Number of observed hauls with one or more take	0	0	1	0	1	0	1	0	1
Total number of observed takes	0	0	1	0	1	0	1	0	1
Total observed landed kept catch (mtons)	0	39.700	44.778	4.268	88.746	25.532	22.490	25.013	73.035
Bycatch rate (observed takes / observed number of hauls)	0	0	0.006	0	0.003	0	0.013	0	0.005
Bycatch rate (observed takes / observed mtons landed)	0	0	0.022	0	0.011	0	0.044	0	0.014

**Table 3: Descriptive statistics for harbor porpoise (*Phocoena phocoena*) bycatch events in the Southern Mid-Atlantic Management Area from June 2007 through May 2012, by time period and the months that are within the HPTRP's jurisdiction (January – April).**

	afterTRT					newTRP				
	Jan	Feb	Mar	Apr	Total	Jan	Feb	Mar	Apr	Total
Number of observed hauls	0	166	85	107	358	0	61	42	101	204
Number of observed takes	0	0	1	0	1	0	1	0	0	1
Total observed landed kept catch (mtons)	0	32.178	15.644	40.923	88.746	0	12.258	4.889	55.889	73.035
Bycatch rate (observed takes / observed number of hauls)	0	0	0.012	0	0.003	0	0.016	0	0	0.005
Bycatch rate (observed takes / observed mtons landed)	0	0	0.064	0	0.011	0	0.082	0	0	0.014

*This information is distributed solely to inform discussions of the Harbor Porpoise Take Reduction Team, and is subject to future review and revision. It has not been formally disseminated by NOAA. It does not represent any final agency determination or policy.*

**Table 4: Number of observed hauls and takes of harbor porpoises (*Phocoena phocoena*) in and out of compliance with the HPTRP for small-mesh (>5-<7”) gillnets operating in the Southern Mid-Atlantic Management Area from June 2007 through May 2012. Note, any one haul could have been out of compliance for violating one or more of the requirements. – indicates no hauls were observed that were managed under the harbor porpoise take reduction plan.**

All Hauls	In Compliance?	afterTRT					newTRP			
		≥ June 2007	2008	2009	< Apr 2010	Total	≥ Apr 2010	2011	≤ May 2012	Total
Number of hauls	No	-	29	12	3	44	5	28	0	33
	Yes	-	42	34	26	102	10	12	52	74
	% Compliant	-	59%	74%	90%	70%	67%	30%	100%	69%
	Total	-	71	46	29	146	15	40	52	107
Number of takes	No	-	0	0	0	0	0	1	0	1
	Yes	-	0	0	0	0	0	0	0	0
	Total	-	0	0	0	0	0	1	0	1

**Table 5. Percent non-compliant hauls for each gear characteristic during the afterTRT and newTRP time periods for small- and large-mesh-gillnet fisheries in the Southern Mid-Atlantic Management Area.**

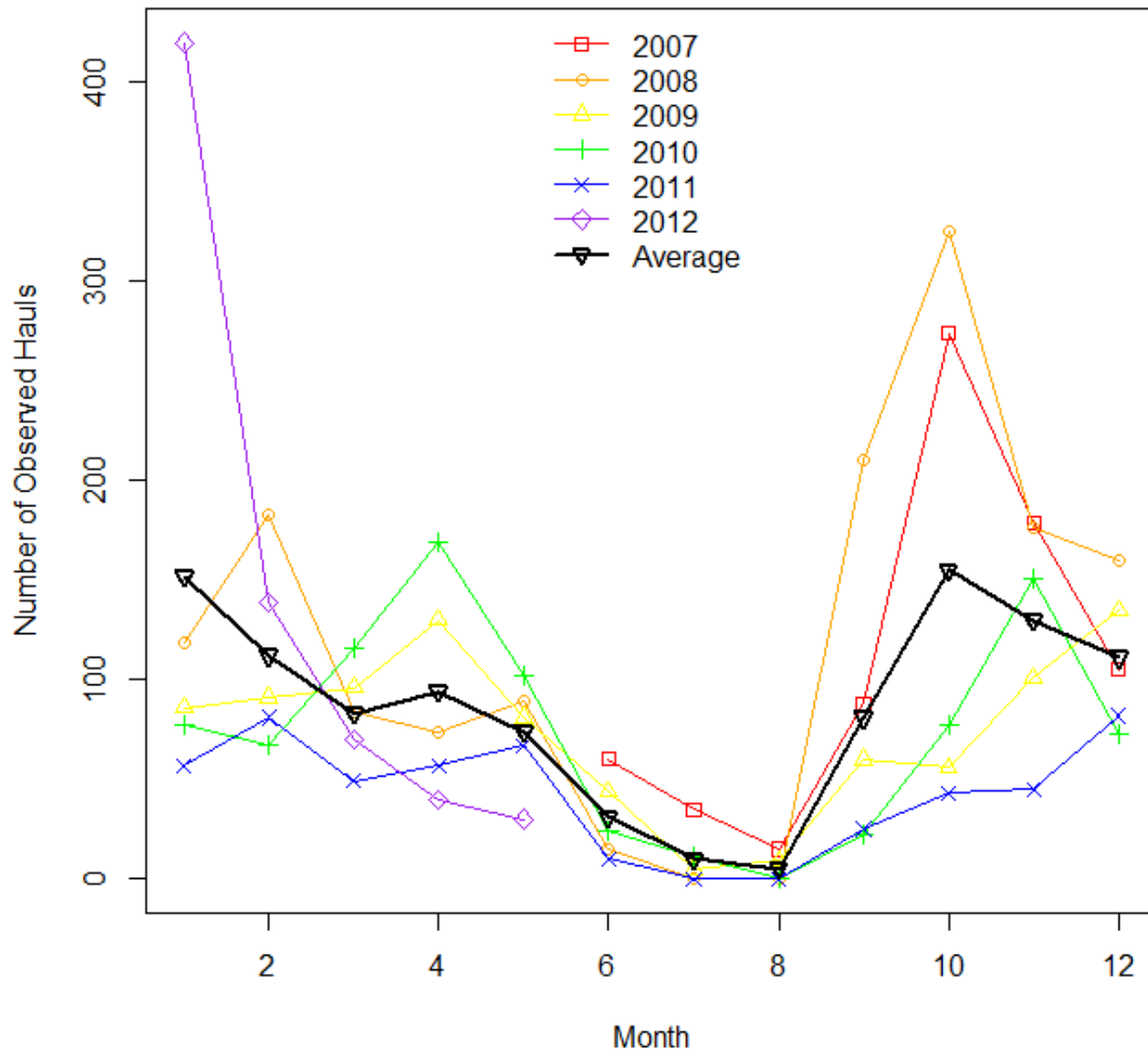
Gear characteristic	afterTRT		newTRP	
	Small mesh	Large mesh	Small mesh	Large mesh
Twine size	22	14	15	24
Net size	8		15	
Floatline length	0	17	9	27
Number of nets	0	17	9	26
Tie-downs		16		
Inside closed area				
Overall	30	43	31	52

*This information is distributed solely to inform discussions of the Harbor Porpoise Take Reduction Team, and is subject to future review and revision. It has not been formally disseminated by NOAA. It does not represent any final agency determination or policy.*

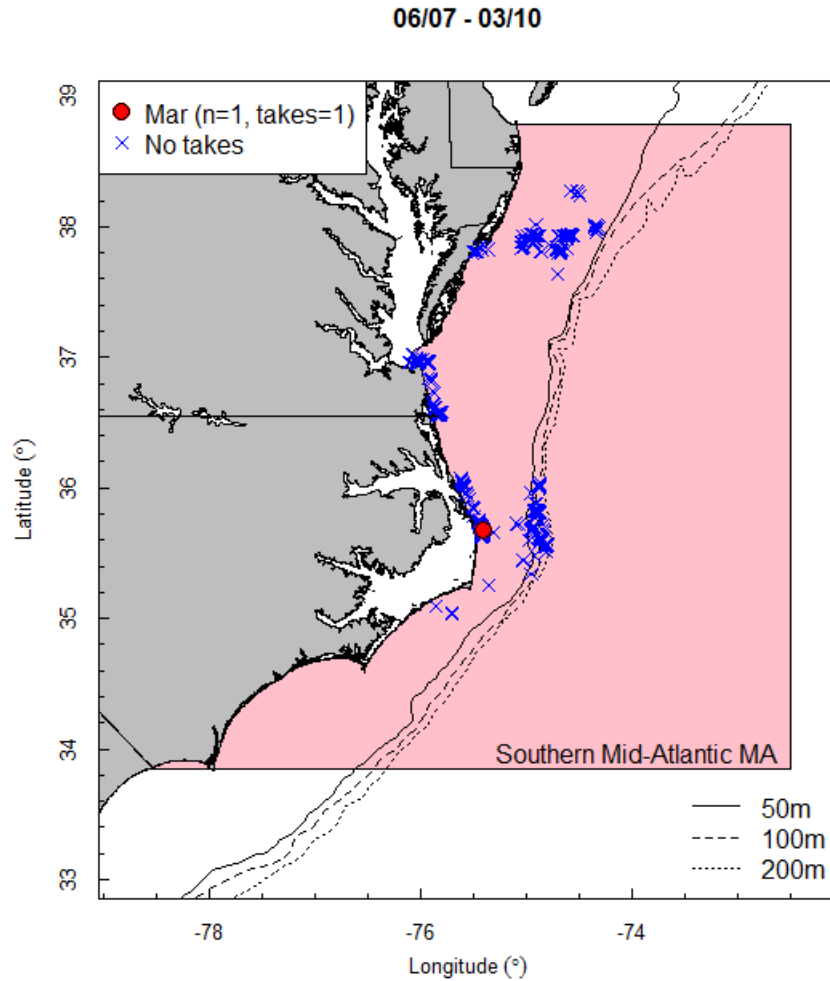


**Table 6: Number of observed hauls and takes of harbor porpoises (*Phocoena phocoena*) in and out of compliance with the HPTRP for large-mesh (7-18") gillnets operating in the Southern Mid-Atlantic Management Area from June 2007 through May 2012, excluding hauls that were observed during time closures (20 in 2008, 5 in 2009, and 3 in 2010). Note, any one haul could have been out of compliance for violating one or more of the requirements. – indicates no hauls were observed that were managed under the harbor porpoise take reduction plan.**

All Hauls	In Compliance?	afterTRT				Total	newTRP			Total
		≥ June 2007	2008	2009	< Apr 2010		≥Apr 2010	2011	≤ May 2012	
Number of hauls	No	-	30	50	-	80	17	19	14	50
	Yes	-	39	65	-	104	18	16	13	47
	% Compliant	-	57%	57%	-	57%	51%	46%	48%	48%
	Total	-	69	115	-	184	35	35	27	97
Number of takes	No	-	0	0	-	1	0	0	0	0
	Yes	-	0	1	-	0	0	0	0	0
	Total	-	0	1	-	1	0	0	0	0

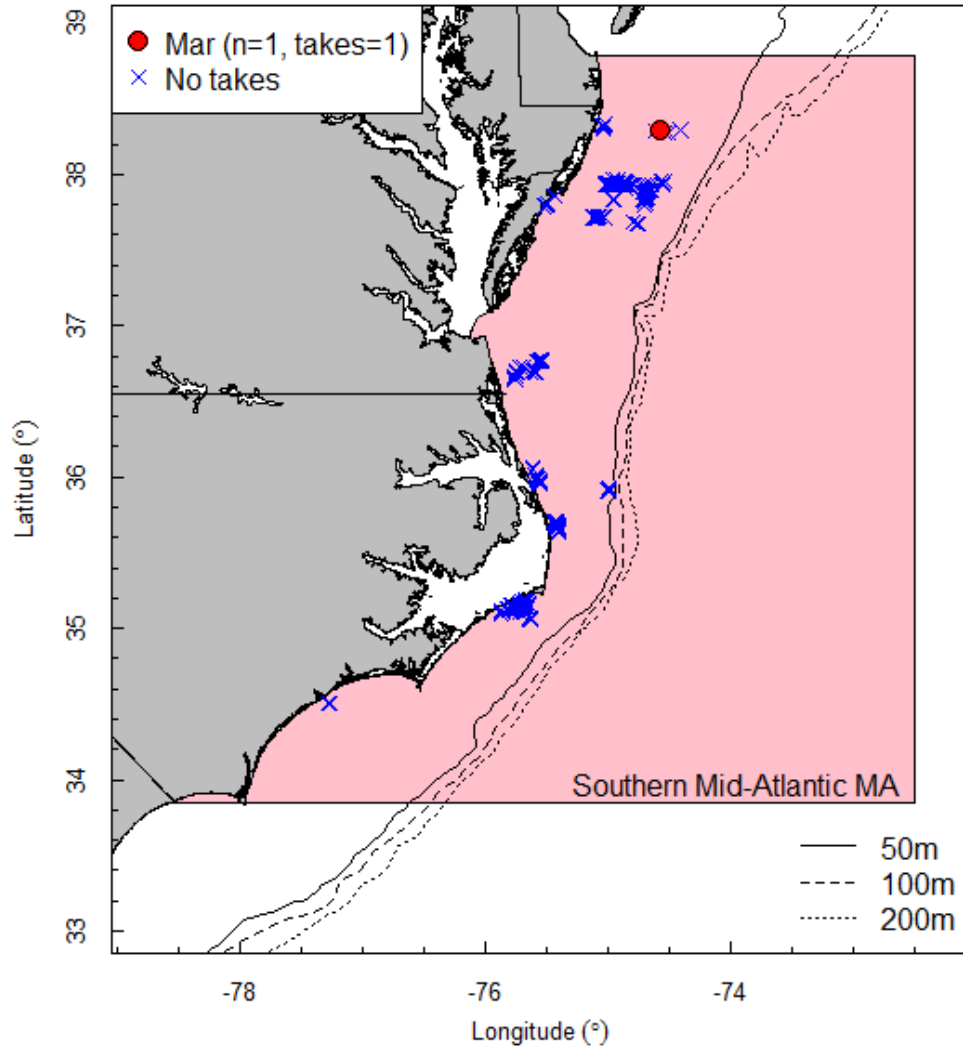


**Figure 1: Number of observed hauls in the Southern Mid-Atlantic Management Area during June 1, 2007 and May 31, 2012.**



**Figure 2: Location of observed hauls and takes of harbor porpoise (*Phocoena phocoena*) that fall under jurisdiction of the HPTRP prior to April 2010. ‘n’ refers to the number of hauls with harbor porpoise bycatch, while ‘takes’ refers to the total number of harbor porpoises taken.**

04/10 - 05/12



**Figure 3: Location of observed hauls and takes of harbor porpoise (*Phocoena phocoena*) that fall under jurisdiction of the HPTRP after April 2010. ‘n’ refers to the number of hauls with harbor porpoise bycatch, while ‘takes’ refers to the total number of harbor porpoises taken.**

*This information is distributed solely to inform discussions of the Harbor Porpoise Take Reduction Team, and is subject to future review and revision. It has not been formally disseminated by NOAA. It does not represent any final agency determination or policy.*