TITLE: *PRELIMINARY* Estimates of Harbor Porpoise Bycatch in the 2011 New England Sink Gillnet and Mid-Atlantic Gillnet Fisheries

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SUMMARY

This report provides incidental take estimates for harbor porpoise (*Phocoena phocoena*)observed in the 2010 New England sink gillnet (NESG) and Mid-Atlantic gillnet (MAG) fisheries and documents the methodology used to produce the estimates. The methodology for these estimates is nearly identical to those used for the 2010 estimates presented as a HPTRT document. For additional details on the methodology refer to the 2010 estimates TRT document (*Estimates of Harbor Porpoise Bycatch in the 2010 New England Sink Gillnet and Mid-Atlantic Gillnet Fisheries*).

Both Northeast Fishery Observer Program (NEFOP) and At-Sea-Monitor (ASM) hauls were used to estimate bycatch. New England ASM hauls with unknown pinger values were dropped from the bycatch rate calculation. However, the total observed takes on these hauls were added to the bycatch estimate and the metric tons of fish landed were subtracted from the total metric tons used to estimate bycatch. This ensures that hauls where the presence or absence of bycatch was known were not included in the calculation of the bycatch rates for these hauls. In effect, this avoids double counting observed takes on these ASM hauls where the bycatch was known.

In the Mid-Atlantic, takes off New Jersey were estimated using a stratum containing hauls that took place between January and April in the Waters off New Jersey management area that fished with large mesh (>9.15”). This stratum is consistent with how bycatch was calculated for these times and areas in past estimates. For an observed take off of Virginia, the stratum used to estimate bycatch in that region included all gillnet hauls fishing from the northern border of the Southern Mid-Atlantic management area, south to the northern end of the opening of Chesapeake Bay (between 38.8 and 37.08 N˚ latitude) from February through April. The season and spatial area used to define this stratum was decided upon after examining historical harbor porpoise bycatch in this region and the fishing locations during 2011 and past years.

Summaries of fishing effort used to calculate the bycatch estimates in New England can be found in Table 1, and a summary of fishing effort in the Mid-Atlantic can be found in Table 2. Figure 1 A and B shows the management areas used in the bycatch estimates for New England and the Mid-Atlantic respectively. The estimated incidental takes in the 2011 NSEG fishery were 322(CV = 23%) harbor porpoises (Table 3). For the MAG fishery, the estimated 2010 incidental takes were 194 (CV = 39%) and (Table 4 and 5).

This information is distributed solely to inform discussions of 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.

TABLES

Table 1. 2011 New England sink gillnet totals for observed trips, observed hauls, limited hauls, observed metric tons of fish landed, prorated total metric tons of fish landed, and percent observer coverage, by season and port group or closure strata.

2011	Observed	Observed Hauls	Observed	Prorated	Coverage
Winter (Jan-May)	**Trips**	**(Limited Hauls)**	**Metric Tons**	**Metric Tons**	**(Metric Tons) %**
Port Group-Area Strata					
Northern Maine					
Southern Maine	12	36 (6)	4.75	29.94	15.87
New Hampshire	0	2 (0)	0.25	0.25	100.00
North of Boston	18	84 (5)	15.59	20.89	74.63
South of Boston	1	1 (0)	1.34	1.54	87.01
South Of Cape Cod	3	20 (9)	6.57	162.84	4.04
East Of Cape Cod	1	15 (0)	1.83	58.75	3.12
Offshore	2	13 (0)	6.81	58.34	11.67
Management Areas					
Offshore	19	264 (0)	93.36	227.98	40.95
Cashes Ledge Closure	1	10 (0)	6.91	17.18	40.22
Midcoast	39	202 (19)	36.06	95.54	37.74
Stellwagen Bank	261	1073 (119)	198.90	539.43	36.87
Massachusetts Bay	24	87 (29)	17.21	103.45	16.64
Cape Cod Bay	.	.	.	9.05	0.00
South Cape Closure	19	88 (32)	33.05	703.34	4.70
Southern New England	96	486 (61)	199.90	1479.24	13.51
Great S. Channel Closure					
Subtotal	496	2381 (280)	622.53	3507.76	17.75
	Observed	**Observed Hauls**	**Observed**	**Prorated**	**Coverage**
Summer (Jun-Aug)	**Trips**	**(Limited Hauls)**	**Metric Tons**	**Metric Tons**	**(Metric Tons) %**
Port Group-Area Strata					
Northern Maine				5.92	
Southern Maine	22	69 (0)	29.76	521.63	5.71
New Hampshire	27	81 (0)	37.42	1046.25	3.58
North of Boston	86	289 (30)	101.51	1178.67	8.61
South of Boston	33	128 (13)	47.57	796.44	5.97
South Of Cape Cod	21	139 (38)	50.38	2416.05	2.09
East Of Cape Cod	40	144 (5)	108.87	2218.57	4.91
Offshore	4	64 (0)	32.87	219.06	15.01
Management Areas					
Northeast Closure					
Great S. Channel Closure	1	1 (0)	0.43	1.15	37.39
Subtotal	234	915 (86)	408.81	8403.74	4.86
	Observed	**Observed Hauls**	**Observed**	**Prorated**	**Coverage**
Fall (Sep-Dec)	**Trips**	**(Limited Hauls)**	**Metric Tons**	**Metric Tons**	**(Metric Tons) %**
Port Group-Area Strata					
Northern Maine	0	0 (0)	0.00	0.00	0.00
Southern Maine	23	120 (7)	42.27	246.18	17.17
New Hampshire	25	87 (19)	17.42	168.29	10.35
North of Boston	102	464 (37)	94.41	254.78	37.06
South of Boston	19	78 (24)	23.57	64.78	36.39
South Of Cape Cod	59	350 (138)	139.72	1354.41	10.32
East Of Cape Cod	134	462 (12)	348.60	1377.65	25.30
Offshore	7	126 (0)	51.53	236.33	21.80
Management Areas					
Northeast Closure					
Offshore	8	108 (0)	72.01	160.08	44.98
Midcoast	183	854 (78)	272.40	941.14	28.94
Stellwagen Bank	143	530 (37)	83.04	335.40	24.76
Massachusetts Bay	44	228 (30)	36.11	182.06	19.83
South Cape Closure	11	76 (16)	37.30	477.58	7.81
Southern New England	10	40 (8)	21.14	264.98	7.98
Subtotal	768	3523 (406)	1239.52	6063.66	20.44
2011 Total	**1498**	**6819 (772)**	**2270.86**	**17975.16**	**12.63**

Table 2. 2011 Mid-Atlantic state gillnet totals for observed trips, observed hauls, limited hauls, observed metric tons of fish landed, prorated total metric tons of fish landed, and percent observer coverage, by season and state. Effort inside bays and sounds was not included in this table (e.g., Delaware Bay, Chesapeake Bay, Albemarle Sound, and Pamlico Sound).

Winter (Jan-May)	**Observed Trips**	**Observed Hauls (Limited Hauls)**	**Observed Metric Tons**	**Prorated Metric Tons**	**Coverage (Metric Tons) %**
Massachusetts	0	0	0	75.47	0.00%
Rhode Island	0	0	0	3.52	0.00%
Connecticut	0	0	0	1.86	0.00%
New York	0	0	0	119.03	0.00%
New Jersey	24	74 (51)	33.21	1081.86	3.07%
Delaware	0	0	0	0	-
Maryland	11	27 (3)	7.41	350.13	2.12%
Virginia	45	153 (97)	42.27	4138.89	1.02%
North Carolina	38	190 (10)	31.25	955.62	3.27%
Georgia				0.84	0.00%
Subtotal	118	444 (161)	114.14	6727.22	1.70%
Summer (June-Aug)	**Observed Trips**	**Observed Hauls (Limited Hauls)**	**Observed Metric Tons**	**Prorated Metric Tons**	**Coverage (Metric Tons) %**
Massachusetts	0	0	0	6.7	0.00%
Rhode Island	0	0	0	0.26	0.00%
Connecticut	0	0	0	1.58	0.00%
New York	3	8 (0)	3.22	145.48	2.21%
New Jersey	13	34 (17)	10.56	354.06	2.98%
Delaware	0	0	0	0	-
Maryland	0	0	0	15.5	0.00%
Virginia	4	46 (0)	1.04	185.12	0.56%
North Carolina	3	22 (0)	0.12	83.55	0.14%
Subtotal	23	110 (17)	14.94	792.25	1.89%
Fall (Sept-Dec)	**Observed Trips**	**Observed Hauls (Limited Hauls)**	**Observed Metric Tons**	**Prorated Metric Tons**	**Coverage (Metric Tons) %**
New Hampshire	0	0	0	0.39	0.00%
Massachusetts	0	0	0	0	0.00%
Rhode Island	0	0	0	3.22	0.00%
New York	8	33 (3)	3.7	105.72	3.50%
New Jersey	29	84 (37)	36.47	1316.6	2.77%
Connecticut	0	0	0	0	-
Delaware	0	0	0	0.00	-
Maryland	11	55 (2)	10.78	459.67	2.35%
Virginia	9	41	8.53	1200.22	0.71%
North Carolina	24	150 (52)	7.8	687.04	1.14%
Subtotal	81	363 (76)	67.28	3772.86	1.78%
Annual Totals	222	917 (254)	196.36	11292.33	1.74%

Table 3. 2011 harbor porpoise bycatch estimate in the NESG.

2011	Observed	Bycatch Rate	Estimated	C.V.	95%
Winter (Jan-May)	**Takes**	**(Take/Ton)**	**Takes**	**(%)**	**C.I.**
Port Group-Area Strata					
Northern Maine					
Southern Maine					
New Hampshire					
North of Boston	4	0.257	5.37	31%	4-6
South of Boston					
South Of Cape Cod					
East Of Cape Cod					
Offshore					
Management Areas					
Offshore					
Cashes Ledge Closure					
Midcoast	12	0.338	32.29	32%	12-46
Stellwagen Bank	17	0.087	46.93	24%	17-59
Massachusetts Bay	3	0.171	17.69	100%	3-51
Cape Cod Bay					
South Cape Closure	3	0.091	64.00	76%	3-159
Southern New England	11	0.051	75.44	41%	11-130
Great S. Channel Closure					
Subtotal	50		241.72	27%	113-370
	Observed	**Bycatch Rate**	**Estimated**	**C.V.**	**95%**
Summer (Jun-Aug)	**Takes**	**(Take/Ton)**	**Takes**	**(%)**	**C.I.**
Port Group-Area Strata					
Northern Maine					
Southern Maine					
Southern Maine (ASM missing pinger info)	1				
New Hampshire					
New Hampshire (ASM missing pinge info)	1				
North of Boston	1	0.012	14.14	101%	1-42
South of Boston					
South Of Cape Cod					
East Of Cape Cod					
Offshore					
Management Areas					
Northeast Closure					
Great S. Channel Closure					
Subtotal	3		14.14	101%	1-42
	Observed	**Bycatch Rate**	**Estimated**	**C.V.**	**95%**
Fall (Sept-Dec)	**Takes**	**(Take/Ton)**	**Takes**	**(%)**	**C.I.**
Port Group-Area Strata					
Northern Maine					
Southern Maine					
New Hampshire					
North of Boston	1	0.01	2.80	79%	1-7
South of Boston					
South Of Cape Cod					
East Of Cape Cod					
Offshore					
Management Areas					
Northeast Closure					
Offshore					
Midcoast	5	0.018	16.94	39%	5-27
Stellwagen Bank	4	0.048	16.10	45%	4-28
Massachusetts Bay	1	0.028	5.10	89%	1-13
South Cape Closure	2	0.052	24.83	91%	2-69
Southern New England					
Subtotal	13		65.77	39%	15-116
2011 Total	**66.00**		**321.63**	**23%**	**178-465**

Table 4. For 2011 totals for harbor porpoise/time/area specific Mid-Atlantic strata, totals for observed trips, observed hauls, observed metric tons of fish landed, prorated total metric tons of fish landed, and percent observer coverage by season.

Species Applicability	2011 Time Period	State(s)/Region	Mesh Size	Observed Trips	Observed Hauls (Limited Hauls)	Observed Metric Tons	Prorated Metric Tons	Coverage (Metric Tons) %
Harbor Porpoise	Jan-April	Waters Off NJ	> 9.15"	19	64 (14)	28.74	480.52	5.98%
Harbor Porpoise	Feb-April	Water off VA	All	16	35 (9)	15.26	413.14	3.69%

Table 5. 2011 Mid-Atlantic harbor porpoise bycatch estimates in the MAG.

Species	2011 Time Period	Area/State	Mesh	Observed Takes	Bycatch Rate (Take/Ton)	Estimated Takes	C.V. (%)	95% C.I.
Harbor Porpoise	Jan-Apr	Waters off NJ	> 9.15"	10	0.348	167.22	42%	28-306
	Feb-Mar	Waters off NJ	All	1	0.066	27.27	100%	1-81
	Annual Total	Mid-Atlantic Total		11		194.49	39%	45-344

FIGURES

Figure 1 A. New England Harbor Porpoise Take Reduction Plan (HPTRP) Management and Closure Areas.

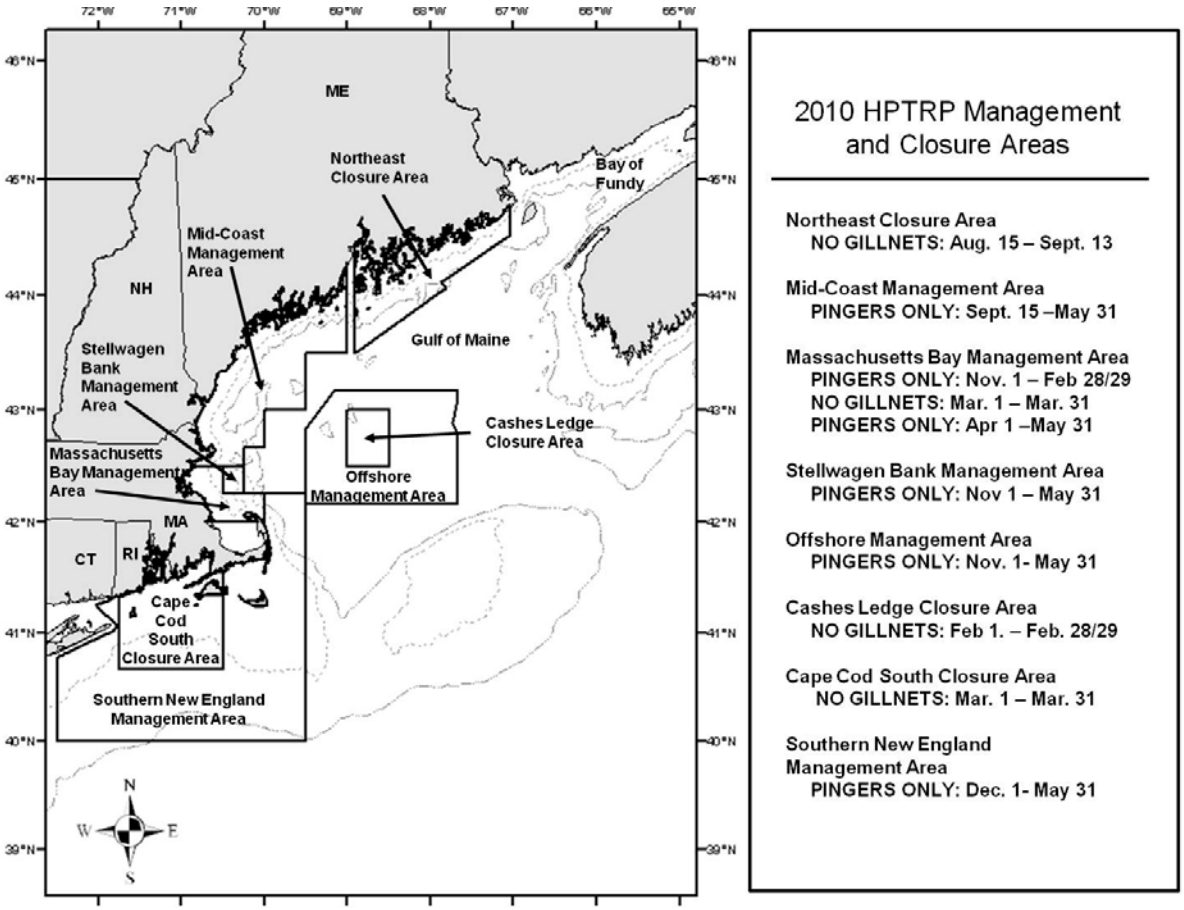
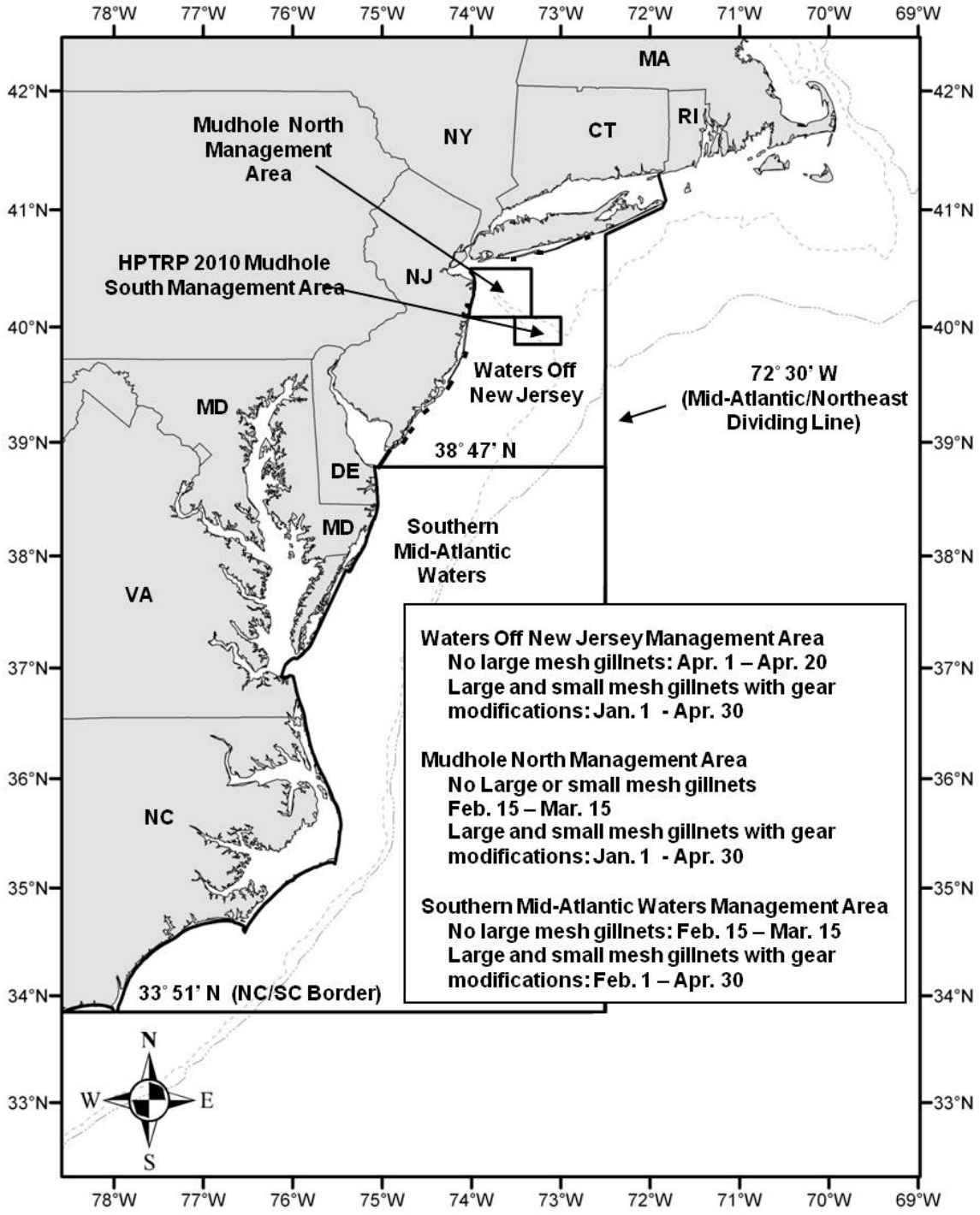
FIGURE 1B. Mid-Atlantic Harbor Porpoise Take Reduction Plan (HPTRP) Management and Closure Areas.