

*Via Email*

February 3, 2012

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Dear Kate, Mary, Dave, and Barb,

The Atlantic Large Whale Take Reduction Team's conservation representatives, The Humane Society of the United States, Whale and Dolphin Conservation Society, Defenders of Wildlife, Center for Biological Diversity, the International Fund for Animal Welfare, and Caroline Good of Duke University, submit the attached proposals for seasonal closures, year-round gear marking, and additional risk reduction for the Southeast for your consideration in the forthcoming Take Reduction Plan NEPA process. We ask that NMFS and Industrial Economics (IEc) evaluate the risk reduction that would be inherent in adopting these proposals at the specified times and places. In addition, we provide the following comments on several issues raised during the TRT meeting, to supplement our September 12, 2011 scoping comments.

**A. NMFS Should Identify Legally Required Risk Reductions for the TRT and the Public**

At the outset, we are concerned with how NMFS structured the current scoping process. As you are aware, the MMPA requires that the Atlantic Large Whale TRP "shall include measures *the Secretary expects will reduce*, within 6 months of the plan's implementation, . . . mortality and serious injury to a level below the potential biological removal level." 16 U.S.C. § 1387(f)(5)(A). However, both in the TRT meetings and in public scoping, the agency did not indicate what level of risk reduction would be required to achieve this mandate (whether in terms of percent endline reduction, co-occurrence score, or any other measure). If a target had been established, the agency could then have evaluated proposals on the location and type of risk reduction measures on the basis of whether they are feasible and sufficient to reach that goal.

Instead, NMFS requested proposals on how to reduce vertical line risk generally, irrespective of any risk reduction target. Without such a target, the vertical line proposals that parties are currently developing may well be insufficient to meet the MMPA's mandate. This shortcoming has also made it impossible for TRT members to evaluate the effectiveness of these plans during the meeting, or for the public to engage in a meaningful way. Based on the most recent, final SAR, right whale serious injury and mortality is double PBR (serious injury and mortality is 0.8, while PBR is 0.4) and serious injury and mortality for humpbacks is nearly triple PBR (serious injury and mortality is 3.0, while PBR is 1.1).<sup>1</sup> As not all carcasses are detected or retrieved for necropsy, the SAR represents a minimal record of mortality and serious injury to these species. However, even these numbers suggest, at a minimum, a 50% reduction in risk may be necessary to sufficiently reduce serious injury and mortality for right whales. We wish to highlight that a 50% reduction in risk does not necessarily equate to 50% reduction in endlines. Nevertheless, the agency's rule must rationally explain why NMFS "expects" the endline reduction measures it proposes "will reduce, within 6 months of the plan's implementation," serious injury and mortality to below PBR. 16 U.S.C. § 1387(f)(5)(A).

Compounding this problem, when NMFS outlined its vertical line proposal at the January 2012 TRT meeting, which included a 38% endline reduction, that reduction level became a baseline for team member proposals. Nevertheless, it remains unclear whether this degree of endline reduction will reduce the number of serious injuries and mortalities to below PBR for either species. NMFS must clarify for the team and the public in its DEIS what level of risk reduction is required to formulate a legally sufficient plan.

## **B. NMFS Should Evaluate Risk Posed by Exemption Proposals**

As we expressed during the TRT meeting and in our scoping comments, we remain concerned about existing exemption lines in Maine, and our concerns are only heightened as other states are now requesting similar exemptions. During the January 2012 meeting, New Hampshire submitted a proposal for an exemption of state waters to the 3-mile line, and Massachusetts indicated it would consider requesting a similar exemption. Maine also initially requested expansion of its existing exemption area to the 3-mile line. Based on information presented at the meeting, it does not appear that these exemption requests are based on lack of risk in these areas, or sufficient risk reduction elsewhere. NMFS must undertake an evaluation of these factors as exemptions may be appropriate in limited areas only if ecologically justified.

Notably, in promulgating the sinking groundline rule currently in effect, NMFS refused to exempt state waters outside of Maine from regulation because those exemptions would not sufficiently protect whales. In the groundline rule, NMFS explained it had "received many reports throughout New England and the Mid-Atlantic detailing numerous sightings of large whales within 3 nautical miles (5.6 km) of shore. Therefore, *NMFS does not believe exemptions*

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<sup>1</sup> The most recent Draft 2011 SAR also finds comparable levels of serious injury and mortality to PBR. See Draft 2011 SAR (serious injury/mortality from fishing gear for right whales is 1.0, while PBR is 0.5; serious injury/mortality for humpbacks is 3.6, while PBR is 1.1). Further, in 2010 and 2011, years not yet accounted in any SAR, at least 2 right whales, 2 humpback whales, and one unknown whale have died due to entanglement in fishing gear.

*within the 3 nautical mile (5.6 km) line along the coast would provide adequate protection for large whales and is not appropriate . . .*” 72 Fed. Reg. 57104, 57124 (Oct. 5, 2007) (emphasis added). Further, NMFS explained that the very limited coastal exemptions it did propose were appropriate only because the exemptions did “not compromise the overall entanglement risk reduction strategy . . . as there ha[d] been *no reported sightings* of endangered whales in these areas.” 70 Fed. Reg. 35894, 35906 (June 21, 2005); *see also id.* (“large whales have not been reported in these areas”; sightings of endangered whales are “rare”). Similarly, NMFS should not allow new exemption areas in the vertical line rule unless sightings do not occur in the areas.

Finally, in evaluating the effect of any proposal under NEPA, the agency must fully consider all endlines and associated risks present in exempted areas. For example, in NMFS’s Powerpoint presentation of its proposal during the TRT meeting, the agency estimated that there are a total of 475,300 endlines in the Northeast. The majority of those endlines – 246,000 – are located in areas NMFS is proposing to be exempt from the vertical line rule. NMFS then estimated that its proposal would eliminate 86,300 endlines, and that this reflects a 38% reduction. However, the agency’s calculation only included reduction in non-exempt areas – it ignored the number of endlines that will remain in exempt areas. When endlines in those exempt areas are included, NMFS’s proposal only reduces endlines by around 18%.

While the areas exempt from the groundline rule may not contain high densities of whales, they do contain high densities of vertical line, and therefore the agency cannot simply ignore these areas in its NEPA analysis. Any proposed exemption will necessarily be part of the agency’s proposed action, and NEPA clearly requires the agency to consider all parts of its proposal. 40 C.F.R. § 1502.4(a). Similarly, in order to evaluate an adequate range of alternatives and allow the public to consider the impacts of any proposed exemptions, the agency should fully evaluate the economic and ecological costs and benefits of an alternative that does not include exempted areas outside of the COLREGS line. *Id.* § 1502.2(e).

### **C. NMFS Should Consider Risk Reduction Measures for the Southeast**

While NMFS has suggested possible risk reduction measures for the Southeast in its scoping materials and its presentation to the TRT at the January meeting, we are concerned that the agency might not fully consider such measures in its DEIS because of lack of consensus from the team. The conservation community strongly urges the agency to consider alternatives that would include risk reduction for the Southeast, including caps on fishing effort and a trigger that would close the Southeast restricted area to fishing with trap-pot gear if a serious injury or mortality is determined to be caused by similar gear set in this area. Without such measures, the critically important Southeast calving area and the vulnerable members of the species that use the area will likely be left without important protections.

Regarding a possible trigger for closure of the Southeast Restricted Area, we raised concerns at the January meeting that there appeared to be significant misunderstanding about the scope and details of an alternative to be considered. Without clarity on both the circumstances that would trigger a management response, as well as what such a management response would entail, such a discussion is virtually impossible. We believe that the option outlined by the

agency is actually narrowly tailored to address the risk of fishing in a specifically identified area of high risk to whales and should be fully explored in the DEIS.

We also support a full examination of an alternative that would cap trap-pot effort in the Southeast Restricted area to protect right whales. Although it was reported at the January meeting that trap-pot effort in this area is generally low, a more thorough examination of those effort levels and their risk to whales should be evaluated. We note that it was brought to our attention outside of the TRT process that the South Atlantic Fishery Management Council is currently considering related measures as part of proposed Amendment 18A to the South Atlantic Snapper Grouper Fishery Management Plan. *See* 76 Fed. Reg. 74,046-48 (Nov. 30, 2011); Amendment 18A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region, *available at*: [http://sero.nmfs.noaa.gov/sf/pdfs/Amendment18A\(Dec.09,2011\)DEISpostedto websitesforcomment\).pdf](http://sero.nmfs.noaa.gov/sf/pdfs/Amendment18A(Dec.09,2011)DEISpostedto websitesforcomment).pdf). Because Amendment 18A was not explicitly discussed at the TRT meeting, it is unclear to us how the effort cap suggested by NMFS would compare, but we highlight a couple of pieces from that analysis for NMFS' consideration in the context of the ALWTRP.

The DEIS for proposed Amendment 18A documents that, as the rate of black sea bass harvest has grown, fisheries have faced early closures. *See* DEIS at 1-3. To counteract this, proposed Amendment 18A would limit participation in the black sea bass component of the snapper grouper fishery and slow the rate of harvest, resulting in less gear present over extended fishing seasons. *Id.* at 3. The actions proposed in Amendment 18A would, if the preferred alternatives are chosen, result in a reduction of the amount of gear in the water, limiting pots to 35 per vessel per year, reducing the total pots in the water by 52%. *Id.* at 131. Under this proposal, the Council found that the risk of lost pots and "ghost fishing" would decrease, as well as the risk of entanglement of pot lines with right whales and other protected species. *Id.* at 129.

The Council's analysis also notes, however, that should effort shift toward later in the season, and should proposed spawning closures not align with right whale calving and migratory seasons, even a decrease in the number of traps may not lead to a lower risk of entanglement. *See id.* at 131. Thus, the change in management encompassed by Amendment 18A could have either positive or negative effects on risks to right whales in the Southeast. Accordingly, it is essential that the agency examine the effects of both its own suggested risk reduction measures as well as the possibility that outside management would shift effort into times and places that could be more risk prone for right whales.

#### **D. NMFS Should Consider Risk Reduction Measures for Gillnet Gear**

As the agency has acknowledged, both trap-pot and gillnet gear cause entanglements. From 1999 to 2008, 2 right whales and 4 humpbacks were found seriously injured or killed in gear identified as gillnet gear, and these numbers underestimate mortality as many carcasses are not found and most gear is not identifiable. *See* American Lobster 2010 BiOp, at 100. More recently, right whale #3120 was sighted in 2010 near Jeffreys Ledge entangled in gillnet gear, and three additional right whales (one in 2011 and two more already in 2012) were sighted entangled in gear consistent with gillnetting. Based on gear analysis, humpbacks become entangled in gillnet gear even more frequently than right whales. Despite these risks, NMFS has

indicated that it does not intend to include any risk reduction measures for gillnets as part of its vertical line rule.

While we appreciate the difficulty in requiring gear modifications in gillnet gear, the agency's EIS should at least explore other options for reducing endlines associated with gillnet gear, including caps on the number of endlines and panels. The MMPA broadly allows the agency and the Team to consider any "measure" that may reduce entanglement, and NMFS's scoping proposal included caps for trap/pot fishing gear in the Southeast. A similar cap on gillnet gear could reduce endlines. Alternatively, where feasible the agency could consider requiring that some gillnets be tended during deployment (e.g., vessels remain within sight of any deployed nets) and that nets be retrieved and kept aboard when vessels return to port. Further, as we propose in detail below, seasonal closure of the "sliver" area on the western edge of the Great South Channel and Jeffrey's Ledge to gillnets would reduce endline risk.

Finally, even if gillnet gear is not ultimately regulated as part of this rule, the agency cannot ignore vertical lines and risk associated with gillnets, non-permitted pot gear, gear in exempted areas, or recreational gear in analyzing the impacts of any proposed measures. Specifically, as discussed above with regard to the consideration of exempted areas, when NMFS considers risk reduction provided by a proposal (either in the number of endlines or the co-occurrence score), it must compare any reductions to the total number of vertical lines in the water to reflect total risk.

#### **E. NMFS Must Address Vertical Line Risk to Humpback Whales**

As noted in our scoping comments, we generally agree that TRP management measures be directed primarily toward reducing mortality and serious injury of right whales, with the assumption that humpbacks and other species will receive an ancillary benefit. However, we remain concerned with the continued high level of humpback entanglement, as studies suggest that between 19 and 29 humpbacks die each year as a result of fisheries interactions. Robbins, J. 2009. Scar based inference into Gulf of Maine humpback whale entanglement: 2003-2006. Report to the National Marine Fisheries Service. Order Number EA 133F04SE0998. 34pp. As noted above, the agency's NEPA document must at least consider measures to reduce risk to this species.

Further, during the January 2012 TRT meeting, some members noted their belief that NMFS may be considering downlisting or delisting humpbacks from the ESA and, as a result, addressing this species' entanglements was not a priority. We object to this presumption as inconsistent with both the ESA and MMPA. The humpback whale is currently listed as endangered, and fishery-related serious injury and mortality remain over PBR. Until that status changes, the MMPA requires TRP measures that will reduce humpback serious injury and mortality. 16 U.S.C. § 1387(f)(1), (5). Further, even if humpbacks were downlisted to threatened, they would remain a strategic stock and thus subject to Section 118. *Id.* § 1362(19). The MMPA does not permit the agency to ignore humpback entanglement simply because the species is undergoing a status review.

## **F. NMFS Should Consider Including the Monitoring Plan in Regulation**

At the January 2012 TRT meeting, there was a great deal of discussion about the agency's draft monitoring plan, including a proposal from team members that was later withdrawn that would have allowed for expedited review of entanglement events and possible expedited management response from the team. While an expedited monitoring plan did not receive consensus from the team, evaluation of an alternative with specific procedures for responding to new information about serious injuries and mortalities should be considered in the DEIS. Such an alternative would examine the length of time it has taken to evaluate and respond to new information and examine the environmental benefits of expediting review and management response.

## **G. NMFS Should Consider Expediting Implementation of the Vertical Line Rule**

Finally, we encourage the agency to expedite the ongoing TRP amendment process, and implement the rule quickly after finalizing a plan. As you are aware, the agency and the TRT have recognized the need to reduce vertical lines since at least 2003, yet the vertical line rule is not scheduled to be finalized until 2014. Eleven years is much too long a delay in providing endangered whales the protection they require. Similarly, once the rule is final, the agency must require prompt implementation. Unlike the sinking groundline rule, the current vertical line reduction does not require fishermen to purchase new gear and therefore can be implemented as soon as the fishermen are able to reconfigure their existing gear. The MMPA requires expedited action to protect vulnerable marine mammals, as well as expedited review and amendment of the Plan if it is not effective, and these requirements cannot be fulfilled if the agency allows a long implementation period. 16 U.S.C. § 1387(f)(5)(A).

We appreciate the agency's consideration of these comments as it moves forward with rule development. Please contact any of us if you have questions regarding these comments.

Sincerely,



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## **Exhibit A: Seasonal Closure Proposal**

The Humane Society of the United States, Whale and Dolphin Conservation Society, Defenders of Wildlife, Center for Biological Diversity, the International Fund for Animal Welfare, and Dr. Caroline Good, submit the following seasonal closures proposal for your consideration in the forthcoming Take Reduction Plan NEPA process, and we ask that NMFS and IEC evaluate the risk reduction that may be gained by adopting these closures. We also briefly explain the need for adopting short-term closures, in addition to changes in the configuration of fixed fishing gear that NMFS has thus far proposed.

### **The Need to Protect Right Whale Aggregation Areas in the Gulf of Maine**

Unlike many other large whales, right whales have no ability to self aggregate their prey. They rely entirely on a confluence of oceanographic conditions and bathymetric features to aggregate and entrain prey. Right whales forage primarily on *Calanus* copepods but have also been observed feeding on euphausiids, *Pseudocalanus* and *Centropages*. Under optimal conditions extremely dense aggregations of these prey form in various regions of the Gulf of Maine during different seasons. Right whales require extremely dense aggregations of prey to forage efficiently and researchers have documented the whales' ability to both locate and concentrate their feeding on these patches.

As a result of their foraging strategy, right whales frequently gather at sites or regions where prey are commonly present in these dense patches. As the right whale population recovers one would expect to see increasing numbers of whales foraging at optimal prey aggregation sites. Right whales are unlikely to spread out their foraging effort to new areas since they are wholly dependent on prey aggregations sites to feed efficiently. Because right whales are reliant on these sites for feeding, their importance and the density of right whales using them will likely only increase over time.

Several sites in the Gulf of Maine regularly attract significant numbers of right whales each year to feed. In some cases, more than 1/4 of the total population of right whales has been observed within just a few miles of each other. These areas are "hotspots" for whale aggregation because they provide the right conditions at a particular time of year to function as "hotspots" for dense patches of copepods or other whale prey. The exact value of these sites as foraging hotspots may vary with oceanographic conditions over time but both historic accounts and modern day right whale sightings indicate that several sites are regular and important foraging habitats. In other areas right whales gather in somewhat smaller aggregations but often linger over longer time periods to forage. These "high use areas" are similarly important for right whales even if they do not attract the mega aggregations of a hotspot.

While right whales can become entangled in fishing gear at any location, they are most likely to incur a mouth wrap or line through the mouth while foraging, as it is unlikely that they would open their mouths for any other reason. (An open mouth on a whale acts like a sea anchor making it an unlikely behavior in the absence of feeding activity.) Since such a large proportion of right whale entanglements involve a mouth wrap, foraging is a high risk activity for both initial entanglement and the worsening of an existing entanglement that could develop into a

mouth wrap. In addition, right whales are known to interact socially while feeding. They form social active groups at foraging sites where they are observed to come into contact with each other and roll and thrash around – all behaviors that place them at increased risk for entanglement.

Given the dependence of right whales on these foraging hotspots and high use areas, the likely increased use of these areas by a growing whale population and the risk of entanglement during feeding and socializing, it is prudent to provide enhanced protection to these areas. These areas should be closed to any fishery employing endlines, including, but not limited to both trap/pot fisheries and gillnet fisheries, during the time periods when they are heavily used by whales.

In the absence of convincing evidence that the endline reduction proposal presented by NMFS at the most recent Atlantic Large Whale TRT meeting will meet the requirement of reducing serious injury and mortality to PBR for right whales and humpback whales, this is a supplementary proposal designed to provide additional protection at critical locations and times of year. The following specific areas are proposed for analysis and consideration for seasonal closure. We ask that potential risk reduction be evaluated within the borders of what we have proposed and displayed on a month-by-month basis to better elucidate temporal and spatial risk reduction.

**A. Proposal for Seasonal Closure in the Areas of Cape Cod Bay, Off Race Point and East of Cape Cod**

**Boundaries:** The area consists of all waters bounded by straight lines connecting the following points: mean high water line of shore due west to 41°40'N 69°45'W; 41°40'N 69°45'W; 42°30'N 69°45'W; 42°30'N 70°30'W; 42°12'N 70°30'W; from 42°12'N 70°30'W due east to the mean high water line of shore. See attached map.

**Season:** January 1 - April 30 of each year

In addition to any gear configuration modifications that NMFS proposes to reduce endlines, we propose NMFS also close the area that includes Cape Cod Bay, off Race Point, and to the east of Cape Cod from January 1<sup>st</sup> of each year through April 30<sup>th</sup> of each year to all fisheries using endlines. We ask that NMFS and/or IEC evaluate potential risk reduction from such a closure during this time period. This area encompasses one of the most robust foraging “hot spots” for right whales in the Gulf of Maine.

This proposal is based in part on the 2011 annual Massachusetts state report provided to the ALWTRT that documents increasing presence of right whales in this area over the past 10 years between January and April, with an all time high reached in 2011 [Massachusetts Large Whale Conservation Program, Final Report July 1, 2010 to June 30, 2011 at [http://www.nero.noaa.gov/whaletrp/trt/meetings/2012/2a\\_MA%20state%20report.pdf](http://www.nero.noaa.gov/whaletrp/trt/meetings/2012/2a_MA%20state%20report.pdf) at figures 2 through 4]. Right whales are already present in Cape Cod Bay as of the date of this letter. Surveys also documented other species of endangered whales that are covered by the ALWTRP,

and these species would also benefit from this conservation measure (see, for example, *ibid.* at figure 6). Similar reports by Massachusetts over the past several years reinforce the presence of whales and thus need to protect the areas we propose.

The Commonwealth of Massachusetts also documents the presence of fixed fishing gear (see, for example, *ibid.* at figure 5) during this time and within the area proposed for closure. The Commonwealth estimates that only slightly over 1 percent of lobster landings occur between January 1<sup>st</sup> and April 30<sup>th</sup> in these areas (McKiernan, pers. com.); however, this is a time of significant and increasing habitat use by right whales. Thus, with limited economic impact, we believe there may be substantial conservation benefit.

Further, in its ship strike risk reduction plan, NMFS has already identified much of the area we propose for protection as worthy of additional management attention (see map at 73 Fed. Reg. 60173 (Oct. 10, 2008)). However, while NMFS protected the Cape Cod Bay early in the season, during the time important to right whales feeding in or departing the Bay, the agency inexplicably did not protect the area defined as “off Race Point” early enough in the year to allow safe ingress to the Cape Cod Bay area, which is a major point of access to this key seasonal feeding area. Accordingly, our proposal remedies that failure, and we believe that there are ample data available at this time from the Commonwealth of Massachusetts and via SPUE data provided to the ALWTRT to illustrate the need to protect this seasonal high use area including times to protect both ingress and egress.

We understand that there is an alternate proposal for closure of Cape Cod Bay and Off Race Point. While we support it in principle, we ask that the NMFS analyze the broader times and areas we propose to determine which offers the greater benefit to right and humpback whales.

## **B. Great South Channel Critical Habitat**

**Boundaries: Current Great South Channel Sliver Area (41°02.2’N/ 69°02’W; 41°43.5’N/ 69°36.3’W; 41°40’N/ 69°45’W; and 41°00’N/ 69°05’W). See attached map.**

**Season: April 1 - June 30 of each year**

We propose NMFS retain the current seasonal closure of the Great South Channel foraging “hotspot,” which is adjacent to the closure we request to have evaluated as part of the Cape Cod Bay/Off Race Point “hotspot.” However, we ask that NMFS and IEC evaluate the risk reduction that can be gained by additionally closing the area referred to as the “sliver,” on the western edge of the Great South Channel Restricted Area (almost adjacent to the “Off Race Point” portion of the closure) to gillnets at the same time as the remainder of the Critical Habitat. Gillnetting places both right whales and endangered humpback whales at risk. Humpback whales are more likely than right whales to become entangled in gillnets (see NMFS Large Whale Ship Strike and Entanglement Reports for each year). The NMFS proposal for endline reductions does nothing to reduce risk from gillnets, so closing this area and the area off just east of Cape Cod (as we propose above), would provide some gillnet-related risk reduction for this species. See the definition and coordinates for this “sliver” area at page 41 of the Guide to the

Atlantic Large Whale Take Reduction Plan available at:  
<http://www.nero.noaa.gov/whaletrp/plan/ALWTRPGuide.pdf>.

**C. Proposal for a Seasonal Closure in Jeffreys Ledge and Eastward toward Cashes Ledge**

**Boundaries:** Boundaries: The area consists of all waters bounded by straight lines connecting the following points: 42°50'N 70°00'W; 43°15'N 70°00'W; 43°15'N 70°25'W; 42°50'N 70°25'W. See attached map.

**Season: October 1 - January 31 of each year**

Year after year, NMFS has instituted Dynamic Management Actions for either ship strike risk reduction (DMA) or fishery risk reduction (DAM) in the area near Jeffrey's Ledge and toward Cashes Ledge. These dynamic area restrictions are triggered by the presence of aggregations of right whales that are presumed to be feeding in the area and are likely to remain for at least 2 weeks (see: Clapham PJ, Pace RM III. 2001. Defining triggers for temporary area closures to protect right whales from entanglements: issues and options. Northeast Fish. Sci. Cent. Ref. Doc. 01-06; 28 p.).

We propose closure of a major area that has triggered DMAs during the late fall and early winter, October 1 through January 31. We note that the NMFS RWSAS flights focus on the Jeffrey's Ledge, Cashes Ledge areas as two of only 3 or 4 areas surveyed during these months in 2011 (see, for example, table 1 at <http://www.nefsc.noaa.gov/publications/crd/crd1105/1105.pdf>) and in other years are sometimes the only areas chosen for the limited survey effort (see, for example, table 1, December 2009 at <http://www.nefsc.noaa.gov/publications/crd/crd1007/crd1007.pdf>). These are also areas of relatively high co-occurrence based on the graphics provided to the ALWTRT. The SPUE data available indicate an area of major concentration during this time period. The boundaries we propose to be analyzed for risk reduction potential are provided in the attached map. The area encompasses a high use area depicted by SPUE data and includes boundaries that the NMFS has itself adopted for risk reduction as part of the "Northeast Region: Stellwagen Bank/Jeffreys Ledge Restricted Area" included in the ALWTRP and mapped in the Guide to the Atlantic Large Whale Take Reduction Plan (available at: <http://www.nero.noaa.gov/whaletrp/plan/ALWTRPGuide.pdf>, page 12).

This area would limit risk to right whales during the fall and winter, times at which the DMA and DAM programs consistently show as times of higher aggregation. Further, this would limit exposure to vertical lines from gillnets that are otherwise not addressed in the plan. Humpback whales will also receive ancillary benefit from the fall portion of the closure.

## **Ex. B: Gear Marking Proposal**

There was a general consensus by the TRT that better gear marking is needed to improve our understanding of where entanglements are occurring so regulations can be more targeted. Current gear marking is insufficient to serve this purpose. NMFS could only determine fishery and location where gear was set for 15% of large whale entanglements recorded from 1997 to 2008. Since none of the options provided at the meeting received majority support, we propose the following gear marking scheme, which takes into account both the conservation subgroup's recommendation and also many of the requests and suggestions provided by industry members.

With regard to frequency of marking, it is important to take into account the amount of line that has been removed from entangled whales in the past, and the probability of recovering marked gear based on past line lengths recovered. The lengths of rope recovered between 1997-2003 averaged 182 feet with a median of 102 feet and a mode of 50 feet. Therefore, marking at just the top, middle and bottom of a line is insufficient due to the length of some endlines. Instead, the agency should mandate gear marking according to a set distance frequency to ensure the rule will increase the likelihood of recovering marked gear. For lines over 65 feet in length, we propose that NMFS require markings every 65 feet, with a range of 45-85 feet deemed acceptable for compliance. This line length is based on analysis of recovered gear line lengths from 28 entanglement events from 2005-2009 as reported in the NMFS annual Large Whale Entanglement and Ship Strike Reports. Based on this analysis, if gear is marked at 65ft increments then there is a 75% probability that recovered line will contain a mark. A more detailed description of this analysis is provided below. For lines that are less than 65 feet, we propose retaining the status quo requiring a single marking midway along the line, in addition to markings at the top and bottom of the line. This will increase the probability that recovered gear will be identifiable while also providing more flexibility to fishermen. Providing an acceptable range will reduce the time it will take to mark gear by not requiring exact measurements while also ensuring fishermen are not penalized for non-compliance when exact distances requirements are not met.

We also propose markings have greater geographic specificity especially for the trap/pot fisheries and in the Northeast according to the area delineations provided in the tables below and that NMFS require distinct markings for all exemption areas. While the Maine exemption area is the primary exemption to date, we propose NMFS require additional unique identifiers for any new state exemption areas NMFS allows in the forthcoming rule. While the exact colors proposed below are of less concern we note that when assigning colors we did try to take into account specific requests made by industry members, and retain colors from the current marking scheme when possible. Therefore, we have red as the primary color for trap/pot fisheries in the northeast, green as the primary color for gillnet fisheries, and blue as the primary color for the mid-Atlantic with an extra color marking for the trap/pot fisheries. Maine requested a separate gear color and a unique identifier for the exemption zone so was assigned red and double red, and the SE requested separate markings for each of their trap/pot fisheries so the Black Sea Bass and Blue Crab fisheries were given unique markings with one common color kept constant for all southeast trap/pot fisheries. We would also like to point out that dark colored lines, in general make detecting gear on the animals difficult, and would encourage the agency to consider possible line color regulation.

By ensuring that all regions, including exemption areas, mark their gear while also increasing the frequency of marking, we can remove some uncertainty from determinations as to whether gear came from US or Canadian waters.

### **Analysis of line recovered from baleen whales to estimate the probability that marked line would have been identified**

Below, we provide the background for our gear marking frequency analysis. The aim of the analysis was to estimate the probability that a section of recovered line would contain a mark based on data from actual recovered lines and different marking intervals.

A total of 28 cases were examined from recovered line in the period 2005-2009 involving fin (n=1), minke (n=4), humpback (n=15) and right (n=8) whales. Multiple sections of line were recovered in six of these cases. The lengths of rope recovered varied from 5 to 1200ft. Six entanglements that occurred during this time period that had associated gear analyses in NMFS's annual entanglement and ship strike reports were not included in this analysis. These cases involved entanglements when actively hauling or working with gear in which the whale was immediately freed and released. In these cases it was unclear in the gear analysis if gear length reported truly represented an amount of gear caught on the whale or just the total amount set in the water. Therefore, these cases were not included for analysis since they potentially represented a different type of data from the other 28 cases in which line length was recorded according to what was removed from the whale.

There were no significant differences between the lengths of rope recovered by species of whale (ANOVA,  $p=0.35$ ) or between the first and second pieces when more than one section of line was recovered (ANOVA,  $p=0.34$ ).

The recovered lengths were transformed with  $\log(\text{length in feet})$  which gave an approximately Normal distribution (Figure 1), with the average ( $\log(\text{length})$ )=1.88, median ( $\log(\text{length})$ )=1.86 and stdev ( $\log(\text{length})$ )=0.61)

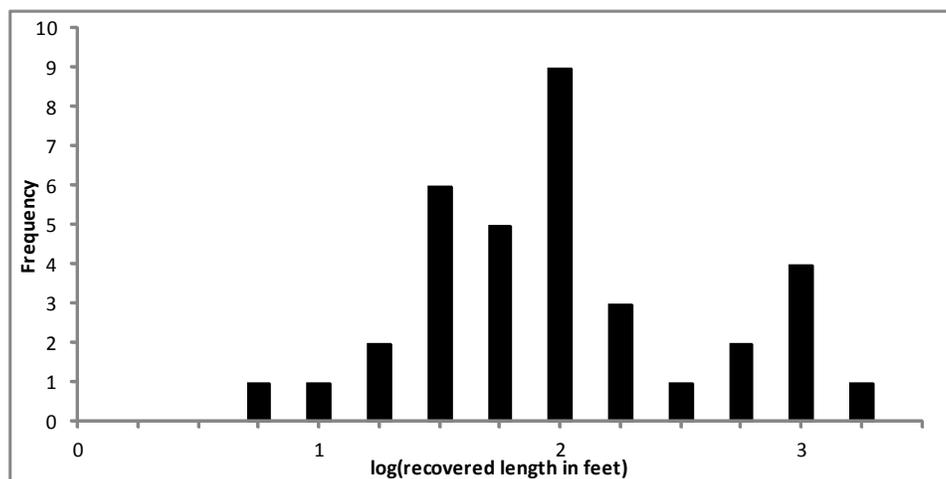


Figure 1. Frequency distribution of log(recovered length).

For a given marking interval  $L$ , the probability  $p$  that a recovered length of line of length  $R$  will contain a mark is given by  $p=R/L$ . For  $R \geq L$ ,  $p=1$ . This assumes that the line is equally likely to break at any point in relation to the marks and ignores what happens at each end of the line.

Using the mean and standard deviation derived from the log(length) data to model recovered line lengths with a normal distribution, the probability that a piece of recovered line will contain a mark was estimated for different marking intervals.

Table 1. Probability that recovered line will contain a mark for different marking intervals

Marking interval (ft)	Probability that recovered line will contain a mark
20	0.92
30	0.88
40	0.84
50	0.80
60	0.77
70	0.73
80	0.71
90	0.68
100	0.65
150	0.56
200	0.49

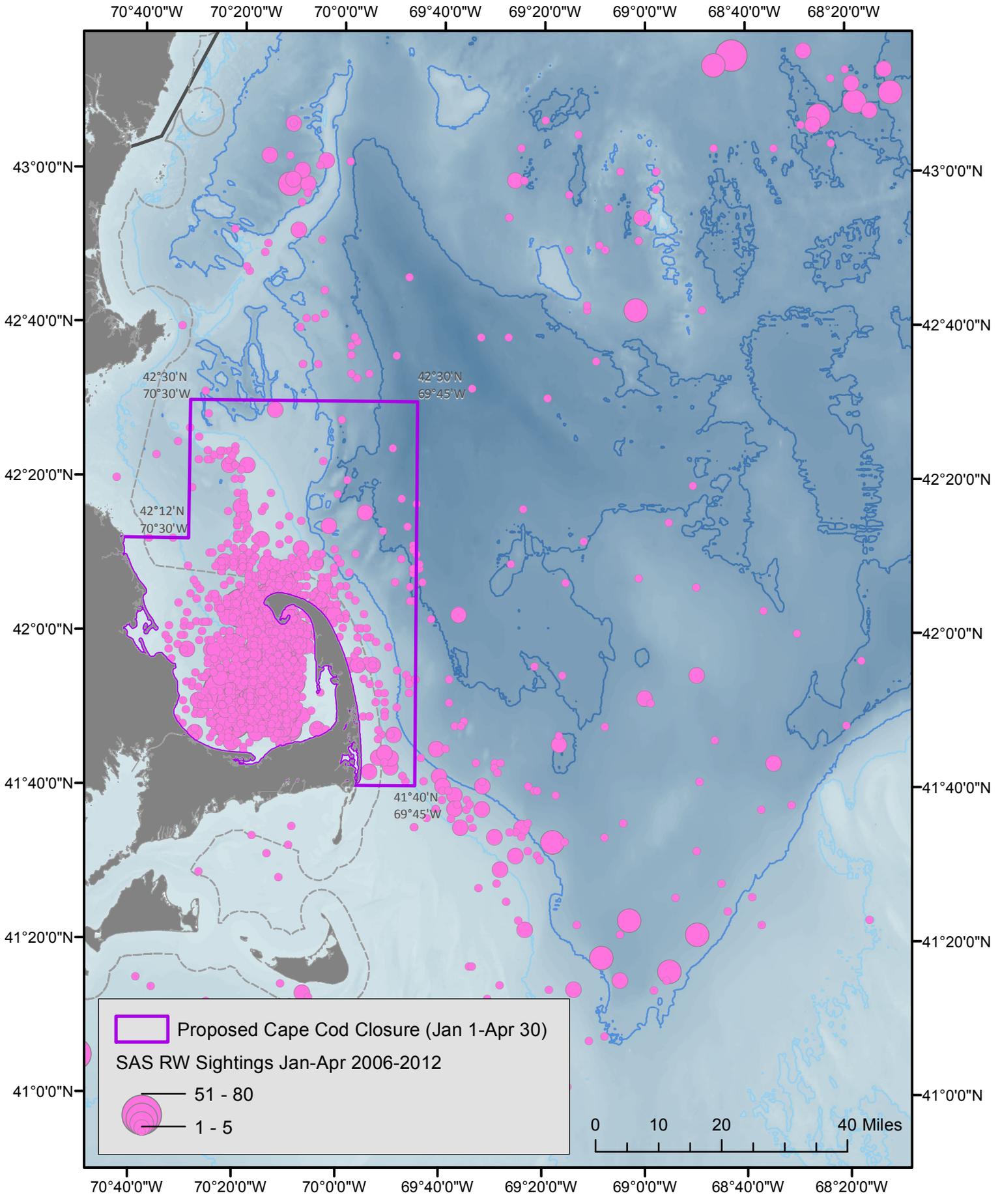
### Proposed Gear Marking Scheme

#### Trap/pot Fisheries

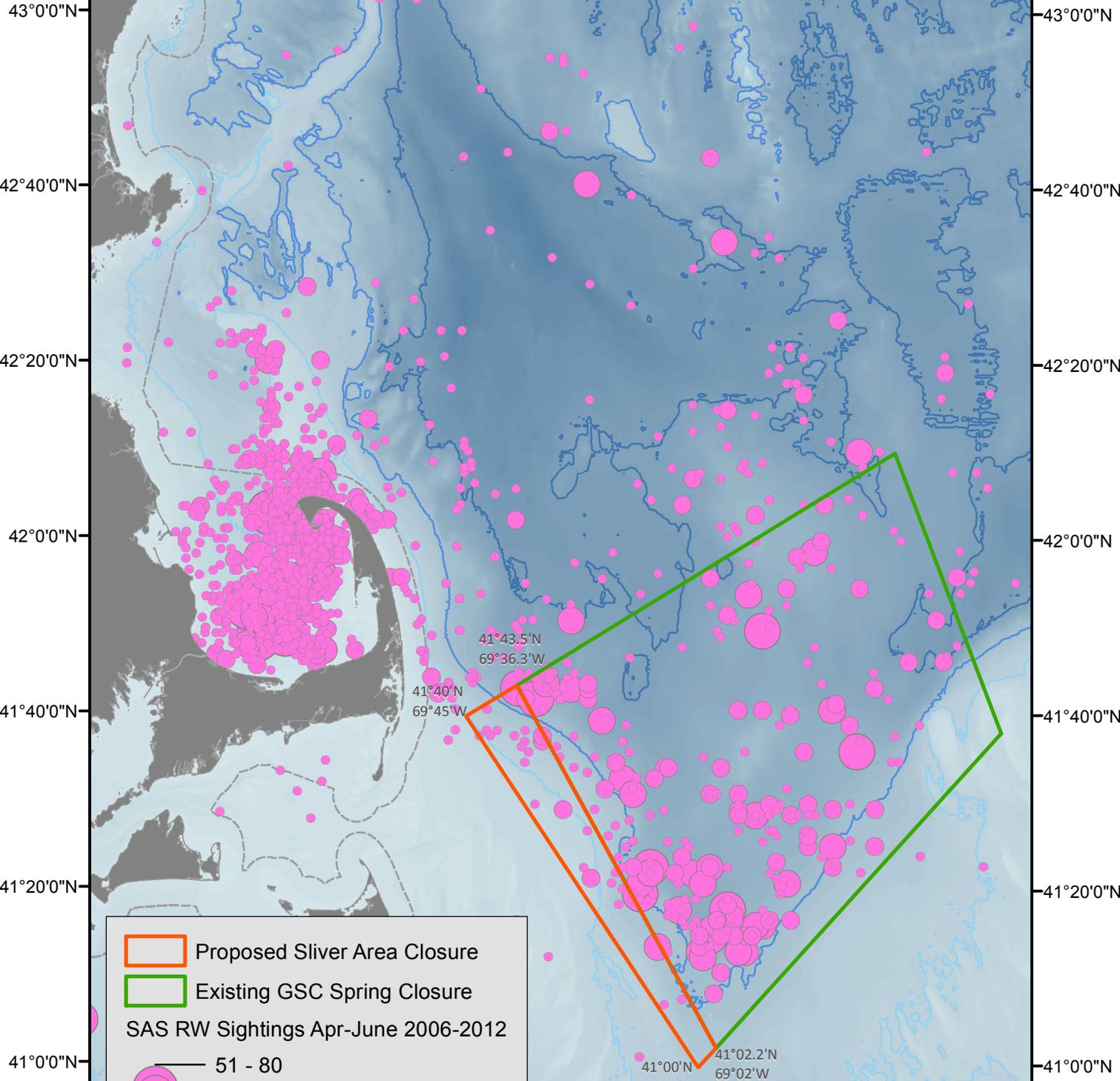
Area	Color 1	Color 2
ME	Red	Red
ME exemption	Red	None
Non-ME LMA1	Red	Orange
LMA 2	Red	Yellow
LMA 3 (inc. LMA 2-3 Overlap)	Red	Black
Mid Atlantic (NY-NC)	Blue	Yellow
SE Blue Crab (SC-FL)	Orange	Blue
SE Sea Bass (SC-FL)	Orange	Yellow
SE other (SC-FL)	Orange	None

### Gillnet Fisheries

<b>Area</b>	<b>Color 1</b>	<b>Color 2</b>
LMA 1	Green	None
ME Exemption	Green	Red
LMA 2	Green	Yellow
LMA 3 (inc. LMA 2-3 Overlap)	Green	Black
Mid Atlantic (NY-NC)	Blue	None
SE (SC-FL)	Green	Yellow
Shark Gillnet	Green	Blue



70°40'0"W 70°20'0"W 70°0'0"W 69°40'0"W 69°20'0"W 69°0'0"W 68°40'0"W 68°20'0"W



 Proposed Sliver Area Closure

 Existing GSC Spring Closure

SAS RW Sightings Apr-June 2006-2012

 51 - 80

 1 - 5

70°40'0"W 70°20'0"W 70°0'0"W 69°40'0"W 69°20'0"W 69°0'0"W 68°40'0"W 68°20'0"W

