5 REGULATORY IMPACT REVIEW

5.1 Introduction and Background

The Regulatory Impact Review/Regulatory Impact Assessment (RIR/RIA) provides an assessment of the costs and benefits of this proposed action (Alternative 6) and other alternatives in accordance with Executive Order 12866 and its guidelines established in OMB Circular A-4. Executive Order 12866 states:

> Federal agencies should promulgate only such regulations as are required by law, are necessary to interpret the law, or are made necessary by compelling public need, such as material failures of private markets to protect or improve the health and safety of the public, the environment, or the well-being of the American people. In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

The statement of purpose and need for the proposed action is as follows:

The purpose of the proposed action is to reduce the occurrence and severity of vessel collisions with North Atlantic right whales, thereby contributing to the recovery and sustainability of the species while minimizing adverse effects on the shipping industry and maritime commerce.

NMFS has authority under both the ESA and the MMPA to protect the endangered North Atlantic right whale. Although various measures to reduce ship strikes (described in Section 1.2.1) have been in place for several years, these measures have not significantly reduced the number of vessel collisions with right whales. A continued lack of recovery, and possibly extinction, will occur if deaths from ship strikes are not reduced. Therefore, additional action is needed for NMFS to fulfill its responsibility. Collision with vessels is the primary anthropogenic cause of serious injuries and deaths to right whales. Therefore, NMFS is proposing to reduce this threat by taking the regulatory approach expected to be most effective at facilitating population recovery. The proposed vessel operational measures would impose regulatory speed restrictions and provide for nonregulatory routing measures on specific vessel classes to reduce the ship strike threat to right whales without imposing undue economic burdens on the shipping industry. The combination of speed restrictions and reducing the co-occurrence of right whales and vessel traffic is expected to be an effective means to reduce the number and severity of ship strikes and promote population growth and recovery.

The RIR/RIA also serves as a basis for determining whether a proposed action is a "significant regulatory action" under the criteria provided in Executive Order 12866. This RIR/RIA summarizes the effects of the proposed action (Alternative 6) and other alternatives that NMFS is considering to reduce right whale ship strikes and to aid in the recovery of the right whale population. Multiple chapters of the Final EIS (FEIS) and economic analysis contain all the elements of the RIR/RIA, and the relevant sections are referenced.

5.2 List of Alternatives Considered

Chapter 2 of the FEIS contains more detailed information on the operational measures considered and the alternatives evaluated. The operational measures are described in Section 2.1. Alternatives are described in Section 2.2. The alternatives are listed here for reference throughout the remainder of this RIR/RIA.

- Alternative 1: No Action Alternative
- Alternative 2: Mandatory Dynamic Management Areas (DMAs)
- Alternative 3: Speed Restrictions in Designated Areas
- Alternative 4: Recommended Shipping Routes
- Alternative 5: Combination of Alternatives
- Alternative 6: Proposed Action (Preferred Alternative)

Alternatives 5 and 6 differ in that the designated areas included in Alternative 5 are generally larger and the restrictions in force for longer time periods than those in Alternative 6. The measures would apply only to vessels 65 ft (19.8 m) long and more (see Section 1.4 for exceptions).

5.3 Benefits and Impacts of Management Alternatives

5.3.1 Description of Benefits

The benefits of reducing the risk of right whale mortality caused by ship strikes are expected to be considerable. Because ship strikes are the leading anthropogenic cause of right whale mortalities (Section 1.1.2), adopting measures to reduce the incidences of ship strikes will aid in the recovery of this highly endangered species. However, monetary estimates of these benefits are currently unavailable; therefore, the discussion of these benefits specific to right whales is qualitative.

The full range of values of right whale recovery includes use values and nonuse values. Use values include those values associated with whale-watching trips or other viewing opportunities. Nonuse values include those values placed on knowing that right whales remain for future generations (bequest value) and values placed on knowing that right whales will continue to survive (existence value).

While each of the action alternatives – Alternatives 2, 3, 4, 5, and 6 – are expected to result in a reduction in the number of North Atlantic right whale "takes" under the ESA and the MMPA, the positive, long-term effects on the right whale population would vary depending upon the alternative. The benefits will be described briefly in this RIR/RIA; Section 4.1 describes the benefits of adopting each of these alternatives in greater detail.

Alternative 1, the No Action Alternative, would have significant, direct, long-term negative effects on the right whale population because no additional measures would be taken to reduce the incidences of ship strikes. Alternative 2 would have a positive effect on right whale population since it would lower the potential for ship strikes. However, it would provide only a temporary measure, triggered when right whales are sighted in aggregations of three or more (Clapham and Pace, 2001). Furthermore, the ability to detect the presence of right whales for triggering a DMA is limited. This measure, by itself, may not be sufficient to prevent the significant number of deaths per year necessary to help the right whale population to recover. Alternative 3 would also lower the potential for ship strikes resulting in injury and death, by requiring vessels to slow down to 10 knots in predetermined, designated areas defined based on the right whale's behavioral and migratory patterns. Alternative 4 would lower the potential for ship strikes through the use of recommended shipping routes to reduce the likelihood of overlap of ships and right whales, but does not call for a reduction of vessel speed. The benefits to right whales would only be seen in the Northeast and Southeast, since the mid-Atlantic ports would not contain recommended routes. Therefore, among the action alternatives, Alternative 4 appears to be the alternative that would contribute the least to the goal of right whale recovery. Alternative 5 would be the most beneficial to the goal of right whale recovery among the action alternatives. Alternative 5 contains DMAs, speed restrictions in designated areas, and recommended shipping routes – a combination of the measures of Alternatives 1, 2, 3, and 4 – and, therefore, it would address a wider variety of scenarios in which ship strikes may occur than would each of the single-measure alternatives which it incorporates. Alternative 6, the proposed action and preferred alternative, would also be highly beneficial to the recovery of the right whale population as it also is designed to address the various ship strike scenarios that might occur. However, because the seasonal management areas included in Alternative 6 would be in place for a shorter span of time than under Alternative 5, and because the Alternative 6 measure would expire five years from their date of effectiveness, Alternative 6 would not be as beneficial to the recovery of the right whale population as Alternative 5. However, it would be more beneficial to the recovery goal than Alternatives 2 or 4. It is not clear whether Alternative 6 would provide greater conservation benefit than Alternative 3, since Alternative 3 consists of seasonal management areas that are generally larger in size than those of Alternative 6, but does not include DMAs. On the other hand, while the DMAs do add conservation value to Alternative 6, due to the voluntary nature of DMAs in Alternative 6 the extent to which they would benefit the conservation of right whales depends on the degree of compliance.

5.3.2 Description of Affected Parties and Types of Impacts

The RIR/RIA reports the results of the economic analysis performed in support of this proposed action. The economic analysis, which will be publicly available online at *http://www.nmfs.noaa.gov/pr/* and through other channels, provides greater detail on the methodology used to produce the estimates. The analysis uses the most recently available data on vessel activities to predict impacts to commercial shipping vessels, commercial fishing vessels, charter fishing vessels, passenger ferries, and whale-watching vessels traveling in the North Atlantic that are 65 ft (19.8 m) or greater in overall length.

Commercial shipping vessels arriving at one or more of 26 East Coast port areas were categorized into eleven vessel types: bulk carriers, combination carriers, containerships, freight barges, general cargo vessels, passenger vessels, refrigerated cargo vessels, ro-ro cargo vessels, tank barges, tank ships, and towing vessels. The economic impacts to the commercial shipping industry include direct and indirect impacts.[1] The direct impacts include costs due to vessels slowing down or rerouting in compliance with the proposed actions as well as additional costs borne by vessels making multi-port calls along the eastern seaboard and/or participating in coastwise cabotage service. The indirect economic impacts include port-specific impacts due to ship traffic diverting to other ports.

5.3.2.1 Direct Impacts to Commercial Shipping Industry

The direct impacts from multi-port calls were also evaluated in response to concerns raised by shipping industry representatives and port officials during stakeholder meetings regarding the aggregate effects of the proposed vessel operational measures and alternative actions on vessels calling at multiple US East Coast ports during restricted periods. The economic analysis addresses these costs by identifying which vessel arrivals at each port area were part of a multi-port string during proposed restricted periods and estimating the additional direct economic impact on the shipping industry.

Other direct costs to the shipping industry are expected to result from the rerouting of coastwise shipping, in particular, southbound shipping. In recent years, attention has been focused on the further development of coastwise shipping (also referred to as short-sea shipping) as a means of reducing highway congestion on the eastern seaboard. However, for commercial and navigational purposes, it appears unlikely that the speed restriction would significantly affect coastwise shipping. Northbound vessels prefer to use the Gulf Stream further offshore. Southbound traffic travels closer to the US East Coast – generally, within 7 to 10 nm (13 to 19 km) of the shoreline. However, during the proposed seasonal management periods, southbound vessels are likely to route outside of seasonal speed-restricted areas, incurring an overall increase in distance (and costs). This affects southbound vessels between the entrance to the Chesapeake Bay and Port Canaveral.

[1] Data from various sources were used to best capture current vessels' arrival activities at various East Coast ports. These included the US Coast Guard (USCG)'s vessel arrivals database, the US Department of Transportation's National Ferry Database, NMFS' data on commercial fishery landings, and Hoyt, Erich, Whale Watching 2000: Worldwide Tourism Numbers, Expenditures and Expanding Socioeconomic Benefits, 2000.

5.3.2.2 Indirect Impacts to Commercial Shipping Industry

Indirect economic impacts of the proposed operational measures include costs from diverting ship traffic to other ports. Many of these potential costs were identified by port authorities, shipping industry representatives, and community leaders during the public stakeholder meetings. Potential indirect economic impacts include diversion of traffic to other ports; increased intermodal costs due to missed rail and truck connections; and the impact on local economies of decreased income from port-specific job losses that may occur due to ship traffic diverting to other ports.

5.3.2.3 Impacts to Other Commercial Operations

While the commercial shipping industry is predicted to incur the greatest impact from the proposed action and the action alternatives, other industries are expected to be affected as well. The following briefly describes ways in which these other operations may also be affected by the proposed action and alternatives.

Commercial fishing vessels may be affected, depending on normal operating speed. Many commercial fishing vessels steam to/from fishing areas at speeds of 10 knots or below and would not be affected by the proposed measures. Those that operate at speeds exceeding 10 knots would be affected by the proposed speed restriction of 10 knots.

In terms of the charter fishing industry, only a small segment of the industry referred to as headboats is expected to be affected.[2] This segment of the charter fishing industry often uses vessels measuring 80 ft (24.4 m) in length or greater that can accommodate 60 to 100 passengers. These vessels travel up to 50 nm (93 km) offshore, then stop and anchor in locations that attract a particular species of fish. An increase in roundtrip steaming time of approximately 100 minutes would reduce the competitiveness of the larger headboats relative to smaller vessels, but it is expected that vessels less than 65 ft (19.8 m) in overall length would increase their share of the market.

Passenger ferries operating along the Atlantic coast generally sail landward of the COLREGS demarcation lines described in Section 2.1.2.2 and as such will not be affected by the proposed operational measures of any of the alternatives considered in this RIR/RIA. However, in the southern New England area, there is a well-developed passenger ferry sector that operates seaward of the COLREGS line and hence is subject to the proposed operational measures. Passenger ferry operations in southern New England generally fall into two categories – fast-ferry service, with vessel speeds ranging from 24 to 39 knots, and regular ferry service, with vessel speeds of from 12 to 16 knots. These ferry operations would be affected by the proposed speed restriction of 10 knots. Additional impacts are borne by the passengers themselves due to the increased travel time.

The whale-watching industry can also be categorized into operations that deploy high-speed vessels, with speeds ranging from 25 to 38 knots, and operations that deploy regular-speed

[2] The vast majority consists of modern and well-equipped fishing boats of less than 65 ft (19.8 m) length overall (LOA) and thus would not be subject to the speed restrictions or other operational measures.

vessels, with speeds of from 16 to 20 knots. A survey of whale-watching operators in New England indicated that the majority of whale-watching vessels are 65 ft (19.8 m) or greater in length. Therefore, the majority of operators would be affected by the operational measures.

Table 5-1 lists the estimated economic impacts by industry for each action alternative; it includes economic impacts at the proposed 10-knot speed restriction, and, because NMFS invited comments on a 12-knot and 14-knot speed restriction in the proposed rule, the impacts of these higher speed restrictions as well. The following sections summarize the estimated economic impacts of the proposed action and alternatives. The economic impacts are estimated using 2004 vessel data unless otherwise indicated.

5.3.3 Alternative 1: No Action Alternative

Under this alternative, NMFS would continue to implement existing measures and programs – largely nonregulatory – to reduce the likelihood of mortality from ship strikes. Alternative 1 does not include any new operational measures that would affect the shipping industry and hence there is no direct or indirect economic impact associated with this alternative.

5.3.4 Alternative 2: Mandatory Dynamic Management Areas

Alternative 2 would directly affect the commercial-shipping, passenger-ferry and whale-watching industries.[3] The estimated impacts are as follows.

5.3.4.1 Estimated Direct Economic Impact

Shipping Industry

In all regions, mariners would have the option of either routing around the DMA or proceeding through it at a restricted speed. The direct impact of a DMA on vessel operations is the increased time required to transit through the DMA at the restricted speed. A DMA triggered by a sighting of a group of three whales would have a diameter of 39.6 nm (73.3 km). For a vessel with an average operating speed of 10 knots, it would normally be able to traverse the 39.6 nm (73.3 km) of a DMA in 238 minutes, or nearly four hours. In addition, the vessel will need time to slow to the restricted speed prior to entering the DMA and to speed up again after leaving the DMA. Some faster-moving vessels may opt to save time by routing around the DMA to continue traveling at the higher speed, rather than slowing down to 10 knots and then speeding up again.

[3] It is assumed that similar restrictions on commercial fishing activities would have been triggered by operational measures under the existing Atlantic Large Whale Take Reduction Plan (ALWTRP) and therefore, that commercial fishing would not face additional impacts from DMAs under Alternatives 2, 3, 5 or 6.

Table 5-1
Total Direct and Indirect Economic Costs by Alternative and Restriction Speed, 2004 ($000s)

	Action Alternative												
	2			3			4	5			6		
	Speed Restriction (knots)												
	10	12	14	10	12	14	10, 12, or 14	10	12	14	10	12	14
Direct Economic Impact													
Shipping industry vessels	27,578.8	17,700.7	10,781.8	142,476.8	89,229.6	52,530.3	2,790.6	147,171.3	92,772.0	55,237.8	57,569.2	36,050.4	21,544.6
Cumulative effect of multi-port strings				11,932.6	9,904.1	8,352.8		11,932.6	9,904.1	8,352.8	9,411.5	7811.5	6,588.1
Rerouting of southbound Coastwise shipping				7,600.0	7,600.0	7,600.0		7,600.0	7,600.0	7,600.0	3,400.0	3,400.0	3,400.0
Commercial fishing vessels				1,724.0				1,724.0			1,310.2		
Charter fishing vessels				1,000.0	597.6	298.8		1,000.0	597.6	298.8	796.0	480.0	240.0
Passenger ferries	8,078.0	6,111.3	4,144.7	13,028.0	11,061.3	8,308.0		13,028.0	11,061.3	8,308.0	8,608.9	6,567.2	4,563.0
Ferry passengers	4,512.4	3,376.5	2,271.5	12,027.2	8,892.9	5,479.6		12,027.2	8,892.9	5,479.6	5,190.8	3,868.7	2,556.0
Whale-watching vessels	1,335.6	919.6	711.6	5,616.0	3,120.0	1,872.0		5,616.0	3,120.0	1,872.0	1,335.6	919.6	711.6
Subtotal direct economic impact	**41,504.8**	**28,108.1**	**17,909.6**	**195,404.6**	**130,405.4**	**84,441.6**	**2,790.6**	**200,099.1**	**133,947.9**	**87,149.0**	**87,622.2**	**59,097.4**	**39,603.2**
Indirect Economic Impact													
Port diversions				**139,406.0**	**79,603.0**	**37,251.0**		**159,582.0**	**89,308.4**	**46,956.0**	**49,695.0**	**18,280.0**	**5,355.0**
Total economic impact	**41,504.8**	**28,108.1**	**17,909.6**	**334,810.6**	**210,008.4**	**121,692.6**	**2,790.6**	**359,681.1**	**223,256.3**	**134,105.4**	**137,317.2**	**77,377.4**	**44,958.2**

The total direct economic impact to the shipping industry of DMAs implemented at a 10-knot speed restriction under Alternative 2, using 2004 data on vessel arrivals and departures, is estimated at $27.6 million. Of the affected ports, the port area of Savannah is estimated to experience the highest impact ($7.3 million), followed by the port areas of Port Canaveral ($4.6 million), Jacksonville ($3.5 million), and New York/New Jersey ($3.1 million). The direct economic impact for these four port areas is expected to be about $18.5 million, or 67 percent of the total impacts among all ports for this alternative. No additional direct impacts from multi-port strings or rerouting of southbound coastwise shipping are expected, nor are indirect impacts due to port diversions expected.

Passenger Ferries

Interviews with passenger ferry operators identified their particular concern as a situation in which a DMA would be implemented in a ferry's customary route in New England waters during the peak summer season. For fast-ferry operators, a DMA implemented directly along their route would result in the suspension of service for the entire period the DMA is in effect. There are several reasons for this conclusion. First, the demand for fast ferries – those that normally operate at speeds of between 24 and 39 knots would virtually disappear if the ferries were restricted to 10 knots. Second, any remaining demand would not be sufficient to cover vessel operating costs. Third, many handling and comfort characteristics of fast ferries would suffer at reduced speeds.

The net economic loss of the implementation of a single DMA is estimated to be $2.2 million for the eleven fast-ferry operators in New England.[4] This is based on a daily operating cost of a fast-ferry vessel of $13,320 excluding fuel costs. Some operators have stated that the loss of income and profits from a single 15-day DMA during peak season would cause them to go out of business. However, many of the fast-ferry operators who also operate regular ferries would be able to remain in business with the increase in demand for regular ferries from passengers that would have otherwise used the fast ferry service.[5]

DMAs would also potentially affect operators of regular ferry services if the DMAs were implemented along their customary route. For these operators, it is assumed that a speed restriction of 10 knots would cause an average delay of 30 minutes for each ferry trip. The 118 daily trips of regular ferry services would incur total additional costs of $5.9 million for the duration of a single DMA. Therefore the total economic impact on regular and fast speed passenger ferries for 2004 is estimate to be $8.1 million.

[4] This same estimate applies to restricted speeds of 10, 12 and 14 knots, as it is assumed that fast-ferry service would be temporarily suspended under any of those speeds.

[5] It is very difficult to estimate the portion of passenger demand that would be lost to cancellation of ferry travel plans during a DMA. Relevant factors include the purpose of the trip, the availability of alternative ferry origins that may not be affected by the DMA, the availability of other economically viable transport modes, and competing entertainment options.

Ferry Passengers

The estimated economic impact to fast ferry passengers of implementing Alternative 2 at 10 knots is estimated at $3.2 million. This is based on an assumed average of 90 passengers per trip incurring a delay of 1.6 hours for 92 fast ferry trips per day over 15 days and an hourly value of passenger time of $16.21. The value of time lost due to travel delays for passengers of regular ferries is estimated to be $1.3 million. This is based on the average delay of 30 minutes for 90 passengers on 118 daily trips over the 15 days of the DMA. Total impact is $4.5 million.

Whale-Watching Vessels

Under Alternative 2, the high-speed whale-watching vessels are likely to suspend operations during periods when DMAs are implemented along their route. The estimated economic impact of the suspension of five high-speed whale-watching vessels for a single 15-day DMA is $0.4 million.[6] For regular-speed whale-watching vessels, the estimated economic impact at 10 knots is $0.9 million for 13 vessels facing delays in both directions for two trips daily. Therefore, the total economic impact is $1.3 million.

5.3.5 Alternative 3: Speed Restrictions in Designated Areas

Alternative 3 is expected to impact all industries.

5.3.5.1 Estimated Direct Economic Impact

Shipping Industry

The total direct economic impact to the shipping industry due to speed restrictions in designated areas for all vessels 65 ft (19.8 m) or greater in overall length is estimated to be $142.5 million. The port area of New York/New Jersey is expected to experience the largest impact, at $39.1 million, followed by the port area of Hampton Roads, at $25.3 million.

Multi-Port Calls

As described in Section 3.4, vessels calling in at least two ports with speed restrictions bear additional impacts for a variety of reasons spelled out in the economic analysis provided along with the FEIS. SMAs included in Alternative 3 are much larger in size and encompass multiple ports simultaneously, compared with single DMAs implemented under Alternative 2. Therefore, vessels making multi-port calls will be affected under Alternative 3, whereas they would not be affected under Alternative 2. Seasonal speed restrictions under Alternative 3 include speed restrictions year-round in the Northeastern US; from October 1 through April 30 for the mid-Atlantic region; and from November 15 through April 15 for the Southeastern US.

[6] Calculated at $13,320 daily operating costs excluding fuel times 15 days for five vessels.

The analysis assumes an average additional delay of 36 minutes for each vessel arrival as part of a multi-port string to account for the various additional impacts that may occur. The economic value of this additional time has been calculated for each port area based on 2006 vessel operating costs by type and size of vessel. Additional direct economic impact of multi-port strings on the shipping industry is estimated at $11.9 million for the proposed 10-knot speed restriction.

Rerouting of Southbound Coastwise Shipping

The proposed speed restrictions included in Alternative 3 are expected to result in rerouting of southbound coastwise shipping. Speed restrictions would be in effect for a distance of 25 nm (46 km) from the entire mid-Atlantic coastline. Containerships and ro-ro cargo ships would be most affected by proposed speed restrictions. In 2003, there were 4,142 containership and ro-ro cargo ship arrivals into US East Coast port areas from Baltimore through Port Canaveral during the time when seasonal speed restrictions would be in place. Assuming half of these calls were southbound, and that the typical vessel made calls at three US East Coast ports per service, there would be about 690 southbound vessels that may choose to route outside of the seasonal speed-restricted areas rather than proceed through the restricted areas at a slower speed. Based on an increase in routing of 108 nm (200 km)[7] and an average operating speed of 20 knots, a containership would have an increased sailing time of 5.4 hours. Using an average hourly operating cost at sea of $2,000, the estimated economic impact for each southbound vessel would be $10,800. The additional economic impact for containerships for coastwise shipping under Alternative 3 is estimated at $7.5 million.

Commercial Fishing Vessels

Had the proposed seasonal speed restrictions under Alternative 3 been in place in 2003, the impact on commercial fishing vessels is estimated to be $1.1 million for the Northeast region and $580,000 for the Southeast region, for a total impact of $1.7 million.

Charter Fishing Vessels

The annual economic impact of Alternative 3 on charter fishing vessels is estimated at $1 million.

Passenger Ferries

The two fast-ferry operations from Boston to Provincetown would cease and be replaced by regular ferry service. However, overall ferry demand would diminish as passengers curtail day trips or seek alternative transport modes. It is assumed that the fast-ferry operators would either sell their vessels or deploy them on other routes. While a loss for the distressed sale of the vessels may be incurred, this would not represent a recurring annual economic impact and is not included in this assessment.

[7] The vessels are assumed to sail at a distance of 25 nm (46 km) offshore instead of 8 nm (15 km). Based on a diagonal routing to the further offshore sailing route, an additional distance of 27 nm (50 km) is assumed per arrival and departure at the intermediate port calls.

The proposed speed restrictions for Block Island Sound are outside the peak summer season. Hence, it is assumed that the nine fast-ferry operators in this area would lose an average of 30 business days per year. The economic impact of suspending fast-ferry operations for these 30 days for these nine operators is estimated to be $7.1 million annually.

Regular ferries will incur average delays of approximately 30 minutes per trip with a speed restriction of 10 knots. As the restrictions are during the off-peak season for Block Island Sound, these delays can be absorbed in the more open ferry schedule without losing any round-trip daily service. The estimated incremental delay costs for regular-speed ferries are estimated to be about $5.9 million annually at 10 knots. The total impact of both fast- and regular- speed ferries is $13 million.

Ferry Passengers

In terms of economic impacts to ferry passengers, it is assumed that the nine fast ferry operators in the Block Island Sound area would suspend operations for 30 days per year and their passengers would divert to regular ferries. The two fast ferry operations from Boston to Provincetown would cease and be replaced by regular ferry service. The value to passengers of time lost due to travel delays is estimated to be $6.9 million. For regular speed ferries, the impact is similar to that described for Alternative 2, except that regular ferry operations are assumed to be affected for 60 days per year. The resulting economic impact on regular ferry passengers is estimated at $5.2 million. The total economic impact for ferry passengers is estimated to be $12 million.

Whale-Watching Vessels

Under Alternative 3, the year-round speed restrictions in the Northeast region and Cape Cod Bay would likely render the operation of high-speed whale-watching vessels unprofitable, causing these vessels to cease operation. As this would not be a recurring economic cost, any loss associated with the sale of vessels is not included in this economic assessment. It is very likely that regular-speed whale-watching vessels would be put into service in their place. However, demand for whale watching from locations such as Boston would diminish, as the additional time required to reach whale feeding areas would discourage some passengers. It is possible some of this demand would divert to other whale-watching operations located closer to the feeding areas.

Regular-speed whale-watching vessels would be subject to the year-round speed restrictions extending 25 nm (46 km) from the Northeast region coastline and in Cape Cod Bay. It is assumed that at 10 knots, the 13 regular-speed vessels would incur a 54-minute delay each way for two round-trips daily during a 90-day summer whale-watching period. Annual economic impacts to the whale-watching industry are estimated to be $5.6 million under the 10-knot speed restriction.

5.3.5.2 Indirect Economic Impacts of Port Diversions

Under Alternative 3, year-round speed restrictions would be established for a large area east of Massachusetts Bay and would extend through the Great South Channel critical habitat area. This speed-restricted area would significantly affect vessel traffic in the Northeast region. The delay for a containership arrival into Boston would average 149 minutes, with an additional 149 minutes delay for departure. A recurring delay of nearly five hours per call year-round would be sufficient for shippers and vessel operators to consider alternative ports, such as Halifax or Montreal, which would not be affected by this alternative action. Similarly, ports in which speed restrictions are in place for a longer duration than for other nearby ports will face diversion of vessel traffic. The indirect economic impact of port diversions is estimated to be $139.4 million at the 10-knot speed restriction.

5.3.6 Alternative 4: Recommended Shipping Routes

Alternative 4 is anticipated to impact only the commercial shipping industry.

5.3.6.1 Estimated Direct Economic Impact

The direct economic impact of the use of recommended routes implemented under Alternative 4 on the shipping industry is estimated to be about $2.8 million annually. The port area of Jacksonville is expected to experience the largest impact, at $2.3 million. The two other port areas affected under this alternative, Brunswick and Fernandina, are expected to experience economic impacts of $253,000 and $266,300 respectively.

5.3.6.2 Indirect Economic Impacts of Port Diversions

Under Alternative 4, the port areas of Brunswick and Fernandina would experience delays due to the increased distance associated with the use of recommended routes. Because of these delays, it is assumed that five percent of the containership and ro-ro cargo ship calls at these two port areas would divert to the port area of Savannah, for which no operational measures have been proposed. Some passenger cruise vessels are likely to divert to Port Canaveral for that same reason. While Alternative 4 would result in port-specific impacts, the economic impacts to the nation as a whole are expected to be negligible, since the diverted vessel calls at the Southeastern port areas of Brunswick, Fernandina and Jacksonville would be offset by the gains in vessels calling at the port areas of Savannah and Port Canaveral.

5.3.7 Alternative 5: Combination of Alternatives

Alternative 5 is expected to impact all of the industries described in Section 3.2. Because this alternative incorporates elements of Alternatives 1, 2, 3, and 4, discussion of the impacts has already been provided in greater detail earlier, and will not be repeated in this section.

5.3.7.1 Estimated Direct Economic Impact

Shipping Industry

The total direct economic impact of Alternative 5 to the shipping industry at the 10-knot speed restriction is estimated to be $147.2 million.

Multi-Port Calls

Vessels calling at two or more ports for which seasonal speed restrictions are in force face an additional source of impacts as part of Alternative 5; these impacts were described in detail in Alternative 3. The additional direct economic impact of multi-port strings on the shipping industry is estimated to be $11.9 million for the proposed 10-knot speed restriction.

Rerouting of Southbound Coastwise Shipping

As is the case for multi-port calls, the speed restriction in designated areas that is part of Alternative 5 is the primary cause of the re-routing of coastwise vessels and was described in greater detail in Alternative 3. This annual impact is estimated to be $7.6 million for the 10-knot speed restriction.

Commercial Fishing Vessels

As with Alternative 3, a speed restriction of 10 knots has an estimated impact on commercial fishing vessels of approximately $1.1 million for the Northeast region and $580,000 for the Southeast region, for a total impact of $1.7 million.

Charter Fishing Vessels

As with Alternative 3, a seasonal speed restriction is estimated to have an annual economic impact of $1 million on charter fishing vessels.

Passenger Ferries

The economic impacts to passenger ferries are comparable to those of Alternative 3, and are estimated to be approximately $13 million.

Ferry Passengers

Impacts to passengers of both fast ferries and regular speed ferries are an estimated $12 million.

Whale-Watching Vessels

As is the case for Alternative 3, regular-speed whale-watching vessels would be subject to the year-round speed restrictions extending 25 nm (46 km) from the Northeast region coastline and in Cape Cod Bay. It is assumed that at 10 knots, the 13 regular-speed vessels would incur a 54-minute delay each way for two round-trips daily during a 90-day summer whale-watching period. The estimated economic impact to regular-speed whale-watching vessels is $5.6 million annually.

5.3.7.2 Indirect Economic Impacts of Port Diversions

Under Alternative 5, the rates of diversion for the affected port areas in the Northeast and mid-Atlantic regions are similar to those under Alternative 3, except that the additional impact of DMAs and the use of recommended routes are assumed to increase the rate of diversion slightly. The indirect economic impact of port diversions is expected to be $159.6 million.

5.3.8 Alternative 6 – Proposed Action (Preferred Alternative)

Alternative 6, the proposed action, is expected to impact all of the industries described in Section 3.2. Because this alternative incorporates elements of Alternatives 1, 2, and 4, the detailed discussions of the impacts that were provided earlier will not be repeated in this section. The SMAs proposed under Alternative 6 are generally of shorter duration than those proposed under Alternative 3 and 5, with the exception of the port areas located in the Southeast (Brunswick, GA, Fernandina, FL, Jacksonville, FL, and Port Canaveral, FL). The major difference in the implementation of DMAs under Alternatives 2 and 5 and the implementation of DMAs under Alternative 6 is that under Alternative 6, compliance with speed restrictions for DMAs is voluntary. The estimates for the economic impacts under Alternative 6 are based on the assumption of 100-percent voluntary compliance for the DMAs, which will overstate impacts if there is less than full compliance with this measure. The operational measures proposed under Alternative 6 would expire five years after their date of effectiveness. The economic impacts described here are those that are likely to occur each year that the rule is in effect.

5.3.8.1 Estimated Direct Economic Impact

Shipping Industry

Direct annual economic impact to commercial shipping is estimated at $57.6 million at the 10-knot speed restriction. The following port areas may expect the greatest impact: New York/New Jersey ($11.8 million), Hampton Roads, VA ($8.6 million), Jacksonville, FL ($6.7 million), Savannah, GA ($5.4 million) and Charleston, SC ($5.0 million).

Multi-port Calls

The speed restriction in designated areas as part of Alternative 5 leads to additional impacts to vessels calling at two or more restricted ports. The sources of impacts were described more fully in Alternative 3. However, under Alternative 6, the extent of the impact is lower, given that speed restrictions are in place for a smaller portion of the year in most port areas relative to Alternatives 3 and 5. The 2004 vessel arrival database indicates the total number of multi-port-string restricted arrivals to be 5,147. The additional direct economic impact of multi-port strings on the shipping industry due to the 10-knot speed restriction is estimated at $9.4 million.

Rerouting of Southbound Coastwise Shipping

For Alternative 6, the proposed speed restrictions in the mid-Atlantic region would be implemented for a 20 nm (37 km) buffer zone radiating out from each port area north of Wilmington, NC, except for the 30-nm (56-km) rectangular SMA offshore of Block Island Sound. A continuous 20 nm (37 km) buffer would be implemented from Wilmington, NC through Savannah, GA to the northern boundary of the Southeast SMA. The additional distance incurred by southbound vessels would be 56 nm (104 km).[8] The 2003 vessel traffic database indicated that 3,688 containerships and ro-ro cargo ships would have traveled through speed-restricted US East Coast port areas ranging from Baltimore, MD through Port Canaveral, FL had the restrictions been in place. Assuming half of these calls were southbound and that the typical vessel made calls at three US East Coast ports per service, there would have been about 615 southbound vessels that were likely to route outside of the seasonal speed-restricted areas rather than proceed through the restricted areas at a lower speed. Based on an increase in routing of 56 nm (104 km) and an average operating speed of 20 knots, the containerships would have increased sailing time by 2.8 hours. Using an average hourly operating cost at sea of $2,000, the estimated economic impact for each southbound vessel would be $5,600. For 2003 and 2004, the additional economic impact for containerships for coastwise shipping under Alternative 6 is estimated at $3.4 million.

Commercial Fishing Vessels

Using 2003 data and an estimated average hourly operating cost of $300, the estimated impact at 10 knots on commercial fishing vessels under Alternative 6 is estimated to be $869,440 for the Northeast region and $440,800 for the Southeast region. The combined Northeast and Southeast regional economic impact of about $1.3 million is less than two-tenths of one percent of the US East Coast commercial fishery landings of $801 million in 2005.

Charter Fishing Vessels

It is estimated that the annual economic impact of a speed restriction of 10 knots for charter fishing vessels for Alternative 6 would be approximately $796,000.

Passenger Ferries

Under Alternative 6, speed restrictions for Cape Cod Bay are implemented from January 1 through May 15. As such, the fast-ferry service from Boston to Provincetown would remain in operation. Speed restrictions for Block Island Sound would be in force from November 1 through April 30. However, the speed-restricted area for Block Island Sound under Alternative 6

[8] Vessels calling at port areas with circular buffers will have to travel 20 nm (37 km) for a diagonal access to the port as compared to a normal distance of 10 nm (19 km) for the diagonal access. The extra distance of 10 nm (19 km) applies to each arrival and departure for a total additional distance of 20 nm (37 km). Vessels calling at port areas with a continuous buffer from the shoreline are assumed to have an additional distance of 18 nm (34 km) each way, for a total of 36 nm (67 km) for an arrival and departure. One intermediate call at each type of port area per string is assumed, for a total additional distance of 56 nm (104 km).

would not extend to the shoreline and would not impact fast-ferry operations.[9] DMAs would also be implemented under Alternative 6, and their economic impacts are estimated to be the same as they are under Alternative 2 above. The estimated economic impact on fast-ferry service under Alternative 6 is thus similar to Alternative 2, with an increment for speed restrictions on the Boston-Provincetown route from January 1 through May 15. The resulting estimated annual economic impact to high-speed ferries is $2.6 million.

For regular ferries, the economic impact for Alternative 6 is again similar to that for Alternative 2, with an increment for speed restrictions on the Boston-Provincetown route from January 1 through May 15. The estimated economic impact is $6.0 million for a 10-knot speed restriction. The combined impacts to the high-speed and regular-speed passenger ferries bring the total estimated economic impacts to $8.6 million, assuming 100 percent compliance with voluntary DMAs.

Ferry Passengers

Economic impact borne by regular-speed ferry passengers is similar to that described in Alternative 2 with an increment for speed restrictions for 30 daily trips on the Boston-Provincetown route over 15 days. The estimated economic impact on regular ferry passengers is $1.6 million. In terms of economic impacts to fast ferry passengers, the impact from the DMA component of Alternative 6 is similar to that described for Alternative 2. However, there is an additional impact of 15 days during early-May for the two fast ferries operating from Boston to Provincetown that together have 10 trips daily. The estimated economic impact on fast ferry passengers is estimated at $3.6 million. The total economic impact to ferry passengers is $5.2 million

Whale watching vessels

Under Alternative 6, speed restrictions for Cape Cod Bay are implemented from January 1 through May 15. Hence, the peak summer whale-watching season would not be affected for high-speed or regular-speed vessels. Similarly, the speed restrictions for the Off Race Point area proposed for March through April would not impact the whale-watching season. Accordingly, the economic impact of Alterative 6 is assumed to be the same as that of Alternative 2 due to the implementation of DMAs, for a total impact of $1.3 million, assuming 100 percent compliance with voluntary DMAs.

5.3.8.2 Indirect Economic Impacts of Port Diversions

Under Alternative 6, speed restrictions for both the Off Race Point area and the Great South Channel in the Northeast would be in effect during the months of March and April, causing many ships to route around this large area during that time.[10] The diversion is assumed to be 15

[9] The rectangular area proposed has its northern limits running approximately in a line from Montauk to the southwestern coast of Block Island.
[10] Speed restrictions will be in effect for other months in the Northeast region, but not for the large combined area encompassing Massachusetts Bay and the Great South Channel critical habitat area.

percent for containerships and ro-ro cargo ships during the restricted period.[11] For port areas in Block Island Sound, three percent of containerships and ro-ro cargo ships are assumed to divert to other port areas to avoid speed-restricted areas. For the affected mid-Atlantic ports, 1.5 percent of restricted-period containership and ro-ro cargo ship vessel calls are assumed to divert to other port areas.

Additional diversions away from the port area of Providence may also occur under Alternative 6. This port area has speed restrictions in effect for 181 days, as compared to 61 days for the port area of Boston. Therefore, 20 percent of the containership and ro-ro cargo ship restricted-period calls at Providence are assumed to divert to the nearby port area of Boston.

The Southeast ports of Brunswick and Fernandina are assumed to have three percent of their restricted-period arrivals of containerships and ro-ro cargo ships diverted to Savannah as the effect of the use of recommended routes creates additional delays relative to Savannah. Finally, 40 percent of the restricted-period cruise vessel calls at Jacksonville are assumed to divert to Port Canaveral, as that port would not be affected by speed restrictions or the use of recommended routes.

The indirect economic impact of port diversions is estimated to be $49.7 million for the 10-knot speed restriction. The largest negative indirect impacts are generated in the port areas of New York/New Jersey ($21.2 million), Jacksonville, FL ($15.5 million) and Hampton Roads, VA ($12.4 million). The following port areas are expected to experience a positive indirect economic impact: Port Canaveral, FL ($15.5 million) and Savannah, GA ($2.3 million).

5.4 Summary of Alternatives

This section summarizes the findings regarding the economic impact of the proposed operational measures and alternatives on US East Coast maritime activity. A tabulation of economic impacts by industry is provided in Table 5-1. Impacts for speed restrictions of 12 and 14 knots, as well as for 10 knots, are included in the table, as NMFS accepted comments on the 12- and 14-knot speed restrictions.

- Alternative 5 would have the largest estimated economic effect in terms of direct economic impact, indirect economic impact and total economic impact. Based upon the most recent available data (2004), the total economic impact of Alternative 5 at a speed restriction of 10 knots was estimated to be $360 million annually. The operational measure of speed restrictions year-round under Alternative 5 (and Alternative 3) would have substantial repercussions through the Northeast region port areas and the northern mid-Atlantic port areas. The combination of DMAs, recommended routes, and speed restrictions also contributes to the substantial total economic impact for Alternative 5.
- Alternative 3 would have the second-largest estimated annual economic impact, of $335 million annually with a speed restriction of 10 knots. The direct economic impact is

[11] For Alternative 6, speed restrictions are only in place for the months of March and April thus the 10 percent diversion only applies to vessel calls during those months.

estimated at $195 million annually while the indirect economic impact is estimated at $139 million annually.

- Alternative 6 –proposed action – would have the third-largest estimated total economic impact, at just over $137 million annually with a speed restriction of 10 knots. This is comprised of $88 million in direct economic impacts and $50 million in indirect economic impacts.
- Alternative 2 ranks fourth in terms of the largest estimated total economic impact, with an annual impact of $42 million for a speed restriction of 10 knots. This alternative would not have any indirect economic impact; vessel calls are unlikely to be diverted to Canadian ports.
- Alternative 4 would have the lowest estimated total economic impact, at $2.8 million annually. This alternative consists only of the use of recommended routes, and port areas that may incur negative indirect economic impacts were offset by port areas with gains.

5.5 Determination of Significant Regulatory Action

Executive Order 12866 defines a "significant regulatory action" as one that is likely to result in a rule that may:

1. Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local or tribal governments or communities;

2. Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

3. Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

4. Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Based upon the most recently available data, the annual direct and indirect economic impacts are estimated to be $137.3 million for the preferred alternative at the 10-knot speed restriction. This estimate is based on the following direct economic impacts: shipping industry vessels ($57.6 million), cumulative effect of multi-port strings ($9.4 million), rerouting of southbound coastwise shipping ($3.4 million), commercial fishing vessels ($1.3 million), charter fishing vessels ($0.8 million), passenger ferries ($8.6 million), ferry passengers ($5.2 million), whale-watching vessels ($1.3 million); it also includes the indirect economic impact of port diversions ($49.7 million). The estimated annual economic impact exceeds $100 million. Therefore, the proposed rule would be considered an economically significant regulatory action for the purposes of E.O. 12866.