Science, Service, Stewardship

Mid-Atlantic Large Whale Data Work Group Meeting

Alternatives to the Large Whale Uniform Distribution Approach Proposed in the Mid-Atlantic for NMFS' Vertical Line Model

April 6, 2011

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Background

- At the April 2009 ALWTRT Mid/South Atlantic Subgroup meeting NMFS was requested to convene the ALWTRT's Mid-Atlantic Large Whale Data Work Group.
- 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 ALWTRP vertical line analysis model.

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Meeting Objective

Identify the Issue

- Sightings per unit effort (SPUE) analysis for the Northeast is based on systematic, broad-based surveys.
- SPUE for the mid-Atlantic and Southeast U.S. is not as systematic and broad-based.

Develop Plan to Address Issue

- Investigate combining available data sets in the mid-Atlantic and Southeast to try to be as analogous as possible with the Northeast SPUE analysis.

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Key Discussions

Discussions binned into four categories:

1. Primary Points
2. Secondary Points
3. Points Related to Data Needs
4. Future ALWTRT Considerations

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Primary Points

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.

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Primary Points
continued

3. The available survey information (e.g. vessel, aerial) for large whales in the mid-Atlantic includes:

   - Summer: Good coverage from NMFS aerial and vessel surveys over the continental shelf and possibly to the EEZ;
   - 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.
   - 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.
   - Year-round: Multi-year NMFS 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.

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Primary Points
continued

4. NMFS 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 will pull available large-scale survey data for consideration in developing the large whale (right, humpback and fin) SPUE information for the mid-Atlantic.

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.

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.

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Secondary Points

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.

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.

3. It would be important to include an overlay of the location where a large whale was entangled in the vertical line model.

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Points Related to Data Needs

1. Broad-based surveys are the best source of information for density estimates.
   - 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.

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.

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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.

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Next Steps

- Participants at the work group who had Mid-Atlantic large whale sightings data committed to submitting their respective data to OBIS.
- NMFS will pull available large scale survey data for consideration in developing the large whale SPUE information for the mid-Atlantic for the vertical line model.
- At a future meeting, NMFS and the ALWTRT will discuss whether and how regional comparisons should be considered given that comparisons of large whale SPUE cannot be made between the Northeast, Mid-Atlantic and Southeast.

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Next Steps
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As funding allows, NMFS will also consider the following:

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.