Atlantic Scientific Review Group

May 14-16, 2019

Woods Hole, Massachusetts

This report summarizes the 2019 meeting of the Atlantic Scientific Review Group (SRG). This document is intended to summarize the main points of discussion and does not attempt to record everything that was said during the meeting.

Membership

- Recent review: Christopher Clark and Trent McDonald passed on reappointment, James Powell and Randy Wells were reappointed, Anna Sirovic was appointed, but her appointment was delayed until 2020.
- Next review: James Gilbert, Jack Lawson, Erin Summers, and Michael Moore

Manatee updates (USFWS)

Changes are being made to how the USFWS office will be authorizing rescue response organizations. In the past, USFWS has held the permit and issues Letters of Authorization (LOAs) to organizations. This year, individual permits will be issued directly to Manatee Response Program participants.

Given the high percentage (⅓) of manatees that are dependent on warm water industrial discharge, USFWS will be working with the state of FL and utility companies to develop a Warm Water Action Plan to wean manatees off this industrial output.

Stock Assessments: Draft revision of the West Indian manatee SAR is currently going through review. Needs to be approved by internal department solicitors before it can be shared. The last SAR was completed in 2014. In 2017, due to updated core biological model results, the agency downlisted the West Indian manatee from endangered to threatened. The new SAR reflects this change in status. The Antillian manatee SAR is also under internal review.

Discussion:
The exact timeline of SAR draft completion is unknown at this time but the draft will be provided to NMFS for distribution to the SRG as soon as it is cleared. The change in status for the West Indian manatee is not expected to impact funding; however, USFWS and the states are expecting significant funding cuts in general. They are also experiencing significant staff losses and turnover.

There has been no movement by legislators to remove speed restriction zones with the downlisting of the species. States/counties may believe federal restrictions will be implemented if local restrictions are removed. Also, these areas are typically in places of highest risk for watercraft collisions- providing an additional safety incentive to keep them in place. In the downlisting rule, USFWS noted that manatees are a conservation dependent species, therefore the goal is to maintain management and enforcement.

Last year's hurricanes damaged the speed restriction zone signs. Florida will be receiving a $5 million contract with the ACOE to replace the signs. Likewise, Puerto Rico will be receiving $950K to replace and upgrade signs to be more consistent with the sign types in Florida.

GARFO Updates

- Disentanglement summary
- Atlantic Large Whale Take Reduction Team Updates
- Harbor porpoise Take Reduction Plan Updates
- Northeast Implementation Team for the Recovery of North Atlantic Right Whales

Discussion:
SRG members requested additional information on whether bycatch reduction of harbor porpoise was a factor of effort reduction or adequacy of regulatory measures.

SERO Updates

- Bottlenose Dolphin Take Reduction Team Updates- Stacey Horstman
- Southeast Aquaculture Updates- Stacey Horstman
- Pelagic Longline Take Reduction Team Updates- Erin Fougeres
- Southwest Florida Bottlenose Dolphin UME, and increased bottlenose dolphin strandings in the northern Gulf of Mexico- Erin Fougeres
- SERO Priorities- Laura Engleby

Discussion:
Plans for the Louisiana freshwater diversion project are not currently being impacted by the current bottlenose dolphin mortalities associated with the UME, however there is increased interest and effort going into responding to and documenting current mortalities.

There is significant concern about the secondary impacts from algal blooms such as how the algal blooms affect prey availability. In Sarasota Bay, they have documented a 88% decline in dolphin prey due to the 2018-2019 red tide event in Southwest Florida compared to the 2005-2006 event where there was a 75% reduction in prey availability. There are also more direct brevitoxin mortalities this time, and more dolphins with skin lesions in animals not using freshwater, possibly from exposure to the skin irritants from the red tide and high fish mortalities. There's been a notable decline in the body condition of those animals disentangled, possibly indicating the prey availability is already impacting the stock.

SRG members asked that given that climate change will continue to impact ocean temperatures and freshwater input into the Gulf from river systems, what resources SERO feels would help them to better deal with ecosystem changes and mitigate these impacts.

Unusual Mortality Events (Deb Fauquier, NMFS HQ)

- Right whales: 2017-2018
- Atlantic humpback whales: 2016-present

- Atlantic minke whales: 2017-present
- Northeast pinnipeds: 2018- present
- West coast gray whales: January 2019- present

Discussion:
For right whales, the team recently voted to close the UME.

For humpbacks, NMFS will evaluate how this summer goes and re-evaluate whether or not to keep the Unusual Mortality Event (UME) open by this fall. There have been many highly decomposed carcasses so it has been difficult to identify cause of death in many cases.

For minke whales, the suspected human interactions do not appear to also have the infection. There have been 50 whales necropsied in total. For the whales showing signs of infection, the animals show lesions on their thoracic area. Some have tested positive for *Brucella* and a few for herpes, but in general, the cause of the infection is not clear. There appear to be clusters in the summer, so will wait and see how this summer goes.

For pinnipeds, there have so far been no cases in 2019. All age classes have been affected by this UME, but would need to follow-up with specific numbers. If numbers continue to decline, this UME may be closed in the Fall/Winter of 2019.

For gray whales, emaciation seems to be the main cause of death.

Mapping Marine Mammal Stock Ranges (Tim Haverland for Mridula Srinivasan, NMFS Office of Science and Technology)

Discussion:
Members asked if bycatch data could be used to help supplement a species' range that may have gaps or where other data might not be available. This decision would be referred to the SARs authors to determine what information should be included and to define the stock's range extent. Currently, the maps of the ranges only represent visual survey sightings and may not be truly representative of a species' range. Incorporating bycatch, acoustics, and sightings from whale watches could provide additional information to better illustrate the true habitat use by a stock, not just sightings from shipboard surveys. Examples of stock SARs that could benefit from this additional data: Risso's dolphins and humpbacks (especially in the mid-Atlantic.). Maps should represent the best range as we know it. Members also requested that the maps be more interactive or easier to read. Suggestions included interactive layers within a map that could be turned on and off so the "observed" range and survey results could be viewed together or separately as long as the data contains the proper metadata (species/location/citation.) Density data from Duke University's Roberts' model might also be helpful for defining the species' ranges. Having additional information incorporated into more interactive maps has significant implications for use beyond just the SARs process.

Risk Assessment Decision Making Tool Used for Atlantic Large Whale Take Reduction Process Overview (Sean Hayes, NEFSC)

Sean provided an overview of the risk assessment decision making tool that the Atlantic Large Whale Take Reduction Team used at their April meeting for decision making on how to reduce risk from trap/pot gear on right whales. Discussion included how risk was defined and evaluated, the data and modeling techniques that were used, how severity was determined, potential tools for reducing risk, and how the benefits of various proposals were compared.

Members discussed how the Roberts' model (used in the risk assessment tool) should include 2011 survey data from statistical area 537 from New England Aquarium. Data from 1998-2016, with the exception of 2011, were applied to the model. The next version of the model will assess years 1998-2010, and then 2010-present separately.

The Model is undergoing an inter-center review and review by the Center for Independent Experts and the Center is exploring additional expert review with respect to the severity analysis. They will be setting up a meeting with New England Aquarium staff to look at how a more mathematical process could be applied to the severity component. Suggestion was also made to look at how risk reduction could potentially be looked at across demographics, interannual variability of the fishery, whether inshore risk could be better assessed since the Robert's model did not have data for those areas, and to assess additional risk heavier offshore gear poses compared to inshore gear.

Sean emphasized that the purpose of the model was used to compare very different proposals that were otherwise not comparable. The model will be one component used for determining the final rulemaking. Other variables and expert opinions will feed into the management decisions.

Population Size and Resight Patterns of the Southern North Carolina Estuarine System Stock of Common Bottlenose Dolphins (Aleta Hohn, SEFSC)

Discussion:

There were questions about survey design and if the survey area was limited in scope but focusing too close to the shore. The survey trackline was setup to do a spatially explicit abundance estimate and to place greater emphasis on nearshore waters where most sightings are expected to be for this stock. In addition, there was a shallow slope so there wasn't really much of a depth difference across the area. Most sightings are seen close to shore, but the tracklines went out to 3km. Only one sighting during the survey occurred outside of 1km. The suggestion was made to also consider looking at association patterns between the two groups. The question was also raised if splitting the stocks was having unintended confounding challenges for estimating bycatch in coastal gillnets and whether or not one stock might be impacted by coastal gillnetting more than others. Observations and strandings indicate that bycatch in the southern part of the coast is low, but there is very little federal observer coverage in this area and there is considerable winter fishing effort. Strandings data show gillnet-related dolphin strandings throughout this stock's range. If southern NC estuarine stock dolphins are

moving further north in the winter than previously thought, they are potentially encountering more gillnets than previously thought.

Gulf of Mexico Bryde's Whale Update (Laura Engleby, SERO)

NMFS announced the final endangered status listing of Gulf of Mexico's Bryde's whale based on the status review and review of public comments on April 15, 2019. This population represents a subspecies with a small population of fewer than 100, and 50 or less mature animals. The best population estimate included in the SARs is 33 animals, with a distribution limited to a small area along the northeastern Gulf of Mexico shelf break. Bryde's whale are vulnerable to human activities such as vessel strike, oil and gas development, and ocean noise. Next steps: Barb Zoodsma (SERO) will be acting as the recovery lead developing a recovery outline identifying targets for recovery and considering the designation of critical habitat. This will make it important to continue identifying areas where the animals occur and describe the essential features of those areas. ESA Section 7 consultations will also need to take impacts to Bryde's whales under consideration.

Additional research is currently underway by SEFSC staff using RESTORE funds to look at trophic interactions and the ecological role of Bryde's whale in the larger Gulf ecosystem. This study should be completed by 2020.

The Deepwater Horizon Draft Open Ocean Restoration Plan 2 also includes priorities for reducing ship strikes and vessel noise risks to Bryde's whales. This species will benefit from the overall restoration plan as well.

One Bryde's whale stranded in the Everglades in February and was identified as Gulf of Mexico stock and matched to the RESTORE study. The animal was buried in St. Petersburg and the skeleton will be provided to the Smithsonian as a type specimen. The cause of death for this whale was the ingestion of a large piece of plastic that lacerated the stomach. The animal was also very thin, indicating poor health (which may have occurred as a result of the plastic ingestion and ensuing injury.)

Review of Stranding Analysis Document (Kathy Foley, SEFSC)

The draft report was provided to the SRG prior to the meeting. It documents how stranding data are used in the SARs to provide minimum counts of fisheries interactions with coastal/estuarine bottlenose stocks since there is no observer coverage for many fisheries. The report looks at stock boundaries and details of overlapping stocks, and how strandings are assigned to fisheries.

Only coastal/estuary stocks are included, not offshore stocks, unless the stranding takes place in NY or further north. Few offshore dolphins strand and offshore recoveries rarely show evidence of human interaction. Some offshore dolphins are found floating offshore, Fresh dead animals are compared to photo-ID catalogs. Stranding networks are good at flagging animals that show morphological characteristics of offshore stocks. The SRG suggested the report clarify that offshore strandings are rare and not a major component of strandings in the report.

Additional comments can be sent directly to Kathy Foley (kathy.foley@noaa.gov).

Marine Mammal GOMMAPPS: Seasonal line-transect surveys for the development of spatially and seasonally explicit density models (Jenny Litz, SEFSC)

This program is in its 3rd year and is a partnership between NOAA, BOEM, USGS, and USFWS. The objective is to conduct broad scale abundance surveys that can be used to create seasonally and spatially explicit density models. The end product is due in 2020. Two interesting findings were that there was a lack of sperm whale sightings off southwest Florida compared to previous surveys and the pantropical spotted dolphin encounter rates and group sizes were smaller than in previous studies.

Biopsies were not collected during surveys since GoMMAPPS was designed to cover as much trackline as possible for abundance and distribution data. Therefore, the opportunity to launch boats for biopsy sampling was limited except for rare species encounters such as killer whales or Bryde's whales. While biopsies are a high priority for SEFSC, it is not a high priority for BOEM, therefore biopsies will likely need to be collected using independent funding outside of GoMMAPPS.

Plankton sampling on GoMMAPPS trips were opportunistic, and only because extra bunk space was available onboard the vessel. Samples were collected and will be stored until funding is available for analysis.

SEFSC staff will be working on correction factor calculations and availability bias based on school sizes. Further analysis may be required.

AMAPPS (NEFSC)

This program is the Atlantic multi-agency collaborative for species distribution and population assessments. It is now entering its third 5-year cycle. Includes aerial and shipboard surveys, plus loggerhead and leatherback tagging, and deploying and recovery of acoustic buoys. Results can be found online and habitat density and seasonal maps can be downloaded: www.nefsc.noaa.gov/AMMAPSviewer

Surveys include seabirds, turtles, and whales but sightings of seals are sparse since these platforms don't lend themselves to spotting seals well, and BOEM is not interested in data on pinnipeds. They were included in the AMAPPS 1 report though and other collaborative projects do look at tagged seal data in potential wind farm areas.

Bias correction is done using information from other tag data, or combined data, using a method by Jeff Laake adopted for tag data for bias and uncertainty. Hopefully towed acoustic data will help with long term bias correction. Modelling uses covariant for group size (animals) density estimates and then corrected for availability bias. Center uses multiple corrections, and it depending on species. Data used are collected in Beaufort 4 sea state or lower. To date there hasn't been an analysis to determine if there is a difference between detection of species based

on sea state. Methods used are slightly different than those used by SWFSC to correct for sea state since they don't have a double team survey like NEFSC. NEFSC adjustments can be made directly. Plankton is also sampled and analyzed during these surveys. This processing has revealed new breeding grounds for tuna. Additional processing will depend on future funding.

Serious Injury Determinations Review (NEFSC)

The NEFSC Serious Injury and Mortality table was provided to the group prior to the meeting.

Discussion:
For bycatch estimate sensitivity analysis, have conducted limited trips where observers were only observing for marine mammal take. These results were then compared to other observed trips to see if "full" observers may miss animals falling out of the net as the gear is hauled in since there is concern over underestimating small cetacean bycatch. These reports focus on trawls and gillnets. Lance Garrison prepares a pelagic longline report each year, though that was not the focus of this discussion. Those additional takes would also be included in the SARs should they be observed.

HQ OPR Updates

SAR Schedule (Shannon Bettridge)

The SAR schedule was interrupted by the furlough, but the 2018 SARs are close to being finalized and published. The notice of availability should be out within a month. The draft 2019 SARs are expected to be out for public comment by late summer or early fall.

Concerns were raised by group members that it was difficult to comment on the draft 2019 SARs when it wasn't clear what changes had been made in the final 2018 SARs.

Deepwater Horizon Restoration Plan 2 (Laura Engleby)

The 2010 oil spill created extensive injury in coastal and offshore waters. The natural resource damages were assessed at $8.8 billion under the Oil Pollution Act. The restoration plan created Trustee Implementation Groups (TIGs) including the Open Ocean TIG. The TIG includes multiple federal agencies led by NOAA. A year ago, NOAA solicited input for research proposals. The Deepwater Horizon Restoration Plan 2 was released May 15, 2019 for public comment. The draft restoration plan focuses on the wide-ranging and migratory oceanic species within the Open Ocean Restoration Area and proposes projects for the following four Restoration Types: Fish and Water Column Invertebrates, Sea Turtles, Marine Mammals, and Mesophotic and Deep Benthic Communities. Information on public scoping meeting and upcoming webinars can be found on the website (linked above). Marine mammal priorities focus on ocean species prioritizing vessel strike and noise reduction impacts.

Discussion:
Participants discussed if there are potential remediation plans for vulnerable species like Bryde's whales in the eastern Gulf of Mexico, should the oil industry begin production in that

area and another spill occurs and that restoration efforts should include not allowing an event like the BP spill, to happen again. Group members expressed frustration at the retraction of protective measures put into place by the previous administration. Laura explained that the Oil Pollution Act has strict confines on what can and cannot be addressed. The Act only allows the Agency to focus on restoring resources that were lost, how human impacts can be reduced (in this case focusing on vessel strikes and noise impacts) and learn about the threats. Regulatory action can't be taken under this and funds can't be used to do things that the Agency would be planning to do anyway.

Section 101(a)(5)(E) of MMPA (Shannon Bettridge)
This section of the MMPA relates to commercial fishing activities that incidentally injure or kill ESA listed marine mammals. Requires fishery authorization for incidental takes - or legal protection for fishermen - for an Incidental Take Statement under the ESA to be valid. Negligible Impact Determination (NID) criteria were developed in 1999 and were not clearly written or defined for all scenarios, therefore the Agency worked with the MMC to revise the criteria a few years ago. We are hoping the proposed criteria rule will go out for public comment within a month or so and will be sent around to the SRG for comment.

Research actions needed to improve management of marine mammal-fishery interaction in New England (Doug DeMaster and Paula Moreno)

Discussion:
Grey seals were chosen for the example because their population is robust and recovering, however, fluctuations around PBR could trigger the implementation of a TRP if PBR was ever exceeded (despite the recovering trend). PBR- based management can be very rigid, but it does put limits on anthropogenic take. Flexibility in how species are managed could be beneficial down the road and would not require an MMPA amendment since the GAMMS already provides guidance on this alternative.

This alternative process also has the potential to better engage the fishing industry in understanding their role, not just when a TRT is convened. It showcases the value of collaborating and increases transparency for all stakeholders for ranking priorities. This model mimics the Wade model, but we can do more with stocks that we have more information for, that we didn't have before. Choosing grey seals covers an array of aspects including transboundary and age structure effects. This model could also help allow more flexibility when there are lags between List of Fisheries and the SARs.

SEFSC Updates

RESTORE: Trophic Interactions & Habitat Requirements of Gulf of Mexico Bryde's Whales: 2017 - 2020
This project focuses on improving understanding of the trophic ecology and habitat of Gulf of Mexico Bryde's whales. Incorporates visual surveys, passive acoustics, biopsy sampling, eDNA

sampling, trawling for prey, EK60 data to identify prey fields, plus PAM work across the Gulf, including the western Gulf to see if there are any whales there. One unit deployed in the western Gulf detected long moan calls. Plans to deploy two additional moorings and one will include an eDNA sampler.

Mississippi River Diversion: catalog comparison
To inform the EIS for the mid-Barataria Bay sediment diversion project, the SEFSC has been comparing bottlenose dolphin photo-ID catalogs from Barataria Bay and Terrebonne/Timbalier Bay to examine the degree of movement between the bays. Very little overlap was seen between the two bays. In addition, fieldwork to obtain a mark-recapture photo-ID abundance estimate for Barataria Bay occurred in March and April 2019. Photo analysis should be completed by fall 2019.

Discussion:
The SRG asked if the information collected in this catalog comparison will influence how the diversion project proceeds or require the project to undertake any mitigation to reduce impacts. Center staff are also involved in an expert elicitation related to salinity impacts on dolphins and this information will feed into the EIS, but it's unclear if it will contribute to project mitigation, though it will quantify changes over time and hopefully lead to better informed decision making. It will be especially important if the new northern Gulf of Mexico bottlenose dolphin UME is freshwater related. The (2018) Budget Act requires states to consult with NMFS on activities on how they can reduce marine mammal impacts. There at least seems to be interest in establishing monitoring programs to inform current data gaps.

CARMMHA (Consortium for Advanced Research on Marine Mammal Health Assessment) - Biopsy Sampling & Genetic Analysis

A bottlenose dolphin capture-release health assessment was conducted in Alabama in September 2018 and the SEFSC conducted a biopsy survey in fall 2018 in nearshore coastal waters off eastern Mississippi and western Alabama to target the Northern Coastal Stock

Galveston Bay Bottlenose Dolphin Stock and Sabine Lake Bottlenose Dolphin Stock CMR Surveys
Cooperative effort between SEFSC staff and the Texas Marine Mammal Stranding Network. The goal is to have abundance estimates completed by the end of 2019.

There was recently a gasoline spill in Galveston Bay. Trying to assess any exposure and follow-up.

Alabama Common Bottlenose Dolphin TIG Project: 2019-2022
Cooperative DWH restoration project includes photo-ID and biopsy sampling for the Mobile Bay and Perdido Bay Stocks, as well as in adjacent coastal waters.

Discussion:

Question raised as to whether or not additional photo-ID efforts are planned for Mississippi Sound. There is nothing planned at this point. GoMMAPPs aerial surveys include Mississippi Sound and will be analyzed for abundance estimates.

NEFSC Updates

Passive Acoustics

Right whale surveys

Discussion:
Northeast Fisheries Science Center plankton surveys show plankton off the Mid-Atlantic, so the Center will launch two gliders to patrol the area for three weeks. There was one detection last year from a glider, but the animal could not be located. The planes will be on stand-by if any animals are detected this year. Center staff are doing their best to respond to changes in whale distribution, but it can take 6 months to a year to reallocate resources.

Humpback Whales

Two DPS of humpbacks are using the eastern Caribbean, though in different seasons. The other northern feeding groups from the north Atlantic use Cape Verde and then down to the Caribbean in late winter/early spring.

While some data were available, the split wasn't recognized by the Biological Review Team when assessing the status of the species. Question was raised if the agency was reassessing the DPS as more data become available about the discrete use of breeding areas. Some information was missing before, but we are starting to get a better idea that the stock definition should be an expansion of the DPS. Animals that were missing from the eastern North Atlantic are actually the Cape Verdes (Plus). One animal harvested in Bequia was actually a Gulf of Maine animal.

Canadian Surveys

In Canada, tagged humpback whales stayed in waters off of Newfoundland all winter, but then were detected again off Haiti, Puerto Rico, and then off the mid-Atlantic ridge. Not sure where the animal went southbound because the tag stopped working for a month.

Canada is also embarking on aerial surveys of harbor seals over the next couple of years. The satellite and acoustic tagging will occur as well.

Stock Assessment Reviews by the SRG

Southeast Stocks

St. Andrew Bay common bottlenose dolphin

Andy provided comments in writing but he asked for clarification on the use of the lower seasonal estimate to derive the population estimate. Patty clarified that this was the standard practice for photo-ID abundance estimates for BSE stocks, to pick the seasonal estimate that best represents the stock, to the exclusion of seasonal transients.

Gen asked that the SAR text on why the April abundance was chosen be bolstered to make this clear. The text did not make it clear that transients are present in October.

St. Joseph Bay common bottlenose dolphin
Current population trends did not evaluate interannual trend variations. More data will need to be collected from researchers to conduct an actual trend analysis. For this species, there are data available from 2005-2007, and the numbers are similar now, so this might indicate we need a statement on the stability of the stock. Data for trends can be more than 8 years old. The Southeast Center will look at the different population estimates contained in the literature and see if the methods, means, and deviations are comparable for the different time frames to include in a discussion of trends. Might be challenging if coming from different sources.

For all stock assessments in general, authors should be including trend information.

Atlantic spotted dolphin, western North Atlantic stock
The Atlantic spotted dolphin stock in the western North Atlantic currently includes two ecotypes, but NMFS won't pursue creating new stocks until the new stock policy is finalized (currently in the works).

Clymene dolphin, western North Atlantic stock
Nmin estimates are sensitive to decimal rounding, so sometimes recalculations by members are consistent and other times they are not. Lance will share the spreadsheet (Deb maintains the spreadsheet.)

Dwarf sperm whale, western North Atlantic stock
Need to include what the prey is (bottom of first page). For the annual human serious injury and mortality, are there any data on the percentage of observer coverage (for fisheries in the range of the species)? In other instances where there was evidence of human interaction, the actual interaction should be described. For "Other mortality", this could vary with latitude and oceanographic assumptions that any mortalities are unlikely to come to shore. Also, for the status of the stock section, the total US serious injury and mortality is inconsistent with the Annual serious injury and mortality language.

False killer whale, western North Atlantic stock
The population estimates are "in review" because the abundance estimate was only done this year after waiting for the Canadian surveys to be completed. Next surveys are scheduled for 2021 AMAPPS. NMFS is working to meet SAR deadlines. "In Review" or draft publications are allowed in the draft SARs, but are removed if they are not finalized by the final SAR publication. If the data are not published, but part of the stranding program, some exceptions can be made.

Sentence stating that “sightings of the species have not occurred or are rare” should be removed since it is not helpful.

Members liked the addition of the Habitat Issues section, particularly with respect to discussion IHAs for offshore energy and think this should be added to all species where it is not already included to give the reader information on upcoming issues.

Should be clear that the stranding data are underreported and since the animals are found mostly on the shelf break, animals are unlikely to come to shore. The current language is boilerplate, but could investigate using more precise language to describe this without making a judgment on the likelihood of strandings coming to shore.

Fraser’s dolphin, western North Atlantic stock
No comments

Melon headed whale, western North Atlantic stock
Editorial comments only

Offshore common bottlenose dolphin, western North Atlantic stock
Need to clarify which surveys were vessel vs. aerial. Written comments provided.

Pantropical spotted dolphin, western North Atlantic stock
Editorial comments only

Pygmy killer whale, western North Atlantic stock
There was a question about whether or not the table should be included tabulating strandings even if there are only a few animals and the information was included in the text.

Suggestion to add climate change impact text to the SARs.

Pygmy sperm whale, western North Atlantic stock
Stranding records for the eastern Canadian coast were not included. Citations were included in written comments. Information on differentiating stocks hasn’t been published yet, so that information can’t be cited in the SAR yet. Need to make sure PBR and Nmin are consistent in the different sections they are mentioned.

Short-finned pilot whale, western North Atlantic stock
Clarification requested for what it meant that tagged whales were “recovered” in SC. It was clarified this meant that they stranded. Since the analysis of the stock structure is not complete, it was requested that information be included stating when it is expected to be complete and what information remains to be completed; for example, the samples were sent out for analysis in March and the data have not yet been received. The data will return in the next few months, but there is no staff available to complete the analysis. Suggestion was also made that sightings

should be confirmed with other sightings and satellite data from the Gulf of Mexico and Bahamas. Written citations were provided (though some sources might be Navy reports not public documents).

General SAR question was raised about the combining of survey best estimates to get total estimates, and the effect this has on lowering CVs (since they are also pooled.) With lower CVs, there will be higher allowed take, therefore is the lower CV really appropriate since this has an effect on PBR? The GAMMS address the lowering of CV if multiple CVs are pooled. The reduction is likely modest. Another approach would be to calculate Nmin for each survey and then add them together. This might help reduce the uncertainty.

Spinner dolphin, western North Atlantic stock
Editorial comments only

Northeast Stocks (all are western North Atlantic stocks)

Fin whale
Under "Other Mortality" there were a few Canadian strandings in 2017 that could be included. There was no fishery interaction evidence.

SRG requested that since the updated population surveys cover different ranges and are so drastically different, that additional text be added to better explain the differences (applicable to all SARs). Otherwise, it makes trends difficult to assess. Are the changes related to more bias corrections and increased survey effort? The years are not comparable unless you take a retroactive approach.

There is a significant editorial concern for the PBR section- the text about being corrected for availability bias is inconsistent and PBR is calculated incorrectly. It should be about 12.

Request for larger, more interactive maps (as long as they can meet 508 compliance) since the current maps don't add much to the SAR in their current format. Suggestions include full-page map.

Sei whale
Concern about the language used in the mortality tables regarding "proximate" and "ultimate". In its current form, the terms are backwards. The animal was hit by a ship because it was starving and "proximate" means "immediate". Since the plastic and blunt trauma were both the cause of death, maybe the terminology should be re-evaluated. Primary cause of death was blunt trauma; the ultimate cause of death was bleeding to death from plastic.

For recent surveys and abundance- paragraph on habitat based estimates produced by Roberts et. al. 2016 mentioned differences in modeling efforts. The paragraph is on its own without explanation for why it was not used or why the abundance estimate that is used is the best one.

Need to include a better description of why the choice was made, especially given that the estimates are very different.

General support for addition of climate change paragraph added to all Northeast species.

There is concern about the sei whale population in Canada, and a committee has been convened to decide if the species should be listed as threatened or endangered. There is concern that either distribution or abundance has changed, or that recovery has been impacted. Shannon Bettridge will connect Jack Lawson with NMFS's 5-Year Review point of contact.

It was mentioned that in the California current, oceanic seis are being seen, but coastal seis seem to have disappeared.

Minke whale
In the minke, right, and humpback whale SARs, UMEs are not mentioned and at least a general description should be provided in each SAR if the SAR and UME timeframes overlap. If the timeframes do not overlap, could provide a general statement in the FR notice as to why the UME might not be reflected in the SAR.

Several reports of minke floaters in Canada. Reports should be forwarded to Allison Henry if they have not been already. The MMHSRP should also be provided with copies of those reports.

Request that if the mid-Atlantic gillnet was an observed mortality, that it be extrapolated out and not treated as a stranded animal.

Sperm whale
Support for section on disturbance from oil and gas exploration.

In Canada, on the Grand Banks, sperm whales have started following trawls and taking fish out of the nets. There is a real concern about the potential for entanglement. Have had this issue in pelagic longlines, and learning to pluck the longline to get the fish off the hook. Sperm whale strandings are not uncommon.

In the US, sperm whales are not co-existing with trawlers yet, and the rare strandings have not been linked to human caused activities.

Blue whale
In Canada, a dozen adult blue whales were killed in ice entrapment in Newfoundland. Jack Lawson will provide text.

Different citations should be used for acoustics section.

Anecdotal sightings from whale watches should also be included (to show the range of the species) since Cape Cod whale watches occasionally sight them. The three sightings off of Montauk are likely the same whale.

Cuvier's beaked whale
New satellite tag data suggest that there is a resident population with limited geographical range off Cape Hatteras. This, and other new acoustic monitoring studies along the shelf break, should be included and addressed. It may not be appropriate for these population estimates to be lumped with other beaked whale species given the new research.

Need to include a habitat section in the SAR that discusses seismic impacts.

Blainville's beaked whale
Citations on life history characteristics are too old and new data are probably available on Blainville's and True's beaked whales.

Gervais beaked whales
Need to provide additional clarification and description of the jump in population estimates and how the new estimates compare to the previous estimates. Need to provide more context. Might be helpful to provide a rough estimate of what the availability bias has been and what it is for comparison.

True's beaked whales
In Review cited documents need to be updated when finalized. SRG members do not care for the lumping of the species.

Need to include a habitat section in the SAR that discusses seismic impacts.

In the last paragraph of the geographic range, there is a statement that sightings are rare in Canadian waters. Requesting that this be evaluated since there have been more recent live strandings of seemingly healthy True's in Canada.

The year ranges in the text are off in a couple of places.

Sowerby's beaked whale
Again, based on more updated information, estimates for individual species should be reconciled. In Table 2 - the population estimates should be clarified. Passive acoustics should be helpful for differentiating species and determining ranges for each.

Need to include a habitat section in the SAR that discusses seismic impacts.

Long-finned pilot whale
There is a dramatic change in the abundance estimate. More information is needed to explain the change in survey coverage to explain the significant jump. Since the population trend has

not been conducted, need to include additional language to explain why the trend cannot be calculated.

Risso's dolphin
The first part of the document is outdated. More recent data should be available. In the second paragraph, should include data from Risso's that were released and tracked with satellite tags.

Common dolphin
Most of the information on Canadian surveys is missing.

White-sided dolphin
Editorial comments only

White beaked dolphin
Need to clarify the "zero" versus "approaching zero" language to make sure any distinctions are correctly used.

Need to add a sentence in the current population that the increase in Canadian waters seen from 2007-2016 must be from immigration from other areas, and not likely due to reproduction.

Striped dolphin
The population size text is inconsistent with the Table. PBR needs to be updated and recalculated.

Harbor porpoise
More detail is needed on the spatial coverage in Canadian waters and if/where there was overlap with the NMFS survey. Different methods were used because different aircrafts were used for the two surveys.

Notes Nmin consistency. Assuming PBR is correct.

Request to abbreviate the text in the current/max productivity section and include impact of oil exploration and wind energy/wind farm installation in habitat section.

Harbor seal
References are too old and some are misleading. For example, pupping occurs for a few days in June, not the entire month of June.

Gray seal
The population estimate is based on the fraction of pups born in Canada, not the US.

There is a negative number in Table 2-- assuming that is a typo?

Harp seal

There is a major review of the Canadian harp seal survey coming up soon.

New population assessment for humpback whales (Richard Pace, NEFSC)

Richard Pace presented a model based on the humpback whale catalog, and accounts for animals that might enter or leave the population without being detected. The model framework also allows for animals that have never been seen. This is an advantage for right whales and humpback whales since we will not double count the serious injury and mortality.

Disentangled animals that would have been counted as seriously injured are not included unless they disappear from the population. Ratio estimates are better to use.

Request to have PBR plotted on Figure 3 with the understanding that PBR changed significantly when the listing status for humpback whales changed. Possible consideration of hindcasting PBR for comparison.

Concerns raised about using poor and/or unpublished data to assign 85% of all mortality to human caused mortality, even though the methods have been used for right whales in the Pace et. al 2018 paper (where 70-85% of mortality was assigned to human caused mortality.).

SRG members raised concerns about using the proposed population estimate given that the mark-recapture is based on whale tails in a catalog-- of which the purpose is to monitor individual animals, not track populations. The bias in mark-recapture and unequal capture probability for humpback and right whales is different enough to warrant a unique report that should be peer reviewed prior to use in the SAR. Since you are relying on vessels taking pictures of whales, some individual humpbacks are more likely to be captured than others and will create an underestimate because the bias will be towards individuals that are more available to you. The whale catalog is efficient for monitoring individuals and body condition, but not for estimating population size. It is good for looking at the population size of the population you are looking at, but not the population as a whole. SRG recommended since the line-transect data are accepted for other species, they should be used here until the new process can be peer reviewed.

There was discussion and some disagreement was expressed about the need for additional peer review since the Science Center believes the methodology is the same as used for the right whale SAR, and that model was peer reviewed and published. If additional peer review is needed here, then the same should be considered for line transects for each individual species. The Northeast Fisheries Science Center staff believe that the current format conforms to SAR requirements.

For SAR purposes, using the smaller number may make sense since SAR guidelines require that the Minimum Population Estimate be a number that the population could not be less than. Is curated data less accurate than line-transect data?

The CV for the line-transect survey is high. Is precision or accuracy more important? Distance sampling is not the tool of choice for small populations.

Observational part of this is annual boat based surveys and biopsies. Other anecdotal information informs estimates of survival rate but not the capture rate.

From a public perspective, the information in the SAR needs to better explain why the model is being used, why it is the best choice, and why it is so different from the line-transect results. Otherwise it is confusing and unclear.

One SRG member suggested using the lower of the two estimates, to be precautionary. In Canada, in 2016, they saw an influx of animals. The member was comfortable with mark-recapture to calculate PBR, but requested the opportunity to discuss with Deb Palka sea state and conditions, and suggests there should be additional discussion on how to explain why line transects (in this case) are not as useful as the model method.

Clustering of animals can bias the line transects. There is also the issue of potential whales living south of this area (that we do not believe to be part of the Gulf of Maine stock) to be validated if they come into the Gulf of Maine proper.

Questions were raised about the model representing an open or closed population and what would happen if there was an influx of animals from another area. Also would need to consider that animals leaving the population may not be because of deaths.

Given that there are limitations on both population estimate methods, as long as the discussion for why the change is being made (including the pros and cons for both methods), there was relative support for moving forward.

A question was raised about whether or not line transect surveys that show a high jump in population estimates for other species should be considered accurate. The group discussed how they are still the best available estimates in those circumstances.

Caution was raised over giving too much weight to trusting high CVs for line transects. A suggestion was made to bring in fisheries simulation work to show that CVs are underestimated.

When CVs are too low, they are not meaningful and for these sources, the uncertainty around group size and availability bias is well known. If a jump in numbers is seen, uncertainty should be accounted for/better characterized. Model based estimate has much smaller CV and sources for uncertainty that may not be accounted for. Need consistency across sources of uncertainty across models. Is the lack of spatial overlap between the two surveys helpful for comparing both estimates? For line transect, numbers cannot be extrapolated outside of survey area, but the model can account for animals outside that area.

For serious injury and mortality, if an animal is found in the mid-Atlantic and cannot be identified to another catalog, it is assumed to be part of the Gulf of Maine feeding stock.

One SRG member stated that it is a justifiable process to use a model from somewhere else and apply it to a new situation, but that the description of how the model applies to humpbacks should be more detailed. An open population model is more appropriate for humpbacks. Last year, discussion about the right whale model included talking about how resighting and tight confidence intervals made sense, since there was uncertainty around immigration, animals moving in and out, not including the whole areas, etc. State space and observation space are supportive of each other. Scale might also have an impact too but this was not included in the SAR but we have the CV for both estimates. Slightly smaller for humpback whales. Variance for humpbacks was 1.5 and 2.5 for right whales, with a resight value of 3.5 for humpbacks. These are still probably underestimates.

Discussion also suggested that for small populations that are clustered, line transects might not be the best estimation methods.

Question was raised as to whether or not there are simulation studies that can compare what we know about humpback behavior compared to line transects that occurred in the same area.

With the right whale model, there was less concern about transients. There was some concern about using the model to estimate mortality when this difference in accounting for transients exists.

Humpback whale SAR

The SRG recommended the range distribution map needs to be adjusted to be representative of sightings, and increase in those sightings, in the mid-Atlantic. Stevick et al 2018, NOAA media center, NY state surveys, and newer work by Friedlaender showing increased use of menhaden in the Mid-Atlantic should all be looked at. Older papers shouldn't be the only works talking about Mid-Atlantic humpback whales when we know more now.

Pace 2018 should be included in the bibliography and the citation for entanglements needs to be updated. Mortality section needs to add up.

Habitat issues should also include increase in activities by BOEM.

On the 2nd page, 3rd paragraph, add year-round acoustic records.

Add information about the current UME.

In the section above "population size," this section is dated and needs to be updated with more recent information, including pre-type discussions.

Add a line for PBR fluctuations on Figure 3 for reference.

General observation that the number of dying whales is staggering.

Right Whale Population Evaluation Tool (PET) (Richard Pace, NEFSC)

Before the significant decline in right whale abundance, multiple population projections were run and there were no projections that led to extinction, though recovery would be difficult.

Through the right whale Northeast Implementation Team (NEIT), a PET working group has been established. They are currently working on a proposed scope of work that they are asking for review on. Have a short time frame to get out the first version since, according to the recovery plan and 5-year review, a PVA estimate of probability of extinction is one of the highest priorities. Therefore, they need to develop a tool to help look at the extinction risk/projection and determine the sace that will best inform management so we can better understand what it will take to turn the population trend around.

The PET objectives include:

- Estimate extinction risk under current and projected threats
- Explore demographically based recovery criteria
- Conduct quantitative threats analysis
- Evaluate series of relevant management alternatives
- Conduct full sensitivity analysis
- Facilitate communication/outreach/education

Discussion:
A SRG group member asked if the PET was taking advantage of other model packages already available. The PET is looking to use individual based model, not be a matrix driven model.

A question was raised about whether there are concerns about allele effects on the lower end. In the case of other species with larger density, animals could leave the population but not by death. The bigger concern for right whales is the bad calving/birthing rates, not just the carcasses counted for the UME, though both survival and fecundity matter.

Variance in survival rates does not necessarily coincide with dips in population. Projection models are driven by variability. It is hard to compare because you do not see catastrophic declines like this in other species. Other concerns also include that changes in prey availability are now putting them into a new field of risk as well, not just associated with lower birth rates. Will there be any ability to model synergistic effects?

Cryptic Mortality (Richard Pace, NEFSC)

Mortality is assigned based on evaluations of serious injuries and mortalities from necropsies. For right whales, all necropsies are assigned to human interactions. However, with humpback whales, this is not as clear. When calculating cryptic mortality, 85% of serious injury and

mortality are attributed to human interactions. This is based on forensic evidence. The percentage attributed to ship strikes or entanglement are based on observed proportion. The sample size is a concern, but this is the best available information we have. The CV of the proportioned estimated could be included in the SAR.

A SRG group member suggested looking at the numbers to reduce the percentage to see at what point you would drop below PBR, ramping down from .85. This could help provide a "gut check" to see how far away from PBR we are.

Another SRG member requested that a technical memo or Center Reference Document, similar to the bycatch estimates and Caretta's cryptic mortality estimates, be published before the cryptic mortality is included in the SARs. In this document, the sampling should be clarified. For example, what is the observation bias between whales showing up on the beach versus floaters?

Right whale health workshop June 24-26, 2019 (Shannon Bettridge, OPR HQ)

The Agency is approaching right whale recovery from a variety of angles. This summer, NMFS will convene a workshop looking at right whale health. Michael Moore will chair the meeting. Currently, they have worked to develop an attendee list and draft agenda. The workshop will review what we know and discuss new data and techniques that are needed to gather information on assessing factors influencing right whale health.

Right whale surveys (Tim Cole, NEFSC)

Surveys and flight plans are designed to maximize the number of animals located, so this is based on history, reports, and models.
Gilbert- how do you decide where you fly?

From 2017-18 for the Gulf of St. Lawrence, right whales seemed to go there and stay there longer than they used the US feeding grounds. Analyses suggest that almost every animal was there. We were able to photo-ID a big percentage of them.

Another area seeing high use is south of Nantucket. A large portion of the population is likely using the area. In Cape Cod Bay, we saw 280 animals. Animals seen in Cape Cod Bay are now being seen south of the Islands, but that hasn't been fully analyzed yet. On George's Bank, we focus on the 50 fathom contour. This summer, the surveys will be splitting the time in US and Gulf of St. Lawrence.

Plane is the best tool, but animals are still being missed on any given flight. Canada will be using acoustics and vessel surveys to look for whales outside of the Gulf of St. Lawrence.

Right whale SAR

SRG group members commented that the use of the area south of the islands does not just occur in the spring. In the SAR- to make sure members know what text has been added, need to make sure that that text is highlighted. Updates to the mortality table will be sent by members since a couple cases from New England Aquarium listed as serious injury/mortality were not included. Should PBR be positive if the population is declining?

Questions were raised about the subtraction of the 17 animals to obtain Nmin. According to GAMMS, Nmin needs to be the smallest population number that the population is likely not lower than. We did not have an estimate for what the deaths are for that year, but needed to acknowledge them.

Figure one is missing sightings west of Florida within this timeframe and off the southeast corner of Newfoundland. Within the map legend, should clarify if these are individual right whales identified, or just sightings that were identified as right whale. Suggested that PBR be plotted on Figure 4.

Canada is implementing a national review of right whales. There are visual and acoustic detections off of Newfoundland from 2017? Acoustics helped to predict that the animals would show up in May. Jack Lawson will provide reports form right whale meetings and text for Newfoundland sightings and detections.

Center staff asked if the SRG wanted to see estimates for human induced mortality. Some members were comfortable with this, others asked for more time to digest the cryptic mortality estimate procedure, and thought that it would be good to have a meeting/talk with Deb Palka about the line transects.

Suggestion made for the open population model to use conservative, or best estimate using the lowest bounds to justify not overestimating.

Again, the case was made for providing a technical memo detailing cryptic mortality estimates.

Next Venue/Chair

Location: Sarasota, FL
Chair: Genny Nesslage
Date: TBD