Atlantic Large Whale Take Reduction Team
Mid-Atlantic Large Whale Data Work Group
October 26, 2009
8am-12:30pm

KEY OUTCOMES MEMORANDUM

I. Background:
On October 26, 2009, NMFS convened the Atlantic Large Whale Take Reduction Team (ALWTRT) Mid-Atlantic Large Whale Data Work Group. This work group was established in response to a request from the ALWTRT Mid/South Atlantic Subgroup, at its April 2009 meeting, to look into alternatives to the large whale uniform distribution approach proposed in the mid-Atlantic for NMFS' vertical line analysis model. (See Attachments 1 and 2 for the draft agenda and participant list, respectively.) The primary purpose of the meeting was to:

- Discuss available large whale distribution data (right, humpback and fin) in the Mid-Atlantic (North Carolina north to 40°N); and
- Discuss possible alternatives to the uniform large whale distribution approach proposed for use in the Atlantic Large Whale Take Reduction Plan (ALWTRP) vertical line analysis model.

This document summarizes the various discussion points at the meeting.

II. Key Outcomes
NMFS reviewed it's proposed approach to the large whale distribution data for the Mid-Atlantic component of NMFS' vertical line analysis model. NMFS noted the sightings per unit effort (SPUE) analysis for the Northeast (north of 40°N latitude to Exclusive Economic Zone [EEZ]) is based on systematic, broad-based surveys. The data available for the mid-Atlantic and Southeast U.S. is not as systematic and broad-based. However, NMFS can investigate combining available data sets in the mid-Atlantic and Southeast to try to be as analogous as possible with the Northeast SPUE analysis.

A few primary points included the following:

1. Only available aerial and vessel information can be considered for an SPUE analysis. Although there is some passive acoustic information available for the mid-Atlantic, this information cannot be converted into SPUE data at this time.
2. NMFS has considered aerial survey information for right whales off Florida and Georgia for use in an environmental model looking at variables such as sea surface temperature and depth. The model allows for predictions through the Chesapeake Bay.

3. The available survey information (e.g. vessel, aerial) for large whales in the mid-Atlantic includes:
    a. Summer: Good coverage from NMFS Northeast Fisheries Science Center (NEFSC) & Southeast Fisheries Science Center (SEFSC) aerial and vessel surveys over the continental shelf and possibly to the EEZ;
    b. Winter: University of North Carolina Wilmington (UNCW) multi-year aerial flights over the continental shelf from North Carolina/South Carolina border north to the mouth of the Chesapeake Bay within 30-35 nautical miles from shore. There are additional data available from Georgia north through South Carolina, both at UNCW and through Wildlife Trust aerial surveys, for winter right whale distribution. Also, aerial survey effort (NMFS-funded) out to the continental break from South Carolina to Florida based on at least 3-4 years of surveys.
    c. Spring and Fall: Cetacean and Turtle Assessment Program (CeTAP, 1982). However, it was noted that the CeTAP information is old and that distributions is fully expected to have changed since this time which needs to be considered in any analysis.
    d. Year-round: Multi-year NMFS SEFSC aerial data from year-round beach-based observer program which includes effort along the coast; however, there may not be much information for large whale distribution.
4. NMFS SEFSC will review the Ocean Biogeographic Information System (OBIS) for the above data sets (all NMFS and UNCW data are entered into OBIS) and any other surveys, including the specifics regarding the spatial and temporal distribution.
5. The biggest gap in available information and coverage is Chesapeake Bay to 40°N latitude to EEZ in the winter (north of Chesapeake Bay), spring, and fall.
6. NMFS SEFSC, with assistance from the NEFSC, will pull available large-scale survey data for consideration in developing the large whale (right, humpback and fin) SPUE information for the mid-Atlantic. NMFS SEFSC will investigate whether a good model can be developed and will consider options such as combining across seasons (although some participants were uncomfortable with this approach). NMFS SEFSC will look at the available data and consider a generalized model approach using presence/absence information along with various habitat variables (e.g. depth, distance from shore, sea surface temperature). Otherwise, a spatial model will be developed calculating large whale density as a function of effort. Initially, NMFS believes a generalized approach could be considered for the summer and winter data. NMFS SEFSC will need to consider the various sighting platforms as sighting probabilities differ and this may prevent comparisons of some data sets.
7. There were concerns with extrapolating outside the bounds of the data as it is difficult to make confident predictions in the absence of information. Therefore, if NMFS determines that there is not sufficient information available in the spring and fall, information from the summer and winter will not be used for any extrapolation into these data poor areas. Also, it was agreed that a uniform distribution would not be appropriate to calculate for these periods of time in the mid-Atlantic. The concept behind the co-occurrence model is to be able to view

whale density and vertical line density together, however, in the absence of whale distribution data for the Mid-Atlantic, the work group acknowledged that only vertical line density data may be able to be used in the vertical line model.

8. The sighting platforms and methodology for the Northeast will be different from the Mid and South Atlantic so the whale densities cannot be compared.

A few secondary points included the following:

1. There is some opportunistic information from whale watch vessels (e.g. off Virginia and New Jersey), but NMFS would need to support the development of a database to enter all available information. Also, effort information is important but some, not all, whale watch companies may collect this information. Quality assurance and control would be important to perform on any dataset. At this time, the work group did not feel this was a priority for the model as this information can only be used to indicate presence/absence. However, a long-term project could be for NMFS (directly, or through a contractor) to reach out to whale watch naturalists to help compile available information and work with scientists to develop a survey to obtain better information in the future.
2. The work group discussed the potential value of satellite telemetry data to clarify large whale movement and habitat use in the mid-Atlantic area. Tagging has the potential to produce data that can be integrated into an SPUE model, but those data can also be problematic due to the small sample sizes typically generated. The work group was interested to learn of any relevant satellite telemetry data, but did not consider this to be the highest priority data for the model. The group also noted the information from satellite telemetry data may also be useful to consider when planning future distribution surveys. NMFS and others should consider this in the future.
3. It would be important to include an overlay of the location where a large whale was entangled in the vertical line model. Although there may be few points, this information could be considered as a ground-truthing test, especially to see if these points were included in any identified “hot spot” areas. NMFS is currently working on such an overlay and will be providing this to the ALWTRT at a future meeting.
4. NMFS noted that the Atlantic Large Whale Take Reduction Plan (ALWTRP) regulations in the Mid-Atlantic are currently in place from September 1 through May 31. This may be important to consider when looking at the available data sets and/or planning surveys.

Discussion points related to data needs included the following:

1. At this time, broad-based surveys are the best source of information for density estimates. Aerial surveys are best from the shore to the continental shelf-break and vessel surveys are best for deeper waters. However, sighting rates are so sparse from the Chesapeake Bay through New Jersey that is would be costly to study the area sufficiently through a broad-based survey design. For the mid-Atlantic, future surveys could be designed to focus on areas based on high gear density.

2. Abundance and distribution surveys in the mid-Atlantic are needed during the winter (north of Chesapeake Bay), spring and fall where the biggest gaps are. However, it is important to continue survey effort in the summer.
3. Cape Hatteras is an important area and some members thought should have consistent coverage year round. Aerial survey coverage is best from the shore out to 40 miles from the coast.
4. Passive Acoustic Monitoring (PAM) data cannot be used for SPUE analyses at this time. NMFS should consider whether funds from any additional passive acoustic deployments should be redirected to vessel and aerial surveys depending on the results of studies comparing aerial survey and passive acoustic information. Therefore, analyzing available passive acoustic data should be prioritized as the results would help determine the best methods to fill-in data gaps.
5. Results from NMFS' analysis of the mid-Atlantic large whale data will help identify future data needs.
6. Although information from satellite tags is useful, it is difficult to get a sufficient sample size to use in habitat and spatial distribution studies. However, it does provide some information that could be useful for consideration such as when planning future surveys. Placing satellite tags on animals in the Gulf of Maine would provide information for the mid-Atlantic.
7. Currently, there are only plans for NMFS surveys in the mid-Atlantic in the summer. There are no resources available to fund surveys in the spring, fall or winter at this time. However, there is a possibility of NMFS receiving some funds in FY10 for a Mid-Atlantic winter survey/biopsy cruise. Also, Virginia Aquarium & Marine Science Center did put an Endangered Species Act (ESA) Section 6 proposal in to NMFS to conduct a 12 month survey comprising vessel-based line transects in a limited area out to 40 nm off Virginia as part of a ship strike mitigation study[1]. NMFS will be considering this proposal for funding [in addition to those submitted by other states who have entered into an agreement with NMFS pursuant to section 6(c) of the ESA] through this grant program.

Future ALWTRT considerations:

1. Given that the SPUE information for the mid-Atlantic should not be extrapolated into areas where data does not exist, the ALWTRT will need to consider this when deciding on management schemes for this area. For example, in the absence of information on large whales for some seasons in the mid-Atlantic, the ALWTRT may need to consider the distribution and density of the fishery instead. Therefore, fishing effort could be used as an indicator of risk.
2. Given that comparisons of large whale SPUE cannot be made between the Northeast, Mid-Atlantic and Southeast, the ALWTRT will need to discuss whether and how regional comparisons should still be considered. NMFS will be discussing this with the ALWTRT at a future meeting.

[1] Note that the applicant on the proposal is Virginia Department of Game and Inland Fisheries with Virginia Aquarium & Marine Science Center being the principal investigator on the project.

III. Next Steps

Participants at the work group who had Mid-Atlantic large whale sightings data committed to submitting their respective data to OBIS. NMFS SEFSC, with assistance from NEFSC, will pull available large scale survey data for consideration in developing the large whale (right, humpback and fin) SPUE information for the mid-Atlantic for the vertical line model. A meeting summary from the October 26, 2009, Mid-Atlantic Large Whale Data Work Group meeting will be distributed to the ALWTRT.

NMFS will also consider the following as discussed above:

1) A long-term project (directly, or through a contractor) to reach out to whale watch naturalists to help compile available information and work with scientists to develop a survey to obtain better information in the future.
2) Virginia Aquarium & Marine Science Center proposal to conduct a 12 month survey comprising vessel-based line transects in a limited area out to 40 nm off Virginia as part of a ship strike mitigation study submitted through the ESA Section 6 grants program[2].

NMFS plans on meeting with the ALWTRT in late 2010. At that time, large whale and fishing density information will have been analyzed for the mid-Atlantic. NMFS believes that meeting later in the year will prove adequate time for NMFS, state fishery management agencies, scientists and others presently working on data sets needed to further develop the co-occurrence model, and allow NMFS and its contractor (Industrial Economics, Inc.) adequate time to incorporate their data into the model. Further, NMFS believes that convening the meeting later in the year will also facilitate a more productive meeting while still maintaining the schedule for the vertical line rule. One of the discussions items will include whether and how regional comparisons should still be considered given that comparisons of large whale SPUE cannot be made between the Northeast, Mid-Atlantic and Southeast.

[2] Note that the applicant on the proposal is Virginia Department of Game and Inland Fisheries with Virginia Aquarium & Marine Science Center being the principal investigator on the project.

Attachment I.

Atlantic Large Whale Take Reduction Team
Mid-Atlantic Large Whale Data Work Group

October 26, 2009
8am-12:30pm

AGENDA

Meeting Purposes:

- Discuss available large whale distribution data (right, humpback and fin) in the Mid-Atlantic (North Carolina north to 40°N) and possible alternatives to the uniform large whale distribution approach proposed for use in the Atlantic Large Whale Take Reduction Plan (ALWTRP) vertical line analysis model.

8:00-8:10am	**WELCOME, INTRODUCTIONS AND GETTING ORGANIZED** *(NMFS NERO)* ▪ Review meeting purpose and round robin greeting ▪ Opening comments ▪ Review and confirm agenda

8:10-8:30am	**OVERVIEW OF NMFS' PROPOSED APPROACH TO LARGE WHALE DISTRIBUTION DATA FOR THE MID-ATLANTIC** *(NMFS SEFSC)* Objective: Provide context for discussions, including noting where data gaps are.

8:30am-9:30am	**OVERVIEW OF AVAILABLE DATA IN THE MID-ATLANTIC** Objective: Discuss available data and status of current studies. Provide context for discussions. *(GROUP)* ▪ Aerial ▪ Vessel ▪ Passive Acoustic Questions: 1. What aerial, vessel and passive acoustic data sources are available in the Mid-Atlantic for large whales? 2. Can these data sources be used for an SPUE analysis? 3. For each usable data source, how many years of data are available? Also, describe the spatial and temporal resolution of the data sources, as well as other details. Where can the data be obtained? 4. Are there any future surveys planned in the Mid-Atlantic? If so, what are the specifics?

9:30am-12:00pm	**DISCUSS LARGE WHALE DISTRIBUTION DATA FOR THE MID-ATLANTIC & THE VERTICAL LINE MODEL** *(GROUP)* Objective: Discuss possible approaches for incorporating large whale distribution data for the Mid-Atlantic into the vertical line model. Discuss any future data needs. Questions: 1. Are there alternative approaches to NMFS' approach for generating whale densities in the mid-Atlantic? 2. If so, what are they? What are the benefits and limitations? 3. Where are the data gaps? 4. What are future data needs for large whale distribution data?

12:00-12:30pm	**NEXT STEPS** ▪ What will be done with the product from this meeting? ▪ Recap of meeting and review next steps

Attachment II.

Participant and Observer List:

Participants

Moderators

1. Diane Borggaard
2. Barb Zoodsma

ALWTRT Members & Alternates

1. Bill McLellan
2. Mark Swingle
3. Sue Barco
4. Jooke Robbins

NMFS

1. Richard Pace
2. Debra Palka
3. Lance Garrison

Observers

1. David Gouveia
2. Mary Colligan