Summary of
NMFS Low Profile Groundline Workshops
September 21 – 29, 2005
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Objective

In September 2005, NOAA's National Marine Fisheries Service (NMFS) conducted five fact finding workshops along the East Coast to hear from interested stakeholders about:

1. Areas where low profile groundline should be considered;
2. The appropriate height above the ocean bottom for low-profile groundline;
3. Techniques to modify groundline;
4. Gear marking options for low profile areas; and
5. Potential contingency plans in the event that an entanglement occurs in low profile groundline.

Although the current knowledge of large whale (i.e., right, humpback and fin) ecology (including foraging and diving behavior), prey, habitat and oceanography remains uncertain, NMFS wanted to present information and hear stakeholder concerns about the use of low profile groundline as a means of reducing the risk of whale entanglements in fishing gear. Specifically, NMFS was interested in stakeholders' views about 1) potential areas where low profile groundlines should be considered and 2) a potential proxy height for low profile groundline. It should be stressed that the workshops were information gathering opportunities whereby the agency and participants discussed their concerns and the available data regarding the *concept* of low profile groundlines.

Overview

Locations. The Low Profile Workshops were held at five locations in 2005: Portsmouth, NH, September 21st; Rockport, ME, September 22nd; Atlantic City, NJ, September 26th; Virginia Beach, VA, September 28th; Atlantic Beach, NC, September 29th.

Attendants. NMFS invited up to 15 participants to each of the meetings. These participants were fishermen, scientists (i.e., whale, habitat, and oceanography/prey), marine mammal conservationists, fishing rope manufacturers, state fishery managers, and representatives of fishermen associations. These invited participants consisted of ALWTRT and non-ALWTRT members. NMFS was represented at the table and also brought several staff members to the workshops. The meetings were open to the public. In some cases, members of the public who attended the workshops did engage in the discussion. A complete listing of the workshop participants and their affiliations is included at Attachment A.

Context. The workshops were held in response to the deliberations of the Atlantic Large Whale Take Reduction Team's (ALWTRT) interest in exploring the *concept* of low profile groundlines which had been breached at the team's last three meetings (i.e., 2002, 2003 and 2005). This meeting summary, which will be discussed at the next ALWTRT meeting in 2006, is intended to inform the ALWTRT's continued discussion about the *concept* of low profile groundline.

Some of the alternatives considered by NMFS for modifying the proposed Atlantic Large Whale Take Reduction Plan (ALWTRP), include all trap/pot and gillnet groundlines off the eastern U.S.

coast be comprised of sinking and/or neutrally buoyant rope by 2008 during various seasons. However, some ALWTRT members believed there should be an exemption to the sinking rope requirement in areas with rocky bottoms, soft coral formations and wrecks. In such areas, these members believed that floating or low-profile groundline would be safer to industry due to fewer "hang-downs", more efficient at catching fish and more operationally feasible without posing an entanglement risks to whales.

Other ALWTRT members were less concerned about the operational feasibility and catching efficiency of low profile groundline than with the gaps in understanding how whales utilize the water column. For these members, discussing areas and heights for deploying low profile groundline is premature because it is not clear if low profile groundline does in fact reduce entanglement risks.

Given these divergent views, NMFS was interested in bringing various experts to the table to exchange views and data that can further refine the *concept* of low profile groundline. This document is intended to summarize the workshop proceedings in hopes of informing the ALWTRT's further discussion about low profile groundlines.

Format. The format for the workshops evolved over the course of the two weeks that they were held. Originally, three presentations were planned for the morning session: the diving and foraging ecology of right whales; the diving behavior of humpback whales; and the anatomy of both species. However, during the first workshop, it became clear that more time was needed to discuss large whale ecology issues than had been anticipated. Participants were acutely interested in hearing the latest data on whale foraging and diving behavior because of how such data might inform the concept of protective low profile groundline heights and areas of deployment. Following the whale ecology discussion, participants moved on to discuss presentations provided by NMFS on the recent efforts to map sightings and ocean habitats, in inshore as well as offshore areas. These presentations are described in the *Presentations* section below.

The discussion of technologies for lower groundline profiles, gear marking and contingency planning (i.e., for incidents where whales might become entangled in low profile lines) occurred in the late afternoon. The proposed workshop agenda is included at Attachment B.

Opening Session. Dave Gouveia opened the first and second workshops; Diane Borggaard opened the remaining workshops. Their remarks emphasized the purpose of the workshops versus the current ALWTRP rulemaking process. They emphasized that workshops and the finalization of the rule were independent processes. Diane and Dave underscored that low profile groundlines had been removed as a potential gear modification in the current rulemaking because there was not sufficient information available to NMFS on whether such groundlines could reduce whale serious injury and mortality due to entanglements. The workshops, therefore, were intended as an intensive and extensive effort to gather information on the *concept* of low profile groundlines from a broad array of stakeholders.

It was explained that the ALWTRP Final Environmental Impact Statement and Final Rule was expected to be published by the end of 2005 or early 2006. The alternatives considered focused on reducing profile of groundline through the use of sinking and/or neutrally buoyant line. The workshops were designed to explore the conditions under which low profile groundlines might be used in lieu of the proposed sinking and/or neutrally buoyant groundlines.

This summary of the workshops will be distributed to the Atlantic Large Whale Take Reduction Team (ALWTRT) to help inform the team's continuing discussion about low profile groundlines.

Presentations. After opening remarks and the participants' self-introductions, the workshop began with three presentations:

- The Foraging Ecology of Right Whales in the Bay of Fundy and Scotian Shelf, Dr. Mark Baumgartner, Woods Hole Oceanographic Institution;
- Humpback Whales in the Great South Channel, Mason Weinrich, Whale Center of New England and Dr. Dave Wiley, Stellwagen Bank National Marine Sanctuary; and
- The Anatomy of Right and Humpback Whales, Dr. Michael Moore, Wood's Hole Oceanographic Institute.

In addition to these presentations, NMFS provided participants with extensive digitized maps depicting the latest aggregated data on:

- Seasonal and spatial distribution of large whales;
- Trap/pot fishing excursions by federally registered vessels; and
- Bathymetry of Atlantic Ocean floor from nearshore out to the Continental Shelf, based on substrate samplings.

Right Whale Foraging Ecology. Dr. Mark Baumgartner's presentation focused on archival tagging data from Right Whales in the Bay of Fundy and Scotian Shelf in July/August of 2000 and 2001. The whales were tagged in the Bay of Fundy using suction-mounted time/depth recorders that detached after one to two hours. Where the tagged whales resurfaced, a cluster of instruments were cast to record the distribution of prey in the water column used by the whale. These instruments included a conductivity/ temperature/depth device as well as an optical plankton counter (OPC). The OPC measured *Calanus* (i.e., a kind of zooplankton) at the depth where the whales were observed to make systematic dives (>100 meters). Several casts indicated that the whales were diving into discrete layers of high-density *Calanus* as thick as four meters. The whales seemed to hunt for and feed in these layers of *Calanus* wherever the layers there found – from close to the sea floor to close to the surface. In one case, a tag was recovered with mud at the bottom, suggesting that the whale had rolled onto its back and scraped the tag off its back while feeding. Dr. Baumgartner explained that future versions of the prey recording equipment will be modified to allow for measuring prey densities on the sea bottom.

Humpback Whale Ecology. Mason Weinrich's and Dr. David Wiley's presentation summarized the results of archival tagging data from Humpback Whales in the Great South Channel. The data was compiled by an instrument package with a time/depth recorder, audio and pitch and roll recorder. This suction-mounted package was affixed to the whales' backs and recorded data for up to six hours at a time before detaching. The data revealed that the whales often dove to the bottom and propelled themselves along the seabed on their sides or upside down, probably with their mouths open. The data showed also that, after a few strong fluke strokes, the whales always glided during their descent to and ascent from the bottom, possibly making it difficult for them to avoid any obstructions they may encounter along the way or at the surface.

Large Atlantic Whale Anatomy. Dr. Michael Moore's presentation provided participants with several graphic displays of right and humpback whale anatomy. Building on data from the

previous two presentations – which indicated that whales make contact with the bottom and may move along it on their sides or in an inverted position while foraging over certain bottom types – Dr. Moore pointed out that the upper jaws of both whale species could snag any rope that was floating more than a foot off the bottom while the whales were feeding in an inverted position with their mouths open.

NMFS Presentations. It was clarified throughout the workshop sessions that the NMFS sighting data, curated by the University of Rhode Island, were not corrected for effort and therefore represented the locations where people have seen whales rather than the true distribution of all whales along the Atlantic coast. One participant stated that while clusters of whale sightings could indicate presence of whales, the absence of sightings in any particular area does not mean whales are not present. Some participants also believed that the data were right whale-biased, meaning that it may not give an entire portrayal of the seasonal and spatial distribution of humpbacks, even though they are more numerous sightings. It was noted that the bathymetry data included mostly information about depth and substrate type; some salinity data was available but not presented at the workshops.

Workshop #1: Portsmouth, NH, September 21, 2005

Opening Comments.

This workshop focused on the Northeast offshore areas. As the workshop opened, two participants differed with the workshops first two objectives (See *Objective* section above). They believed that a discussion of a potential height for low-profile groundlines had to be discussed before any discussion about where low profile groundlines might be deployed. One of these participants underscored that a discussion of what height is risk averse for whales has to precede any discussion of the potential areas where low profile groundline might be deployed.

Other participants, while conceding that the declining right whale population was the driving force behind the ALWTRP, urged NMFS to also consider the diminishing populations of humpback and fin whales. These participants cautioned that though right whales are officially endangered species, humpback whales confront similar threats to their existence. Therefore, focusing on only right whales would skew the discussions. One participant, for example, pointed out that right whales, in terms of spatial distribution, abundance and behavior are significantly different mammals than either humpback or fin whales. NMFS clarified that the workshops were intended to focus on three whale species (See **Terms of Reference**).

Discussion Following the Presentations.

Dr. Mayo explained that Mr. Baumgartner's research about *Calanus* densities near the ocean floor were consistent with his own findings, which indicated that *Calanus* are often located in thick swarms within a foot of the ocean floor. Often these swarms are up to 10 times denser than *Calanus* populations higher in the water column. Given that current data for some habitats seems to confirm that whales dive to the ocean floor to feed on these thick *Calanus* swarms, and given what is known about whale anatomy, one participant noted that it is conceivable that a whale could snag in its jaws any groundline floating more than one foot off the ocean floor. The participant added that rope wrapped around whales' mouths is exceedingly difficult to remove.

It was pointed out that not enough data on adult female whales and their calves has been compiled to determine the extent to which the diving behavior of adults differs from that of

calves. It was also noted that adult females spend more time at the surface with their calves, where they are most susceptible to ship strikes.

NMFS staff indicated that they are reviewing some of the suggestions from the "Right Whale Foraging in the Nearshore Waters of the Northern Gulf of Maine" workshop that was held in Maine on April 15, 2005. [The *Proceedings from the Workshop on Right Whale Foraging in the Nearshore Waters of the Northern Gulf of Maine* is available on NMFS Web site at http://www.nero.noaa.gov/whaletrp/]

There were a variety of briefer clarifications and comments:

- The instrument package did not stay on the whales long enough to determine if there were any patterns in the whales long-term feeding behavior. The instrument packages had short deployments. Longer deployments would be needed to document patterns in the whales' feeding behavior.
- Data from the instrument package is downloaded after the package is retrieved from the whale. The instrument package is expected to have real time data transmission capability soon. Depth data is accurate to within a half meter.
- The distribution of *Calanus* one to two feet above rocky bottoms is not known. Research was conducted only in areas with sandy or gravelly bottoms. One participant conjectured that thick layers of *Calanus* are probably found just above rocky bottoms, too. Several participants stated that more data was needed to understand the behavior of zooplankton to determine if they hover close to the rocky bottom.
- When one participant commented that they had never seen whales amidst large swarms of krill, another participant added that the presence of zooplankton or krill is not always an indicator that whales will be present. One participant noted that a better understanding of other whale prey, such as herring, was also needed.
- One participant stated that their experience indicated that there is harder bottom in the Gulf of Maine than indicated by the maps; especially by the turn of the Hague Line, where there the bottom is rocky and "bony."
- Another participant explained that their experience fishing off the Continental Shelf indicated that the area there is mostly hard bottom.

<u>Research Needs (for all species).</u>

After further consideration of the morning's presentations and discussion, participants were asked to suggest research areas. High-priority research areas, which were identified later in the day, are indicated by ** below.

- ** Whale Distribution. How many whales are present in the offshore areas and how is that population distributed throughout the year?
- Whale Behavior. Workshop participants stated that more research was needed to answer important questions about:
  - Maximum dive depth (including the rationale for the 280 fathom maximum dive depth found in proposed regulations); feeding areas (esp., time spent feeding on rocky vs. sandy bottoms); use of the water column, inshore vs. offshore behavior, seasonal behavior and migratory patterns.

  - ** How do whales use the lower water column, within 30 cm of the bottom, including rough bottoms? How do whales behave in waters greater than 100 fathoms? Participants acknowledged that this research will be difficult to accomplish in deep offshore waters exceeding 100 fathoms in depth.

- Stationary Prey Recording Devices. One participant suggested that stationary recording devices should be installed along rocky bottoms to determine the presence and flow of whale prey through the area.
- Long-Term Tracking. Several participants resonated with the idea of more research on instrument packages that could be attached to whales so that their long-term behavior could be tracked and documented more closely. Such long term tracking could determine where and when whales are feeding and transiting. This could help inform management decisions about where low profile might be an acceptable option.
- Supplement Survey Areas. In noting the opportunistic basis of the current survey data, several participants suggested that survey areas should be expanded to areas such as Jeffrey's Ledge and other areas that have not been included in past survey efforts. Broadening the official survey area would lead to a fuller understanding of the true distribution of whales rather than in those well-known locations where people most often see them.
- Acoustic Depth Monitoring. One participant stated that a better bathymetric mapping could be achieved by acoustic depth monitoring.
- Prey Distribution. Workshop participants stated that more research was needed to answer important questions about:
  - Vertical distribution of potential food resources (e.g., herring, krill, zooplankton) in the Gulf of Maine within 10 meters of the bottom
- Offshore Data. Several participants acknowledged that compiling data about whale distribution and behavior in offshore areas would be difficult and prohibitively expensive. In light of these barriers, several participants urged NMFS to research proxies from which offshore behavior could be extrapolated.
- Gear Research. Some participants noted that before sinking rope groundlines can be operationally feasible, more research is needed on how to make them more resistant to abrasion. These participants pointed out that sand trapped in the rope causes it to chafe internally as the rope is hauled. Sinking line that drifts back and forth on the sandy bottom is abraded externally. One participant indicated that internal and external abrasion research was currently underway.
- Definition of Low Profile Groundline. Several participants urged NMFS to develop a definition of low profile groundline that would address the question of "how low is low enough to be risk averse?" It was acknowledged by some participants that knowing what height was risk averse for whales was based on a more complete understanding of whale behavior on the rocky bottom.
- Several participants felt that the development of an "ankle bracelet" around the peduncle is needed to look at long term diving depth and location.

How to Conduct Research.

When asked how NMFS could most efficiently conduct research, participants responded with the following ideas:

- Forego the Request for Proposal Process. Several participants believed that NMFS should directly contract with the most qualified, well-known scientist to conduct research. The agency should present the questions it wants the research to answer and let the scientist develop the research plan accordingly. One participant believed that the most qualified researchers often do not win bids under the current research bidding process, which tends to favor the low bidder.
- Non-governmental Survey Resources. One participant believed that the agency could possibly use/hire vessels owned or charted by marine conservation non-governmental organizations to conduct surveys of offshore habitats and whale behavior. These vessels could also be tasked with conducting whale surveys, especially south of Jeffrey's Ledge.
- Survey Technologies. Several participants thought that NMFS could use acoustic buoys and more aerial surveys to count whales and assess their distribution and abundance offshore.

Fishing Industry Discussion

After the lunch break, participants were asked to provide input on the kind of information about regional fishing operations and conditions that would be needed to make informed decisions about where low profile groundlines should, or should not, be deployed. Participants responded that, at a minimum, the following questions would first have to be answered:

- Fishing Effort. Where is the fishing effort greatest? What is the volume of gear used in certain fishing areas and what is the total linear feet and type of groundline used? One participant suggested that the density and type of groundline could be matched against whale location data to help quantify entanglement risks. Another participant suggested that a better mapping of fishing levels-of-effort and the actual location of fishing gear could help quantify risk.
- Beyond the 100 fathom curve. What is the bathymetry, whale distribution and behavior, and prey distribution from the 100 fathom curve and beyond, excluding shallow offshore areas like Wildcat? A participant added that whale distribution-by-season was especially relevant to fishermen since they often fished in wintertime when their experience informed them that whales are not present.
- Whale Behavior. What is the depth below which entanglement is not a risk and what is the density of gear that does not pose entanglement risks to whales? Several participants believed that fishing effort in offshore areas is so dispersed that it may not represent a significant entanglement risk.

Habitat Discussion

Some participants noted that, in addition to the need to know more about whales and their prey, there was also a need to better understand the environment in which whales and prey existed and the potential impact of low profile groundlines on that environment.

- Coral Damage. What is the impact of low profile and sinking rope groundlines on coral and other natural bottom structure organisms? One participant pointed out that, in some cases,

sinking rope groundlines could be more injurious to some bottom structures than low profile groundlines.

- Stationary Fixed Gear. Where are permanent manmade bottom structures, such as mooring fixtures located? Better mapping of these structures is needed.
- Bathymetric Mapping. More precise mapping of bottom types is needed. Especially for offshore areas outside the Gulf of Maine, north of George's Bank.

Gear Marking Discussion.

Workshop participants discussed how a gear marking scheme might be 1) operationally feasible for fishermen and 2) provide a reliable means of linking entangled gear to its owner or a particular fishery. Though participants were unable to outline a rope marking scheme that fulfilled these two criteria, most believed that the kind of gear that is in the water should be described by the surface system. For example, a person should be able to know what kind of traps/pots and groundline are on the bottom by reading the information attached to the high flyer and/or buoy. Low profile groundlines should have a unique marking code and there should also be codes indicating seasonal fishery requirements.

Contingency Plan Discussion

Workshop participants agreed that there was too much variation in gear configurations to implement a general contingency plan for all (need to study recovered gear as much as possible). One participant suggested that contemporary forensic investigation techniques may be able to yield new information about the origin of gear that has been recovered from whales in the past.

In reviewing recovered gear, participants urged NMFS to be mindful of any trends in entanglement that may become apparent and be prepared to respond to those trends quickly. So if there was a trend in gear from a particular fishery or sector being found on whales, then that trend should trigger, for example, a timely conversion to sinking rope groudlines in that fishery or sector.

Some participants highlighted that past regulatory responses to declining whale populations due to whale entanglements has been too slow and that future efforts to mandate protective changes in fishery practices must occur more quickly. Other participants suggested that NMFS expand its current observation efforts (e.g., spotter planes) before mandating any changes in fishery practices.

Criteria for Deploying Low Profile Groundlines

As the workshop drew to a close, participants were asked, in light of the foregoing discussion, to provide their thoughts on some potential criteria NMFS might use to identify areas where low profile groundline would be appropriate. Some participants responded that potential low profile groundline should be deployed in reasonably risk averse areas (i.e., areas where monitoring and enforcement of the Potential Biological Removal Rate is possible) and where existing data indicates low use by offshore trap/pot fishermen. Additionally, these participants believed that low profile groundline should be considered in areas where using sinking rope groundlines would have the highest chance of causing gear damage and loss due to snagging on the rocky bottom, and have the highest chance of disturbing bottom structure organisms (e.g., soft coral).

An essential caveat to the discussion about the proposed criteria for deploying low profile groundline was underscored by several participants who stated that it has not been proven

whether low profile groundline is, in fact, risk averse. Without knowing this, they deduced that is premature to stay where it should be deployed. These participants also stated that the lack of a firm definition of low profile groundline hinders any further discussion of whether low profile groundlines would be risk averse; for example, is low profile groundline any groundline that floats one foot off the bottom, or ten feet off bottom? Some participants argued that the former is risk averse and that than the latter is not, especially in light of what is now known about whales' bottom-foraging behavior.

Workshop #2: Rockport, ME, September 22, 2005

General Comments. This workshop focused on Northeast Inshore areas. Dave Gouveia opened this workshop and after a round of self-introductions by the participants and observers (See Attachment A), he provided an overview of workshop's context and objectives (see *Opening Session* and *Context* sections above).

Discussion Following the Presentations.

Participants differed strongly over the extent to which the research data of large whale foraging behavior on sandy/gravelly bottoms in offshore areas could be extrapolated to predict foraging behavior of whales over the typically rocky bottoms of inshore areas. Specifically, participants differed on whether whale foraging data from the Gulf of Maine could be extrapolated to characterize foraging behavior along Maine's inshore areas.

Some participants believed it was unlikely that whales would invert and propel themselves along the hard, rocky bottoms of the inshore areas as they do along the sandy/gravelly bottoms of the offshore areas. And whether whales foraged on hard and sandy bottoms in the same manner, they asserted, could only be determined through conclusive research on whale foraging behavior over inshore rocky bottom areas.

Other participants suggested that because prey is known to live in close proximity to rocky bottoms, whales probably feed there as they would on sandy/gravelly bottoms. For these participants it was therefore reasonable to assume that whales foraged on hard, rocky bottoms in inshore areas as they forage on sandy/gravelly bottoms in offshore areas. One participant expressed hope that recent research on whale scarring will distinguish between scars caused by sand and those by rocks.

While participants maintained their differences on the inshore vs. offshore foraging behavior of whales, all participants agreed that more inshore foraging research was needed, though it would be difficult to conduct given how difficult it is to locate whales and affix tracking devices in shallower waters.

Participants also had strong disagreements about the presence of whales in inshore waters. Some participants believed whales are rare in coastal waters (i.e., within three miles) based on their personal observations during the many years they had been fishing. They argued that their observations were backed up by New England's Eco-Tourism cruises which also seldom see whales in large concentrations in coastal waters. Further, some participants commented that it is not yet clear whether whales are foraging or merely transiting through inshore waters.

One participant, who believed that there were significant populations of whales in inshore waters, emphasized that limited whale sightings do not constitute proof that there is not a large whale population in the area. The whales that are seen, it was argued, could well be only a fraction of the population that exists in any given area. This participant also noted that whether

foraging or transiting through coastal waters, whales are always susceptible to entanglement in floating groundlines.

Participants with opposing views conceded that a major consequence of banning floating rope groundlines – which several participants insisted floating groundlines was necessary for fishing Maine's typically hard, rocky bottoms – would lead to more vertical endlines in the water column (due to shorter trawls with fewer traps/pots) that could pose an even greater entanglement risk for whales.

Some participants, who were interested in the technical aspects of gathering data on whale foraging behavior, wanted to know if satellites could be used to track whale and prey movements. In response, it was pointed out that satellites can only receive limited amounts of data and fly over the target area only once or twice a day. One participant added that the current focus on right whales could hamper an improved understanding of how other species forage – even though the focus on right whales is likely to shed some light on how other species forage.

Some participants believed the presence of prey was a reliable predictor of the presence of whales, especially because of current research indicating that whales are uncannily adept at finding prey. However, other participants believed that whales do not follow prey in any way that can be reliably predicted. They explained, for example, that whales may occur in waters where they are not regularly surveyed. One participant added that it is whales' unpredictable movements and appearances that frustrate fishery managers' efforts to implement protective measures in a timely, consistent fashion.

One participant responded that the problem with long-term tracking devices is not the data recording components, it is the attachment mechanism. It is difficult to permanently attach recording devices in a way that does not compromise the health of the whale.

<u>Research Needs (for all species).</u>

After further consideration of the morning's presentations and discussion, participants were asked to suggest research areas that would help inform the feasibility of using low profile groundlines. High-priority research areas, which were identified later in the day, are indicated by ** below.

- ** Better Sighting Data. Some participants stressed that whale sighting data from specific coastal areas was essential to estimating the distribution and abundance of whales in these waters. Some priority coastal areas for conducting surveys included the Northern Gulf of Maine, Narragansett Bay, Block Island Sound and Lobster Management Area 1 and 2. One participant stated that existing databases should be mined to augment the current data on whale distribution.
- ** Whale Behavior Data. Some participants believed that more research was needed on the foraging, transiting and calving patterns of whales in coastal waters. It was stressed that the research must address the foraging behavior of whales on the rocky bottom. Some priority coastal areas for studying whale behavior included the Northern Gulf of Maine, Narragansett Bay, Block Island Sound and Lobster Management Area 1 and 2. One participant added that more data were needed on how whales behave at night.
- ** Quantify Fishing Effort. Some participants believed that the different types and location of fishing gear (not just traps/pots) needs to be better recorded and quantified. It would be

useful, for example, to know where and how much sinking rope groundlines are used and how many of those groundlines have toggles.

- ** Fishing with Sinking Rope. In noting that sinking rope groundlines have been successfully used on some rocky bottomed inshore areas, two participants cautioned that the success of such groundlines was due exclusively to the unique conditions where sinking rope groundlines are used. For this reason, they strongly cautioned that sinking rope groundlines could not be expected to work in other inshore waters.

  Still, other participants believed that there were important lessons to be learned in researching how sinking rope groundlines are successfully deployed – even in unique habitats. These participants urged NMFS to investigate fishing methods, gear and environments wherever sinking rope groundlines are currently being fished, especially over the hard, rocky bottom and adjacent habitats.

- ** Extrapolating Data. Some participants suggested that two inshore areas should be surveyed. It was hoped that this data could then be extrapolated to more aptly characterize whale behavior in other inshore areas. The survey should include data on gear use patterns, seasonal variations, substrates and whale species in the area.

  Some participants suggested that fishermen could be enlisted in the whale sighting effort and consulted during the selection of the two survey areas.

- Bottom Mapping. Some participants believed that better mapping of inshore bottoms was needed to inform further discussion of where low profile groundlines might be a viable option to sinking rope groundlines. Some participants pointed to the absence from the maps of known rocky bottoms as indication that the maps could be more accurate.

- Prey Data. Some participants commented that the existence of whale prey could serve as an indicator of where whales are likely to appear. Other participants disagreed, stating that whales may or may not be present where prey exists and further, doing prey research in several specific inshore areas would be prohibitively expensive and time intensive. Nevertheless, some participants believed that more data about inshore prey distribution, especially in rocky bottom areas, would be useful.

- Recovered Gear. It was suggested that NMFS inventory historical records on entangled fishing gear and analyze it for any clues that may indicate where the entanglements occurred.

- Sinking Rope. Though some participants insisted that sinking line was not operationally feasible on the rocky bottom that dominates Maine's inshore areas, there was still an interest in research to improve the abrasion resistance and overall durability of sinking rope that might be used for sinking rope and/or low profile groundlines.

- Ghost Gear. Because some participants cautioned that requiring sinking rope groundlines on the rocky bottom could lead to more gear being unrecoverable, they urged NMFS to consider the extent to which the use of more sinking rope and/or low profile groundlines might increase ghost gear overall.

- Groundline Performance. Some participants were interested in research to determine the extent to which groundline arcs between traps/pots are risk averse at different depths. For example, if a trawl of traps is set at 100 ft. depth, is a 25 ft. arc between the traps dangerous to whales?

- Tidal Mapping. Some participants believed that more research is needed to demonstrate whether strong currents in many inshore waterways effectively lowers the profile of floating rope groundlines by pushing the lines close to the bottom during strong tidal periods that can last up to 20 hours/day. If strong currents lower the height of groundline arcs, they argued, low profile groundlines in these areas may be unnecessary. Specific fast-tide areas mentioned included Long Island Sound, Narragansett Bay and Lobster Management Area 2.
- Entangled Whale Reports. One participant believed important information about whale entanglement case 2220 could be gained from interviewing the fisherman about the gear.
- Micro Chips Inserts for Rope. Participants acknowledged NMFS' ongoing research on micro chips that could be inserted into rope. The chips, which could be scanned from the air, would allow the scanner to identify the owner of the rope as well as the composition of the rope and whether it was groundline, endline, sinking line or low profile line. Effectively, the chip could be encoded with any kind of information about the fishing gear.

  Some participants suggested that inserting the micro chips could be problematic. Another participant suggested that perhaps the chips could be inserted and encoded by the rope retailer or by fishermen using a device similar to a rope counter.

Fishing Industry Discussion.

After the lunch break, participants were asked to provide input on the kind of information about regional fishing operations and conditions that would be needed to inform decisions about where low profile groundlines should, or should not, be deployed.

In addition to research that elucidates the behavior, abundance and distribution of whales, some participants responded that more comprehensive maps of Maine's inshore areas and bottom types was needed. One participant suggested that this kind of data could be compiled from a variety of sources, such as side-scan sonar surveys and bathymetric charts developed by some fishermen. It was pointed out, however, that these sources may exist in different formats that would complicate compiling them into one comprehensive database.

Line Marking Discussion.

Some participants believed that the proposed line marking scheme (a four inch mark/10 fathom length of rope) was unworkable because of the wear and tear that occurs while the rope is in the water, on the bottom and hauled aboard. They also believed that the proposed gear marking scheme would require manufacturers to produce different color-coded ropes for each of the different state fisheries along the Atlantic coast. They doubted whether manufacturers could coordinate with the fisheries to this extent.

The participants also believed that the line marking scheme would be used by enforcement authorities to assess blame to individual fishermen rather than to learn where the line came from so that fishery management strategies could be adjusted. They also believed that "bad actors" would evade authorities by using line designated for other areas and fisheries.

When NMFS informed the participants of the agency's recent efforts to develop and test a micro ID chip that could be inserted into the rope, they were intrigued; but they questioned the operational feasibility of personally inserting the chips into the rope. NMFS replied that a simple device could be developed – similar to a rope counter – that would insert the chips as the rope was pulled through.

Contingency Plan Discussion

While some participants agreed with the concept of a contingency plan (i.e., a plan to change fishery management practices in response to whale entanglements in low profile lines), they emphasized that such a plan must be implemented expeditiously to be sufficiently protective of whales. They pointed to past regulatory actions that took too long to implement protective practices as examples of regulatory responses to entanglements that were implemented too slowly.

Consequently, these participants suggested that a "blue ribbon" panel should be convened to review entanglement trends and quickly make recommendations to NMFS on the appropriate responses to reverse those trends. One participant stressed that informed, quick and decisive adjustment to ineffective fishery management practices was the only way to ensure the conservation of whale species. Other participants felt the ALWTRT was the most appropriate group to discuss these issues.

Closing Comments

As the meeting drew to a close, several participants expressed disappointment that representatives of the shipping industry and Navy were not present. They believed that shipping and naval vessels should bear more of the burden of whale conservation. NMFS assured all participants that the shipping industry and Navy's impact on whale populations was being addressed through other processes.

Workshop #3: Atlantic City, NJ, September 26, 2005

General Comments. Diane Borggaard welcomed participants to this workshop which focused on northern Mid-Atlantic inshore and offshore areas. After a round of self-introductions by the meeting participants and observers (See Attachment A), she provided participants with an overview of workshop's context and objectives (see *Opening Session* and *Context* sections above.)

Discussion Following the Presentations.

One participant observed that there seem to be similarities in the way that right whales and flamingoes use their jaws and tongues to forage. The participant suggested that studying how flamingoes forage in shallow ponds might suggest how whales forage on the sea floor, emphasizing that both mammals make contact with the bottom at a downward angle with their heads inverted. While in that position, whales may use their tongues as flamingoes do, i.e., to draw water into their mouths and then to squeeze the water out, trapping prey in their mouths. The participant concluded that the downward angle of a flamingo's foraging activity and the suction that may occur could mean that whales could become entangled even in sinking rope groundlines.

Dr. Moore responded that current research indicates whales and flamingoes use their tongues differently, but added that while whales are inverted and moving along the bottom with their mouths open there may be some suction that draws bottom sediment into their mouths. The strength of this suction is not known.

One participant sought to confirm that the data presented on whale foraging behavior were compiled in areas with sandy bottoms, pointing out that much of the fishing off the New Jersey coast is done on the rocky bottom, wrecks and debris fields.

In response, Dr. Moore confirmed that it is not known how whales forage on the rocky bottom.

Several participants requested to be notified the next time a whale necropsy is conducted in their area. They were interested in learning more about the gear that caused the entanglement and how determinations are made about where the entanglement occurred.

Participants differed on the shallowest depth of water that whales were likely to visit. Some participants believed that inshore waters were unlikely places for whales to visit. However, one participant reported seeing whales inverted, with their flukes in the air, in shallow New England waters. Another participant reported cases of whales in Mid-Atlantic waters as shallow as ten to 30 feet, though it was not determined whether the whale was feeding at the time.

Some participants observed that the *Calanus* and copepods identified by the research as right whales' primary prey were not indigenous to inshore Mid-Atlantic waters. These participants questioned why whales would be present in the Mid-Atlantic if their major food sources were not also there. One participant suggested that whales may be attracted to the area to feed on mysid shrimp and krill. This participant added that there was once a whale fishery in the Chesapeake Bay, so there is historical evidence that whales once foraged in the area.

Another participant explained that there is a whale watching industry in Cape May that has reported seeing whales within a 20 mile radius of port. The participant reported that in 1996, one whale watch vessel reported seeing right whales skim feeding. The participant added that reliable information about whale sightings by whale watching vessels is difficult to acquire because it is closely guarded by whale watch captains who – to maintain their competitive edge in the marketplace – would rather not reveal proprietary sighting information. Another participant explained that opportunistic sightings by whale watchers should be coordinated with a larger whale sighting database.

A comment about two ship strikes at the mouth of Chesapeake Bay led to a brief discussion of how fishing entanglements compare to ship strikes as a cause of whale mortality and injury. One participant believed fishermen were carrying the burden for reducing whale entanglements because they were a small, identifiable group.

Another participant countered that the extent of whale injuries or mortalities due to entanglements often evades detection since deaths or injuries caused by entanglements occur more slowly and can result in the whale sinking rather than being washed ashore. The participant added that, whether by ship or fishing gear, the goal should be to significantly reduce whale injury and deaths whatever their cause.

Some participants stated that while whales are known to transit the east coast, from Massachusetts to Florida, sometimes accompanied by their calves, much is still not known about whales at specific points along the way. The only way to acquire definitive information about whale behavior during their migration/travel is to track them over the long-term.

Consequently, some participants pointed out that efforts are underway to develop implantable satellite transmitters that will not compromise the whales' health or get damaged in the process of whales bumping into each other. Once a safe, long-term implantation technique is developed, tracking whales for extended periods of time will be possible.

Documented reports of stranded whales in New Jersey waters from 2002 to 2004 were offered as evidence of the presence of whales in the area. Because of a right whale bias in current conservation efforts, one participant believed that humpback whales problems are too often overlooked, despite that fact that they have been seen entangled in gear off the North Carolina coast.

Despite reports of whales in the Mid-Atlantic, some participants cited their experience at sea to support their belief that whales are seldom present in New Jersey fishing areas. Further, they explained that there were no more than 12 New Jersey lobstermen and the threat their gear posed to whales must be quite minimal. One of these participants stated that when he has seen whales it is usually in the spring when the whales seem to be just passing through.

Research Needs (all species)

After further consideration of the morning's presentations and discussion, participants were asked to suggest research that should be related to low profile groundlines. High-priority research areas, which were identified later in the day, are indicated by ** below.

- ** Buoy Density. Conduct aerial surveys of fishing buoys to calculate buoy density and consequent entanglement risks; i.e., the greater the buoy density, the higher the entanglement risk. Some participants believed that a buoy-density threshold should be developed below which entanglement risks are considered negligible. Density calculations could factor in the number of traps/pots per trawl.
- ** Growth Potential of New Jersey Fishery. Analyze the negative growth potential of the New Jersey fishery to assess the entanglement risks it poses for whales. Some fishermen pointed out that it is unlikely the number of traps/pots will increase in the future.
- ** Whale Surveys. Use fishermen to assist in spotting whales. One participant stated that whales spotted by fishermen could be cross-checked against aerial survey data. Aerial surveys in the winter would help quantify whale distribution, abundance and behavior patterns in the Mid-Atlantic.
- ** Rope Marking Scheme. Research a line marking scheme that links entangled gear to the origin of the entanglement. One participant pointed out that this approach, however, is not preventative.

  Further, any rope marking schemes will require coordination between federal and state fishery agencies and rope manufacturers. Production of specially marked rope (e.g., floating rope, sinking rope or lead weave) in a timely manner will depend on the availability and cost of raw materials needed for rope production.
- ** Whale Behavior in the Mid-Atlantic. Research the behavior of whales in the Mid-Atlantic area. Current foraging data does not indicate how whales forage on or transit through the rocky bottoms, wrecks and debris fields most commonly fished in the Mid-Atlantic. Whale behavior data from New England areas cannot be extrapolated to Mid-Atlantic areas due to differences in prey, bathymetry, gear density and fishing practices. Requiring gear modifications in the absence of Mid-Atlantic-specific research may be problematic.

  Acoustic buoys could be used in these areas to monitor and record whale activity in these areas. However, attaching tags to whales transiting through shallow Mid-Atlantic waters may be difficult.

Mid-Atlantic areas warranting research include: “Shrewsbury,” “Rock Pile,” 65 miles Southeast of Cape May, South of Virginia border and “17 Fathom Bank.”

- ** Low Cost Low Profile Line. Research ways to lower groundline profiles that are effective and affordable, e.g., using lead weave rope instead of more expensive sinking rope. In addition, analyze groundline configurations that could reduce gear loss that might result from the exclusive use of sinking rope groundlines.
- ** Sea Bass Exemptions. Consider exempting New Jersey Black Sea Bass fishery from low profile or sinking rope groundline requirements because sea bass pots 1) are already identified as sea bass-only pots; 2) are fished mostly on and around wrecks (that whale are unlikely to visit); and 3) are built differently than lobster pots. If an exemption of sea bass pots is not possible, then consider exemption for sea bass pots fished on and around wrecks. Several participants noted that a wreck-by-wreck exemption would be unworkable.
- ** Prey Distribution. Conduct research to identify and quantify whale prey in the Mid-Atlantic. Fishermen could be recruited to conduct plankton surveys when whales are sighted.
- Whale Necropsies. Coordinate state efforts to provide facilities for the expeditious conduct of necropsies. Identify areas to take dead whales and ways to dispose of them, as well as other logistical issues. Quicker necropsies would yield better information about how and where whales were entangled.
- Avian vs. Whale Foraging. Conduct research into the similarities between flamingo and whale foraging behavior and physiology.
- Recovered Line Forensics. Use modern forensic techniques to analyze fishing lines that have been recovered from entangled whales to ascertain the relation between the type of rope and the type of entanglement. Also review and analyze NMFS catalog of entangled gear for clues of origin.
- Comprehensive Bottom Mapping. Develop map that accurately displays depth and location of rocky bottoms, wrecks and debris fields most commonly fished in the Mid-Atlantic. Some information of this kind may already be available from scuba diving organizations and universities.
- Gear Research. Encourage manufacturers’ research on and development of rope break strengths (e.g., rope that would break at 600 lbs. and therefore obviate need for 600 lb. weak links) and line marking schemes. NMFS should research potential low-cost, low profile trawl configurations and alternatives. For example, what is the shortest operable distance between traps/pots?
- Recreational Boater Education. Through a promotion campaign, educate recreational boaters about how tying on to fishermen’s buoys causes lost gear.

Fisheries Discussion

Much of the discussion about fishing conditions in New Jersey and nearby waters centered on the extent to which the small size of the fishery could pose a significant entanglement threat to whales. Participants who believed the fishery posed a minimal risk cited the following facts:

– There are only 30 commercial fishermen in New Jersey. They set trawls on and around wrecks almost exclusively. Delaware and Maryland each have 6 fishermen;
– New Jersey is a limited-entry fishery, meaning there will be no growth in the number of fishermen. In fact, the fishery size is likely to decline; and
– The small size of the fishery makes enforcement easy, either at sea or dockside.

Some participants believed that the minimum height for low profile groundlines must be five to six feet; any lower and the groundline would be difficult and unsafe to grapple and often unrecoverable. One participant noted that lowering groundlines from historic heights of 20 feet to five/six feet would represent a substantial risk reduction. It was noted that the reduction in the amount of gear in the water that has resulted from the shrinkage of the New Jersey fishery over the past few years should be counted toward the risk reduction goal.

One participant responded that current data suggests that over a third of the Atlantic large whale population is unaccounted for. In light of this statistic, the participant argued that it is unlikely that Mid-Atlantic fisheries have not played some role in the decline of large whale species. The participant added that although the density of Mid-Atlantic fishing gear is significantly less than New England's, that density still represents entanglement risks that could have a significant impact on a dwindling whale population.

Habitat Discussion

Vincent Guida provided participants with a brief presentation on New Jersey Nearshore Habitats. The presentation included visual displays of bathymetric charts showing the position of significant ship wrecks, boulder/rock formations and dump sites. He stated that it seemed unlikely that whales would forage in these locations as they would on sandy/gravelly bottoms. He added that regional scuba diving organizations keep detailed maps of wrecks and suggested that these maps could be overlaid with whale sighting data to assess whale behavior around ship wrecks.

Mr. Guida also explained that thick densities of krill are known to visit the Hudson Canyon shelf, rim and walls. When it was suggested that whales may be feed on mysid shrimp, one participant explained that mysid shrimp probably move too quickly for whales to catch.

Rope Marking Discussion

Participants acknowledged the need for a rope marking but tended to agree that implementing a workable marking scheme is technically infeasible and would require unprecedented levels of coordination between rope manufacturers and federal and state fishery agencies that would take many years to successfully implement.

They believed the proposed rope marking scheme (i.e., a four-inch mark every 10 fathoms) was technically infeasible because of the 1) wear and tear on rope that would abrade any markings; and 2) the usual operation and maintenance activities (e.g., cutting and splicing rope) that would frustrate efforts to maintain a 10 fathom distance between the marks.

In response to the notion of uniquely coded ropes (e.g., rope with uniquely-colored strands woven into it) as an alternative rope marking scheme, participants doubted whether rope manufacturers and federal and state fishery agencies could coordinate a unique marking scheme that could reliably link entangled rope to specific fisheries or individuals. In addition, concerns

were expressed about the ability of manufacturers to provide enough uniquely marked rope in a timely manner and at an affordable cost.

Given the difficulties of maintaining, coordinating and producing the current rope marking schemes, participants were informed about NMFS' research into micro chips – about the size of a grain of rice – that could be encoded with fishery information and inserted directly into any kind of fishing rope. Glenn Salvador explained that micro chips potentially could be scanned from the air.

In concept, participants agreed that any rope marking scheme or technology should yield the information about which fishery the rope came from and the name of the fisherman it belongs to. It was stated that fishermen can deduce a variety of information from recovered rope such as the area where the rope was used and the kind of gear it was attached to.

Contingency Plan

A contingency plan would be triggered in cases where it could be proven that some number of whales had become entangled in low profile groundlines. The plan would require that the responsible fishery quickly convert to more protective measures, such as using sinking rope groundlines.

Participants declined to discuss a contingency plan in depth, pointing to the current inability to link entangled gear to specific fisheries or individuals. Nevertheless, some participants suggested that it might be possible to determine the origin of some recovered rope by more closely analyzing the small particles trapped in the rope strands. If those particles can be linked to particles unique to specific fisheries, then it might be possible to consider a contingency plan.

Workshop #4: Virginia Beach, VA, September 28, 2005

General Comments. Diane Borggaard welcomed participants to this workshop which focused on central Mid-Atlantic inshore and offshore areas. After a round of self-introductions by the meeting participants and observers (See Attachment A), she provided participants with an overview of workshop's context and objectives (see *Opening Session* and *Context* sections above).

Presentations

On behalf of Drs. Mark Baumgartner and Michael Moore, Mason Weinrich provided the presentation on the foraging ecology and the anatomy of right whales. He also provided his and Dr. Wiley's presentation on *Humpback Whales in the Great South Channel*. All three presentations are discussed in the Presentation section above.

Susan Barco provided a brief overview on whale sightings and observations in the nearshore waters of Virginia, mostly from November through May, though some whales have been seen during the summer months. Ms. Barco stated that whales have been seen feeding on small fish in the area (e.g., menhaden, anchovies and other small schooling fish). She added that while it is not clear how whales may be transiting or calving in the area, they have been sighting in shallow waters and even in the breakers just offshore. Some whales were sighted in areas further offshore in waters they were not previously known to visit. It was stated that the juvenile whales often sighted in the area are at the greatest risk of entanglement, and that pregnant whales and whales with calves have also been spotted.

The available stranding data indicates that 40% of the stranded whales were entangled and 60% were struck by ships. Ms. Barco added that most of the gear recovered from the stranded whales was gillnet gear, though one pot had also been recovered. It was noted that it is still unknown how whales manage to become entangled.

Discussion Following the Presentations.

Most of the questions following the presentations focused on what could be inferred from the stranding data and the mostly anecdotal and opportunistic sighting information. One participant suggested that whales struck by ships in shallow waters usually die quickly and wash up ashore soon thereafter. On the other hand, entangled whales may take a longer time to die and may do so in deeper water where they are less likely to wash ashore. Another participant added that injuries due to entanglement could compromise the health and reproductive capability of whales. A participant added that gear scars found on whales that died by ship strike could suggest that entangled whales are especially susceptible to ship strikes.

Participants spent some time discussing what constitutes an unacceptable level of whale deaths caused by entanglement and/or ship strikes. One participant stated that in the last 10 years, between 20 – 30 whales were killed due to entanglement or ship strike. For some participants, these mortalities were unsustainable and unacceptable; other participants were less certain.

When presented with sighting information that up to 37 whales were seen during a 10-day survey conducted in February and March of 1994, one participant observed that Virginia fishermen's gear was not in the water during those months.

Research Needs (all species)

Many participants suggested that there are two major competing research priorities that NMFS should weigh: more and better whale distribution and abundance surveys vs. a sinking rope/low profile groundline cost share program. Some participants pointed to the limited funds available to the agency as cause to focus those funds on only one research priority.

If the agency were to fund a cost share program, some participants stressed that more research will be needed to develop low-cost alternatives for lowering groundline profiles to one foot. Several participants cited a variety of performance and cost factors that would have to be overcome before affordable low profile configurations would perform reliably. It was noted that groundlines that would most reliably maintain a low profile are expensive and difficult to work with. Further, rope manufacturers would need considerable time to develop, test and produce rope that reliably maintains a low profile.

One participant suggested it would be best to fund a cost share or buy back program for floating rope since it is unlikely that low profile groundlines will be allowed if sinking rope groundlines are required in 2008 by the ALWTRP rule. In essence, the participant was not optimistic that a less stringent regulation (i.e., low profile groundline) could ever supercede a more stringent regulation (i.e., sinking rope groundline).

After further discussion, participants were asked to suggest research that should be conducted before any action is taken to allow low profile groundlines. High-priority research areas, which were identified later in the day, are indicated by ** below.

- ** Whale Surveys. Improve and expand whale inshore and offshore surveys:

- Conduct more surveys year around in the Mid-Atlantic area, especially during the fishing season when whales area most likely to interact with fishing gear;
- Separate hard survey data from anecdotal data;
- Refine stranding data to indicate what kind of gear caused what kind of injury;
- Inventory, compile and analyze all existing data; and
- Track all threats whales confront, from ship strikes and military sonar.

- ** Low Cost Alternatives to Low Profile Groundline. Explore ways to subsidize or share the cost (e.g., through a rope buy back program) for fishermen transitioning to low profile and/or sinking groundlines. One participant believed that providing this kind of financial assistance would ensure a speedier transition to sinking rope and/or low profile groundlines.

- ** Gear Research. Adopt a flexible approach to low profile groundlines that will
  - Allow for different, low cost gear configurations that can lower groundline profiles (e.g., lead core weave rope and weighted polyester and polyethylene rope);
  - Set a height for the arcs in low profile groundlines that is risk averse;
  - Provide a rationale for the suggested one-foot high arcs in low profile groundlines that is supported by evidence of how whales may interact with low profile groundlines. Participants differed in their assessment of whether the current research indicates that a one-foot high arc is risk averse.

- Whale Behavior. Research how, where and when large whales use Mid-Atlantic waters to transit, forage and calve. Provide information on how whales behave at night.

- Quantifying Risk. At what point is a low risk of whale entanglement achieved. A risk assessment of entanglement risks in the Mid-Atlantic should be conducted to quantify the risk of whales becoming entangled in Mid-Atlantic trap/pot gear.

- Predicting Whale Behavior. To what extent is prey a reliable indicator of where and when whales may appear? Participants differed on this question. Some believed that whales are likely to appear where prey is abundant. These participants therefore urged that more research is needed to determine when prey appears in Mid-Atlantic waters.

  Other participants, however, maintained that while whales have an uncanny ability to locate dense swarms of prey, whales sometimes appear where there is no prey. These participants concluded, therefore, that the presence of prey is not a reliable indicator of where and when whales may be present.

- Effectiveness of Sinking vs. Floating Groundline. Analyze the relative sea bass-catching effectiveness of traps/pots rigged with sinking rope groundline and low profile groundline. Participants were concerned about the economic impact of low profile (and sinking line) groundline that would cost more yet be less effective at catching fish. How currents affect the performance of this fishing gear should also be analyzed.

- Proxies for Mid-Atlantic Habitats. Conduct research on habitats similar to the sandy bottoms and wrecks that characterize the majority of Virginia's fishing habitats. Data from New England habitats – characterized mostly by rocky bottoms – cannot be extrapolated to explain how whales may behave on the sandy bottoms and in the vicinity of wrecks that characterize most Virginian fishing habitats.

Some participants believed that habitat from areas as nearby as New Jersey may not be appropriate proxies for Virginia habitats. They said that the unique geography of such areas as Diamond Shoals, the mouth of the Chesapeake Bay and areas where and debris has been dumped by the Navy, combined to make Virginia's habitats significantly different from seemingly similar habitats in New Jersey.

The National Oceanographic and Atmospheric Administration's "Wrecks, Hangs And Obstructions" could be a useful starting point for characterizing Virginia's and other Mid-Atlantic habitats.

Fisheries Discussion

Participants spent considerable time discussing the nature of the Virginia fishery. Fishermen believed their gear was not a major source of entanglements because:

- The cost of compliance with the many and various mammal take reduction plans has already driven many fishermen out of the business. For example, there are three sea bass fishermen from Virginia Beach; 33 fishermen statewide; and six in Ocean City, Maryland.
- Most Virginia fishermen use 18-25 traps/pots per trawl, or a total of about 1,200 traps. Trawls are up to 1,000 feet long, with 20-100 feet between traps. Inshore 3/8 inch diameter floating rope is used for groundlines; offshore 7/16" diameter floating rope is used for groundline.
- The low density of gear poses little threat to the few whales that have been sighted in the area.
- There is no wintertime fishing.
- Most fishing is done 30 to 50 miles off shore in water 50 to 100 feet deep.
- Most fishing is done in rocky or debris-strewn areas, or around wrecks and reefs.

Participants explained that floating rope groundlines are essential to their fishery because groundlines are often buried by sand kicked up by the tides and/or the Naval ships that frequent the area. Recovering floating rope groundlines under these conditions is difficult; recovering sinking rope groundlines might be impossible. Additionally, recreational crafts and Naval ships often pull off buoys and drag fishing gear along the bottom for considerable distances. Grappling such gear off the bottom would be difficult with sinking rope groundlines and only slightly easier with a low profile groundline height of one foot.

One participant observed that trap/pot trawls are usually set in a North/South orientation, parallel to the likely migration routes of whales. He then suggested this may be more risk averse than if the trawls were set in an East/West orientation, which would be perpendicular to the path of migrating whales.

A participant explained that although fishing gear off the Virginia coast is indeed less dense than New England gear, the gear still posed a threat in light of the dwindling number of endangered right whales and other species. From this perspective, the participant observed that the entanglement of one whale could indicate a downward trend in large whale populations.

All participants were interested in Glenn Salvador's overview of NMFS' tests of the viability of electronic chips that could be inserted into rope and encoded with information about the rope owner. The tests are being conducted to assess the scanning, hauling, abrasion and installation

issues of using the chips. Some participants were most interested in how the chips could be installed in the thousands of feet of rope currently in use and yet to be bought.

Habitat Discussion

When asked where they believed low profile groundline should be considered, some participants believed that low profile groundline should be allowed when fishing on wrecks. Other participants believed that fishing areas south of New Jersey that have rocky bottoms and wrecks should be exempt from all groundline restrictions given the paucity of data about how whales interact with such habitats. These participants also believed that the sandy areas south of New Jersey should be exempt from any groundline restrictions for the same reasons. One participant added that if low profile groundlines and sinking rope groundlines were both allowed, there would be logistical problems involved with managing two types of gear and rope, one for sandy bottoms, the other for wrecks and the rocky bottoms.

Contingency Plan Discussion

One participant believed that the agency's assumption that low profile and/or sinking rope groundline would reduce or prevent entanglements precluded the need for a contingency plan. Nevertheless, other participants stated that a contingency plan should be considered in case low profile and/or sinking rope groundlines are not successful at eliminating or reducing entanglements to acceptable levels. These participants stated that the key to any contingency plan is quick response to any upward trend in entanglements.

Workshop #5: Atlantic Beach, NC, September 29, 2005

General Comments. Diane Borggaard welcomed participants to this workshop which focused on southern Mid-Atlantic inshore and offshore areas. After a round of self-introductions by the meeting participants and observers (See Attachment A), she provided participants with an overview of workshop's context and objectives (see *Opening Session* and *Context* sections above).

Presentations

On behalf of Drs. Mark Baumgartner and Michael Moore, Mason Weinrich provided the presentation on the foraging ecology of right whales and the anatomy of whales. Mr. Weinrich also provided his and Dr. Wiley's presentation on *Humpback Whales in the Great South Channel*. All three presentations are discussed in the Presentation section above.

Discussion Following the Presentations.

Participants responded to the presentations with a few clarifying questions about the foraging ecology and anatomy of whales and the distribution and abundance of prey. Several participants appreciated hearing the latest information about whales and prey, though they were somewhat apprehensive about the relevance of such information to their area. Some participants believed their fishery was significantly different from the New England areas where the whale and prey data were developed.

Participants provided several anecdotal stories of whale sightings in North Carolina waters. One participant stated that they had seen whales close to shore between Chesapeake Bay and Cape Hatteras, in less than 20 feet deep. This participant reported seeing raw patches on the jaws of

the whales, as though they had been foraging on the sandy bottom in the manner described in the presentations. One participant noted that whales had been seen three to four miles off Wrightsville Beach, Cape Fear and Virginia Beach, although none had been seen there in the last two years. Another participant reported seeing whales just off the Atlantic Beach pier as well as approximately 55-65 miles off Cape Fear.

One participant suggested that whales are most often sighted in the spring and fall, when water temperatures are cooler. The participant added that when whales have been sighted in summer, they are usually moving through cooler waters close to the sea floor.

Upon learning about the sightings, a participant cautioned that such sightings are not always a reliable indicator of the presence of whales. For example, a whale can take a 10 minute dive and come up for air for only two minutes. Consequently, it is visible for 15% of the time it is within view. The participant added that with such a small window for spotting them, observers can easily overlook them.

Several participants acknowledged the difficulty of spotting whales and reliably documenting their locations are the major reasons why long-term surveys are needed. It was pointed out that current whale sighting databases are too small, inconsistent and unverifiable to conduct a statistical analysis of whale abundance and distribution in the area.

Additionally, one participant stated that the difficulty of tagging humpback whales in shallow Mid-Atlantic waters increases the likelihood that data from other locations may have to be extrapolated to characterize how whales behave in the southeastern Mid-Atlantic. Nevertheless, some participants believed that a highly mobile "digital tag swat team" should be located in the Mid-Atlantic area that could rush to areas where whales are sighted. It was suggested that the swat team could be modeled on the current disentanglement teams. One participant suggested that perhaps whale cruises could be equipped to attach the tags; however, another participant replied that attaching tags is a highly specialized skill that would be difficult for cruise ship crews to master.

Until better data on whales is available, one participant believed that NMFS should compile and QA/QC the existing whale sighting/entanglement databases and re-analyze the old and recent gear that has been removed from entangled whales for clues to origin of entanglement. One participant urged the agency to take a more aggressive stance to address ship strikes by military and commercial ships.

<u>Research Needs (all species)</u>

Participants suggested research areas that should be conducted related to low profile groundlines. High-priority research areas, which were identified later in the day, are indicated by ** below.

- ** Risk Assessment. Hire a risk assessment professional to quantify entanglement risks. One participant believed that the science of risk assessment should be brought to bear on the factors that contribute to entanglements. It was suggested that a risk assessor could establish the relation between, for example, gear soak times and entanglement risks. The participant added that overlaying gear locations with whale locations could also inform a useful risk assessment.
- ** Bottom Mapping. Map bottom types North and South of Cape Hatteras. One participant expressed a need for a robust mapping of North Carolinas waters that would include pictures

and descriptions of bottom types. This mapping should distinguish between hard, rocky and live bottoms.

Until comprehensive mapping efforts get underway, one participant suggested that existing habitat maps should be QA/QC'd and overlain with maps of fishing efforts. Combined, these two maps would indicate areas where entanglement risks are greatest.

- ** Gear Mapping. Map area of greatest fishing efforts. Some participants believed that more data should be collected about the kind of fishing gear that is in the water, where it is located and how long it is left at those locations.
- ** Gear Research. Groundline Performance. Research characteristics of low profile and sinking rope groundlines during changing tides and heavy weather events. Some participants believed that the profile of floating rope groundlines might be lowered to acceptable heights by the flow of tides. Some participants believed that mini loggers should be used over a full fishing season to document how do different kinds of rope react to different currents and different kinds of bottoms. The abrasion resistance of rope should also be researched.
- ** Whale Surveys. Conduct abundance and distribution surveys (multi-year and year-round). Participants believed that aerial surveys and acoustic buoys should be deployed to achieve a better understanding of whale abundance and distribution in the southern Mid-Atlantic. Potential differences (north and south of Cape Hatteras) should be investigated.
- ** Whale Behavior. Conduct long-term research on the behavior of whales that are spotted in the area. More needs to be understood about how whales forage on the rocky and high relief bottoms in the area as well as how they behave while transiting. One participant stated that digital tags or satellite tags could be used to provide data on whale behavior if they could be attached to whales in a way that did not jeopardize their health.

  If long term tracking is not possible, participants agreed that seasonal tracking –for example, December thorough March is a predictable time period to find whales – could yield crucial data about whale migratory patterns. It was noted that the University of North Carolina at Wilmington, may have some whale tracking data and should be consulted before further tracking activities begin.
- Impact of Sinking Rope on Soft Coral. Research the impact of low profile and sinking rope groundlines on soft corals.
- Distinguish between impacts of sinking groundline on hard and live bottom (e.g. lobster).
- Investigate height of groundline and whether it would be lowered if groundline is stretched out and traps are set far apart (throw traps 30' apart). Also investigate impacts of weather on profile of the groundlines.

<u>Fisheries Discussion</u>

Considerable time was spent discussing the Black Sea Bass fishery in North Carolina and the regional fishery management councils that govern it. There is no conch fishery in the state and only an insignificant blue crab fishery.

Fishing grounds south of Cape Hatteras (including Virginia) are regulated by the Mid-Atlantic Fishery Management Council through the Black Sea Bass Management Plan, which was designed to prevent overfishing. Under this plan:

– The sea bass fishery is a limited-entry fishery;
– A permit is required for participation;
– Permit qualification is based on the catch history of Black Sea Bass;
– The permit is assigned to the vessel and transferred only through the sale of the vessel; and
– The commercial portion of the quota (48%) is assigned to states from North Carolina to Maine by percentage shares based on that state's landings of sea bass.

Fishing grounds north of Cape Hatteras are regulated by the Snapper/Grouper Fishery Management Plan of the South Atlantic Fishery Management Council. Under this plan:

– The sea bass fishery is a limited entry fishery;
– A permit is required for participation;
– Permit qualification is based on the catch history of the individual and assigned to the individual;
– The permit can be transferred; however, the management plan requires a 2-for-1 permit exchange as an effort reduction measure in the snapper/grouper (and sea bass) fishery.

It was pointed out that Black Sea Bass stocks south of Cape Hatteras were recently designated as overfished; consequently, the South Atlantic Council is initiating action to reduce effort in the sea bass fishery. The following regional characteristics of the Black Sea Bass trap/pot fisheries in Virginia and North Carolina were described by local fishermen and a state fishery management official.

Virginia receives 20% of the commercial Black Sea Bass quota and assigns individual fishing quotas based on catch history. The pot fishery receives most of the quota share. Approximately 42 vessels qualified for a Directed Fishery Permit by having Black Sea Bass landings of at least 11,000 lbs. between July 1997 and December 2001. Though the number of pot, trawl and gillnet permits remains constant, pot fishermen received a greater share of the state quota because they had higher landings.

The fishing gear used in Virginia usually consists of large habitat-type pots (i.e., not baited) that are set for approximately 30 days. The pots are fished on a weekly basis. Some fishermen set hundreds of pots.

North Carolina – north of Cape Hatteras – receives 11% of the Mid-Atlantic/New England Black Sea Bass commercial quota. The quota is managed coast wide and is available to all vessels holding a federal Black Sea Bass permit. Most of the quota is harvested by the other Otter Trawl fishery. Approximately five fishermen prosecute the pot fishery for sea bass north of Cape Hatteras to the Virginia/North Carolina border.

Pots in this area are small, approximately two foot cubes, baited and set on the hard bottom or near wrecks. Fishermen normally use 40 or fewer pots per set at a depth of 30-50 fathoms, though the pots are sometimes set at 15-25 fathoms in November and December. Traps/pots are hauled approximately every two hours and taken back to port when the fishing day ends. Pots are set daily but some are left overnight. Unanchored trawls of up 8-12 pots are most common. Most

of the fishing is done on structures (i.e., rocky, high-relief bottoms and wrecks) that are located 25-40 miles off the coast.

North Carolina – south of Cape Hatteras – manages the Black Sea Bass fishery through a Total Allowance Level that is controlled through size limits, possession limits, seasons and limited access permits. Pots used in the Black Sea Bass fishery in this area are similar to those used in north of Cape Hatteras, i.e., they are baited and set on the hard bottom and near wrecks. Two-pot trawls are frequently used. These trawls are sometimes set overnight and fished the following day. The number of pots varies from 12-20 per fisherman. Workshop participants estimated that there were probably 30-35 fishermen in the area.

Given the small number of fishermen, the large area they fish (i.e., from Virginia to the North Carolina/South Carolina border), and the infrequent sightings of whales in that area, many participants did not believe that their gear represented a significant entanglement risk to whales. Additionally, one participant noted that there has not been a documented large whale entanglement in black sea bass pot gear.

Other participants, however, differed in their assessment of entanglement risks. These participants believed that entanglement risks have to be viewed in the context of declining whale stocks that make the loss of even one whale a significant step toward the loss of the species. They recognized that evermore stringent fishing regulations would impose a hardship on the fishing industry but asked participants to contemplate the loss of the species if aggressive measures are not taken to halt the decline of the species.

Habitat Discussion

Dr. William Kirby-Smith provided participants with a brief overview of the ocean floor habitat in the North Carolina area. He explained that the area is characterized by sandy/gravelly bottoms with a few rocky and high-relief bottoms. Soft coral areas – or "live" bottoms – are widely dispersed, fragile and small. He cautioned against damage to live bottoms that could be caused by low profile and sinking rope groundlines. He also noted that low profile or sinking rope groundlines could be irrecoverably snagged on the hard, jagged bottoms in the area.

Some participants recognized that a better understanding of prey in the area could serve as a predictor of where whales are likely to appear. Other participants believed that it more important to tag whales to improve the current understanding of how whales use the water column. One participant stated that long-term whale and prey research should be conducted simultaneously.

Contingency Plan Discussion

Rather than discuss the potential components of a contingency plan, participants identified the issues that any contingency plan should address. One participant, for example, observed that NMFS must be prepared to act if massive whale loss results from the deployment of low profile or sinking rope groundlines. In this case, the participant pointed out, implementing the appropriate measures to protect whales would have massive financial impacts.

Another participant emphasized that any contingency plan should be triggered only by verified sightings of entangled whales. Noting how the public often blames fishermen for entanglements

based on erroneous sightings, the participant urged NMFS to consider closures only when sightings of entangled whales have been confirmed.

In addition to confirmed sightings, a successful contingency plan would depend on a gear marking scheme that would prove that the recovered gear came from a particular fishery and/or fisherman. In the absence of such a gear marking scheme, some participants found it difficult to discuss a contingency plan.

One participant pointed out that it was conceptually difficult to discuss a contingency plan for a fishing regulation that does not yet exist (i.e., a low profile groundline requirement). The participant therefore stated a preference for proof that current regulations do not work before any new regulations are imposed.

One participant stated that decisive action should be taken if it happens that low profile groundline is not effective at reducing entanglements. This statement reflected the participant's belief that the slowness of past efforts to address entanglements should not be a model for a contingency plan.

Finally, one participant noted that a contingency plan should be considered for ghost gear in the event gear modifications result in gear loss.

Low Profile Groundline Workshop
Portsmouth, NH
September 21, 2005
Participant List

Bob Ames
SeaSide Inc.

Regina Asmutis-Sylvia
International Wildlife Coalition

Mark Baumgartner
Woods Hole Oceanographic Institution

Diane Borggaard
National Marine Fisheries Service

Bro Cote
Fisherman

David Gouveia
National Marine Fisheries Service

Nick Jenkins
Fisherman

Heather Pettis
New England Aquarium

Charles "Stormy" Mayo
Center for Coastal Studies

Dan McKiernan
Massachusetts Department of Marine Fisheries

Dr. Michael Moore
Woods Hole Oceanographic Institution

Steve Nippert
Fisherman

Bonnie Spinazzola
Atlantic Offshore Lobstermen's Association

David Stevenson
National Marine Fisheries Service

Mason Weinrich
The Whale Center of New England

Sharon Young
The Humane Society of the US

Public Attendance

Brian Hopper, NMFS
Amanda Johnson, NMFS
Erika Zollett, University of NH
Erin Burke, Massachusetts Department of Marine Resources
John Kenney, NMFS
Stephen Robbins, Maine Department of Marine Resources
Glenn Salvador, NMFS
Scott Mofaat, Kittery Animal Hospital
John Kenney, NMFS

Low Profile Groundline Workshop
Rockport, ME
September 22, 2005
Participant List

Bob Ames
SeaSide Inc.

Bill Anderson
Fisherman

Regina Asmutis-Sylvia
International Wildlife Coalition

Mark Baumgartner
Woods Hole Oceanographic Institution

Diane Borggaard
National Marine Fisheries Service

David Fields
Bigelow Laboratory

David Gouveia
National Marine Fisheries Service

Amy Knowlton
New England Research Laboratory

Bill Lister
Fisherman

Charles "Stormy" Mayo
Center for Coastal Studies

Gary Mataronas
Fisherman

Dan McKiernan
Massachusetts Division of Marine Fisheries

Mike Myrick
Fisherman

Terry Stockwell
Maine Department of Natural Resources

Mason Weinrich
The Whale Center of New England

Sharon Young
The Humane Society of the US

Public Attendance

Jeff Kaelin, WFC Inc.
Brian Hopper, NMFS
John Kenney, NMFS
Kristy Long, NMFS
Erin Burke, MA Division of Marine Fisheries
Amanda Johnson, NMFS
Stephen Robbins, ME Division of Marine Resources
Glenn Salvador, NMFS
John Higgins, NMFS
Pat White, MLA

Low Profile Groundline Workshop
Atlantic City, NJ
September 26, 2005
Participant List

Regina Asmutis-Sylvia
International Wildlife Coalition

David Bruce
Delaware Fish and Wildlife

Hugh Carberry
NJ DEP, Fish and Wildlife

Gregg DiDomenico
Garden State Seafood Association

Sonny Gwin
Fisherman

Diane Borggaard
National Marine Fisheries Service

Andrew Karanozinsky
Fisherman

Frank Koch
Fisherman

David Laist
Marine Mammal Commission

Donnie MacLean
Polysteel Atlantic Ltd.

Dr. Michael Moore
Woods Hole Oceanographic Institution

Joseph Wagner
Fisherman

Public Attendance

Joanne Pellegrino, NMFS
Norman Holy, Better Gear
John Kenney, NMFS
Glenn Salvador, NMFS
John Higgins, NMFS
Barbara Schroeder, NMFS

Low Profile Groundline Workshop
Virginia Beach, VA
September 28, 2005
Participant List

Regina Asmutis-Sylvia
International Wildlife Coalition

Susan Barco
VA Marine Science Museum

Diane Borggaard
National Marine Fisheries Service

Cindy Driscoll
MD Department of Natural Resources

Lewis Gillingham
VA Marine Resources Commission

Sonny Gwin
Fisherman

Erin Heskett
International Fund for Animal Welfare

Mark Hodges
Fisherman

Donnie MacLean
Polysteel Atlantic Ltd.

Billy Reid
Fisherman

Mason Weinrich
The Whale Center of New England

Public Attendance

Parks Lewis, NMFS
Glenn Salvador, NMFS
John Kenney, NMFS
John Higgins, NMFS

ATTACHMENT A

Low Profile Groundline Workshop
Atlantic Beach, NC
September 29, 2005
Participant List

Regina Asmutis-Sylvia
International Wildlife Coalition

Diane Borggaard
National Marine Fisheries Service

Erin Heskett
International Fund for Animal Welfare

Danny Hooks

William Kirby-Smith

Donnie MacLean
Polysteel Atlantic Ltd.

Fentress "Red" Munden
North Carolina Division of Marine Fisheries

Mark Swingle
Virginia Aquarium and Marine Science Center

David Watkins
Fisherman

Mason Weinrich
The Whale Center of New England

Hampton Wood
Fisherman

Barb Zoodsma
National Marine Fisheries Service

Public Attendance

Barbie Byrd, NMFS
Parks Lewis, NMFS
John Kenney, NMFS
John Higgins, NMFS
Glenn Salvador, NMFS

ATTACHMENT B

Low Profile Groundline Workshops
September 2005
8am-5pm

Draft Agenda
September 6, 2005

Goals and Objective:

NMFS will conduct a series of fact finding/scoping workshops along the East Coast to identify:

1. Areas where low profile groundline should be considered;
2. Appropriate height above the ocean bottom (based primarily on bottom type, but will include the limited information available on whale behavior);
3. Techniques to modify groundline;
4. Gear marking options for low profile areas; and
5. Contingency plan ideas in the event of an entanglement occurrence in low profile groundline.

The current knowledge of large whale (right, humpback and fin) ecology (including foraging and diving behavior), prey, habitat and oceanography in various areas will be discussed in the context of low profile groundline. A proxy height for specific areas will be discussed until large whale ecology information is available to further refine the concept of low profile groundline. These workshops will be information gathering whereby information, ideas or recommendations from individual participants and the public will be provided. Summaries from these meetings will be provided to the Atlantic Large Whale Take Reduction Team (ALWTRT). The ALWTRT has discussed low profile at the last three meetings and further discussions are planned for the fall of 2005. All meeting summaries will be provided to the ALWTRT Regional Subgroups in the fall of 2005 to assist further low profile discussion. The information will also be discussed at the full ALWTRT meeting in 2006.

Schedule:

8:00-8:30 Welcome and Introductions

8:30-9:00 Discuss regional large whale (right, humpback and fin) ecology
What is known about large whales in the area?
- What is the seasonal and spatial distribution?
- What is known about large whale habitat?
- How are large whales utilizing the water column when foraging, diving, etc.?
- If foraging, what kind of prey species are being targeted?

9:00-9:30 Discuss regional fishing issues
What are the regional issues regarding lowering the profile of the groundline?

- What type of fisheries occur and where?
- What type of bottom is being fished?

9:30-10:00 Discuss regional habitat, oceanography and/or prey
- What does the local habitat look like?
- Where are coral, rock and wreck areas?
- What is the local prey? What is known about their habitat and how they utilize the water column?
- What are the local oceanographic conditions? How is prey influenced by oceanographic conditions?

10:00-10:15 Break

10:15-12:00 Discuss potential areas where low profile groundline should be considered
Given what we know, where could low profile groundlines be operationally feasible and enforceable taking whale behavior into consideration?
- Establish criteria to identify areas
- Research plan to identify areas

12:00-1:00 Lunch (working lunch an option)

1:00-2:00 Continue discussion of potential areas where low profile groundline should be considered

2:00-3:00 Discuss maximum height above ocean bottom for low profile groundline
What is a goal proxy height?
- Discuss proxy height

3:00-4:00 Discuss technologies to lower profile of groundline
What tools do you know of? What tools will we need in the future?
- Identify techniques
- Develop research plan (if deemed necessary)

4:00-4:30 Discuss gear marking in potential low profile groundline areas
What is operationally feasible and enforceable?
- Identify techniques
- Develop research plan (if deemed necessary)

4:30-5:00 *[If time permits]* Discuss ideas for contingency plan if entanglement occurs in low profile line
- Identify management options

5:00 Adjourn

Terms of Reference
Low Profile Groundline Workshops
September 2005

Background and Need

Large whales can be seriously injured or killed by entanglement in fishing gear used in the water off the eastern United States. Entanglement can involve floating rope or lines used to connect pots/traps along the ocean bottom (i.e. groundline). One modification to reduce entanglement in groundline is to lower the profile of groundline to the ocean bottom through the use of sinking/neutrally buoyant line. An alternative gear modification that has been suggested is lowering the profile of groundline to a specified height above the ocean bottom in certain rock, coral or wreck areas where sinking/neutrally buoyant line has been reported to be operationally infeasible.

NMFS and others are presently researching "low profile" groundline issues. Further information is needed on various aspects including what is know about prey distribution, as well as large whale distribution and behaviour, to help assist in discussions regarding "low profile" groundline. Further specifics are needed on areas and circumstances that make the use of sinking/neutrally buoyant groundline not operationally feasible. Research updates and suggestions on the methods for reducing the profile of groundline are also needed. NMFS has stated previously that considerations for "low profile" line would need to include an enforceable definition that is operationally feasible for fishermen, and which reduces risk of entanglement if this is to be considered as a gear modification.

Goals and Objective:

NMFS will conduct a series of fact finding/scoping workshops along the East Coast to identify:

6. Areas where low profile groundline should be considered;
7. Appropriate height above the ocean bottom (based primarily on bottom type, but will include the limited information available on whale behavior);
8. Techniques to modify groundline;
9. Gear marking options for low profile areas; and
10. Contingency plan ideas in the event of an entanglement occurs in low profile groundline.

The current knowledge of large whale (right, humpback and fin) ecology (including foraging and diving behavior), prey, habitat and oceanography in various areas will be discussed in the context of low profile groundline. A proxy height for specific areas will be discussed until large whale ecology information is available to further refine the concept of low profile groundline. These workshops will be information gathering whereby information, ideas or recommendations from individual participants and the public will be provided. Summaries from these meetings will be provided to the Atlantic Large Whale Take Reduction Team (ALWTRT). The ALWTRT has discussed low profile at the last three meetings and further discussions are planned for the fall of 2005. All meeting summaries will be provided to the ALWTRT Regional Subgroups in the fall

of 2005 to assist further low profile discussion. The information will also be discussed at the full ALWTRT meeting in 2006.

Species:

Focus on the Atlantic Large Whale Take Reduction Plan (ALWTRP) large whale species of concern: right, humpback and fin whales. Minke whales will be noted. Consider all the major large whales to ensure that what may be sufficient for one species will also be sufficient (and not negatively impact) another large whale species.

Areas of Consideration for Low Profile:

ALWTRP regulated waters. As low profile is an issue that constituents in many states along the east coast have asked NMFS to consider, coastwide scoping/fact finding meetings are being conducted through region-specific meetings.

Fisheries:

Trap/pot only. NMFS will provide summaries of the workshops to the ALWTRT for future discussion including whether a low profile groundline option should be considered for gillnet fisheries. If so, information obtained from these workshops will be useful and applicable for these ALWTRT discussions.