Final Review

of the

Biological Status

of the

Gulf of Maine/Bay of Fundy Harbor Porpoise

(*Phocoena phocoena*)

Pursuant to the Endangered Species Act

Prepared by
the
National Marine Fisheries Service
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1.0 Executive Summary

The National Marine Fisheries Service (NMFS) has prepared this review of the biological status of the Gulf of Maine/Bay of Fundy (GOM/BOF) harbor porpoise, *Phocoena phocoena*, pursuant to the May 12, 2000, settlement agreement in Center for Marine Conservation *et al.* v. Daley *et al.* (Civ. No. 1:98CV02029 EGS). This status review considers new information that has become available since the previous status review finalized with NMFS withdrawal of the proposed rule to list the harbor porpoise as threatened under the Endangered Species Act (64 FR 465; January 5, 1999). The primary new information considered includes the impact of regulatory mechanisms that reduced harbor porpoise bycatch during the first two years of implementation of the Harbor Porpoise Take Reduction Plan (HPTRP) promulgated under the Marine Mammal Protection Act (MMPA).

On August 2, 2001, NMFS published a draft of this status review (66 FR 40176), including a preliminary determination that listing of the harbor porpoise was not warranted and a proposal to remove the stock from the ESA Candidate Species List. In this final status review, NMFS has determined that listing of the harbor porpoise is not warranted at this time. In addition, NMFS has determined that it is appropriate to remove the stock from the ESA Candidate Species List.

2.0 Background of Endangered Species Act Harbor Porpoise Actions Since 1991

On September 18, 1991, the Sierra Club Legal Defense Fund, on behalf of the International Wildlife Coalition and twelve other organizations, submitted a petition to list the harbor porpoise as threatened under the ESA. NMFS published a notice of receipt of petition to list the GOM/BOF stock as threatened on December 13, 1991 (56 FR 65044). On January 7, 1993, NMFS published a proposed rule to list the GOM/BOF stock of harbor porpoise as threatened under the ESA (58 FR 3108). The proposed listing was based on information demonstrating the following: (a) the rate of bycatch of harbor porpoise in commercial gillnet fisheries (extending from the Bay of Fundy, Canada, south throughout the Gulf of Maine) might reduce this population to the point where it would become threatened throughout all or a portion of its range; and, (b) there were no regulatory measures in place to reduce this bycatch. NMFS extended the comment period on the proposed rule until August 7, 1993 (58 FR 17569, April 5, 1993) to hold public hearings. On November 8, 1993 (58 FR 59230), the date for the final determination on the proposal to list was extended for six months to allow for further data collection and analyses about harbor porpoise stock structure. On July 15, 1994, NMFS reopened the comment period for 30 days to allow for public comment on the new analyses (59 FR 36158).

The New England Harbor Porpoise Working Group (HPWG), an informal stakeholder group, met on July 21, 1994, to discuss harbor porpoise bycatch and the ESA listing proposal. As a result of the concerns expressed at that meeting, NMFS again extended the comment period on the proposed rule until September 11, 1994 (59 FR 41270). At that time, NMFS also decided to wait for the 1995 bycatch data prior to proceeding with a listing determination.

NMFS had not yet made a final determination when, in 1996, Congress imposed a one-year

moratorium on listing species under the ESA. During 1997 and 1998, NMFS kept the listing issue under review in light of new population abundance and bycatch data, ongoing New England Fishery Management Council (NEFMC) and NMFS fishery management efforts to reduce harbor porpoise bycatch, and the MMPA Section 118 Take Reduction Team (TRT) process established pursuant to the 1994 amendments to the MMPA.

On October 22, 1998, NMFS reopened the comment period on the proposed rule to list the GOM/BOF harbor porpoise as a threatened species under the ESA (63 FR 56596). This action was taken because of the amount of time that had passed since the close of the previous comment period and to allow for the review of the best scientific information available.

The listing determination was also the subject of litigation with the Center for Marine Conservation, the Humane Society of the United States, and the International Wildlife Coalition (Center for Marine Conservation et al. v. Daley et al., Civ. No. 1:98CV02029 EGS). In the settlement agreement arising from this litigation, NMFS agreed to make a final listing determination by January 4, 1999. Upon consideration of comments received on the proposed rule published in October 1998, review of the best available data, and implementation of the Harbor Porpoise Take Reduction Plan (HPTRP), NMFS determined that listing of the GOM/BOF population of harbor porpoise as threatened under the ESA was not warranted. On January 5, 1999, NMFS withdrew the proposal to list the GOM/BOF population of harbor porpoise as threatened under the ESA (64 FR 465). On January 5, 1999, NMFS also published a notice retaining the GOM/BOF population of harbor porpoise on the ESA Candidate Species List (64 FR 480).

Pursuant to the settlement agreement in Center for Marine Conservation et al. v. Daley et al., in the event that NMFS determined not to list harbor porpoise under the ESA, NMFS agreed to commence a review of the biological status of the GOM/BOF harbor porpoise population on or before March 31, 2001, and to consider the need to publish a proposal to list the population based on the review at that time. On March 29, 2001, NMFS published a *Federal Register* notification announcing the commencement of the status review and requesting information (66 FR 17150).

This status review focuses on new information and analyses available since publication of the January 5, 1999, withdrawal of the proposed rule. For detailed information on the data and analyses prior to January 5, 1999, readers should refer to the *Federal Register* publications cited above. Additional, detailed information about the GOM/BOF stock of harbor porpoise is available in NMFS U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessment Reports (SAR).

3.0 Species Status and Factors Affecting the Species

For this status review and the preliminary determination not to list the GOM/BOF harbor porpoise under the ESA, NMFS considered stock definition information, population abundance,

bycatch data, NEFMC/NMFS ongoing fishery management efforts to reduce harbor porpoise bycatch, and progress in bycatch reduction under the HPTRP since the January 5, 1999, withdrawal of the proposed rule to list the GOM/BOF population as threatened under the ESA.

3.1 Stock Definition

Gaskin (1984, 1992) proposed the following four separate populations of harbor porpoise in the Western North Atlantic: the GOM/BOF population, the Gulf of St. Lawrence population, the Newfoundland population, and the Greenland population. Analyses involving mitochondrial DNA (Wang *et al.* 1996; Rosel *et al.* 1999a; Rosel *et al.* 1999b), organochlorine contaminants (Westgate *et al.* 1997; Westgate and Tolley 1999), heavy metals (Johnston 1995), and life history parameters (Read and Hohn 1995) support Gaskin s proposal. Genetic studies using mitochondrial DNA (Rosel *et al.* 1999a) and contaminant studies using total PCBs (Westgate and Tolley 1999) suggest that female GOM/BOF harbor porpoises are distinct from females from the other populations in the Northwest Atlantic. Studies comparing mitochondrial DNA (Rosel *et al.* 1999a; Palka *et al.* 1996) and CHLORs, DDTs, PCBs and CHBs (Westgate and Tolley 1999) indicate that male GOM/BOF harbor porpoises are distinct from Newfoundland and Greenland males, but not from Gulf of St. Lawrence males. Analyses of stranded animals from the Mid-Atlantic states suggest that the Mid-Atlantic aggregation of harbor porpoises includes the GOM/BOF stock and other stocks (Rosel *et al.* 1999a). However, the majority of the samples used in the Rosel *et al.* (1999a) study were from stranded juvenile animals. Further work is underway to examine adult animals from the Mid-Atlantic region.

Nuclear microsatellite markers have also been applied to samples from the four populations but failed to detect significant population sub-division in either males or females (Rosel *et al.* 1999a). This pattern may be indicative of female philopatry coupled with dispersal of male harbor porpoises.

Analyses since the 1998 status review continue to support the hypothesis of four separate populations of harbor porpoise in the western North Atlantic.

3.2 Abundance

To estimate the population size of harbor porpoises in the GOM/BOF region, four line-transect sighting surveys were conducted during the summers of 1991, 1992, 1995, and 1999. The abundance estimates were 37,500 harbor porpoises in 1991 [CV=0.29 and 95-percent confidence interval (CI)=26,700-86,400] (Palka 1995a); 67,500 harbor porpoises in 1992 (CV=0.23 and 95% CI=32,900-104,600) (Palka 1996); 74,000 harbor porpoises in 1995 (CV=0.20 and 95-percent CI=40,900-109,100) (Palka 1996); and 89,700 harbor porpoises in 1999 (CV=0.22 and 95-percent CI=53,400-150,900) (Palka 2000). The inverse variance weighted-average abundance estimate (Smith *et al.* 1993) of the 1991 to 1995 estimates was 54,300 harbor porpoises (CV=0.14 and 95-percent CI=41,300-71,400). Possible reasons for inter-annual differences in abundance and distribution include experimental error, inter-annual changes in water temperature

and availability of primary prey species (Palka 1995b), and movement among population units (*e.g.*, between the Gulf of Maine and the Gulf of St. Lawrence). The upper Bay of Fundy and northern Georges Bank were surveyed in 1999, but not in earlier surveys. Harbor porpoises were observed in the upper Bay of Fundy and northern George s Bank areas; therefore the expansion of the survey into these two areas may account for some or all of the increase in the 1999 abundance estimate (Palka 2000).

The best abundance estimate of the GOM/BOF harbor porpoise stock is 89,700 (CV=0.22) animals. The 1999 estimate is considered to be the best available because it is the most current and because the 1999 survey discovered portions of the harbor porpoise range not covered in previous surveys.

Analyses are underway to determine whether information necessary to detect a trend in abundance can be obtained from the four NMFS surveys. Until such a trend can be identified, it is not possible to state conclusively that the abundance of this stock has increased during any time in the survey period.

3.3 Potential Biological Removal (PBR) Level

The PBR level is the product of minimum population size, one-half the maximum net productivity rate, and a recovery factor (MMPA Sec. 3. 16 U.S.C. 1362, Wade and Angliss 1997). Based on the 1999 survey, NMFS increased the value for the minimum population size for the GOM/BOF harbor porpoise stock to 74,695 (CV=0.22) in the draft 2001 Stock Assessment Report (SAR) (66 FR 30706, June 7, 2001). The maximum net productivity rate for harbor porpoise is currently 0.04, which is the default value for cetaceans. The recovery factor, which accounts for endangered, depleted, threatened stocks, or stocks of unknown status relative to optimum sustainable population (OSP) is assumed to be 0.5 because this stock is of unknown status. Due to the increased minimum population estimate for the GOM/BOF harbor porpoise stock, NMFS has also increased the PBR for this stock from 483 to 747 in the draft 2001 SAR. NMFS is using a PBR of 747 for the purposes of this status review.

3.4 Human-Caused Mortality

The U.S. average annual mortality estimate prior to implementation of the HPTRP (1994-1998) was 1,521 (CV=0.10) harbor porpoises from U.S. fisheries and 57 harbor porpoises from Canadian fisheries. GOM/BOF harbor porpoise takes have been documented in the U.S. Northeast sink gillnet and Mid-Atlantic coastal gillnet fisheries and in the Canadian Bay of Fundy sink gillnet and herring weir fisheries. Data to estimate the mortality and serious injury of harbor porpoise comes from U.S. and Canadian Sea Sampling Programs and from records of strandings in U.S. waters. Implementation of the HPTRP and related Fishery Management Plan (FMP) restrictions changed the U.S. gillnet fisheries substantially. Therefore only mortality estimates for 1999 and 2000, which represents the time since implementation of the HPTRP and FMP restrictions, are included in this analysis. The total annual estimated average human-caused

mortality for 1999 is 366 harbor porpoises, derived from the following four components: 323 harbor porpoises (CV=0.25) from U.S. fisheries using observer data; approximately 20 harbor porpoises (preliminary estimate with unknown CV) from Canadian fisheries using observer data; 19 harbor porpoises from unknown U.S. fisheries using strandings data; 1 harbor porpoise from unknown human-caused mortality in the U.S. (a mutilated stranded harbor porpoise); and 3 documented mortalities from Canadian herring weirs.

A preliminary estimate of harbor porpoise bycatch in U.S. fisheries for 2000 indicates that 529 harbor porpoises were taken in the U.S. fisheries in 2000, including 507 (CV=0.37) estimated takes from the Northeast sink gillnet fishery, 21 (CV=0.76) estimated takes from the Mid-Atlantic coastal gillnet fishery, and 1 take from an unknown fishery as indicated by stranding data.

The 2000 harbor porpoise bycatch estimate for Canadian fisheries is not available at this time. However, preliminary raw data indicate that in 549 gillnets observed, 8 harbor porpoises were observed taken.

3.5 Population Viability Analysis

The analysis performed by Wade (1998) and presented in the October 22, 1998, proposed listing (63 FR 56596) was updated using new estimates of abundance and mortality for the GOM/BOF harbor porpoise stock. Using the 1999 survey abundance estimate (89,700 animals) and the 1999 mortality estimate (366 animals), there was no chance of extinction (0.0) in 100 years. A summary of parameter values and distributions used in the simulations and results of the analysis can be found in Wade (2001).

4.0 Summary of ESA Factors Affecting the Species

As defined in 50 CFR 424.02 of the regulations implementing the ESA, an endangered species is a species that is in danger of extinction throughout all or a significant portion of its range. Similarly, a threatened species is a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. As described in Section 4(a)(1) of the ESA, the Secretaries of Commerce or Interior determine whether any species is an endangered species or threatened species because of any of the following factors: (a) the present or threatened destruction, modification, or curtailment of its habitat or range; (b) overutilization for commercial, recreational, scientific, or educational purposes; (c) disease or predation; (d) the inadequacy of existing regulatory mechanisms; or (e) other natural or manmade factors affecting its continued existence. These factors are discussed here, as they apply to the GOM/BOF population of harbor porpoise, in light of information that has become available since the January 5, 1999, withdrawal of the proposal to list the species as threatened.

4.1 FACTOR A: Present or Threatened Destruction, Modification, or

Curtailment of Habitat or Range

The GOM/BOF stock of harbor porpoise is found in U.S. and Canadian Atlantic waters. During the months of July through September, harbor porpoise are concentrated in the northern Gulf of Maine and southern Bay of Fundy region, generally in waters less than 150 meters deep (Gaskin 1977; Kraus *et al.* 1983; Palka 1995 a,b). During the months of October through December and April through June, harbor porpoise are widely dispersed from New Jersey to Maine, with lower densities farther north and south. They are seen from the coastline to deep waters (>1800 meters; Westgate *et al.* 1998), although the majority of the population is found over the continental shelf. During the months of January through March, intermediate densities of harbor porpoise can be found in waters off New Jersey to North Carolina, and lower densities are found in waters off New York to New Brunswick, Canada.

Although the shoreline bordering the nearshore habitat of harbor porpoise along the eastern U.S. coastline is developed in many areas and may have affected coastal habitat, there is no new or additional evidence to indicate that shoreline development has affected the habitat of harbor porpoise in a manner that has contributed to a decline of the GOM/BOF population or that the range of this species has changed significantly as a result of shoreline development or change in coastal habitat.

4.2 FACTOR B: Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

This section discusses serious injury/mortality of harbor porpoise incidental to the operation of the Northeast sink gillnet and Mid-Atlantic coastal gillnet fisheries, unknown U.S. fisheries as suggested by stranding data, the Canadian Bay of Fundy groundfish gillnet and herring weir fisheries, and takes that may have occurred incidental to scientific research activities. It is unknown whether lethal takes of harbor porpoises are occurring incidental to recreational fishing activities. Detailed information about human-caused mortality to harbor porpoise is available in the GOM/BOF harbor porpoise chapter of the U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessment Report for 2000 and draft report for 2001.

4.2.1 Northeast Sink Gillnet Fishery

Before 1998, most of the documented harbor porpoise takes from U.S. fisheries were from the Northeast sink gillnet fishery. Prior to the present Sea Sampling Program and fishing effort reporting, Gilbert and Wynne (1985, 1987), using rough estimates of fishing effort, calculated that a maximum of 600 harbor porpoises were killed annually in this fishery in the Gulf of Maine. NMFS started an observer program in 1990 to investigate marine mammal takes in the Northeast sink gillnet fishery. Summing all years, there were 452 harbor porpoise mortalities observed in this fishery between 1990 and 2000 and one animal released alive and uninjured. Estimated annual bycatch (CV in parentheses) from those observed takes in this fishery during 1990-1998 was 2,900 in 1990 (0.32); 2,000 in 1991 (0.35); 1,200 in 1992 (0.21); 1,400 in 1993

(0.18) (Bravington and Bisack, 1996; CUD 1994); 2,100 in 1994 (0.18); 1,400 in 1995 (0.27) (Bisack, 1997a); 1,200 (0.25) in 1996; 782 (0.22) in 1997; and 332 (0.46) in 1998. (The increase in the 1998 CV is assumed to result from the small number of observed takes.)

Average estimated harbor porpoise mortality and serious injury in the Northeast sink gillnet fishery before implementation of the Take Reduction Plan was 1,163 (0.11) animals per year. In 1999 and 2000, estimates of harbor porpoise serious injury and mortality were 270 animals (CV=0.28) and 507 animals (CV=0.37), respectively. The two-year average estimate of serious injury/mortality for this fishery is 389 animals (CV=0.26) per year.

4.2.2 Mid-Atlantic Coastal Gillnet Fishery

NMFS started an observer program in the Mid-Atlantic coastal gillnet fishery in July of 1993. This fishery, which extends from North Carolina to New York, is a combination of small vessel fisheries that target a variety of fish species. No harbor porpoises were observed taken in the Mid-Atlantic coastal gillnet fishery during 1993 and 1994. From 1995 through 2000, 114 harbor porpoises were observed taken in this fishery. Annual average estimated harbor porpoise mortality and serious injury from the Mid-Atlantic coastal gillnet fishery before implementation of the HPTRP (1995-1998) was 358 animals (CV=0.20). In 1999 and 2000, the estimated harbor porpoise serious injury and mortality attributable to this fishery was 53 animals (CV=0.49) and 21 animals (CV=0.76), respectively. The two-year average estimate of serious injury/mortality for this fishery is 37 animals (CV=0.41) per year. New genetic data indicate that more than one population of harbor porpoise occurs in the mid-Atlantic in the winter; therefore, it is possible that some of the takes are not from the GOM/BOF stock of harbor porpoise.

4.2.3 Unknown Fishery

The NMFS strandings and entanglement database contains 228 reports of stranded harbor porpoises during 1999. The stranded carcasses were examined for signs of fishery interaction and other human impacts. Of the animals for which a determination could be made, evidence of fishery interaction involving gillnet gear was found on 38. Of the 38 fishery-interaction strandings, it was determined that 19 were in areas and times that were not included in mortality estimates derived from observer data. Twenty-six harbor porpoise mortalities were reported from the database in 2000. Of these 26, it was determined that the cause of death of one animal was from fishery interactions and that this event was not duplicative of the observed take estimate for the stratum in which the stranding occurred.

4.2.4 Canadian Bay of Fundy Sink Gillnet Fishery

In the summer of 1993, the Canada Department of Fisheries and Oceans implemented an observer program in the Bay of Fundy sink gillnet fishery. Average estimated harbor porpoise mortality in this fishery from 1995 to 1999 was 36 animals per year; the mortality from 2000 has not yet been estimated. An estimate of variance is not possible.

4.2.5 Canadian Bay of Fundy Herring Weir Fishery

Harbor porpoises are taken frequently in Canadian herring weirs, although a program has been implemented to reduce the mortality occurring from these takes. There have been no efforts to observe the U.S. component of this fishery and no takes reported from opportunistic platforms. Average estimated harbor porpoise mortality in the Canadian BOF herring weir fishery from 1995 to 1999 was 2.8 animals per year. The mortality from 2000 has not yet been estimated. An estimate of variance is not possible.

4.3 FACTOR C: Disease or Predation

Evidence of disease and predation on individuals of the GOM/BOF harbor porpoise population has been recorded by the Northeast and Southeast Marine Mammal Stranding Networks and during various necropsy workshops hosted by NMFS. There is no indication that disease has had a measurable impact on the GOM/BOF harbor porpoise population. Likewise, although it is assumed that predation on harbor porpoise is occurring, there is no evidence to suggest that the rate of predation has increased such that it would adversely affect the net rate of increase of the GOM/BOF population.

4.4 FACTOR D: Inadequacy of Existing Regulatory Mechanisms

This portion of the status review evaluates whether current regulatory mechanisms are adequate to prevent impacts that could result in a determination that the GOM/BOF harbor porpoise population is threatened or endangered. NMFS proposed listing (58 FR 3108, January 7, 1993), revised proposed listing (63 FR 56596, October 22, 1998), and final determination (64 FR 465, January 5, 1999) included analyses of regulatory mechanisms in place prior to implementation of the Harbor Porpoise Take Reduction Plan (HPTRP). This analysis section focuses only on the effect of the HPTRP and other regulatory actions taken since the January 5, 1999, withdrawal of the proposed rule to list the species.

The January 7, 1993, proposal to list harbor porpoise as threatened was based on high levels of mortality of harbor porpoise incidental to commercial fishing and the inadequacy of regulatory mechanisms to address that mortality at that time. The final 1999 determination not to list harbor porpoise was based on a finding that the bycatch reduction mechanisms built into the HPTRP, the Northeast Multispecies FMP, and the Canadian Harbor Porpoise Conservation Strategy provided adequate regulatory mechanisms to deal with high levels of mortality. The bycatch reduction levels built into these measures were analyzed in the January 5, 1999, *Federal Register* notice. The following discussion updates that analysis with the actual bycatch levels that occurred during 1999 and 2000, FMP restrictions that have been implemented since the implementation of the HPTRP, and Canadian bycatch levels in those same years.

4.4.1 U.S. Regulatory Mechanisms in Effect During 1999 and 2000

The key regulatory mechanism specifically addressing harbor porpoise bycatch in U.S. commercial fisheries is the HPTRP final rule, which was published pursuant to Section 118 of the MMPA on December 2, 1998 (63 FR 66464). In addition to measures implemented through the HPTRP, NMFS also implemented time/area closures for rebuilding groundfish stocks under the Multispecies FMP that would also benefit harbor porpoise. To avoid duplication, the measures put in place through the Multispecies FMP were not incorporated into the HPTRP, but the effects were included in the calculation of expected harbor porpoise bycatch reduction. This strategy and the predicted bycatch reduction are discussed and analyzed in the Environmental Assessment (EA) prepared for the HPTRP and in the preamble of the December 2, 1998, HPTRP final rule and are incorporated by reference.

4.4.1.1 Harbor Porpoise Take Reduction Plan (HPTRP)

NMFS established two take reduction teams to address bycatch of the GOM/BOF population of harbor porpoise in commercial fisheries. The Gulf of Maine Harbor Porpoise Take Reduction Team (HPTRT) was established on February 12, 1996, to address incidental takes of the GOM/BOF stock of harbor porpoise in the Northeast sink gillnet fishery. The Mid-Atlantic Take Reduction Team (MATRT) was established on February 25, 1997, to address interactions between the GOM/BOF population of harbor porpoise and the Mid-Atlantic coastal gillnet fishery. Each team submitted take reduction plans to NMFS, and NMFS combined the measures recommended by each team for harbor porpoise bycatch reduction into one Harbor Porpoise Take Reduction Plan (HPTRP). Therefore, the HPTRP addresses bycatch in both the Northeast sink gillnet fishery and the Mid-Atlantic coastal gillnet fishery. The proposed rule was published on September 11, 1998 (63 FR 48670), and finalized on December 2, 1998 (63 FR 66464). NMFS published a notice on December 23, 1998 (63 FR 71041) that corrected errors to New England closure boundaries.

The primary bycatch reduction measures implemented in the HPTRP included time/area closures and time/area periods where use of pingers is required for the Northeast sink gillnet fishery and time/area closures and gear modifications and restrictions for the Mid-Atlantic coastal gillnet fishery. (Readers should refer to the HPTRP final rule for a detailed description of the specific measures implemented in the HPTRP.) The analysis presented in the EA prepared for the December 1998 HPTRP final rule estimated that the measures implemented in the NMFS harbor porpoise conservation strategy would reduce the incidental mortality and serious injury of harbor porpoise from approximately 2,040 animals per year to less than the PBR level of 483 animals per year. The measures implemented to address harbor porpoise mortality and serious injury in the Northeast sink gillnet fishery were expected to reduce the incidental mortality and serious injury of harbor porpoise from an average of 1,833 animals per year to 309 animals per year. Similarly, the measures implemented to address harbor porpoise mortality and serious injury in the Mid-Atlantic coastal gillnet fishery were expected to decrease harbor porpoise mortality and serious injury from an average fo 207 animals per year to less than 50 animals per year.

The HPTRT and MATRT have both met twice since implementation of the HPTRP to review

elements of the NMFS harbor porpoise conservation strategy, evaluate its efficacy, identify areas for improvement, and discuss approaches to meet further bycatch reduction goals mandated by Section 118 of the MMPA. At a meeting in December of 1999, the HPTRP submitted consensus recommendations to NMFS addressing pinger operation and testing, data use and reliability, effort measurement, clarification of the impact of discards on the bycatch estimates, enforcement, analysis of pinger data, gear studies, analysis of and involvement in fishery management plans, authorization of the use of higher-frequency pingers, and investigation of enhanced acoustically reflective gillnet gear as a bycatch reduction tool.

At a meeting in January of 2000, the MATRT submitted consensus recommendations to NMFS regarding observer coverage, non-compliance with the requirement to carry an observer, the role of the MATRT in reviewing proposed rules, adjustment of the Delaware Bay exemption line, the lower bound in the definition of the small mesh fishery, fishing industry investigation of mitigation strategies for harbor porpoise and bottlenose dolphin including pingers and reflective gillnetting, NMFS mitigation strategies, and investigation of interactions between recreational gear and harbor porpoise and bottlenose dolphins.

On October 27, 2000, NMFS issued a proposed rule redefining Delaware Bay in the list of exempted waters to include waters landward of the 72 COLREGS line (65 FR 64415). The MATRT recommended by consensus that NMFS redefine the list of exempted waters because, in its opinion, harbor porpoise stranding and observer data indicated that harbor porpoise were not taken within Delaware Bay. The final rule exempting Delaware Bay was published on January 11, 2001 (66 FR 2336).

NMFS reconvened the MATRT in November 2000. The team recommended that NMFS solicit team input on regulatory changes, streamline coordination between fishery management plan measures and take reduction plan measures, modify and standardize gear definitions, improve the observer program, develop gear research and education measures that may result in additional bycatch reduction, and evaluate incidental take of harbor porpoise and bottlenose dolphin in recreational fisheries.

Likewise, NMFS reconvened the HPTRT in December 2000. This team recommended that NMFS establish a program in cooperation with the States to certify that pingers are operational, develop a schedule for penalties for non-compliance with the plan, notify permit holders about problems with non-compliance, consider moving the southern boundaries of the Cape Cod South closure to include takes observed in 2000, and develop a proposal for a stand-alone MMPA plan (*i.e.*, one that contains all measures necessary for porpoise protection rather than incorporating FMP measures designed for fish conservation).

4.4.1.2 Multispecies Fishery Management Plan (Multispecies FMP)

The Multispecies FMP measures incorporated into the HPTRP strategy at the time of the December 1998 final rule included time/area, seasonal, and year-round closures for groundfish

protection implemented under Framework 25 (63 FR 15326, March 31, 1998), which built on Amendments 5 (59 FR 9884, March 1, 1994) and 7 (61 FR 27710, May 31, 1996) and Framework 9 (60 FR 19364, April 18, 1995) of the Multispecies FMP.

NMFS expanded the time/area closure system in the Multispecies FMP in 1999. Framework 26 (64 FR 2601, January 15, 1999), implemented shortly after implementation of the HPTRP, expanded one closure and added two others. Framework 27 (64 FR 24066, May 5, 1999) expanded the GOM inshore seasonal closure areas for March through June, the Cashes Ledge closure area and time of closures (as defined under the FMP), created an additional closure in Massachusetts Bay, and eliminated the Northeast closure as a groundfish closure, although it was retained as a harbor porpoise closure. Framework 28 (64 FR 15704, April 1, 1999) made several changes for consistency with the HPTRP, including opening an area previously closed to gillnet fishing under the Multispecies FMP for porpoise protection, as long as pingered nets were used.

Multispecies FMP groundfish time/area closures in effect for Calendar Year 2000 included some from the 1999 fishing year as well as those implemented in Frameworks 31 and 33. Framework 31 (65 FR 377, January 5, 2000) included an additional inshore area closure. Framework 33 (65 FR 21658, April 24, 2000) expanded the time/area closure system for groundfish protection, including a one-year extension of the year-round Western GOM closure, addition of a closure of a portion of Georges Bank east and southeast of Cape Cod during May, and conditional closures of a portion of Massachusetts Bay/Stellwagen Bank in January and Cashes Ledge (as defined by the FMP) in November that would be triggered if cod landings reached certain levels. Both the November 2000 and the January 2001 conditional closures were triggered, but the latter is outside the time period of this analysis.

NMFS also implemented Framework Adjustments 29, 30, 32, 34, and 35 to the Multispecies FMP for Fishing Years 1999 and 2000. However, these frameworks did not affect time/area closures applicable to gillnet gear, and are therefore not discussed here.

4.4.2 Estimated Harbor Porpoise Bycatch During 1999 and 2000 Relative to Historical Levels

The estimates of GOM/BOF harbor porpoise bycatch for 1999 and 2000 are derived from the following components: (a) bycatch attributable to the Northeast sink gillnet fishery, (b) bycatch attributable to the Mid-Atlantic coastal gillnet fishery, (c) bycatch attributable to the BOF Canadian sink gillnet fishery, (d) bycatch attributable to the BOF Canadian herring weir fishery, and (e) records of fishery interactions reported in the stranding data, as appropriate.

NMFS analyzes harbor porpoise bycatch derived from observer coverage in the Northeast sink gillnet fishery and Mid-Atlantic coastal gillnet fishery in three seasonal components: Winter (January-May), Summer (June-August), and Fall (September-December). Other sources of bycatch are then added to these estimates to derive the total annual estimate.

4.4.2.1 Northeast Sink Gillnet Fishery

The estimated bycatch attributable to the Northeast sink gillnet fishery (as defined in the MMPA List of Fisheries) during the winter, summer, and fall seasons for 1999 and 2000 is presented in Tables 1, 2, and 3, respectively.

During the winter season of 1999, time-area closures and pinger restrictions affected this fishery under both the HPTRP and the Multispecies FMP. During the winter, the majority of FMP closures occurred in the GOM. In 2000, the same HPTRP restrictions were in place, but the FMP measures changed. Estimated winter bycatch for this fishery was 149 (CV=0.43) in 1999 and 159 (CV=0.64) in 2000 (Table 1). Winter fishing effort, measured in tons landed, decreased from 5,380 metric tons in 1999 to 3,982 metric tons in 2000 (NMFS unpublished data). Thus, the bycatch remained approximately the same in 2000 although fishing catch was reduced relative to 1999.

The HPTRP incorporates some restrictions that have been in effect under the Multispecies FMP since 1994. Therefore, the best baseline estimate of harbor porpoise bycatch in New England prior to the implementation of porpoise protection measures is the average annual bycatch for the earliest years of the NMFS Sea Sampling Program, 1990-1993. Based on data presented in Bravington and Bisack (1996), the average historical (1990-1993) winter bycatch in this fishery was 988 animals. The winter bycatch in 1999 and 2000 was substantially less than historical levels for this season. Winter 1999 and 2000 harbor porpoise serious injury and mortality in the Northeast Sink Gillnet Fishery is presented in Table 1.

Table 1. Harbor Porpoise Serious Injury/Mortality Attributed to the Northeast Sink Gillnet Fishery -- Winter Season 1999 and 2000

Winter Season (January - May)		
Area	Bycatch Based on Observed Takes	
	1999	2000
Port Group Strata		
Northern Maine	CBD[a]	CBD
Southern Maine	CBD	0
New Hampshire	CBD	CBD
North of Boston	0	0
South of Boston	0	12
South Cape	CBD	132
East Cape	0	0
Offshore	108	0
Closure Strata		
Northeast	CBD	CBD
Mid-coast	0	15
Massachusetts Bay	0	0
Cape Cod Bay	CBD	CBD
South Cape	41	0
Great South Channel	CBD	0
Offshore	0	0
Cashes Ledge	0	CBD
Estimated Total Winter Bycatch in New England	149	159

[a]CBD=cannot be determined and represents strata where the bycatch is unknown because there was no observer coverage.

During the summer season, relatively few time-area closures and no pinger restrictions affected this fishery in 1999 or 2000. Estimated summer bycatch for this fishery was 29 (CV=0.94) in 1999 and 0 in 2000. Fishing effort in the summer season consisted of 7,509 metric tons landed in 1999 and 5,656 metric tons in 2000 (NMFS unpublished data). Based on data presented in Bravington and Bisack (1996), the average historical (1990-1993) summer bycatch in this fishery was 107 animals. Thus, the summer bycatch for both 1999 and 2000 was below the historical average. This is not unusual because most of the GOM/BOF harbor porpoise population moves north into the Bay of Fundy during the summer. Summer 1999 and 2000 harbor porpoise serious injury and mortality in the Northeast Sink Gillnet Fishery is presented in Table 2.

Table 2. Harbor Porpoise Serious Injury/Mortality Attributed to the Northeast Sink Gillnet Fishery -- Summer Season 1999 and 2000

Summer Season (June-August)		
Area	Bycatch Based on Observed Takes	
	1999	2000
Port Group Strata		
Northern Maine	CBD[a]	CBD
Southern Maine	0	0
New Hampshire	29	0
North of Boston	0	0
South of Boston	0	0
South Cape	0	0
East Cape	0	0
Offshore	0	0
Closure Strata		
Northeast	CBD	CBD
Mid-coast	CBD	CBD
Massachusetts Bay	CBD	CBD
Cape Cod Bay	CBD	CBD
South Cape	CBD	CBD
Great South Channel	CBD	0
Offshore	CBD	CBD
Cashes Ledge	CBD	CBD
Estimated Total Summer Bycatch in New England	29	0

[a]CBD=cannot be determined and represents strata where the bycatch is unknown because there was no observer coverage.

During the fall, HPTRP restrictions for this fishery are primarily pinger restrictions, with the exception of the Northeast closure. FMP time-area closures were also in place during the fall of 1999 and 2000. Estimated fall bycatch for this fishery was 92 (CV=0.43) in 1999 and 348 (CV=0.45) in 2000. Fall fishing effort was measured at 5,793 metric tons in 1999 and 4,849 metric tons in 2000. Based on data presented in Bravington and Bisack (1996), the average historical (1990-1993) fall bycatch in this fishery was 770 animals. Thus, the fall bycatch for both 1999 and 2000 was below the historical average. Fall 1999 and 2000 harbor porpoise serious injury and mortality in the Northeast Sink Gillnet Fishery is presented in Table 3.

Table 3. Harbor Porpoise Serious Injury/Mortality Attributed to the Northeast Sink Gillnet Fishery -- Fall Season 1999 and 2000

Fall Season (September-December)		
Area	Bycatch Based on Observed Takes	
	1999	2000
Port Group Strata		
Northern Maine	CBD[a]	CBD
Southern Maine	CBD	0
New Hampshire	CBD	0
North of Boston	0	0
South of Boston	0	0
South Cape	0	0
East Cape	0	0
Offshore	0	0
Closure Strata		
Northeast	CBD	CBD
Mid-coast	92	348
Massachusetts Bay	0	0
Cape Cod Bay	CBD	CBD
South Cape	0	0
Great South Channel	CBD	CBD
Offshore	0	CBD
Cashes Ledge	CBD	CBD
Estimated Total Fall Bycatch in New England	92	348

[a]CBD=cannot be determined and represents strata where the bycatch is unknown because there was no observer coverage.

Adding the bycatch from the three seasons results in a total bycatch of 270 (CV=0.28) for the New England sink gillnet fishery in 1999 and 507 (CV=0.37) in 2000. Inter-annual variability in harbor porpoise and groundfish distribution is expected, and this variability will likely be reflected in observed bycatch patterns. Therefore, NMFS typically takes an average of several years to obtain the best representation of the bycatch scenario. The average annual estimated bycatch for this fishery during 1999-2000 was 389 (CV=0.26) animals.

The historical (1990-1993) average harbor porpoise serious injury/mortality for this fishery was estimated at 1,875 (CV=0.32) animals (Blaylock *et al.* 1995). The goal of the HPTRP was to reduce the bycatch by 79 percent, resulting in an expected reduction to 385 takes per year. This value represents a level below the PBR, which was 483 in 1998, and considered the potential for mortality from sources other than the Northeast sink gillnet and Mid-Atlantic coastal gillnet fisheries. As discussed in the EA for the HPTRP final rule, the estimated bycatch for this fishery, taking into account measures implemented through Framework 25, was expected to be 157. This bycatch reduction was not realized in either 1999 or 2000 despite expansion of Multispecies FMP closures since Framework 25. The reasons for the observed take levels in 1999 and 2000 are currently not known. In addition, it is likely that non-compliance with HPTRP and FMP regulations in the fall of 2000 contributed to the increase in bycatch for that year. However, both the 1999 and 2000 bycatch levels represent a substantial decrease over the historical level of 1,875 estimated porpoise takes in this fishery. In addition, the take in this fishery combined with that from other sources was below the current PBR in both 1999 and 2000.

4.4.2.2 Mid-Atlantic Coastal Gillnet Fishery

The estimated bycatch attributable to the Mid-Atlantic coastal gillnet fishery in 1999 and 2000 is presented in Table 4. In 1999 and 2000, bycatch was observed in the Mid-Atlantic only during the winter season. NMFS did not incorporate any FMP restrictions into the HPTRP strategy for the Mid-Atlantic coastal gillnet fishery. HPTRP restrictions for the Mid-Atlantic include time-area closures and gear restrictions, which were developed to target the monkfish and dogfish subfisheries and based on gear characteristics most closely associated with harbor porpoise bycatch in these fisheries.

Most of the Mid-Atlantic measures in the HPTRP are divided into two categories, which correspond to large mesh and small mesh gear as defined in the HPTRP. Only one time-area closure, the Mudhole closure off New Jersey, applies to both mesh categories. The lower bound of small mesh is defined in the HPTRP as mesh of sizes greater than 5.0 inches (12.7 cm), so mesh sizes of 5.0 inches (12.7 cm) and smaller are not regulated by the HPTRP in the Mid-Atlantic. Although takes have been observed in gear with mesh sizes 5.0 inches (12.7 cm) and smaller, there is no basis at this time to apply the current gear restrictions to those mesh sizes. Further information obtained from observer coverage and gear research may yield information which can be used to develop additional gear modifications.

The monkfish and dogfish fisheries have changed significantly as a result of FMP measures. The stock rebuilding programs in the FMPs for monkfish and dogfish have substantially reduced fishing effort in these two subfisheries of the Mid-Atlantic coastal gillnet fishery.

As presented in Table 4, the estimated annual harbor porpoise mortality attributable to the Mid-Atlantic coastal gillnet fishery was 53 (CV=0.49) in 1999 and 21 (CV=0.76) in 2000. The goal for the Mid-Atlantic component of the HPTRP was to reduce takes in this fishery from 207 per year to 43 per year. According to the bycatch estimates based on observed takes for 1999 and 2000, this goal was not reached in 1999 but was reached in 2000. However, the HPTRP measures for the Mid-Atlantic were intended to address bycatch in the monkfish and dogfish subfisheries. The takes documented in 1999 and 2000 did not occur in either the monkfish or dogfish subfisheries; rather, they occurred in the shad subfishery. The bycatch estimates for both 1999 and 2000 represent a substantial reduction from the goal of 207. The average estimated bycatch for this fishery during 1999-2000 was 37(CV=0.41) animals per year.

Table 4. Harbor Porpoise Serious Injury/Mortality Attributed to the Mid-Atlantic Coastal Gillnet Fishery -- Winter Season 1999 and 2000

Winter Season (January - May)		
State	Bycatch Based on Observed Takes	
	1999	2000
New York	0	0
New Jersey	0	0
Delaware	0	21
Maryland	53	0
Virginia	0	0
North Carolina	0	0
Estimated Total Winter Bycatch in the Mid-Atlantic	53	21

4.4.2.3 Unknown Mid-Atlantic Fishery

In 1999, 228 harbor porpoise stranded along the U.S. East Coast. With regard to the strandings for which a fishery interaction determination could be made, 38 exhibited signs of fishery

interaction involving monofilament line or mesh. Of those 38, one was in New England and the remainder in the Mid-Atlantic. NMFS estimates that 19 of the 37 in the Mid-Atlantic resulted from events occurring in times/areas where they would not have been detected by the Sea Sampling Program. An extrapolated estimate cannot be derived from the stranding numbers because the extrapolation factor is unknown. However, these 19 strandings are added to the extrapolated estimates of mortality and serious injury for 1999.

The Mid-Atlantic coastal gillnet fishery is the only fishery with documented takes of harbor porpoise in the Mid-Atlantic. However, there are other commercial and recreational fisheries in the Mid-Atlantic which may use gear that would make net marks similar to the gear used in the Mid-Atlantic coastal gillnet fishery. Therefore, NMFS is currently attributing the 19 takes to an unknown fishery. Should any Mid-Atlantic fisheries not currently regulated by the HPTRP be identified as sources of harbor porpoise serious injury/mortality, Section 118 of the MMPA gives NMFS the authority to add representatives of these fisheries to the MATRT. However, restrictions can only be implemented through the HPTRP for commercial fisheries at this time, as Section 118 does not currently give NMFS the authority to regulate recreational fisheries.

4.4.2.4 Summary and Discussion of U.S. Fishery Takes

The bycatch in both the Northeast sink gillnet fishery and the Mid-Atlantic coastal gillnet fishery in 1999 and 2000 reflects a substantial reduction from historical levels of harbor porpoise mortality and serious injury. NMFS assumes that this reduction has been achieved through measures implemented through the HPTRP and FMP actions.

The combination of HPTRP and FMP measures was sufficient to reduce the bycatch to below PBR in both 1999 and 2000. However, because FMP closures are subject to change in a different management process than the HPTRP, the degree of harbor porpoise protection realized from the combined strategy will always be vulnerable to changes in the FMP closure system when the goal of maintaining the bycatch below PBR is dependent upon the FMP closures. As long as this strategy is maintained, active monitoring and response to changes in FMP restrictions will be required. Furthermore, if the goals of the FMPs are met, the closures could be lifted, resulting in an unknown effect on harbor porpoise bycatch. NMFS will monitor actions taken under the FMPs to ensure that any changes to fishery management measures that may or do result in unanticipated increases in harbor porpoise bycatch rates are mitigated through one of the available regulatory mechanisms. NMFS may also revise the HPTRP to incorporate all measures necessary to ensure reduced harbor porpoise bycatch rather than relying on FMP time/area closures.

In the Multispecies FMP, NMFS has maintained porpoise protection measures up through Framework 28. Because porpoise bycatch reduction is also an objective of the Multispecies FMP, the FMP authority represents a supplementary regulatory mechanism for addressing harbor porpoise bycatch.

In addition, the Atlantic States Marine Fisheries Commission (ASMFC) has adopted protected species items in their charter for development of inter-state FMPs. This provides another potential regulatory mechanism for implementing porpoise bycatch reduction measures.

4.4.3 Mechanisms for Addressing Take Incidental to Canadian Commercial Fisheries

Canadian regulatory mechanisms were described in the October 22, 1998, *Federal Register* notice regarding the proposed listing of harbor porpoise. The two commercial fisheries in the Bay of Fundy known to take harbor porpoise are the groundfish sink gillnet fishery and the herring weir fishery.

4.4.3.1 Bay of Fundy Sink Gillnet Fishery

The Canada Department of Fisheries and Oceans (DFO) finalized its Harbor Porpoise Conservation Plan in 1994. This plan was intended to reduce the mortality of harbor porpoise in the BOF sink gillnet fishery to sustainable levels. In 1995, DFO developed an expanded program entitled the Harbor Porpoise Conservation Strategy for the Bay of Fundy (HPCS). This plan incorporated gillnet fishing effort reduction, required pinger use, expanded observer coverage, and included a fisher education program. In 1999 and 2000, no porpoise-specific changes have been made to the HPCS.

The goal of the HPCS was to reduce the bycatch to a level below two percent of the GOM/BOF porpoise population abundance estimate, a target of 110 animals per year in the Bay of Fundy. This goal was reached in 1999 and is expected to have been met in 2000. The bycatch for 1999 is estimated at 20 animals, and the 2000 estimate is not expected to exceed 20. By comparison, bycatch was estimated to be 424 animals in 1993 and 101 animals in 1994 (Trippel *et al.* 1996). Thus, the bycatch in recent years is well below the level prior to implementation of the HPCS.

Since 1998, DFO has been assisting the Bay of Fundy sink gillnet fishery in testing alternative gillnet gear developed in the U.S. by individuals involved in porpoise bycatch reduction efforts throughout the GOM/BOF. This gear shows promise as a bycatch reduction tool for harbor porpoise (and possibly marine birds) and may be tested in U.S. waters in the near future.

4.4.4 Mechanisms for Addressing Take Incidental to Recreational Fisheries and Other Sources of Incidental Take

Although no takes of harbor porpoise in recreational gear have been documented, it is possible that such takes are occurring. Any takes that occur by recreational fisheries would be in violation of the take provisions of the MMPA unless authorized under Section 101(a)(5) of the MMPA.

Other human activities could result in lethal takes of harbor porpoise, and such takes would also

be addressed in Section 101(a)(5) of the MMPA. No lethal takes of harbor porpoise have been documented incidental to human activities other than commercial fisheries, except for scientific research activities, as discussed in the following section.

4.4.5 Mechanisms for Addressing Take Resulting from Scientific Research Activities

In the U.S., scientists wishing to undertake research activities specifically targeting harbor porpoise are required to obtain permits under the scientific research provision of the MMPA. NMFS is not aware of any reports of mortality or serious injury from scientific research activities other than one mortality of a harbor porpoise recorded during a gillnet survey conducted by the Maryland Department of Marine Resources in upper Chesapeake Bay in the mid-1990s. However, there have been research projects specifically directed at studying harbor porpoise, and non-lethal takes were authorized under the MMPA scientific research permit provisions for those activities.

4.4.6 Mechanisms for Addressing Intentional Take

Intentional lethal take of marine mammals is prohibited by the MMPA with the exception of cases where human safety is threatened. Since it is unlikely that human safety would be threatened during an encounter with a harbor porpoise, this type of take is unlikely to occur.

4.4.7 Other Available Regulatory Mechanisms

Acute impacts to the GOM/BOF harbor porpoise population could occur as a result of unusually high mortality events caused by natural or human-caused factors (*e.g.*, disease, biotoxins, oil spill). Section 404 of Title IV of the MMPA requires the Secretary of Commerce to establish a marine mammal unusual mortality event working group that is responsible for identifying when an unusual mortality event is occurring and to develop a contingency plan to assist the Secretary in responding to the event. NMFS has established the working group, a policy for identifying unusual mortality events, and a generic contingency plan (Wilkinson 1996). This mechanism is available should it become necessary to respond to a suspected mortality event.

4.5 FACTOR E: Other Natural or Anthropogenic Factors Affecting the Continued Existence of the Species or Distinct Population Segment(s)

NMFS has identified several anthropogenic factors that could contribute to the threat or endangerment of the GOM/BOF harbor porpoise population. These include pathology due to contaminants, intentional takes for subsistence, and competition with commercial fisheries.

4.5.1 Contaminants

The presence of contaminants in the tissues of harbor porpoise could affect the survival and/or

reproductive capacity of individuals. There is no new evidence since the 1998 status review to indicate that contaminants in harbor porpoise tissues pose a serious threat to this population at the present time.

4.5.2 Subsistence Harvest

Harbor porpoises were harvested by indigenous hunters in Maine and Canada before the 1960s (NEFSC 1992). The extent of these past harvests is unknown, though it is believed to have been small. Up until the early 1980s, small subsistence kills of harbor porpoise in the GOM/BOF by indigenous hunters of the Passamaquoddy Nation in both U.S. and Canadian waters were reported. The hunt was believed to have nearly stopped (Polacheck 1989); however, public media reports in September 1997 depicted a Passamaquoddy hunter dressing out a harbor porpoise that had been taken in Canadian waters. Any subsistence harvest that may be occurring at the present time is assumed to be at such a low level that it would not contribute to the threat or endangerment of the GOM/BOF harbor porpoise population.

4.5.3 Competition with Commercial Fisheries

Harbor porpoise could be competing with commercial fisheries where there is overlap between commercial target species and porpoise prey species. Porpoise food habits are not conclusively known in the Western North Atlantic; however, some information on prey preferences is available from analysis of the stomach contents of porpoise incidentally taken in commercial fisheries. Stomachs from 95 harbor porpoises caught in groundfish gillnets in the Gulf of Maine between September and December 1989-94 were analyzed by Gannon *et al.* (1998). Results of this work suggest that Atlantic herring (Clupea harengus) is the most important harbor porpoise prey in the GOM/BOF during late summer and autumn based on frequency of occurrence. Pearlsides (Maurolicus weitzmani), silver hake (Merluccius bilinearis), and red and white hake (Urophycis, spp.) were the next most common prey species (Gannon *et al.* 1998). Commercial fisheries exist for several of these species, including herring in the GOM, BOF, and Mid-Atlantic and the hake species in the GOM and BOF.

Competition effects would be enhanced if the commercial fishery is targeting the same age class of the harbor porpoise prey species in question and in the same time/area. If competition is occurring, adverse impacts to the porpoise population would be measured in effects on reproductive performance. No such effects have been identified to date. FMPs are now in place for herring and the hakes, including requirements for reporting of catch. Therefore, the harvest is controlled, and it will be possible to closely monitor the level of effort in these fisheries. With further work in identifying harbor porpoise population trends, it will be possible in the future to compare the trajectory of the porpoise population with that of the fishing effort.

5.0 Final Determination

Section 4(b)(1) of the ESA requires the Secretary of Commerce to make a listing determination solely on the basis of the best scientific and commercial data available and after taking into account efforts being made to protect the species. Therefore, in reviewing the status of the GOM/BOF population of harbor porpoise, NMFS has assessed the status of the species, identified and evaluated factors that could result in a threat or endangerment to the species, and examined available conservation measures to determine whether such measures adequately mitigate risks to the species.

Since 1999, NMFS has obtained no information demonstrating either that other factors could cause the stock to be threatened under the ESA or that the available regulatory mechanisms are inadequate to reduce harbor porpoise mortality and serious injury. An analysis of the five listing factors indicates that none of these factors, alone or in combination with one another, is likely to threaten or endanger the GOM/BOF harbor porpoise population. Therefore, listing the GOM/BOF population of harbor porpoise as threatened or endangered is not warranted at this time. In addition, because of the current status of the species and the reduction in harbor porpoise mortality since 1999 through measures implemented for porpoise and groundfish conservation, it is appropriate to remove the GOM/BOF harbor porpoise population from the ESA Candidate Species List.

The most significant factors that NMFS considered in finalizing this determination are the results of implementation of measures promulgated under the MMPA through the Harbor Porpoise Take Reduction Plan (HPTRP) and under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) through the Northeast Multispecies Fishery Management Plan (FMP) which directly or indirectly reduce the level of harbor porpoise mortality incidental to commercial fishing in U.S. waters, the Harbor Porpoise Conservation Strategy implemented by the Canada Department of Fisheries and Oceans, and the existing authority by which regulatory agencies can adapt management measures if unanticipated changes in porpoise bycatch patterns occur. Although it is likely that porpoise mortality will continue to occur incidental to fishery operation, existing regulatory mechanisms and authority for amending these mechanisms to address the threat of bycatch in commercial fisheries are adequate to remove the potential that lethal take in these fisheries will pose a threat or endangerment to this population.

NMFS conclusion that these conservation efforts promote the sustainability of the GOM/BOF population of harbor porpoise is based on the following factors: (1) the porpoise and groundfish conservation measures implemented in the U.S. (under the HPTRP and Multispecies FMP) and in Canada under the Harbor Porpoise Conservation Strategy have been in place for the past two years, and the mortality of harbor porpoise has dropped to below the PBR level; (2) a new population viability analysis (Wade 2001) conducted by NMFS specifically for this status review did not result in any extinction projections; (3) the abundance and distribution of harbor porpoise are greater than previously believed, resulting in an increase in PBR; and (4) bycatch reduction objectives and time frames for achieving these objectives relative to MMPA take reduction goals and Magnuson-Stevens Act bycatch reduction goals have been established and include adaptive

management principles.

Although the HPTRP and other bycatch reduction efforts have reduced the incidental take of harbor porpoise in the gillnet fisheries to below PBR in both 1999 and 2000, it is clear from the observation efforts during the first two years of HPTRP implementation that the plan s effectiveness must continue to be monitored. NMFS has documented non-compliance with HPTRP regulations that may have reduced the plan s effectiveness, requiring additional outreach and enforcement to maximize the effectiveness of the HPTRP. Furthermore, fishery management measures have changed since the implementation of the HPTRP and may continue to change via the annual adjustment process in the Multispecies FMP. It is possible that closures implemented for fish conservation will be removed when fish stocks reach their rebuilding targets. This could result in an increased risk to harbor porpoise and may require adjustment of the HPTRP.

NMFS will continue to monitor the bycatch levels and will adjust the HPTRP as necessary to maintain the bycatch within MMPA targets. NMFS will also evaluate any new proposed regulations and proposed changes to existing regulations that may affect harbor porpoise bycatch and consider whether management measures need to be changed. NMFS intends to reconvene the two harbor porpoise Take Reduction Teams as appropriate to monitor the implementation of the HPTRP relative to MMPA goals.

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