

**INTRODUCTION AND SUMMARY****CHAPTER 1**

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The Atlantic Large Whale Take Reduction Plan (ALWTRP) is designed to protect Atlantic large whales – the western North Atlantic stock of right whales, the Gulf of Maine stock of humpback whales, and the western North Atlantic stock of fin whales -- thereby fulfilling the obligations of the National Marine Fisheries Service (NMFS) under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). For example, section 118(f)(1) of the MMPA requires the preparation and implementation of Take Reduction Plans (TRPs) for strategic marine mammal stocks that interact with Category I or II fisheries. The MMPA defines a strategic stock as a marine mammal stock: (1) for which the level of direct human-caused mortality exceeds the potential biological removal (PBR) level; (2) which, based on the best available scientific information, is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future; or (3) which is listed as a threatened or endangered species under the ESA, or as depleted under the MMPA. PBR, as defined by the MMPA, means the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. NMFS regulations define a Category I fishery as a fishery that has frequent incidental mortality and serious injury of marine mammals, a Category II fishery as a fishery that has occasional incidental mortality and serious injury of marine mammals, and a Category III fishery as a fishery that has a remote likelihood of, or no known incidental mortality and serious injury of marine mammals. North Atlantic right whales, humpback whales, and fin whales are strategic stocks because they are listed as endangered under the ESA. Therefore, because these strategic stocks interact with Category I and II fisheries, under the MMPA, a TRP is required to assist in the recovery of these large whale species. In addition, the measures identified in the ALWTRP would benefit the Canadian east coast stock of minke whales, which are neither listed as endangered or threatened under the ESA, nor have high incidental mortalities relative to population abundance. The recovery of these whale species is affected by entanglement in commercial fishing gear, as well as by a variety of other factors. In light of the continued risk of entanglements, the current action seeks to modify the ALWTRP to further reduce the risk posed by commercial fishing gear.

The sections below introduce the issues addressed by the ALWTRP and review the key findings of this draft environmental impact statement (DEIS). Specifically, this chapter addresses the following topics:

- Section 1.1 provides information about the status of Atlantic large whale species and the nature of the entanglement problem;

- Section 1.2 presents the current ALWTRP and proposed modifications;
- Section 1.3 provides the conclusions of the biological, economic, and social impact analyses and the identification of preferred regulatory alternatives; and
- Section 1.4 discusses areas of controversy that may influence interpretation of the DEIS findings.

## 1.1 STATUS OF LARGE WHALES AND THE NATURE OF ENTANGLEMENTS

As mentioned above, right whales, humpback whales, and fin whales are listed as endangered species under the ESA, and are, therefore, considered strategic stocks under the MMPA, whereas minke whales are not considered strategic stocks. While Chapter 4 of this DEIS presents details on these species, their status can be summarized as follows:

- **Right Whale:** The western North Atlantic right whale (*Eubalaena glacialis*) is one of the rarest of all large cetaceans and among the most endangered species in the world. NMFS considers the best estimate of the number of North Atlantic right whales to be approximately 300 (+/- 10%). NMFS believes that the stock is well below the optimum sustainable population (OSP), especially given apparent declines in the population; as such, potential biological removal (PBR) has been set to zero (Waring et al., 2003).<sup>1</sup>
- **Humpback Whale:** The North Atlantic humpback whale (*Megaptera novaeangliae*) is listed as an endangered species under the ESA. For the Gulf of Maine stock of humpback whales, NMFS estimates a minimum population size of 647 and has established a PBR level of 1.3 whales per year (Waring et al., 2003).
- **Fin Whale:** NMFS has designated one population of fin whale (*Balaenoptera physalus*) as endangered for U.S. waters of the North Atlantic, although researchers debate the possibility of several distinct subpopulations. NMFS estimates a minimum population size of 2,362 and PBR of 4.7 (Waring et al., 2003).

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<sup>1</sup> The optimum sustainable population of any stock or species is defined as the number of animals that will result in the maximum productivity of the stock or species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element (16 USC 1362(9)). The Potential Biological Removal (PBR) level is defined in the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock annually while allowing that stock to reach or maintain its optimum sustainable population. The parameters for calculating the PBR level are described in the MMPA (See 16 USC 1362(20)).

- Minke Whale:** The minke whale (*Balaenoptera acutorostrata*) is not listed as endangered or threatened under the ESA. The best estimate of the population of Canadian east coast minke whales is 4,018, with a minimum population estimate of 3,515. The PBR for this stock of minke whales is 35 (Waring et al., 2003).

Atlantic large whales are at risk of becoming entangled in fishing gear because the whales feed, travel, and breed in many of the same ocean areas utilized for commercial fishing. While fishing gear is in the water, whales may become incidentally entangled in the lines and nets that make up trap/pot and gillnet fishing gear. The effects of entanglement can range from no permanent injury to serious injury and death.

Exhibit 1-1 summarizes all known “serious injury” entanglements of right, humpback, fin, and minke whales from 1997 through 2001 (serious injury designations have not yet been made for entanglements in 2002).<sup>2</sup> During this time period, humpback whales account for the most serious injury entanglements (10), followed by right whales (four), then minke whales (three) and fin whales (one). More detail relating to large whale entanglements will follow in Section 2.3: “Rationale for Rulemaking.”

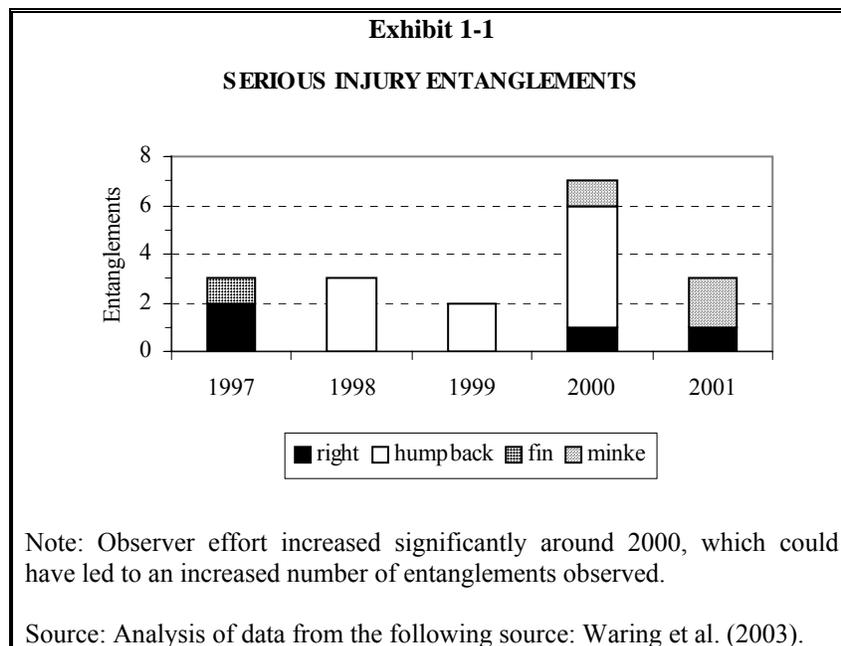
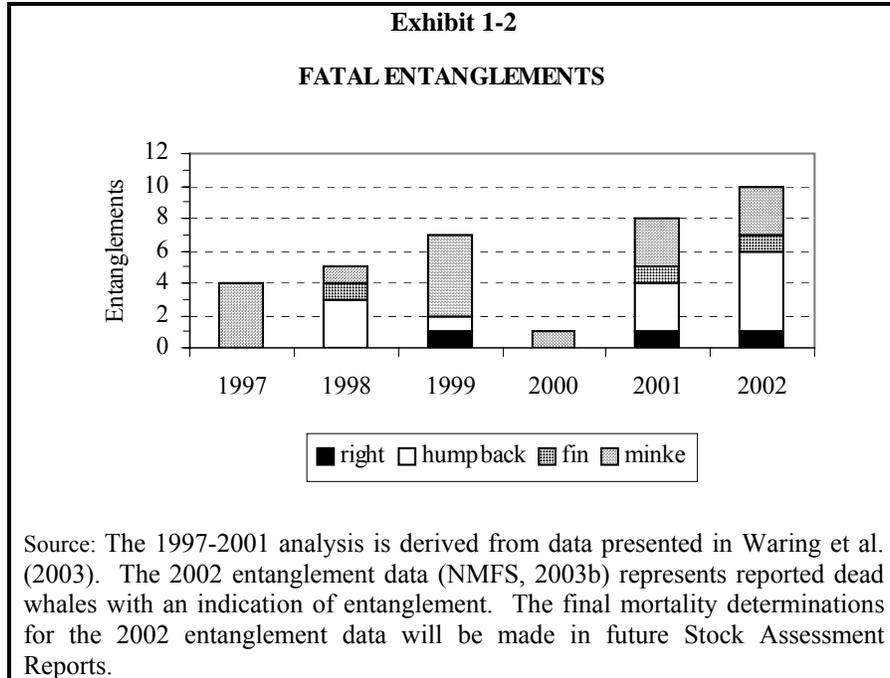


Exhibit 1-2 presents available data on fatal entanglements of Atlantic large whales from 1997 through 2002.<sup>3</sup> During this time period, minke whales account for the most known entanglement mortalities (17), followed by humpback whales (12), then right whales (three) and fin whales (three).

<sup>2</sup> “Serious injury” means any injury that will likely result in mortality (50 CFR 229.2).

<sup>3</sup> From 1997 through 2001, the data include only those fatalities for which entanglement was the primary cause of death and does not include minor entanglements. The 2002 fatalities are associated with confirmed entanglements, although entanglement has not yet been confirmed to have been the primary cause of death.



While entanglement is a significant source of risk for Atlantic large whales, other factors influence whale survival. Historically, commercial whaling has presented the greatest threat to whale stocks, and is largely responsible for reducing the populations of certain species to endangered status. Broad adherence to a voluntary international ban on commercial whaling has reduced this threat to the most seriously endangered species. However, other threats remain, including collisions between whales and ships, as well as the adverse effects that water pollution, noise pollution, climate change, and prey availability may have on whale stocks. These threats will be discussed further in Section 9.4: “Effects of Past, Present, and Reasonably Foreseeable Future Actions.”

## 1.2 ATLANTIC LARGE WHALE TAKE REDUCTION PLAN

### 1.2.1 Current ALWTRP Requirements

In response to its obligations under the MMPA, NMFS established the Atlantic Large Whale Take Reduction Team (ALWTRT) in 1996 to develop a plan for reducing the incidental take of large whales in commercial fisheries along the Atlantic Coast. The ALWTRT consists of representatives from the fishing industry, state and Federal resource management agencies, the scientific community, and conservation organizations. The intent of the ALWTRT is to provide recommendations to NMFS in developing and amending the ALWTRP.

The ALWTRP seeks to reduce the serious injury to or mortality of large whales due to entanglement in U.S. commercial fishing gear. The Plan consists of restrictions on where and how gear can be set; research into whale populations, whale behavior, and fishing gear; outreach to inform fishermen of the entanglement problem and to seek their help in understanding and solving the problem; enforcement efforts to help increase compliance with ALWTRP measures;

and a program to disentangle whales that do get caught in gear. The fisheries currently regulated under the ALWTRP include the Northeast/Mid-Atlantic American lobster trap/pot fishery, the Northeast sink gillnet fishery, the Southeast Atlantic gillnet fishery, the Southeastern U.S. Atlantic shark gillnet fishery, and the Mid-Atlantic coastal gillnet fishery.

The ALWTRP includes a variety of gear modification requirements and restrictions, a Seasonal Area Management (SAM) program, and a Dynamic Area Management (DAM) program. The universal gear modification requirements apply to all lobster traps/pots and anchored gillnets and include restrictions on floating line at the surface, restrictions on wet storage of gear, and voluntary restrictions on knots in buoy lines. Other gear restrictions are area- and season-specific, and include closures and/or gear modifications for lobster traps/pots and anchored gillnets in the Cape Cod Bay Critical Habitat from January 1 through May 15, and the Great South Channel Critical Habitat from April 1 through June 30. These measures address times and locations where whale aggregations are greatest, and therefore the risk of entanglement is considered to be relatively higher.

The SAM program was established by NMFS to protect predictable annual aggregations of North Atlantic right whales in the waters off Cape Cod and out to the Eastern boundary of the Exclusive Economic Zone (EEZ), as observed in aerial surveys from 1999 to 2001, from entanglement in lobster trap/pot and anchored gillnet gear. The SAM program incorporates two zones: SAM West, which is in effect from March 1 through April 30, and SAM East, which is in effect from May 1 through July 31. Lobster trap/pot and anchored gillnet gear set in the SAM zones during the designated times must be low risk gear. The ALWTRP defines low risk gear as gear where death or serious injury resulting from entanglement would be *highly unlikely*.

Under the DAM program, NMFS can temporarily restrict the use of lobster trap/pot and anchored gillnet fishing gear within defined areas north of 40°00' N latitude to protect right whales. A DAM action is triggered by a single reliable report of an aggregation of three or more right whales within an area (75 square nautical miles) such that the whale density is equal to or greater than 0.04 right whales per square nautical mile. NMFS establishes a buffer zone around the whale aggregation and determines whether to impose temporary restrictions on fishing and/or fishing gear in the zone. Possible restrictions include mandatory removal of trap/pot and anchored gillnet gear unless modified to continue fishing in the DAM zone, and/or voluntary removal of gear and cessation of fishing in the DAM zone.

Chapter 2 of this DEIS reviews the current ALWTRP requirements in greater detail.

## **1.2.2 Alternatives Considered**

NMFS is considering various alternatives for modifying existing ALWTRP requirements, with the intent of identifying only one alternative in the final environmental impact statement (FEIS). The alternatives under consideration seek to reduce large whale entanglement by measures such as incorporating other trap/pot fisheries under the ALWTRP; reducing the profile of groundlines; and mandating gear modifications to vertical lines, for example, by requiring gear marking and the use of weak links of lower breaking strength. These changes are designed to address ongoing entanglement issues. NMFS will be considering management options to further reduce entanglement risk associated with vertical line through a future rulemaking action.

NMFS and others are currently researching other ways to reduce risk associated with vertical line, such as investigating the profiles of vertical line with different buoy line configurations (e.g., sinking/ neutrally buoyant vs. floating) as well as other modifications (e.g., requiring a minimum number of traps per trawl in certain areas). NMFS and others are also investigating how whales utilize the water column, including their foraging ecology and diving behavior, which will help to determine the appropriate mitigation strategies to reduce entanglement risk of vertical line. NMFS is presently developing management options to further discuss with the ALWTRT and is investigating effort reductions that are occurring through fishery management plans and protected species actions (e.g., take reduction plans, sea turtle regulations). Thus, before requiring the implementation of broad-based measures, NMFS believes more information and discussions are needed in order to effectively reduce the risk associated with the profile of vertical line.

Chapter 3 of this DEIS reviews the regulatory alternatives in detail. Though NMFS has identified two Preferred Alternatives, its intent is to identify only one alternative in the FEIS. The essential aspects of the six alternatives can be summarized as follows:

- **Alternative 1 (No Action):** Under Alternative 1, NMFS would continue with the status quo, i.e., the baseline set of ALWTRP requirements currently in place.
- **Alternative 2:** Regulatory changes common to all fisheries would occur year-round and include weak links on all flotation or weighted devices attached to buoy lines; by 2008, all groundline associated with trap/pot or gillnet gear (excluding shark gillnets) would need to be sinking and/or neutrally buoyant line; and both SAM requirements and DAM requirements would be eliminated in 2008. Several new trap/pot fisheries would be brought under the Plan (including fisheries for black sea bass, scup, conch/whelk, shrimp, red crab, hagfish, and Jonah crab) and would have requirements similar to the current and proposed requirements for the lobster trap/pot fishery. In addition, Alternative 2 would extend ALWTRP requirements to the Northeast driftnet fishery, applying regulations similar to those that apply to the Mid-Atlantic driftnet fishery. Alternative 2 would also extend ALWTRP requirements to the Northeast anchored float gillnet fishery, applying requirements similar to those that apply to other components of the Northeast anchored gillnet fishery. Finally, a variety of new requirements would apply to specific fisheries and/or specific areas. All of these requirements are summarized in Exhibit 1-3. Alternative 2 would also introduce a revised set of gear marking requirements for all fisheries, establish exempted areas where ALWTRP requirements would not apply, and introduce a variety of regulatory language changes.
- **Alternative 3 (Preferred):** Alternative 3 would entail the same requirements as Alternative 2, but would impose these requirements on a seasonal rather than year-round basis for fisheries in the Mid- and South Atlantic.

- **Alternative 4:** Alternative 4 would entail the same requirements as Alternative 2, but would impose these requirements on a seasonal rather than year-round basis for fisheries in the South Atlantic.
- **Alternative 5:** Alternative 5 would modify or expand the provisions of the existing SAM program. It would expand the SAM East and SAM West zones; require the upper two-thirds of buoy lines in SAM waters to be made of sinking and/or neutrally buoyant line; and allow two buoy lines for all trawls in SAM waters except for the overlap with the Northern Nearshore Trap/Pot Waters and Stellwagen Bank/Jeffrey's Ledge Restricted Area, in which trawls of four traps/pots or fewer would be restricted to a single buoy line. It would also include the weak link requirements described under Alternative 2, applying them year-round in northern waters and seasonally in other waters. Finally, Alternative 5 would also bring the new fisheries addressed by Alternatives 2 through 4 under the ALWTRP; incorporate the same gear marking requirements, exempted areas, and regulatory language changes; and eliminate the DAM program six months after publication. This alternative would not expand broad-based requirements coast-wide, such as the sinking and/or neutrally buoyant groundline requirements for trap/pot and anchored gillnet gear; the five weak links or more per net panel and anchoring requirements for gillnet gear in the Northeast; and the five weak links or more per net panel requirement for gillnet gear in the Mid-Atlantic. Also, the Northern Inshore Lobster Take Reduction Technology List would not be eliminated.
- **Alternative 6 (Preferred):** Alternative 6 would combine elements of Alternatives 3 and 5. Buoy line weak link requirements and broad-based gear requirements (net panel weak links, sinking and/or neutrally buoyant groundline, anchoring, gear marking, etc.) would be introduced on the same schedule and with the same seasonal and geographic provisions as described under Alternative 3; however, DAM requirements would be eliminated six months after publication of the rule (rather than in 2008), and the expanded SAM zone and SAM regulations described in Alternative 5 would apply from six months after publication until 2008, when the SAM program would be eliminated and all groundline associated with trap/pot and anchored gillnet gear would be required to be sinking and/or neutrally buoyant line.

**Exhibit 1-3**  
**PROPOSED ALWTRP MANAGEMENT ALTERNATIVES 2 THROUGH 6**  
**(Requirements in Addition to Current ALWTRP Requirements) <sup>1</sup>**

<b>Fishery/Region</b>	<b>Component</b>	<b>Alternative 2</b>	<b>Alternative 3 (Preferred)</b>	<b>Alternative 4</b>	<b>Alternative 5</b>	<b>Alternative 6 (Preferred)</b>
Lobster – Northern Inshore and Nearshore Waters; Stellwagen Bank/Jeffrey’s Ledge Restricted Area; and Cape Cod Bay Restricted Area (5/16 – 12/31) <sup>2</sup>	Weak links	<ul style="list-style-type: none"> <li>Weak links on all flotation devices and/or weighted devices attached to the buoy line</li> <li>Eliminates existing take reduction technology list; 600-lb weak links on all flotation devices or devices attached to buoy line; applies only to Northern Inshore lobster waters and state portion of Cape Cod Bay Restricted Area (May 16 to December 31)</li> </ul>	= Alt. 2	= Alt. 2	Expanded SAM (see text)	= Alt. 3 but with expanded SAM until 2008 and early elimination of DAM
	Groundline	<ul style="list-style-type: none"> <li>Sinking and/or neutrally buoyant groundline year-round by 2008</li> </ul>				
	Other	<ul style="list-style-type: none"> <li>Trawls of four or fewer traps allowed only one buoy line; applies only to Northern Nearshore lobster waters, Stellwagen Bank/Jeffrey’s Ledge Restricted Area, and Federal portions of Cape Cod Bay Restricted Area (May 16 to December 31)</li> <li>SAM/DAM eliminated in 2008</li> </ul>				
Lobster – Offshore and Great South Channel Restricted Lobster Area (7/1 – 3/31) <sup>2</sup>	Weak links	<ul style="list-style-type: none"> <li>Weak links on all flotation devices and/or weighted devices attached to the buoy line</li> <li>Buoy line weak link strength of 1,500 lbs for fisheries in Offshore lobster waters and Great South Channel that overlaps LMA 2/3 Overlap and 3 (July 1 to March 31); 600-lb weak links for fisheries in other areas</li> </ul>	= Alt. 2 but requirements are seasonal for mid- and South Atlantic (see text)	= Alt. 2	Expanded SAM (see text)	= Alt. 3 but with expanded SAM until 2008 and early elimination of DAM
	Groundline	<ul style="list-style-type: none"> <li>Sinking and/or neutrally buoyant groundline year-round by 2008</li> </ul>				
	Other	<ul style="list-style-type: none"> <li>SAM/DAM eliminated in 2008</li> <li>Extend southern boundary by following the 100 fa line from 35°30’N to 27°51’N, and then extend out to EEZ</li> </ul>				
Lobster – Southern Nearshore <sup>2</sup>	Weak links	<ul style="list-style-type: none"> <li>Weak links on all flotation devices and/or weighted devices attached to the buoy line</li> </ul>	= Alt. 2 but requirements are seasonal for mid- and South Atlantic (see text)	= Alt. 2	Expanded SAM (see text)	= Alt. 3 but with expanded SAM until 2008 and early elimination of DAM
	Groundline	<ul style="list-style-type: none"> <li>Sinking and/or neutrally buoyant groundline year-round by 2008</li> </ul>				
	Other	<ul style="list-style-type: none"> <li>Apply all requirements to currently unregulated portion of Lobster Management Area 6 that is not included in exempted waters</li> <li>DAM eliminated in 2008</li> <li>Extend southern boundary by following the 100 fa line from 35°30’N to 27°51’N, and then extend inshore to coast or exempted areas; area south of 35°30’N would use the 100 fa line to define Southern Nearshore Lobster Waters</li> </ul>				
Black Sea Bass, Scup, Conch/Whelk, Shrimp, Hagfish, and Jonah Crab (trap/pot fisheries) <sup>3</sup>	Weak links	<ul style="list-style-type: none"> <li>Weak links on all flotation devices and/or weighted devices attached to the buoy line</li> <li>Buoy line weak link strength of 1,500 lbs for fisheries in Offshore lobster waters and Great South Channel that overlaps LMA 2/3 Overlap and 3 (July 1 to March 31); 600-lb weak links for fisheries in other areas</li> </ul>	= Alt. 2 but requirements are seasonal for mid- and South Atlantic (see text)	= Alt. 2 but requirements are seasonal for South Atlantic (see text)	Expanded SAM (see text)	= Alt. 3 but with expanded SAM until 2008 and early elimination of DAM
	Groundline	<ul style="list-style-type: none"> <li>Sinking and/or neutrally buoyant groundline year-round by 2008; effective six months after publication in Cape Cod Bay between January 1 and May 15 and in SAM waters</li> </ul>				
	Other	<ul style="list-style-type: none"> <li>Fold in under existing ALWTRP regulations (e.g., trawls of four or fewer traps allowed only one buoy line in Northern Nearshore lobster waters, Stellwagen Bank/Jeffrey’s Ledge Restricted Area and Federal portions of Cape Cod Bay Restricted Area during May 16 to December 31)</li> <li>Define southern boundary using definitions discussed under Southern Nearshore Lobster Waters and Offshore Lobster Waters</li> <li>Apply all requirements to currently unregulated portion of Lobster Management Area 6 that is not included in exempted waters</li> <li>SAM/DAM eliminated in 2008</li> </ul>				
Red Crab (trap/pot) <sup>3</sup>	Weak links	<ul style="list-style-type: none"> <li>Weak links on all flotation devices and/or weighted devices attached to the buoy line</li> <li>Buoy line weak link breaking strength of 2,000 lbs for operations in offshore lobster waters</li> </ul>	= Alt. 2 but requirements are seasonal for mid- and South Atlantic (see text)	= Alt. 2 but requirements are seasonal for South Atlantic (see text)	Expanded SAM (see text)	= Alt. 3 but with expanded SAM until 2008 and early elimination of DAM
	Groundline	<ul style="list-style-type: none"> <li>Sinking and/or neutrally buoyant groundline year-round by 2008</li> </ul>				
	Other	<ul style="list-style-type: none"> <li>Fold in under existing ALWTRP regulations</li> <li>Define southern boundary using definitions discussed under Southern Nearshore Lobster Waters and Offshore Lobster Waters</li> <li>Apply all requirements to currently unregulated portion of Lobster Management Area 6 that is not included in exempted waters</li> <li>SAM/DAM eliminated in 2008</li> </ul>				

**Exhibit 1-3**  
**PROPOSED ALWTRP MANAGEMENT ALTERNATIVES 2 THROUGH 6**  
**(Requirements in Addition to Current ALWTRP Requirements) <sup>1</sup>**

<b>Fishery/Region</b>	<b>Component</b>	<b>Alternative 2</b>	<b>Alternative 3 (Preferred)</b>	<b>Alternative 4</b>	<b>Alternative 5</b>	<b>Alternative 6 (Preferred)</b>
Gillnet – Northeast, Anchored <sup>4</sup>	Weak links	<ul style="list-style-type: none"> <li>Weak links on all flotation devices and/or weighted devices attached to the buoy line</li> <li>Increase number of 1,100-lb weak links per panel from one to five or more, depending on net size,* year-round</li> </ul>	= Alt. 2 (but requirements are seasonal south of 40°N)	= Alt. 2	Expanded SAM (see text)	= Alt. 3 but with expanded SAM until 2008
	Groundline	<ul style="list-style-type: none"> <li>Sinking and/or neutrally buoyant groundline year-round by 2008</li> </ul>				
	Other	<ul style="list-style-type: none"> <li>SAM/DAM eliminated in 2008</li> <li>All anchored gillnets must be anchored with the holding power of at least 22-lb Danforth-style anchor at each end of net string</li> <li>Fold in Northeast anchored float gillnet fishery under existing ALWTRP regulations</li> </ul>				
Gillnet – Northeast, Driftnet <sup>5</sup>	Weak links	<ul style="list-style-type: none"> <li>One 1,100-lb weak link per panel when fishing tended gear at night</li> </ul>	= Alt. 2 (but requirements are seasonal south of 40°N)	= Alt. 2	Expanded SAM (see text)	= Alt. 3 but with expanded SAM until 2008
	General	<ul style="list-style-type: none"> <li>Fold in and regulate same as Mid-Atlantic driftnet</li> <li>Seasonal closures in Cape Cod Bay (Jan. 1 to May 15) and Great South Channel (April 1-June 30)</li> </ul>				
Gillnet – Mid-Atlantic, Anchored <sup>6</sup>	Weak links	<ul style="list-style-type: none"> <li>Weak links on all flotation devices and/or weighted devices attached to the buoy line</li> <li>All nets must return to port with the vessel <i>or</i> contain five or more (rather than one) 1,100-lb. weak links per net panel, depending on size* (and be anchored at each end of net string with an anchor having the holding power of a 22-lb Danforth-style anchor, as previously required)</li> </ul>	= Alt. 2 but requirements are seasonal (see text)	= Alt. 2	Expanded SAM (see text)	= Alt. 3 but with expanded SAM until 2008 and early elimination of DAM
	Groundline	<ul style="list-style-type: none"> <li>Sinking and/or neutrally buoyant groundline year-round by 2008</li> </ul>				
	Other	<ul style="list-style-type: none"> <li>Time period for all requirements expanded to year-round (vs current period of Dec. 1 to March 31)</li> <li>Include gillnets that are weighted to bottom but do not have an anchor on either end and gillnets that are anchored at each end but not weighted to the bottom</li> <li>DAM eliminated in 2008</li> <li>Waters between 72°30'W and EEZ that are south of VA/NC border and north of SC/GA border folded into Mid-Atlantic anchored gillnet regulations</li> </ul>				
Gillnet – Mid-Atlantic, Driftnet <sup>6</sup>	Weak links	<ul style="list-style-type: none"> <li>One 1,100-lb weak link per panel when fishing tended gear at night</li> </ul>	= Alt. 2 but requirements are seasonal (see text)	= Alt. 2	Expanded SAM (see text)	= Alt. 3
	General	<ul style="list-style-type: none"> <li>Time period for all requirements expanded to year-round (vs current period of Dec. 1 to March 31)</li> <li>Waters between 72°30'W and EEZ that are south of VA/NC border and north of SC/GA border folded into Mid-Atlantic drift gillnet regulations</li> </ul>				
Shark Gillnet – Southeast <sup>7</sup>	General	<ul style="list-style-type: none"> <li>Extend 80°00' W longitude boundary and associated requirements to EEZ</li> <li>Replace current time period (November 15 to March 31) as follows: <ul style="list-style-type: none"> <li>From SC/GA border to 29°00'N: Restrictions apply from November 15 to April 15</li> <li>From 29°N to 26°46.5'N: Restrictions apply from December 1 to March 31 (keep 27°51'N as southern line of "Restricted Area" during this time period)</li> </ul> </li> <li>Strikenet gear in Southeast U.S. Restricted Area must be removed immediately if right, humpback, or fin whale moves within 3 nautical miles (year-round)</li> <li>Require use of vessel monitoring system in lieu of 100% observer coverage</li> </ul>	= Alt. 2 but requirements are seasonal (see text)	= Alt. 2 but requirements are seasonal (see text)	Expanded SAM (see text)	= Alt. 3

**Exhibit 1-3**  
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**(Requirements in Addition to Current ALWTRP Requirements) <sup>1</sup>**

<b>Fishery/Region</b>	<b>Component</b>	<b>Alternative 2</b>	<b>Alternative 3 (Preferred)</b>	<b>Alternative 4</b>	<b>Alternative 5</b>	<b>Alternative 6 (Preferred)</b>
Coastal Gillnet – Southeast <sup>8</sup>	General	<ul style="list-style-type: none"> <li>Extend 80°00' W longitude boundary and associated requirements to EEZ</li> <li>Implement gillnet restrictions (similar to Mid-Atlantic anchored gillnet fisheries) between SC/GA border and the NC/SC border</li> <li>Replace current area/time management measures as follows: <ul style="list-style-type: none"> <li>From SC/GA border to 29°00'N: Restrictions apply from November 15 to April 15</li> <li>From 29°00'N to 27°51'N: Restrictions apply from December 1 to March 31</li> </ul> </li> <li>Require gear modification similar to Mid-Atlantic gillnets that are weighted to bottom but do not have anchor at either end (e.g., weak links in net panels and on buoys; year-round)</li> </ul>	= Alt. 2 but requirements are seasonal (see text)	= Alt. 2 but requirements are seasonal (see text)	Meet existing requirements for Mid-Atlantic gillnets	= Alt. 3
	Weak links	<ul style="list-style-type: none"> <li>Weak links on all flotation devices and/or weighted devices attached to the buoy line</li> <li>All nets must return to port with the vessel <i>or</i> contain five or more (rather than one) 1,100-lb. weak links per net panel, depending on size* (and be anchored at each end of net string with an anchor having the holding power of a 22-lb Danforth-style anchor, as previously required)</li> </ul>				
	Groundline	<ul style="list-style-type: none"> <li>Sinking and/or neutrally buoyant groundline year-round by 2008</li> </ul>				
All Fisheries	Exempted Areas	<ul style="list-style-type: none"> <li>Areas landward of 72 COLREGS line, with exceptions for Boston Harbor, Gardiners Bay (NY), and portions of the Maine coast</li> <li>No requirement for sinking and/or neutrally buoyant groundline in waters greater than 280 fathoms</li> </ul>	→	→	→	→
	Gear Marking	<ul style="list-style-type: none"> <li>Remove current ALWTRP gear marking scheme (except net panel marking for shark gillnet gear)</li> <li>Mark surface buoys with vessel or permit number</li> <li>Mark buoy lines with one 4-inch mark every 10 fathoms or one 4-inch mark in the center of buoy lines 10 fathoms or less (shark vessels with buoy lines &lt; 4 feet are exempt)</li> </ul>	→	→	→	→

## Notes:

- 1 See Section 1.2.1 for a description of the current ALWTRP requirements. Note that Alternative One is the No Action Alternative.
- 2 Northeast/Mid-Atlantic American lobster trap/pot fishery in the 2003 List of Fisheries.
- 3 Atlantic mixed species trap/pot fishery in the 2003 List of Fisheries. The trap/pot fisheries affected by this action could include other species (e.g., blue crab), although these species are caught primarily in exempt waters.
- 4 Northeast sink gillnet fishery in the 2003 List of Fisheries
- 5 Northeast drift gillnet fishery in the 2003 List of Fisheries
- 6 Mid-Atlantic coastal gillnet fishery in the 2003 List of Fisheries
- 7 Southeastern U.S. Atlantic shark gillnet fishery in the 2003 List of Fisheries
- 8 Southeast Atlantic gillnet fishery in the 2003 List of Fisheries

→ Requirement applies across all Alternatives

\* The regulatory text will clarify that the placement of net panel weak links will be as follows: For all variation in panel size the following weak link requirements would apply: 1) weak links must be placed in the center of each of the up and down lines at both ends of each net panel; and 2) one floatline weak link must be placed as close as possible to each end of the net panel just before the floatline meets the up and down line. Also, for net panels of 50 fathoms or less in length, one floatline weak link must be placed at the center of the net panel, and for net panels greater than 50 fathoms, weak links must be placed continuously along the floatline separated by a maximum distance of 25 fathoms.

## 1.3 MAJOR CONCLUSIONS AND PREFERRED ALTERNATIVES

### 1.3.1 Biological Impacts of Alternatives

Gear modification requirements are a key component of the ALWTRP modifications under consideration, and will be discussed further in Section 5.1 of this DEIS. The major requirements affecting whale survival include:

- **Groundline Requirements:** The requirement to use non-floating groundline is designed to directly benefit large whales by reducing the likelihood of interactions between large whales and fishing gear, thereby reducing the likelihood of entanglement, by reducing the amount of line in the water column.
- **Buoy Line Requirements:** The regulatory changes under consideration would extend universal buoy line requirements (which prohibit any portion of the buoy line floating at the surface) to a number of new fisheries. It is believed that the extension of this requirement to these fisheries would benefit large whales by reducing the frequency or severity of entanglement in buoy lines and associated gear.
- **Weak Link and Anchoring Requirements:** The potential regulatory changes analyzed include provisions requiring that lobster and other trap/pot gear employ weak links on all buoy lines. The specified strength and placement of weak links is designed so that, if a large whale does become entangled, it could exert enough force to break the weak link. Thus, the risk of serious injury or mortality would be reduced.
- **Set Restrictions and Gear Stowing Requirements:** The potential regulatory changes under analysis include several restrictions on where and when gillnet gear could be used. The night set restrictions under consideration are designed to reduce the risk that poor visibility would contribute to an entanglement; the prohibition on the use of strikenets when visibility is less than 500 yards has a similar purpose. The requirement that driftnet vessels in the Northeast and Mid-Atlantic remove their gear from the water and stow it on board before returning to port is designed to ensure that any interactions between driftnets and whales would be observed and reported in a timely fashion, permitting a more rapid response.

In addition to gear modification requirements, the potential changes to the ALWTRP include a range of restrictions on the location and timing of fishing activity. These include the expansion of the SAM zone under Alternatives 5 and 6; seasonal closures of newly regulated fisheries in restricted areas; expansion of the geographic scope of monitoring and restricted areas; changes to exempted waters in the Northeast and Mid-Atlantic; deep water exemptions; inclusion of other trap/pot vessels in the SAM and DAM programs; and the inclusion of seasonal restrictions on fishing activity in the Southeast and/or Mid-Atlantic. The general objective of all

these potential changes is to limit the frequency and severity of interactions between whales and regulated trap/pot and gillnet gear while avoiding implementation of costly requirements that yield limited risk reduction.

The biological impacts analysis is based on a set of quantitative and qualitative indicators that allow comparison of the risk reduction associated with the regulatory alternatives (see Exhibit 1-4). These indicators suggest that, aside from Alternative 1 (No Action), Alternative 5 is the only regulatory alternative that differs significantly from the others. The impacts associated with Alternative 5 would be significantly less than those associated with the other alternatives under consideration, primarily because Alternative 5 would not apply as broad a set of gear modification requirements.

In addition to impacts on large whale species, changes to ALWTRP regulations may affect other aspects of the marine environment, including other protected species, essential fish habitat, and directed catch and bycatch. Analysis of these issues, addressed in Section 5.2 of this DEIS, suggests no significant differences among Alternatives 2 through 6 with respect to impacts on essential fish habitat, directed catch, or bycatch; in each case, the impacts are generally expected to be minor. The alternatives differ, however, with respect to the ancillary benefits they would afford other protected species. These differences stem from differences in the extent to which the alternatives would mandate broad-based gear modification requirements that could prove beneficial to potentially affected species of whales, porpoises, dolphins, seals, and sea turtles. Under Alternative 5, for example, broad-based gear modification requirements would not be instituted; as a result, any ancillary benefits to other protected species would be limited primarily to those associated with the expansion of SAM requirements to additional fisheries and additional areas, to the extent that other protected species are present in these areas during the times that the requirements are in effect. Under Alternative 2, however, broad-based gear modification requirements would be in effect in all ALWTRP-regulated waters at all times; thus, protected species that inhabit Mid-Atlantic or Southeast waters year-round, such as bottlenose dolphins, would benefit from these requirements throughout the year. Alternatives 3, 4, and 6 would also apply broad-based gear modification requirements, but would do so on a seasonal basis in the Mid-Atlantic and Southeast; during the periods that these requirements would be in effect, they would offer ancillary benefits to other protected species.

### **1.3.2 Economic Impacts of Alternatives**

The economic impact analysis, discussed in Chapter 6 of this DEIS, examines average compliance costs for model vessels and estimates the overall cost to the commercial fishing industry of complying with the regulatory changes under consideration. The analysis measures the cost of complying with these new requirements relative to the status quo — i.e., a baseline scenario that assumes no change in existing ALWTRP requirements. Thus, all estimates of compliance costs are incremental to those already incurred in complying with the ALWTRP.

Exhibit 1-4						
COMPARISON OF IMPACTS BY ALTERNATIVE: QUANTITATIVE RISK REDUCTION INDICATORS <sup>1</sup>						
	Regulatory Alternatives					
	No Action 1	2	Preferred 3	4	5	Preferred 6
<b>Changes in the Number of Affected Vessels</b>						
Newly regulated lobster trap/pot vessels	0	11	11	11	11	11
Newly regulated gillnet vessels <sup>2</sup>	0	616	604	615	604	604
Newly regulated other trap/pot vessels	0	415	413	415	413	413
<b>Major Gear Requirements</b>						
Fathoms of groundline converted (millions) <sup>3</sup>	0	43.1	43.0	43.1	0.2	43.0
Fathoms of buoy line with weak links installed on all flotation and/or weighted devices (millions)	0	30.6	30.6	30.6	30.6	30.6
Number of weak links installed on all flotation and/or weighted devices off the main buoy line (thousands)	0	347.2	346.4	347.1	345.9	345.9
Number of gillnet net panels with 5 or more weak links installed (thousands) *	0	125.7	124.8	125.7	2.1	124.8
Number of gillnet net panels with 1 weak link installed (thousands)	0	60.7	59.7	60.7	118.6	59.7
Number of gillnet strings with anchors installed (thousands)	0	2.9	2.9	2.9	<0.1	2.9
Number of new gear marks (millions)	0	1.8	1.8	1.8	1.8	1.8
<b>Set and Stow Restrictions</b>						
Newly affected vessels - night set restrictions <sup>2</sup>	0	56	44	45	44	44
Newly affected vessels - gear stowing restrictions <sup>2</sup>	0	614	604	614	604	604
Newly affected vessels – one buoy line per trawl of four traps or fewer <sup>4</sup>	0	19	19	19	19	19
<b>Critical Habitat Area Restrictions<sup>5</sup></b>						
Newly regulated vessels in Great South Channel (April 1 – June 30)	0	<1	<1	<1	<1	<1
Newly regulated vessels in Cape Cod Bay (January 1 – May 15)	0	2	2	2	2	2
Fathoms of buoy line converted in Cape Cod Bay (January 1 – May 15)	0	41	41	41	41	41
<b>SAM Program<sup>6</sup></b>						
Newly regulated vessels in SAM program <sup>6,7</sup>	0	<1	<1	<1	25	25
Fathoms of buoy line converted <sup>6,8</sup>	0	908	908	908	8,463	8,463
Number of buoy lines eliminated <sup>6</sup>	0	6	6	6	NA	NA
<b>DAM Program<sup>9</sup></b>						
Newly regulated vessels in DAM program	0	265	264	265	NA	NA
Fathoms of buoy line converted	0	369,732	368,810	369,732	NA	NA
<b>Seasonality</b>						
Number of Trips Subject to Low-Risk Gear Requirements	0	51,702	48,349	51,305	48,349	48,349
Area-Days: Trap/pot (millions) <sup>10</sup>	0	91.9	47.8	78.7	47.8	47.8
Area-Days: Gillnet (millions) <sup>10</sup>	0	92.8	48.1	79.0	48.1	48.1
Key: NA = not applicable						
Notes:						
<sup>1</sup> Numbers presented in this table represent changes incremental to the baseline. Since Alternative 1 is equivalent to no action, all values equal zero.						
<sup>2</sup> Estimates of newly regulated vessels assume that 50 percent of Mid-Atlantic driftnet vessels are currently regulated by ALWTRP requirements that apply in the Mid-Atlantic from December 1 through March 31. All others (i.e., those active only between April 1 and November 30) would be newly regulated.						
<sup>3</sup> Under Alternatives 2 through 6, this number includes groundline that would be converted as a result of SAM, DAM, and Critical Habitat Area Restrictions, as well as groundline that would be converted as a result of broad-based gear modification requirements.						
<sup>4</sup> This restriction is a new requirement for other trap/pot vessels fishing in Northern Nearshore waters and Stellwagen Bank/Jeffrey's Ledge.						
<sup>5</sup> The use of driftnets or anchored float gillnets would be prohibited in the Cape Cod Bay Restricted Area from January 1 through May 15, and in the Great South Channel Restricted Gillnet Area from April 1 through June 30. The use of mixed species trap/pot gear would be prohibited in the Great South Channel Restricted Area from April 1 through June 30.						
<sup>6</sup> Under Alternatives 2 through 4 and 6, the SAM program and all gear requirements unique to this program would be eliminated in 2008.						
<sup>7</sup> Under Alternatives 2 through 4, this figure represents the number of other trap/pot vessels that would be newly subject to SAM requirements. Under Alternatives 5 and 6, this figure also includes the change in the number of vessels subject to SAM requirements as a result of changes in the SAM zone's boundaries.						
<sup>8</sup> Until 2008, Alternatives 2 through 4 would require that buoy lines be made entirely of non-floating line. Under Alternatives 5 and 6, vessels would be allowed to use floating line in the bottom third of the buoy line. Under Alternatives 5 and 6, this figure represents the net change in the fathoms of buoy line converted, including both increases and decreases in buoy line converted as a result of changes in the SAM zone's boundaries.						
<sup>9</sup> Under Alternatives 2 through 4, the DAM program and all gear requirements unique to this program would be eliminated in 2008. Under Alternatives 5 and 6, the program would be eliminated six months after the rule's promulgation.						
<sup>10</sup> This indicator is calculated by multiplying the square nautical miles of protected area by the number of days that seasonal gear modification requirements apply.						
* In this DEIS, based on the best available information, it was assumed that anchored gillnet vessels in the Northeast and Mid-Atlantic fish net panels that average 50 fathoms (300 feet) in length. Thus, for these areas, gillnet vessels were analyzed as utilizing five weak links per net panel.						

### 1.3.2.1 Average Vessel Compliance Costs

The economic impact analysis first calculates the compliance costs for model vessels, defined by species sought and fishing location (see Section 6.1.2). Average vessel compliance costs include both the expenses associated with reconfiguring gear as required under the new ALWTRP regulations and the costs (or savings, for some vessel groups) associated with replacing gear more (or less) frequently due to gear loss.

The cost associated with converting trap/pot and gillnet gear to comply with the ALWTRP modifications includes the labor and material costs associated with weak links, groundline, gear marking, buoy line, and anchoring modifications (see Section 6.1.2.1).<sup>4</sup> Average annual costs are derived based on costs that would be incurred in year one of the regulation (2005)<sup>5</sup>, the second and third phase-in years, 2008, and on an ongoing basis thereafter. A seven percent discount rate is used to annualize all costs. Appendix C in Chapter 6 provides a detailed discussion of the individual parameters used in estimating gear conversion costs.

In addition, certain ALWTRP gear modifications could affect gear loss (see Section 6.1.2.2 for more detail on Gear Loss Costs). The analysis assumes that vessels converting from floating groundline and buoy line to sinking and/or neutrally buoyant line, as well as vessels using only one buoy line, would lose approximately five to ten percent more gear each year. In contrast, vessels currently subject to SAM area regulations would lose up to five percent less gear each year due to the allowance of a second buoy line and converting one-third of non-floating or neutrally buoyant buoy line to floating line.

### 1.3.2.2 Total Industry Compliance Costs

Once compliance costs for the model vessels are calculated, the analysis estimates the number of vessels represented by each model vessel (i.e., the number of vessels within a particular category). The analysis uses data on Federal and state-permitted vessels to estimate the number of vessels in each category, identifying vessels that have actively fished with the applicable gear types and might therefore be affected by changes to the ALWTRP. After identifying and removing vessels that operate within exempt waters, each of the remaining vessels is assigned to the appropriate model vessel category (see Section 6.1.3 for more details).

The product of the annual compliance costs for each model vessel and the number of affected vessels in each category provides an estimate of annual compliance costs for the category as a whole. The sum of compliance costs across all vessel categories provides an estimate of annual compliance costs for the commercial fishing industry. Section 6.2 describes the “Estimated Costs of Compliance with Potential Changes to the ALWTRP.”

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<sup>4</sup> For analysis purposes, this DEIS assumes that the typical anchored gillnet vessel in the Northeast and Mid-Atlantic fishes net panels that are approximately 50 fathoms (300 feet) in length.

<sup>5</sup> Please note that the date of January 1, 2005 was selected for the purpose of analyzing the impacts of the proposed alternatives in this DEIS. However, the implementation of regulations associated with this date in the DEIS would become effective 6 months after publication of a final rule.

### **1.3.2.3 Economic Impact Results**

Exhibit 1-5 summarizes the estimated increase in annual industry compliance costs for each of the regulatory alternatives, breaking the results down by fishing sector (lobster, other trap/pot, and gillnet). As shown, the incremental costs imposed on the fishing industry would equal approximately \$14.2 million per year under Alternatives 2, 3, 4, and 6. The impact of the new standards on lobster vessels would account for over 90 percent of these compliance costs.

Aside from Alternative 1 (No Action), the only regulatory alternative that differs significantly from the others with respect to estimated economic impacts is Alternative 5. The analysis suggests that this alternative would impose incremental regulatory costs of approximately \$1.0 million annually. The costs are lower because Alternative 5 would not institute as broad a set of gear modification requirements, but would instead modify the SAM zone and focus primarily upon the regulation of vessels fishing in that zone. Section 6.2 describes the specific information relating to industry compliance costs.

### **1.3.3 Social Impacts of Alternatives**

The analysis of social impacts, discussed in Chapter 7, considers how compliance with the regulatory alternatives could affect the socioeconomic viability of fishing, fishermen's quality of life, and the economic welfare of the general public.

#### **1.3.3.1 Potentially Affected Communities**

The social impact analysis first uses county-level data on affected fishing vessels to identify the communities at greatest risk of experiencing adverse social impacts stemming from the ALWTRP modifications under consideration (see Section 7.3). The analysis uses additional county-level socioeconomic data to characterize key features of the at-risk communities, examining economic, demographic, and social features that may influence the impact of the regulations on the region.

The analysis defines at-risk counties as those with over 100 active vessels that must comply with ALWTRP requirements and which report annual landings of greater than two million pounds by vessels using gear potentially subject to regulation under the ALWTRP. Based on these criteria, Exhibit 1-6 lists the at-risk counties. The list is heavily weighted toward the Northeast, particularly several coastal counties in Maine where lobstering is prevalent. Although the dealer and processing sectors are small to medium in size in these areas, they are frequently part of small communities and play an important role in regional economies in the state. Several of the Maine counties are rural and have limited economic diversification and/or higher than average unemployment and poverty rates. Other at-risk communities include urbanized ports (e.g., Gloucester, Portland, and New Bedford) where fishing activities are linked to major processing operations.

## Exhibit 1-5

## ESTIMATED INCREASE IN ANNUAL ALWTRP COMPLIANCE COSTS

<b>Economic Impact</b>	<b>Regulatory Alternative</b>	<b>Lobster Trap/Pot Vessels</b>	<b>Other Trap/Pot Vessels</b>	<b>Gillnet Vessels</b>	<b>Total</b>
Average Increase in Annual Compliance Costs For Vessels Affected by Changes in ALWTRP Regulations	Alternative 1 (No Action)	\$0	\$0	\$0	N.A.
	Alternative 2	\$3,484	\$1,055	\$917	N.A.
	Alternative 3 (Preferred)	\$3,483	\$1,060	\$925	N.A.
	Alternative 4	\$3,484	\$1,055	\$923	N.A.
	Alternative 5	\$210	\$184	\$163	N.A.
	Alternative 6 (Preferred)	\$3,482	\$947	\$925	N.A.
Number of Vessels Affected by Changes in ALWTRP Regulations	Alternative 1 (No Action)	0	0	0	0
	Alternative 2	3,686	418	1,044	5,148
	Alternative 3 (Preferred)	3,684	413	1,024	5,121
	Alternative 4	3,686	418	1,035	5,139
	Alternative 5	3,684	416	1,024	5,124
	Alternative 6 (Preferred)	3,684	416	1,024	5,124
Total Increase in Annual Compliance Costs for Vessels Affected by Changes in ALWTRP Regulations	Alternative 1 (No Action)	\$0	\$0	\$0	\$0
	Alternative 2	\$12,844,000	\$440,900	\$957,300	\$14,242,200
	Alternative 3 (Preferred)	\$12,830,500	\$438,100	\$946,700	\$14,215,300
	Alternative 4	\$12,844,000	\$440,900	\$955,600	\$14,240,500
	Alternative 5	\$773,800	\$76,500	\$167,300	\$1,017,700
	Alternative 6 (Preferred)	\$12,826,700	\$394,000	\$947,300	\$14,168,100

Note: Totals may not sum due to rounding.

<b>Exhibit 1-6</b>		
<b>KEY COMMUNITIES AFFECTED BY ALWTRP MODIFICATIONS</b>		
<b>At-Risk County<sup>1</sup></b>	<b>State</b>	<b>Major Ports<sup>2</sup></b>
Washington	ME	Beals Island and Jonesport, Cutler, Eastport, Lubec
Hancock	ME	Stonington/Deer Isle
Knox	ME	Rockland, Vinalhaven
Lincoln	ME	South Bristol, Boothbay Harbor
Cumberland	ME	Portland, Harpswell
York	ME	Kennebunkport/Cape Porpoise
Rockingham	NH	Hampton/Seabrook, Portsmouth, Isles of Shoals
Essex	MA	Gloucester, Rockport, Marblehead
Plymouth	MA	Plymouth, Scituate
Barnstable	MA	Sandwich, Hyannis, Chatham, Provincetown
Bristol	MA	New Bedford, Fairhaven, Westport
Washington	RI	Point Judith/Galilee
Newport	RI	Jamestown, Newport, Tiverton, Sakonnet Point
Suffolk	NY	Hampton Bays, Montauk, Greenport
Ocean	NJ	Point Pleasant, Long Beach/Barneгат Light
Notes:		
<sup>1</sup> For this analysis, at-risk counties are defined as those with over 100 active vessels that must comply with ALWTRP requirements and which report annual landings of greater than two million pounds by vessels using gear potentially subject to regulation under the ALWTRP. This list is heavily weighted toward the Northeast, particularly several coastal counties in Maine where lobstering is prevalent.		
<sup>2</sup> Major ports based on Hall-Arber et al. (2001) and McCay and Cieri (2000).		

### 1.3.3.2 Comparison of Vessel Compliance Costs to Ex-Vessel Revenues

To further examine the potential for socioeconomic impacts from the revised ALWTRP requirements, this analysis considers the economic burden placed on different classes of vessels (see Section 7.4.1). Placing vessel compliance costs in the context of typical ex-vessel revenues helps determine whether the costs will be significant enough to cause behavioral changes (e.g., vessel retirement) on the part of vessel operators. The analysis defines “heavily affected” vessels as those for which annual compliance costs exceed 15 percent of average annual revenues. The analysis further defines “at risk” vessels as those for which annual compliance costs are between 5 and 15 percent of annual revenue.

Although the potential for adverse social impacts is significant, a comparison of annual vessel compliance costs to vessel revenue suggests that a limited subset of fishing vessels are likely to face costs significant enough to drive them out of business. Although uncertainties exist in the analysis, the most heavily affected vessels appear to be few in number (relative to the full set of potentially affected vessels) and small in size. Therefore, they employ a relatively small number of fishermen (about two percent of those on all potentially affected vessels) and account for a relatively small share of landings. In reality, many fishermen would likely adjust to the modified ALWTRP regulations rather than leave fishing. These adjustments, combined with the fact that decreases in landings would likely be made up by other vessels, suggests that impacts on dealers and processors would be minor.

Numerous other vessels (approximately 2,600) fall in the at-risk vessel category. The at-risk vessels are dominated by Class II lobster vessels; of these, the most affected subsets are vessels in Maine, which are estimated to have greater gear loss costs. It is difficult to gauge how these vessel operators may respond to the ALWTRP modifications under consideration. However, to the extent that these vessels are driven out of business, social and economic impacts could be significant.

Most of the regulatory alternatives under consideration vary little with respect to their potential social and socioeconomic impacts. The number of vessels considered heavily affected is essentially identical under Alternatives 2, 3, 4, and 6. The socioeconomic implications of these alternatives vary little because most of the vessels the analysis identifies as heavily affected are based in the Northeast, where the provisions of Alternatives 2, 3, 4, and 6 do not vary. Analysis of Alternative 5 (the modified SAM) shows very few vessels would face compliance costs that qualify them as heavily affected.

### **1.3.3.3 Other Socioeconomic Impacts**

#### **Negative Impacts**

Fishermen may realize a variety of other negative social impacts in complying with ALWTRP modifications (see Section 7.5.1):

- To avoid the requirements associated with the new ALWTRP regulations, fishermen may choose to fish increasingly in exempted waters (see Section 3.1.2 for a description of the exempted areas under the proposed requirements). This relocation could consequently cause vessel congestion, gear conflicts, and competition for fishing grounds in exempted bays and harbors to increase.
- Furthermore, revised ALWTRP gear modifications may result in an increased incidence of gear loss. In addition to the costs incurred to replace lost gear, fishermen may also spend more time and resources hauling, grappling for, and repairing gear. This could potentially increase the hours that fishermen spend at sea.
- Likewise, certain aspects of the ALWTRP modifications may have safety implications for fishermen. For example, sinking and/or neutrally buoyant groundline is more likely to snag on marine debris, and hauling snagged gear could be dangerous.
- Finally, the compliance cost burden may create a competitive disadvantage for smaller lobster vessels, causing industry consolidation.

## Positive Impacts

Changes to the ALWTRP may also have a variety of positive social impacts. First, fishermen may experience safety benefits (see Section 7.5.2):

- Alternatives 2 through 6 include the elimination of the DAM program. Under Alternatives 2 through 4, the program would cease in 2008; under Alternatives 5 and 6, it would end within six months of promulgation of the new rule. Industry representatives have asserted that DAM provisions can be burdensome, requiring unanticipated gear removals that disrupt fishermen's schedules and that may cause safety issues in times of bad weather.
- Alternatives 2 through 6 call for elimination of current rules that limit trawls of five or fewer traps to one buoy line, lowering the cutoff to four or fewer traps. The addition of a buoy line may help avoid gear conflicts and reduce gear loss, grappling, and associated safety issues.

Second, to the extent that the new ALWTRP regulations successfully protect and restore whale populations, members of the public who view and photograph whales would benefit from the regulations. Annual revenues from the New England whale watching industry total approximately \$30 million, and studies indicate that consumers' enjoyment increases with the number of whales and species sighted. Consequently, whale watch operators could benefit from increased ridership and revenues as whale populations stabilize or increase.

Economic research indicates that society places a value on the knowledge that unique environmental resources exist, even without using the resource directly (often referred to as the "existence value" of a resource). Therefore, the preservation of right, humpback, fin, and minke whales would have an existence value that is not explicitly quantified in this DEIS.

Exhibit 1-7 summarizes the social impact conclusions discussed above.

### 1.3.4 Preferred Alternatives

Integration of the biological, economic, and social impact findings allows for a meaningful comparison of the regulatory alternatives (see Chapter 8 for specific information relating to the selection of the preferred alternatives). Integrating these findings typically allows formulation of measures that characterize the benefits derived relative to the costs (or other negative effects) incurred. However, in the case of the ALWTRP modifications, development of a unifying cost-benefit analysis is complicated by two factors:

<b>Exhibit 1-7</b>						
<b>SUMMARY OF SOCIOECONOMIC IMPACTS BY ALTERNATIVE</b>						
<b>Parameter</b>	<b>Alternative 1 (No Action)</b>	<b>Alternative 2</b>	<b>Alternative 3 (Preferred)</b>	<b>Alternative 4</b>	<b>Alternative 5</b>	<b>Alternative 6 (Preferred)</b>
Number of Heavily Affected Vessels	0	219	219	219	2	219
Total Employment on Heavily Affected Vessels	N.A.	379	379	379	3	379
Impacts on Dealers	- Status quo; no additional impact	- Minor	- Minor	- Minor	- Minor	- Minor
Impacts on Processors	- Status quo; no additional impact	- Minor	- Minor	- Minor	- Minor	- Minor
Other Potential Negative Social Impacts	- Status quo; no additional impact	- Competition for fishing grounds in exempted waters - Safety and time implications of gear loss - Burden greatest on small vessels; potential industry consolidation	- Competition for fishing grounds in exempted waters - Safety and time implications of gear loss - Burden greatest on small vessels; potential industry consolidation	- Competition for fishing grounds in exempted waters - Safety and time implications of gear loss - Burden greatest on small vessels; potential industry consolidation	- Minor	- Competition for fishing grounds in exempted waters - Safety and time implications of gear loss - Burden greatest on small vessels; potential industry consolidation
Positive Social Impacts	- Status quo; no additional impact	- Removal of DAM program may increase safety of and lessen burden on fishermen - Public welfare benefits of increased whale protection (greatest benefit relative to other alternatives)	- Removal of DAM program may increase safety of and lessen burden on fishermen - Public welfare benefits of increased whale protection (slightly lesser benefit relative to Alternative 2)	- Removal of DAM program may increase safety of and lessen burden on fishermen - Public welfare benefits of increased whale protection (slightly lesser benefit relative to Alternative 2).	- Removal of DAM program may increase safety of and lessen burden on fishermen - Public welfare benefits of increased whale protection (significantly lesser benefit relative to Alternative 2).	- Removal of DAM program may increase safety of and lessen burden on fishermen - Public welfare benefits of increased whale protection (slightly lesser benefit relative to Alternative 2).

- First, the costs and benefits are characterized using diverse metrics (e.g., dollars, increased use of low-risk gear, numbers of heavily affected vessels) that cannot be readily reduced to a single measure. In many cases, costs or benefits are described only in qualitative terms, or are characterized with imperfect indicators (e.g., comparative measures of risk reduction potential).
- Second, as acknowledged above, several of the regulatory alternatives – Alternatives 2, 3, 4, and 6 – have very similar implications. Because the impact estimates are subject to uncertainty, the minor variations that exist between these alternatives do not allow easy differentiation.

Differentiating between the alternatives therefore requires careful, critical consideration of the cost and benefit estimates developed. Because it would require year-round use of low-risk gear along the entire Atlantic coast, Alternative 2 clearly is the most conservative, risk-averse approach to the protection of endangered whales. However, the seasonal exemptions provided under Alternatives 3, 4, and 6 are premised on the movement of whales. Therefore, the residual potential for entanglement of whales in Mid-Atlantic or South Atlantic waters during summer months is minor; i.e., year-round requirements offer little marginal risk reduction benefit.

Furthermore, close examination of the compliance cost estimates suggests that the costs associated with the seasonal implementation of gear conversion requirements may be over-estimated. The analysis posits that fishermen will convert gear even if the requirements only apply in certain months, a very conservative assumption. According to comments provided by fishermen during the scoping process, many fishermen in the Mid- and South Atlantic use separate sets of gear to target different species at different times of year. If conversion of only winter gear is required, compliance costs will be less than those estimated. In addition, some of the fishermen in the Mid-Atlantic and South Atlantic areas may choose to confine their fishing effort to months when the requirements are not in effect, avoiding the regulation completely. Such behavior would reduce the cost of complying with Alternatives 3, 4, and 6 without increasing risk to whales.

Based on consideration of the relative costs and benefits of the alternatives, NMFS has selected Alternatives 3 and 6 as its preferred alternatives, with the intent of identifying only one alternative in the FEIS. These alternatives offer the flexibility of seasonal restrictions for both the Mid- and South Atlantic regions, potentially allowing fishermen to pursue lower-cost compliance strategies. The risk-reduction tradeoff is minimal, given that entanglement risk in the Mid- and South Atlantic is low in the summer months (due to whale migratory patterns). Alternative 6 offers the added protection of temporarily expanding the SAM zone; while the SAM requirements would eventually be eliminated, they would remain in effect until the broad-based gear modifications are fully implemented in 2008.

## 1.4 AREAS OF CONTROVERSY

Numerous interest groups have participated in the formulation and refinement of the ALWTRP. In addition to ALWTRT meetings, NMFS supported this rulemaking by conducting a series of public meetings held at various locations on the east coast during the summer of 2003. Through public outreach, NMFS has attempted to gather and accommodate many viewpoints, pursuing whale conservation objectives while remaining sensitive to the many regulatory pressures on the fishing industry. The dialogue that has occurred highlights a number of key areas of controversy that NMFS attempted to address in the regulatory alternatives examined:

- Whale conservationists emphasize that whale entanglements have continued despite the existing ALWTRP requirements. Some of these conservationists think that NMFS should reduce the profile of groundline and risk associated with vertical line immediately. Continued serious injury and mortality of right, humpback, and fin whales due to entanglement is the primary motivating factor behind refinement of the ALWTRP. The alternatives under consideration seek to reduce large whale entanglement by folding in other trap/pot fisheries under the ALWTRP; reducing the profile of groundlines; and mandating gear modifications to vertical lines, for example, by requiring gear marking and the use of weak links of lower breaking strength. NMFS will be considering management options to further reduce entanglement risk associated with vertical line through a future rulemaking action. The purpose and need chapter in this DEIS further explains the revisions under consideration to the existing ALWTRP.
- A fundamental issue concerns the role of fishing gear entanglement in the overall set of factors contributing to Atlantic large whale mortality. The cumulative effects analysis in this DEIS considers other stresses on whales (for example, ship strikes and water pollution) and the measures underway to address these stresses.
- Many ALWTRT participants have voiced dissatisfaction with the DAM program requirements. Removal of gear from designated areas can pose significant costs and safety issues for fishermen. The ALWTRP revisions evaluated in this DEIS call for removal of the DAM provisions and greater reliance on broad-based gear modifications for whale protection. Similarly, some groups also have been critical of the SAM program; several of the alternatives considered in this DEIS eliminate and/or modify SAM requirements.
- Specification of areas and times during which ALWTRP requirements are in effect is a major issue of concern. Because whales exhibit regular behavioral patterns (e.g., migration, feeding), the ALWTRP seeks to maximize its effectiveness by designating requirements tailored by region and season. Development of these spatial and temporal requirements

involves integration of complex technical input from NMFS researchers and other experts. This DEIS examines regulatory alternatives that introduce new exempted areas, seasonal restrictions, and other provisions that incorporate information about whale movements and behavior, although much of this information is subject to uncertainty.

- The fishing industry is concerned that possible interactions between large whales and Canadian fishing gear are not being adequately addressed and that the U.S. fishing industry is bearing the entire regulatory burden by being held responsible for all large whale entanglements. Although the measures under consideration in this DEIS are designed to address entanglement risks posed by fisheries in U.S. waters, NMFS recognizes that large whales face entanglement risks throughout their range. Accordingly, NMFS will continue to work with the Canadian government to develop similar protective measures for large whales in Canadian waters.
- Members of the ALWTRT have expressed concerns associated with using sinking/neutrally buoyant groundline on rocky bottoms, in particular rope abrasion, potential gear loss, and lack of scientific data regarding large whale foraging behavior along the east coast. The alternatives considered but rejected section (3.2) explains the need for further research and discussions related to large whale distribution and behavior, as well as the operational feasibility of low profile line.
- A final area of controversy has been the rate at which new requirements (particularly those for sinking and/or neutrally buoyant groundline) are phased in. In general, conservationists and NMFS have recommended a more rapid phase-in, while fishing interests have recommended a longer phase-in. The alternatives considered in this DEIS seek to balance these recommendations.

Other areas of controversy will be addressed consistent with comments on the DEIS.

## 1.5 REPORT STRUCTURE

The remainder of this DEIS is organized as follows:

- **Chapter 2** reviews the entanglement problem and discusses the current ALWTRP requirements.
- **Chapter 3** describes the proposed alternatives for modifying the ALWTRP.

- **Chapter 4** examines the affected environment, focusing on the status of Atlantic large whales and the basic features of the regulated fisheries.
- **Chapter 5** analyzes the biological impacts of the alternatives.
- **Chapter 6** analyzes the economic impacts of the alternatives.
- **Chapter 7** analyzes the social impacts of the alternatives.
- **Chapter 8** reviews and summarizes the findings of the biological, economic, and social impact analyses.
- **Chapter 9** examines the cumulative impacts of the alternatives.
- **Chapter 10** provides the Regulatory Impact Review (RIR) as required by Executive Order 12866, which includes an analysis as to whether the proposed regulations will have a significant economic impact on a substantial number of small entities.
- **Chapter 11** provides the Initial Regulatory Flexibility Analysis, which is in Compliance with the Regulatory Flexibility Act of 1980. The purpose of this analysis is to reduce the impacts of burdensome regulations and record-keeping requirements on small businesses.

## 1.6 REFERENCES

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