

GOMLF Developing Creative
Solutions for Large Whale Entanglement Risks Associated with Buoy Lines
April 27 & 28, 2011

The purpose of this conference was to develop ideas to reduce the risk of serious injury or mortality of large whales that interact with vertical lines (buoy lines) from commercial trap/pot lobster gear

The meeting started with a review of the statutory and regulatory framework that the National Marine Fisheries Service (NMFS) must follow for Large Whale Protection

- Under the Endangered Species Act (ESA), Right Whales were listed as “endangered” in 1973. A recovery plan was issued in 1991 which was then revised in 2005. Along with these measures a rule was implemented in 1997 prohibiting any approach of Right Whales within 500 yards.
 - The ESA Consultation process was discussed highlighting how the lobster industry can be affected by Section 7(a)(2) which ensures that any federal action does not jeopardize the continued existence of any endangered species. The consultation process is made up of two components.
 - Informal consultation process is an information seeking process to help determine effects of an action on an endangered species.
 - Formal consultation process is necessary when an action may adversely affect listed species or critical habitat. This process results in the preparation of a “biological opinion” (BO). If the BO shows that the species will be jeopardized by the proposed action then a “reasonable and prudent alternative” (RPA) is identified in order to avoid jeopardy.

Through this process the most recent BO for the American lobster fishery concluded that the lobster fishery is not likely to jeopardize the continued existence of the western north Atlantic right whale IF, in part, the proposed action assumes a vertical line proposed rule in 2013 and a vertical line final rule in 2014. This is a critical piece of the consultation process because NMFS could get challenged on its non-jeopardy determination contained in its BO if the vertical line rule is not developed and implemented on this schedule.

- Under the Marine Mammal Protection Act (MMPA), the 1994 amendments made a number of changes in the regulations governing the incidental taking of marine mammals in the course of commercial fishing operations.
 - The Immediate Goal is to reduce (within 6 months of implementation) the incidental mortality or serious injury of marine mammals to levels less than the PBR (Potential Biological Removal) level set for the marine mammal stock that interacts with a given fishery. The PBR level is the maximum number of animals that may be removed from a

marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (does not include natural mortalities).

- The Long Term Goal is to reduce (within 5 years of implementation) the incidental mortality and serious injury of marine mammals to insignificant levels approaching a zero (defined as ZMRG) mortality and serious injury rate. ZMRG is defined as 10% of a marine mammal stock's PBR level.
- The last addition to the 1994 MMPA amendment included the establishment of take reduction teams and development of take reduction plans for certain fisheries.

The amendments established by both the ESA and the MMPA have put extreme pressure on the NMFS to comply with the statutory conservation objectives provided under both acts. The ESA prohibits anyone from harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting or from attempting to engage in any such conduct to any listed species within the territorial sea of the U.S. This includes entanglement. The MMPA states the entanglement cannot be "serious or fatal". Simply put, the MMPA is not necessarily about "eliminating entanglements". Rather, it's about reducing "serious injury and mortality" to large whales.

- Atlantic Large Whale Take Reduction Team (ALWTRT) and Atlantic Large Whale Take Reduction Plan (ALWTRP)
 - Established in 1996 its purpose is to develop a plan for reducing the incidental take of large whales in the Gulf of Maine and Mid-Atlantic lobster trap/pot fishery (among other fisheries).
 - Goal is to reduce the serious injury and mortalities to <PBR (PBR =0 for Right Whales at that time)
 - ALWTRT is composed of fishermen, environmental groups, gear experts, state and federal fishery managers, biologists and other interested parties.
 - Significant amendments to the ALWTRP:
 - 2002-Final Rule published in January 2002 which included the Dynamic Area Management zones (DAM's), Seasonal Area Management zones (SAM's) and gear modifications.
 - 2007-two overarching principals associated with reducing large whale entanglements. Groundlines in commercial trap/pot fisheries and vertical lines (endlines or buoy lines) in commercial trap/pot fisheries.

Why action is needed:

1. NMFS is not achieving the conservation objectives under the Endangered Species Act and the Marine Mammal Protection Act. Specifically, entanglements are still occurring and serious injury and mortality (SI&M) is above the PBR for both Right and Humpback whales. (Right Whale: SI&M is currently at 0.8 and the PBR is at 0.7, (Humpbacks: SI&M is currently at 3.0 and the PBR is at 1.1)

a. Entanglements and entanglements resulting in serious injuries and mortality are still occurring.

- Preliminary Entanglements in 2010 and 2011

- 2010

- 25 new confirmed entanglements
 - 5 right whales
 - 15 humpback whales
 - 4 minke whales
 - 1 unknown
 - 8 Whales have been disentangled completely or partially with what is believed to be non-life threatening gear remaining
 - 2 right whales (1 later died)
 - 3 humpback whales
 - 3 minke whales

- 2011

- 10 new confirmed entanglements (as of April 22, 2011)
 - 6 right whales (3 non-life threatening; 1 partially disentangled)
 - 4 humpback whales

2. ALWTRT has committed to addressing entanglement risks associated with endlines.

Vertical Line Rule Development

TIMELINE

2009

- Sinking groundline rule becomes effective
- ALWTRT adopts Vertical Line Rule Schedule

2010

- Development of co-occurrence model (using three pronged approach) to be used in considering strategies for risk of entanglement to large whales

2011

- Scoping meetings with industry during summer months
 - July and August, 4 locations in Maine

- Scoping does not mean Public Hearing..NMFS wants industry input
- States/Industry work on Proposals (due September 30,2011)
 - Management approaches and options to be considered in proposals that would reduce the risk of endlines.
 - Seasonal? Year round? Rolling Closures?
 - Location: what is the current fishing effort in that area? Small areas or large areas?
 - How to get a reduction: Trawl up? Cap endlines?
 - Gear modifications to reduce risk of entanglement
- Full ALWTRT Meeting (Fall)
 - Review stakeholder proposals
 - Review draft Monitoring Plan

2012

- Analyze alternatives proposed by ALWTRT

2013

- Publish Proposed Rule to address vertical line entanglements

2014

- Publish Final Rule to address vertical line entanglements

Development of Co-occurrence Model (2010)

Presentations were highlighted that demonstrate the use of vertical line models which will be used for estimating the reduction of the risk of entanglement to whales. Data sets (gear configurations and whale sightings) have already been entered into the model used by NMFS to determine the co-occurrence of gear density and whale density. NMFS has gathered information from state agencies, independent scientists as well as their own data collection through federal funds and incorporated these figures into their vertical line model.

Information gathered from industry includes:

- Total number of traps fished
- Total number of end lines
- Configuration of gear
- Areas fished (Exempt, Non-Exempt, and Federal)
- Time of year (Months)
- Zones

The approach to the vertical line rule development will be different than that used for developing the sinking groundline rule. To address the entanglement risk associated with vertical lines NMFS wants to move away from coastwide broad scale management previously used and potentially focus on smaller high impact areas. A co-occurrence model will be used to develop management options to reduce the risk of entanglement by vertical lines.

- New approach for creating a co-occurrence indicator based upon
 - Effort corrected whale sightings information provided by NEFSC and the North Atlantic Right Whale Consortium
 - Estimates of the number of vertical lines in the water
- Demonstrate the results using sample data

Vertical line & whale sightings measures are indexed on a scale from 1 to 1000. For each grid cell, the indexed values are multiplied to show a cleaner scale. The grids are then overlaid on the Gulf of Maine chart and will be provided to the industry for guidance on areas where gear modifications should be addressed. Areas that have a high occurrence of whale sightings and gear density use could be considered for different management measures than areas where there is a low co-occurrence. The areas of high and low co-occurrence will be taken into account during the development of the rule which will allow for a finer scale approach as to a broad sweep of the entire Maine coast.

There are currently different data collection methods being performed within the industry and the information collected will be fed into additional models. Having more than one model available can help verify the accuracy of each model and analyze any divergence in the outputs, provided the input information is similar.

Scoping Meetings and Industry Input (2011)

During the summer of 2011 NMFS , along with state agencies will be hosting 4 different scoping meetings in Maine. They will be looking for input from industry members on viable modifications to fishing practices that will comply with the reduction of the risk of entanglement from vertical lines. Although one could consider reducing the number of vertical lines in the water, this does not necessarily mean an overall reduction in the amount of end lines in the water is the only option. Other options may consist of gear modifications, fishing seasons and trawling up gear, etc. These are just examples of changes that could be made but NMFS is open to any ideas from the fishing community. At this point there is no “goal post” or final number nor a suggested percentage of vertical line reduction. Feedback from industry on potential management options will give NMFS some tools that they can then add into a proposal to meet the requirements addressed by the conservation goals. The information in the proposal will be fed into the co-occurrence vertical line model and presented to the ALWTRT for their consideration. A Final Rule will be implemented in 2014 and it’s critical that industry gets engaged in the process now.

States/Industry work on Proposals (Due September 30,2011)

The Maine Department of Marine Resources will be preparing a “Conservation Proposal for the Reduction of risk of entanglement due to Vertical Lines” under the Atlantic Large Whale Take Reduction Plan (ALWTRP). With input from industry during this GOMLF hosted conference, the Lobster Advisory

Meetings, and NMFS/DMR hosted scoping meetings a proposal will be designed while considering many factors.

- Location of the affected areas
- Consideration of the baseline used resulting from the NMFS Co-occurrence model.
- The proposed management approach
 - How many lines are to be removed?
 - How many lines will remain in the area?
 - What is the method for allocating vertical lines?
 - How will you address latent effort?
 - Are you using new gear technologies to address vertical line reduction or reduction of risk of entanglement?
 - How will you measure the effectiveness of your proposal
 - How does the proposal/gear modification reduce the risk the gear poses to whales?

Atlantic Large Whale Take Reduction Team Meeting (Fall 2011)

A full member ALWTRT will be held to review stakeholder proposals and examine drafts of the Monitoring Plan.

Analyze alternatives proposed by ALWTRT (2012)

During 2012 a draft proposed rule will be developed based on alternatives presented by the ALWTRT. At this point no more data will be entered in the co-occurrence model for consideration.

Publish Proposed Rule to address vertical line entanglements (2013)

After the proposed rule has been published NMFS will then hold a series of public hearings and get feedback or take questions about the content of the suggested rule.

Publish Final Rule to address vertical line entanglements (2014)

The last phase of the Vertical Line Rule Development is to publish the final rule and implement said rule, which WILL happen in 2014.

Right Whale Biology

The North Atlantic Right Whale population was severely depleted in the early 1900's. They have been showing a slow recovery but the population is nowhere near what it was before the decline. As of

today there is an estimated 450-475 right whales alive, showing a 1-2% increase in population over the last decade.

Average birth rates:

- Average calves born in 1980's = 12
- Average calves born in 1990's = 10
- Average calves born in 2000's = 23

There are several factors that affect the reproduction rates of right whales:

- Reproductive hormones
- Stress hormones
- Emerging diseases
- Marine biotoxins (Red Tide)
- Nutrition
- Genetics
- Noise pollution (increases inability of finding mates)

The shift in shipping lanes in Boston shows an 81% risk reduction for all baleen whale deaths and a 58% risk reduction for Right whales deaths.

Take home messages:

- Right whales are resilient
- Entanglements can be reduced

Right Whale Entanglements

There are several factors considered when discussing entanglements to right whales. We do know that right whales do dive to the bottom, as evidenced by mud on their heads and both floating and sinking groundlines have been involved in entanglements. Some evidence shows that younger whales that are found with entangled with a heavier breaking strength rope have a higher death rate than those found with a lighter rope. Adults can break out of lighter breaking strength rope and tend to be found with the heavier strength rope during entanglements.

A majority of the studies done on right whales has been focused on their "proximal condition" or what happens very close to where they are feeding. Much of the research takes place in a "habitat specific" area, mostly Cape Cod Bay which is where the scientists can do the most detailed studies in their proximal conditions.

Generally speaking we know that entanglement is common, as referenced by scarring photos but we also know that disentanglements are common as well. Right whales can and do disentangle themselves and the key is to figure out how. This information could lead to gear modifications that could reduce the risk of entanglement. Some scientists think that whales are at a higher risk of entanglement while they are feeding. Evidence has also shown that rope caught in the baleen of right whales tends to be as a result of a knot in the line.

Information used to evaluate Entanglements (used by science center and NMFS)

- Disentanglement data
- Photo Id
- Scarring analysis –an increase of 80% of scars in right whales
- Necropsy
- Serious injury or mortality from entanglements, national protocol

Take home messages:

- Disentanglements do help reduce serious injury and mortality that may have happened otherwise.
- THE KEY IS TO PREVENT ENTANGLEMENTS AND AVOID THE INITIAL EVENT

Input from Industry

As outlined above the purpose of this meeting was to “to gather some tools to help develop ideas for the reduction in the risk of injury or mortality due to vertical lines”. NMFS is asking for help from fishermen on coming up with ideas on how to adjust fishing practices that would help reduce the risk of entanglement to large whales from vertical lines. The discussion during day two was geared towards direct participation and discussion among the industry members attending the conference. Based on the complexity of the coastal Maine waters and the different fishing styles each participant was asked how they fish in their area and what suggestions they may have for the vertical line discussion.

Zone A

Some concerns were brought up about the data that are or have been collected on gear configurations and the small data sets. It was pointed out that not just one data set will be incorporated into the model. Gear density, whale sighting, entanglement data and much more will all be considered. As frustrating as data collection can be it was pointed out that this is the best available data and it's all NMFS can work with at this point.

Questions came up about the locations of gear modifications and whether they should be considered outside the 3 mile line. It is really up to the industry where and how they propose these changes. It was recommended that the focus should be on the “hot spots” (high occurrence of gear and whale density) of the co-occurrence map. Some members of the TRT who are part of the equation may push to include the lower areas of co-occurrence as well but it's really up to the industry to offer suggestions in their area. Trawling up in some areas of zone A is possible, depending on the time of year and vessel size. There was also a suggestion for using a different (lower) breaking strength rope for end lines. A breakaway down at the trap might be an option for the in-shore gear. Many people who fish within the “hot spot” area in Zone A have already trawled up their gear but those who haven't would probably be able to.

There is a critical need for outreach within each fishing community, even within zones. Some areas in Zone A have strong tides which would inhibit guys from changing their gear in ways that are suggested. Some felt that they could adjust to the hot spots but that those changes wouldn't work for other areas within the zone. Seasons may be an option based on the whale sightings.

Zone B

Questions were again asked about whether these new rules will affect fishing within the exemption line. Since they are still able to use floating groundlines within the line theoretically you could triple up and use float rope. With trawling up, however there is always a risk of more gear loss. Suggestions were made for looking at the possibility of going to a smaller diameter rope at the surface or making a breakaway or weak link between the toggle and the buoy. They felt that most whales would get entangled between the toggle and the buoy at the surface but not necessarily the end lines.

In certain areas of Zone B they are not allowed to fish more than triples but there is a way to change that through the Zone Council and they probably could go to quads in order to remove endlines but no one would go to trawls in that area. The eastern part of Zone B has a lot of tides and the bottom would not allow for 20 trap trawls as there would be inefficiency and gear loss. People need to consider changing the endline breaking strength as well as the type, length and size of endlines.

Zone C

Ever since the groundline rule went into affect a lot of guys have switched to fishing doubles to singles. There are some areas in state waters where guys fish triples but for the most part they fish trawls outside. Some of the fishermen have talked about reducing the risk of entanglement by splicing their vertical lines. It would probably cause more buoy loss but it could be something to look at and test in regards to reducing entanglements. They are skeptical about seasonal closures in outside areas but rolling closures may work in certain areas. In the inside areas, trawling up gear would be the preferred modification as compared to closed areas or seasons

Zone D

While reviewing the co-occurrence map provided by NMFS it was noted that a majority of areas in this zone are white, or areas of low co-occurrence. In certain areas they could conceivably go from pairs to triples but would create more problems. There is little or no singles fished outside the exemption area and in some areas there are no toggles used. Questions were raised as to what the benefits would be of making changes to toggles and whether or not guys could fish without them. There is concern that a lot of areas in Zone D that have a high density of co-occurrence have gear that is already trawled up. If people were to trawl up their gear outside the exemption line they feel that it may not be enough of a reduction in risk to satisfy the conservation community. We would hope that they could meet in the middle for these gear modifications and co-occurrence areas but it feels like we are being set up for failure no matter what we propose.

Zone E/F

There was agreement that trawling up could be an option in some areas but the length of the trawls is limited by boat size. Reducing the diameter of the rope on top works well and anything heavier is just a waste of money. Splicing is an option but it's extremely time consuming and a standardized end line diameter is a good idea depending on your hauler. Most guys outside already fish 8, 24 and some 30 trap trawls. It was suggested that anything they do ought to be seasonal and not year round. A big issue that isn't being addressed is latent effort. It doesn't matter what we do here with the end line modifications because if any of the latent effort starts setting traps we will have a bigger issue than anything we are looking at now.

Zone G

In southern Maine they mostly fish trawls, 10's- 20's and hardly use toggles. There are guys who fish 10 trap trawls out of 18 foot skiffs, it's a pain but it can be done. Smaller boats can get away with it in this

area by using a lighter rope partway down the buoy line. High flyers are used outside as well as poly balls which add weight and drag. This definitely increases the risk to whales and if regulations could be changed that might allow guys to adjust those configurations. It's embarrassing that Maine is the largest lobster producing state in New England yet seem to have the least amount of data on effort, gear configurations and numbers of endlines in the water.

Enforcement

There was a brief discussion about enforcement of new regulations regarding endlines. In order for enforcement to work the rule needs to be credible and make sense. Rules that are put into place which industry doesn't agree with makes for a very difficult situation. There is flexibility in law enforcement and the idea of having zone or sub-zone regulations is good to hear. It's great to hear these talks happening at this meeting between industry and NMFS. Enforcement representatives were glad to be at the meeting to be asked if the ideas that are being presented are enforceable. The ideas being presented (smaller diameter end lines, end line lengths, and areas of co-occurrence) were all workable ideas for enforcement.

Gear Marking

NMFS feels that the current gear marking strategy is inadequate and should be improved in the next proposed regulations. Suggestions have been made to have more frequent marks along the line and maybe move to a state by state scheme rather than by area. Radio Frequency ID tags are being tested, the technology is there but the cost is high and the functionality is not certain. They hope to continue testing other ideas in order to increase the ability to assess entanglements and reduce the scope of "penalty" to the areas involved. Many agreed that it doesn't make sense to have just one color for all of Area 1.

Reporting/Monitoring

NMFS reminded industry members about the importance of survey data. Some industry members stated that the lack of data has hurt Maine but multiple surveys are burdensome. Is there a way to not duplicate effort and save money? NMFS will continue its work with its state partners to strengthen the quality and consistency of the effort and vertical data incorporated into the co-occurrence model. Survey data will also be used to evaluate the effectiveness of the ALWTRP.

Conclusions

After two days of discussions the group in general felt that the conference was successful in coming up with ideas to look at and present in a proposal for reducing the risk of entanglement by vertical lines. It was helpful to know that it's not just a reduction in end lines that NMFS is considering but other ideas such as end line strengths, diameters, lengths as well as modifications in certain areas. NMFS is doing their best to get the most information they can, directly from the industry in order to come up with viable solutions that will work for the fishermen and meet the requirements put forth under the Endangered Species and Marine Mammal Protection Acts.

GOMLF April 27-28, 2011 Conference Participants

First	Last	Address	City	State	Zip	Phone	ZONE
Bob	Baines	89 Watermen's Beach Rd.	So. Thomaston	ME	04858	207-596-0177	D
Jon	Carter	PO Box 355	Hulls Cove	ME	04644	207-288-4528	B
Dwight	Carver	Box 131	Beals	ME	04611	207-497-2895	A
John	Drouin	270 Little Machias Rd.	Cutler	ME	04626	207-259-3949	A
David	Johnson	299 Fern Ave.	Long Island	ME	04050	207-766-3318	F
Tom	Lawson	28 Mitchell Lane	South West Harbor	ME	04679	207-244-7413	B
Tad	Miller	PO Box 73	Tenants Harbor	ME	04860	207-372-6941	D
Glenn	Rogers	17 Lane Rd	Orrs Island	ME	04066	207-833-5240	E
Marshall	Spear	373 Bayview St.	Yarmouth	ME	04096	207-232-4061	F
Steve	Taylor	12 Island Ave	Kittery	ME	03904	207-436-4182	G
Steve	Train	33 Vernon Rd.	Long Island	ME	04050	207-439-4182	F
Pat	White	PO Box 523	Kennebunk	ME	04043	207-229-5499	G
Jeff	White	Po Box 851	York	ME	03909	207-451-0219	G