Minutes from the 2016 Meeting of the Alaska Scientific Review Group

24 – 25 February – Seattle, WA
This report summarizes the 2016 meeting of the Alaska 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.

Meeting Called to Order and Adoption of Agenda
Lloyd Lowry, the SRG chair, called the meeting to order and adopted the agenda.

Attendees included:

Alaska SRG Members Present: Lloyd Lowry, Karl Haflinger, Beth Mathews, Bob Small, Kate Wynne, Grey Pendleton, Dave Tallmon

Observers and Invited Participants: Richard Merrick (NMFS HQ), Shannon Bettridge (NMFS HQ/PR2), Kristy Long (NMFS HQ/PR2), Robyn Angliss (AFSC), Marcia Muto (AFSC), Van Helker (AFSC), Paul Wade (AFSC), Bridget Mansfield (NMFS AKR), Tom Gelatt (AFSC), Lowell Fritz (AFSC), Kathryn Sweeney (AFSC), Rod Towell (AFSC), Devin Johnson (AFSC), Rod Hobbs, (AFSC), Marilyn Dahlheim (AFSC), Josh London (AFSC), Alex Zerbini (AFSC), Manolo Castellote (AFSC), Kim Parsons, (AFSC), James Powell (NMFS HQ/PR2), Dee Allen (MMC), Vicki Cornish (MMC) Charlie Hamilton (USFWS), Paula Moreno (USM)

NOAA Ship Time in Alaska
Richard Merrick provided a briefing to the SRG on how research time aboard NOAA ships is allocated. Merrick said that the National Marine Fisheries Service (NMFS) top shipboard research priority was fisheries research when he first became the Chief Scientist of the NMFS four years ago. Over the last four years priorities have changed, and now 30% to 40% of ship time is spent on protected resources research projects. This equates to 400 to 500 sea days spent conducting protected resources work.

Merrick said that NOAA currently has only one fisheries research vessel in Alaska, the *Oscar Dyson*. Until recently, there were two NOAA research vessels that served Alaska. The economic importance of walleye pollock stock assessments are so great that the *Dyson* conducts primarily fish research and this means that although protected resources work aboard NOAA ships has increased, NMFS still has to charter a significant portion of time for the study of marine mammals on non-NOAA vessels in Alaska. This arrangement will continue until NOAA dedicates another ship to Alaska.

Minutes and Travel
Robyn Angliss said that the draft meeting minutes from the 2015 meeting had been circulated to the SRG for comments shortly after the 2015 SRG meeting. The SRG's comments were incorporated and the minutes are posted on the NMFS SRG website.

Marcia Muto reminded the SRG to save receipts and submit expenses to the Marine Mammal Laboratory (MML) travel following the meetings.

2015 meeting recommendations and NMFS response

Lowry said the SRG's 2015 letter to NMFS was generally positive and complimentary towards NMFS, but the SRG also expressed concerns regarding NMFS' inability to quantify incidental takes and to establish Potential Biological Removal (PBR) for select stocks. In response to the SRG's letter, NMFS made the following commitments:

1. At the 2016 SRG meeting, provide information on the system for evaluating the adequacy of marine mammal stock assessments that has been in use by NMFS for approximately ten years
2. Develop a plan to collect abundance for those stocks with poor or unknown abundance estimates in response to AFSC Program Review comments made in 2015. The AFSC will share this plan with the SRG at its 2017 meeting
3. NMFS is committed to working with the SRG and Alaska Native co-management representatives to develop practical approaches for improving stock assessments where information on abundance, trends in abundance, and annual removal levels is not available. NMFS will present results of discussions about this issue at the 2016 meeting of the SRG

In regards to the first NMFS response, Angliss said that Mridula Srinivasan was willing to provide the SRG with a briefing on how NMFS evaluates Stock Assessment Report (SAR) adequacy, but Lowry declined to add it to the agenda due to a lack of time. Angliss added that NMFS published a report from the Stock Assessment Improvement Plan Workshop. This report includes criteria for rating a SAR. If the SRG was interested it could be included as a topic at the 2017 meeting. Lowry asked what happens to a SAR that was rated poorly and not improving under this evaluation system. Angliss said the SARs are rated, and depending on their data quality are ranked as tier 1, tier 2, or tier 3. Tier 3 ratings require high levels of confidence in a variety of data, and for strategic stocks also require detailed information on that stock's food habits and stock structure. Angliss said when this system was established the hope was that funding would be set aside to improve SARs with ratings that were consistently poor. She added that this is a helpful system if the SRG is looking for a measure to track SAR quality over time. Lowry said that his concern was not tracking SAR quality, but improving tier 1 and tier 2 SARs to tier 3. Lowry thought it was relatively easy to determine which SARs were data deficient.

Angliss said that the rating system also offers forecasts on upcoming improvements to SAR quality. For instance, AFSC staff anticipated an improvement in the ice seal abundance estimates several years prior to the inclusion of the updated abundance estimates, and this rating system reflected that prediction. Grey Pendleton noted that AFSC's abundance estimates have shown improvements since he joined the SRG, but in terms of tracking and estimating takes, there has been no improvement. Pendleton asked if this deficiency is reflected in the ratings. Angliss said that every major section of a SAR is rated. Ratings are typically based on multiple criteria such

as the age and quality of the data and coefficients of variation. Beth Mathews asked Angliss where the tier ratings of each SAR were published. Angliss said the ratings are not published, but are used within NMFS in accordance with the Government Performance Results Act.

Lowry began discussing the second NMFS response to the SRG's 2015 letter, which consisted of developing a plan to collect abundance for those stocks with poor or unknown abundance estimates. Angliss said that the AFSC will work with the Alaska Regional Office (ARO) to develop a system for rotating abundance estimate surveys between different stocks. Bob Small said it is easy to develop a schedule, but the bottom line is, if the funding is not available then a survey schedule will not fix the lack of abundance data. Mathews said that all of the recent harbor porpoise surveys have been conducted in southeast Alaska, and asked if this rotational abundance estimate system would compel NMFS to conduct harbor porpoise surveys outside of southeast Alaska. Angliss said that the southeast Alaska harbor porpoise surveys are funded by *John Cobb* funds, which can only be spent on vessel charters in Alaska. Due to the limited amount of *John Cobb* funds that MML receives, vessel surveys for harbor porpoise only make sense in southeast Alaska. The survey costs would be greater than the amount of *John Cobb* funding if MML were to conduct surveys in other parts of Alaska. Angliss added that the *John Cobb* funds cannot be spent on aerial survey or other non-charter vessel work.

Small asked if Angliss expected to see any changes that would allow for more flexibility in spending funds that are currently 'colored,' that is, designated by Congress for a particular purpose, such as for pinniped research in Alaska. Angliss said that NOAA is making changes that would allow for AFSC to move money designated for a particular species or stock to another stock or species, but was unsure how that mechanism would work, in part because AFSC has structured programs with permanent staff that rely on consistent levels of funding. Programmatic staff funding cannot be repurposed, even if the AFSC has the flexibility to spend money with fewer restrictions in the future. Pendleton reiterated Small's previous concern and asked why NMFS is developing a new rotational abundance estimate program if there will not be the flexible funds available to survey non-priority stocks. Angliss said that AFSC has not yet had a strategic conversation with the ARO regarding flexibility of funds, and she would be in a better position to answer that question after talking to the ARO. Wynne asked if it would be helpful for the SRG to provide a list of research priorities for that discussion. Angliss said yes. Kristy Long said there is also a limited amount of discretionary funds available that can be allocated based on priorities which are agreed upon by the SRG, Science Center, and Regional Office. Angliss said that this change in funding flexibility could actually hurt marine mammal research. Money could be redirected from marine mammals to fish. This probably will not happen, but it is a possibility.

Lowry asked if the program review referenced in the NMFS response would be published in a report or similar document. Angliss said the program review was held in March 2015, and there is information about the review posted online:

http://www.afsc.noaa.gov/program_reviews/2015/

Lowry asked if the SRG could still expect to receive AFSC's updated plan for collecting outdated abundance data at the 2017 meeting, and if the SRG would have an opportunity to review the plan while in draft form. Angliss said the SRG would have an opportunity to review the plan prior to the next meeting.

Lowry inquired about NMFS' progress on the third item in the NMFS response. Angliss said that little progress has been made in developing practical alternative approaches to improve abundance, trends, and removal levels in the SARs, but the AFSC and the ARO understand that it is important to make progress in this area and the AFSC is open to input and constructive suggestions from the SRG. Lowry said that it is incumbent on the SRG to keep pushing for progress on these alternative approaches, particularly for stocks of concern, such as harbor porpoise. Wynne said the AFSC should incorporate whatever data are available into SARs for stocks without take estimates or PBRs, even if those data do not fit the current SAR structure and data quality thresholds. Angliss said that in order to do that, a long-term commitment would be necessary to validate such alternative approaches to collecting data and calculating estimates. Bridget Mansfield, who was representing the ARO said that these alternative approaches are a great idea, but the ARO is intensely focused on Endangered Species Act (ESA) work, and would need to reorder its priorities in order to provide helpful input. Angliss said it would be best if AFSC had a menu of options to choose from in order to better understand and present human related mortality, particularly if an observer program was not an option.

Lowry proposed investigating grants in order to make progress on developing alternative approaches to stock assessment. Long said the Saltonstall-Kennedy (SK) grant program would be suitable for that kind of proposal, and provides $10 million in funding per year. The next application deadline for this grant program is in November. Long said there are other grant programs as well. Small suggested NMFS and the SRG develop some ideas over the next several months for a proposal, and Angliss urged the SRG to draft a list of alternatives to an observer program for calculating removals from a stock. Dee Allen said the Bycatch Reduction Engineering Program (BREP) may also provide funding for this work or related work, but the deadline for pre-proposals is March 1. Long said she would provide the meeting participants with information on the BREP and SK grants. Long said that any type of research in this realm would be appreciated by NMFS, and Lowry said these grant programs could address the SRG's interest in accounting for and reducing marine mammal bycatch in non-strategic stocks.

Alaska SRG Membership Turnover
Lowry said the SRG is losing five members. Resigning SRG members include Lloyd Lowry, Beth Mathews, Craig Matkin, Robert Suydam, and Dave Tallmon. Karl Halflinger may be leaving as well. Haflinger recommended Steve Martel as strong candidate for his replacement. Martel is a University of British Columbia graduate, has worked with the North Pacific Halibut Commission, and currently works with Haflinger. Tallmon recommended Heidi Pearson from University of Alaska Southeast (UAS). Pearson runs a lab at UAS and conducts marine mammal research. Mathews recommended Janet Neilson, a humpback whale biologist at Glacier Bay National Park, as a candidate to replace her.

Pendleton asked what sort of expertise the SRG should seek out when considering new members. Shannon Bettridge said the SRG and NMFS should consider the gaps in expertise created by the departure of these SRG members, and ensure that those gaps are filled with new members. Bettridge said a 30-day Federal Register Notice would be posted in order to select new members. Anyone can be nominated as an SRG member and nominees will be reviewed by NMFS, USFWS, and the SRG Chair prior to a selection decision. Bettridge hoped to get the nomination and selection process started in the next couple of weeks.

Pendleton said the SRG would need expertise in the subjects of genetics, large whales, killer whales, and the Arctic. Lowry asked if the Federal Register Notice would list the areas of expertise needed on the SRG. Bettridge said the Notice would list desired areas of expertise. Lowry asked if Charlie Hamilton had any recommendations for promising candidates, particularly someone that would be able to represent the interests of Alaska Natives. Hamilton suggested Harry Brower, but also acknowledged that Brower might not have the time. Hamilton also suggested Rosa Meehan and Cheryl Rosa. Wynne suggested Gay Sheffield as another potential candidate, Mathews suggested Jamie Womble, and Lowry suggested Kristen Laidre. Bettridge said that Alaska SRG members need not be Alaska residents. Lowry asked Bettridge to review the SRG's upcoming gaps in expertise and provide the SRG with a list of gaps in expertise for SRG consideration. Mathews asked who would assume the position of SRG chair. There was some discussion between the SRG members, and it was agreed that more discussion would follow during the next day's meeting.

Identify topics from the Joint SRG meeting meriting further discussion
Small said it would be a good idea for the AFSC and the ARO to consider the recommendations and proposals made by Jim Carretta and Jeff Moore regarding their alternative approach to bycatch estimate calculations. Small recommended applying Carretta and Moore's approach to Alaska, and thought the SRG could recommend particular areas in Alaska where these approaches could be applied. Mansfield said that it would be helpful for the SRG to recommend and encourage a greater amount of ongoing interaction between the AFSC and ARO to assist in the development of these alternative approaches. Pendleton said carcass recovery of humpback whales in southeast Alaska might be used to estimate mortality using

such alternative approaches, and added that NMFS should consider calculating an updated Rmax for both stocks of Steller sea lions. The meeting was then adjourned for the day.

Alaska SRG Meeting Day 2

New Fishery Bycatch Estimates

Paul Wade began a presentation on fishery bycatch estimates in the Alaska groundfish fisheries. He said Jeff Breiwick previously conducted the bycatch estimation for these fisheries, and Wade took over this role about a year ago. There are 23 Alaska groundfish fisheries that are on the List of Fisheries (LOF), but there is not necessarily marine mammal bycatch in each fishery each year. MML's bycatch analysis is stratified by NMFS statistical areas in the Gulf of Alaska (GOA) and the Bering Sea / Aleutian Islands (BS/AI). The numbers of marine mammal bycatch from 2010 to 2014 are not very high, and have never have been very high for most species.

Wade said he encountered an issue with the bycatch estimate process after taking over Breiwick's role, and is proposing a change to the bycatch estimation methods that will impact sperm whale and potentially killer whale bycatch estimates. Wade said there were two sperm whale serious injury (SI) events in 2012, but they were not included in the final 2014 SAR (covering the years 2008-2012) because the SI analysis was not complete at the time of Breiwick's last analysis before he retired. In the draft 2015 SARs (covering the years 2009-2013), there were four sperm whale serious injuries (SIs) assigned to the GOA sablefish longline fisheries, two in 2012 and two in 2013. Wade said the draft 2015 SARs included these four SIs that were not extrapolated by fishery effort, resulting in only 0.8 SI per year reported in the draft 2015 SARs. Wade said that MML staff have to manually account for SI in the bycatch estimation, which Breiwick did not do. Therefore, the draft 2016 SARs are the first time that these SIs will be extrapolated. In the draft 2016 SARs (covering the years 2010-2014) there are five observed sperm whale SIs. Of these five SIs, only three were observed during sampled hauls, so only three were extrapolated to the entire fishery and two were added in (not extrapolated to the entire fishery). Wade proposed making changes to the bycatch estimate process that would allow each of these SIs to be extrapolated.

Wade provided some background on the fishery observer program. In trawl fisheries, observer coverage is nearly 100%, which means that all fishing trips have an observer, but that observer doesn't necessarily monitor every haul, which is why the observer coverage is sometimes recorded as less than 100%. Pendleton asked if 99% observer coverage in the SARs actually meant that observers are monitoring 99% of the hauls. Wade said observer coverage in the SARs is actually the total groundfish weight observed landed on the vessel divided by the total groundfish weight reported landed in the entire fishery. Pendleton asked how observer coverage can be reported as 99% to 100% if observers have to sleep. Wade said that in the trawl fishery, observers check the cod end of the net when it comes on deck

and sometimes there are two observers, which is how they achieve close to 100% coverage. In longline fisheries, when the boat is continuously hauling gear, the observer coverage is usually 10-20%. This coverage is based on weight of fish recorded by the observer divided by the total weight of fish landed in the fishery.

Haflinger asked if the bycatch estimates published in the SARs included the Pacific halibut longline fishery, since Pacific halibut are generally not accounted for by the ARO. Mansfield said that fishery observers have only recently started to observe halibut fisheries. Haflinger said the federal government tracks halibut landings, and sometimes halibut and sablefish are caught together. Some halibut longline trips were observed if they were combined with sablefish.

Wade said that observers have multiple duties. They record weight of groundfish catch, metadata for each haul, subsample fish to determine fish species composition, and record observations of marine mammal bycatch and seabird bycatch. The current bycatch estimation method relies on groundfish weight landed in order to quantify effort. NMFS only receives that information when an observer is on board a vessel. Pendleton asked if weight landed is a reasonable measure of effort. Wynne said it is not intuitive to extrapolate marine mammal bycatch by catch weight. Wade said fish weight is proportional to the number of hauls, and is representative of how much time the gear is in the water and can catch marine mammals, assuming that the time gear is in the water is proportional to the amount of fish caught.

Wade explained that the bycatch estimation method relies on a ratio estimator. The bycatch rate is calculated as the number of marine mammals observed killed, divided by the weight of groundfish landed on observed hauls, multiplied by the weight of fish landed. It's a stratified design based on NMFS statistical areas, time period, and vessel class. The smallest vessel class (sub-65 ft) was not observed until recently and Breiwick did not extrapolate for fish landed by this vessel class. Angliss said that observations on the sub-65 ft vessels started in 2015, but the data are not included in the analysis yet. These vessels would be part of the bycatch analysis included in the 2017 SARs. Pendleton asked if the sub-65 ft vessels were listed as a separate fishery. Wade replied that these data are currently ignored in the analysis. Pendleton said it was misleading to declare 100% observer coverage if a whole class of boats was not observed. Angliss said NMFS has made a commitment to not extrapolate to components of a fishery that is not being sampled. Pendleton replied that declaring 100% observer coverage in the SARs was inappropriate since there was a whole class of fishing boats that were not observed.

Wade said it was necessary to decide what an 'observed haul' should be defined as. Options for defining an observed haul include:

1. The observer stated they were monitoring the haul for marine mammal bycatch. Not all hauls are monitored. Generally the observer monitors 100% of hauls in trawl fisheries and some lower percentage of hauls for longline fisheries.

Under this definition, an observed haul is considered to be a haul which an observer stated they were monitoring for marine mammal bycatch, e.g., the observer records the percentage of the haul that was monitored for marine mammal bycatch. Currently, there is no code in the database for an observer to record whether an observed marine mammal bycatch occurred during the observed or unobserved portion of the haul. Wade advocated making a recommendation to change that shortcoming in the observer database. He added that a correction might have to be made to convert from total landed weight to total landed groundfish weight if the haul is not sampled for fish composition because the weight of groundfish caught can differ from the total weight of fish caught due to the presence of cephalopods, salps, or jellyfish.

2. The observer sampled a haul for fish species composition. Not all hauls are sampled for various reasons. Until now, if a haul was sampled for fish species composition, it was considered to be observed for marine mammal bycatch.

Wade said the catch of a marine mammal sometimes prevents an observer from sampling fish composition, so there is a negative correlation with marine mammal bycatch, which would potentially introduce negative bias. This is the current methodology. Breiwick may have used this method because not all hauls have a recorded groundfish weight. Angliss said Breiwick may also have used this method because MML has to assign each take to a specific target fishery, and it is hard to assign a take to a target fishery without information on fish species composition for that haul. Wade said he was able to assign hauls to a fishery by looking up the trip information instead.

3. The observer collected basic information for a haul and recorded the total weight of catch. This information is available for nearly all hauls. When a boat catches a marine mammal it is generally reported to the observer, even if the observer was not monitoring the haul. It could be assumed that all hauls are observed because marine mammal bycatch is generally reported to the observer by the crew.

There is a potential negative bias with the third proposed approach due to marine mammal bycatch potentially being unseen or unreported to the observer by crew. A correction would have to be made to convert from total landed weight to total landed groundfish weight for hauls that were not sampled for fish composition.

Wade discussed instances in which sperm whales were observed to be entangled in fishery gear, but the events were not extrapolated because the hauls were not sampled for fish composition. Wade argued that these interactions should be extrapolated, particularly because the observer noted the hauls were monitored for marine mammal bycatch. Wade proposed MML modify the approach for extrapolating mortalities and serious injuries and use the 'marine mammal bycatch monitored' code to determine if a haul was observed or not. If this approach was

adopted it would be necessary to apply a correction factor to convert total catch to total groundfish weight in cases where the species composition was not sampled.

Angliss said MML could make this change in consult with the ARO. She said the commercial fishing industry has been strongly opposed to extrapolating events which occurred in unobserved hauls. MML cannot change the method in the SARs without some discussion about it and without consulting with the ARO. Wynne said there were complications with this change in regards to longline fisheries. She said there is not a straight correlation between the number of fish and the number of marine mammal interactions or bycatch, since there are fisheries where marine mammals are attracted to fishing gear and stealing the catch. In these fisheries the catch weight is negatively affected by the number of whales present. If an extrapolation is based on harvest, the fisherman with the biggest marine mammal takes may have the lowest harvest. Wade said a way around this bias may be to look at the average weight per haul on days when there is a marine mammal depredation versus the average weight per haul on days where there is not a marine mammal depredation. Angliss added that Dahlheim and Breiwick are writing a paper that may provide some insight into this issue.

Haflinger asked what it meant for a haul to be monitored for marine mammal bycatch. Wade said this meant that an observer was watching as the cod-end of the net was brought aboard, or was watching the longline gear as it came aboard. Pendleton asked if MML had considered abandoning the use of stratification to calculate marine mammal bycatch estimates. Wade said the stratification scheme consisted of geographical statistical fishing areas and time of year because these variables impact the distribution and density of whales. Strata by fishing vessel length is also reasonable due to the different levels of observed coverage. Wade said that some of the statistical areas could be pooled spatially. He added that he did not understand why the code that indicates whether an observer was monitoring the haul was not used in the bycatch analysis before, but he did add that it was a challenge to obtain information about all of the codes that are used in the database.

Lowry asked for Angliss' thoughts. Angliss said the SRG might recommend a process to review these methods in more depth. AFSC will have to talk to the ARO about any changes to the existing process, but AFSC would like to use these updated methodologies in the 2017 stock assessment reports. Wade proposed providing a written proposal that the SRG could review in order to make informed suggestions. Lowry suggested that Pendleton and Haflinger should meet with Wade to discuss this topic further.

Status of Revisions to Humpback Whale and Killer Whale Stocks

Wade said that NMFS has been waiting for the humpback whale potential ESA status change decisions process to conclude. The result could be changes to the status of humpback whale Distinct Population Segments (DPS). These DPS differ from the Marine Mammal Protection Act (MMPA) stocks identified in the SARs and NMFS

would like to realign the humpback whale stocks to match the DPSs, but will not do so until an ESA status change decision has been made.

Wade said the SRG has long been an advocate for updating killer whale stock structure. Wade said that Kim Parsons, also in the room, was the lead author of a genetics study published in 2013, which showed previously unknown genetic structure and differences within the resident and transient killer whale populations in the Bering Sea and Aleutian Islands. Following that publication, Wade, Parsons, and Craig Matkin drafted a review article summarizing all the lines of evidence pertinent for delineating stock structure within the existing Alaska killer whale stocks. While that review article was being drafted, NMFS initiated a formal stock delineation process. This delineation process requires a supporting technical memo or peer reviewed paper in order to delineate new stocks. Wade hopes to publish the draft manuscript by next year and use that publication to support changes to killer whale stock structure.

Lowry asked when the killer whale stock structure would be updated. Wade proposed sending his manuscript, when finished, to the SRG prior to next year's meeting so the SRG would be able discuss any proposed changes during the 2017 meeting. This approach could aid in a more rapid adjustment to existing stocks.

Wade said he is waiting on an analysis of acoustic data and further genetic work to incorporate into the draft manuscript. Both of these analyses will strengthen the case for delineating new killer whale stocks from existing stocks. Wade said that the West Coast Region, Canada's Department of Fisheries and Oceans (DFO), and Craig Matkin's North Gulf Oceanic Society are funding additional genetic analyses of transient killer whales in the north Pacific. Wade's team has access to samples from across a broad area, and this should help to better delineate separate populations. Wade said the west coast transient stock currently spans from California to southeast Alaska. Recently, the DFO has made the case that the populations in California and Washington are different from those off the coast of British Columbia. In addition to the previously mentioned funding, Wade also said he intends to request up to $30,000 from the ARO for help with the genetic analyses in the Aleutians and Bering Sea.

Lowry said it was necessary to revise killer whale stocks and acknowledged that Wade has a choice between obtaining more information and completing the manuscript in a timely fashion. Wade said that he didn't have perfect information on the Bering Sea and Aleutian Island stock structure, but his team agrees that the current stock structure is wrong and needs to be divided up.

Cook Inlet Beluga Draft Recovery Plan

Mansfield said the draft Cook Inlet beluga recovery plan was published in May 2015 and the ARO is reviewing public and peer review comments and modifying the document as appropriate. The ARO is planning to complete the final recovery plan later in 2016. Mansfield said the Cook Inlet beluga is also one of NOAA's 'Species in

the Spotlight.' The 'Species in the Spotlight' Action Plan highlights five broad actions that can be undertaken over the next five years to stabilize a population in decline. The plan includes a strong emphasis on building and improving partnerships and both the recovery plan and the 'Species in the Spotlight' Action Plan are available online. Mathews asked what other marine mammal species were in the spotlight. Bettridge said the others included Hawaiian monk seals and southern resident killer whales.

Status of ESA Listing and Designation of Critical Habitat for Ringed and Bearded Seals

Mansfield provided an update to the SRG on the ESA listing process of bearded and ringed seals. In 2008, NMFS was petitioned to list bearded, ringed, and spotted seals under the ESA. In 2013, the Okhotsk and Beringia DPS of bearded seals, and the Arctic, Okhotsk, and Baltic subspecies of ringed seals were listed as threatened. The Ladoga subspecies of ringed seal was listed as endangered. These listings were based on the anticipated responses of these stocks to foreseeable future habitat alteration due to climate change. In 2014, the Beringia DPS bearded seal listing decision was vacated by the Alaska U.S. District Court. This ruling is being appealed. In 2014, NMFS proposed that critical habitat for ringed seals include the northern Bering, Chukchi, and Beaufort Seas, and NMFS anticipates completing the critical habitat rule in spring of 2016.

Lowry thought that the bearded seal SAR should reflect the U.S. district court's decision to vacate the bearded seal listing. Hamilton agreed, and said the bearded seal SAR should be specific about the court's decision on the listing process and NMFS response. Angliss said MML would look into including this information in the SAR.

Adding the Number of Fisheries with the Potential to Interact with Marine Mammal Stocks to the SARs

Pendleton presented a proposal to add the number of fisheries that potentially interact with a particular marine mammal stock and the number of those fisheries which are monitored to each SAR. His proposal would provide additional context for the mortality and serious injury estimates. Pendleton offered the following example as the type of statement to be included in each SAR:

Of the 25 fisheries that potentially interact with this stock, 18 of which have documented mortality and serious injury in the past, 9 have been monitored for bycatch to some extent in the past 10 years. Potential interaction is based on an overlap between the fishery and the range of the stock and gear types with documented mortality and serious injury for this species or analogous species.

Pendleton also provided tables for a few stocks as a demonstration of how to formulate such a statement. All of the information used to create these examples is from the stock's range description in each SAR, and the mortality and serious injury information was found in the LOF. Haflinger asked whether the potentially

interacting fisheries were selected based on a defined list of known interacting fisheries, or if they were based on the opinion of the author. He said it was essential that this system avoid being subjective, and he wouldn't support a system where one SAR author may come up with 75 potentially interacting fisheries and another with 150. Pendleton said all of the fisheries in his proposed statement would be pulled from the LOF, which would prevent the process from being subjective. Lowry said that Pendleton has made a lot of progress in identifying and setting these explicit criteria. Lowry added that an appendix or technical memo would need to be created to support Pendleton's proposed fishery statements. Angliss said Pendleton's proposals would be discussed at MML.

Wynne asked why Kodiak seiners are now listed as a category three fishery in the LOF. Mansfield said there have not been significant takes in the last five years and LOF fishery categories are based on a five year average. Wynne asked if observer data from observer programs that were greater than five years old is also discarded. Mansfield said that old observer data (greater than five years old) will continue to be used until there is newer observer data to replace them.

Status of Harbor Porpoise Studies

Marilyn Dahlheim provided the SRG with an update on harbor porpoise research in southeast Alaska. Dahlheim said that her research team has spent the last couple of years focused primarily on harbor porpoise stock structure research, but also conducted line-transect surveys for the Wrangell and Zarembo Island areas in 2014 and 2015. Survey data from those areas in 2010 through 2012 suggested that harbor porpoise numbers were increasing then. Dahlheim said that updated abundance estimates would be available from the 2014 and 2015 surveys in the next few weeks. Porpoise density and abundance have also been calculated for each of the fishery districts that were observed during the Alaska Marine Mammal Observer Program (AMMOP), and Dahlheim said that Manolo Castellote is leading acoustic studies to distinguish the differences between Dall's and harbor porpoise clicking. Initial results indicate there are significant detectable differences between the two.

Kim Parsons provided an update on harbor porpoise stock structure in southeast Alaska. She said there have already been a few studies that have found significant genetic structuring for harbor porpoise in the north Pacific using primarily mitochondrial data and nuclear markers. This suggests that there is likely some stratification of populations throughout the range. For instance, in California and Washington significant genetic differences exist between neighboring areas, although, a recent publication reported there were not significant genetic differentiation between harbor porpoise in British Columbia within the studied areas. Over the years, Parson's team has increased their number of genetic samples from Alaska through stranded and bycaught animals, and Parsons continues to seek additional samples. Currently, Parson's team has about 100 harbor porpoise genetic samples from across Alaska. These samples are being used in analyses that use mitochondrial sequences and nuclear single-nucleotide polymorphism markers.

These analyses are used to generate a phylogenetic haplotype network. This network has shown that some haplotypes are found in multiple areas and others are not. For 12 samples obtained in southeast Alaska, Parson's team only found four different mitochondrial haplotypes, which is interesting when contrasted with Cook Inlet, where 16 samples resulted in 11 different haplotypes. This preliminary data set shows that haplotypic diversity in southeast Alaska is lower than in Cook Inlet, although there are still a number of gaps to fill in in southeast Alaska.

Additional genetic samples continue to trickle in through bycatch and stranding events, which is helpful because Parsons needs better sample coverage in southeast Alaska to understand stock structure there. She added that her team did collect a biopsy sample from a harbor porpoise in southeast Alaska in 2015. Although this is a promising development, she is also looking for ways to supplement collecting biopsies from live animals, and the best way to do this may be through eDNA. eDNA is DNA that is found in the environment. It is genetic material that is shed by all organisms in an environment and could consist of feces, mucus, regurgitation, or sloughed skin. Parson's said her team is improving its abilities to detect and collect useful information from minute amounts of genetic material in environmental samples. Her team recently conducted a pilot study where they collected water samples in the presence of harbor porpoise, and are now designing genetic markers specific to harbor porpoise based on those samples and have successfully amplified samples obtained from porpoise in Alaska and Puget Sound. The next step is to integrate this sequence data into a stock structure framework. Parson's team has gathered samples through the archive database that span from California to Alaska, and are developing nuclear genetic markers which will allow them to quantify genetic differentiation within the sampled area. This will not only help identify stock structure, but will also help her team identify patterns in hybridization between Dall's and harbor porpoise. Parsons said the F1 hybridization between a Dall's and harbor porpoise is typically the result of a male harbor porpoise hybridizing with a female Dall's porpoise. There is also some information from genetic modeling that suggest there could be F2 hybrids as well. Mathews said she was under the impression that eDNA was mostly useful for determining presence or absence of a species. Parsons said that Mathews was correct and that a single water sample is representative of all species within a 50 cubic meter radius in a marine environment.

Parsons said that applying eDNA analysis to population genetics is the end goal, but it will also be a very different concept. Unlike directly sampling an individual, eDNA will be a less direct approach and will need to be integrated into a modeling framework. Tallmon asked how many single-nucleotide polymorphisms (SNPs) were being used in the analysis. Parsons said they are targeting using 200 to 300 SNPs. Wynne asked if the currents in southeast Alaska affect sampling. Parsons said their team could collect additional water samples in areas with strong currents, if that was a concern. Mathews asked how many more samples Parsons would like to collect, and from where. Parsons said she would like to be able to collect additional samples in areas with abundance trends of interest and added that they have to

focus on areas with high numbers of porpoise since eDNA is directly correlated with porpoise density.

Dahlheim said the work with eDNA is extremely important. It took her team 19 hours to get one biopsy sample from a harbor porpoise. She added that they were also fortunate in that she picked up two harbor porpoise samples from killer whale predation events. Mathews asked if Parsons envisioned sampling in areas where harbor porpoise have not been seen recently. Parsons said she was not certain that enough eDNA would persist that would allow her team to just sample water without seeing porpoise, and added that they still need to determine what a positive and negative detection means from an eDNA sample.

Update on U.S. Fish and Wildlife Service (USFWS) Research Activities
Hamilton provided the SRG with a briefing on the research and management issues related to the three species that USFWS manages in Alaska under the MMPA. These three species include three stocks of sea otters, two stocks of polar bears, and one stock of Pacific walrus.

The USFWS reviewed the new information on each of the three sea otter stocks and determined that the status of each of these stocks had not changed, nor could it be more accurately determined, and therefore the SARs were not updated in 2016. The last sea otter SAR update occurred in 2014. In 2015, the USFWS conducted skiff based surveys of the southwest stock, aerial surveys to the southcentral stock, and responded to increased mortality in Kachemak Bay. It appears the increased mortality in Kachemak Bay was due to a Streptococcus outbreak. The USFWS is currently seeking funding to complete abundance and carrying capacity models for the southeast stock.

The USFWS reviewed the new information for the Pacific walrus and determined that the status of each of these stocks had not changed, nor could it be more accurately determined, therefore the SAR was not updated in 2016. The last walrus SAR update occurred in 2014. During 2015, the USFWS conducted a third year of sampling under the genetic mark-recapture study, which included work in Russian waters. More mark-recapture work is planned in 2016 and 2017, and the USFWS hopes to work in Russian waters again in 2016 and 2017. USFWS also initiated a review of the status of the Pacific walrus which is a step towards an ESA listing decision in 2017, continued to work with Pacific walrus hunters at St. Lawrence Island, a major harvest area, and responded to another large (35,000+ animals) haulout event at Point Lay, Alaska.

Hamilton said there has been a considerable amount of work on polar bear status and recovery efforts. The USFWS established a polar bear recovery team consisting of a diverse group of stakeholders and a draft recovery plan was released for public comment in 2015. USFWS is currently reviewing the comments and expects to finalize the plan in 2016. Also, in 2015, the polar bear range states finalized the circumpolar action plan. The purpose of the plan is to bring the polar bear range

states together to provide a unified effort to minimize the impacts of climate change on polar bears.

USFWS and its partners conducted capture-based research in 2015, and will conduct similar research in 2016. USFWS and its partners are also partnering with NMFS and Russian colleagues to conduct an aerial polar bear population survey in spring of 2016. These surveys will be used to produce a new population estimate for the Chukchi stock in 2018. USFWS is also working with the North Slope Borough to reduce human-bear conflict. There are large seasonal aggregations of polar bears at Kaktovik, and the bone pile is the major attractant of bears to that area. USFWS is working with the communities to figure out how to deal with this issue.

Hamilton thanked the members of the SRG for their comments on the Chukchi Sea polar bear SAR. USFWS incorporated SRG comments last year, and the SAR is going through its final review. Hamilton expects the Chukchi and southern Beaufort Sea polar bear SARs to be finalized this year. USFWS is working with Canada to implement a simultaneous joint survey of the southern Beaufort Sea stock in 2017. Hamilton said the population estimate in the new draft southern Beaufort Sea SAR has dropped from 1,500 animals to 1,000. Most concerning is the level of cub survival, which is non-existent. Hamilton said USFWS is looking at ways to ameliorate stressors on bears.

Small asked if the southeast sea otter abundance and carrying capacity project was on hold until more funding was available. Small said this was of particular interest to the southeast Alaska dive fisheries. Hamilton said that funds are currently unavailable to finalize the analyses, but USFWS recognizes this is a significant concern.

Haflinger asked if there were population trends available for walrus. Hamilton said that walrus have always been a difficult animal to understand, however, the ongoing mark-recapture study will provide population trends and the initial results are promising. Lowry asked if a sampling effort in future years to update Pacific walrus population estimates would be less arduous given that a number of walrus would already be marked as part of the ongoing study. Hamilton did not know. Pendleton said that walrus survival would be unknown and therefore the number marked would be unknown but this could be estimated to some extent. Mathews asked if the Streptococcus outbreak that caused the sea otter mortality event in Kachemak Bay was related to climate change. Hamilton said that there was a similar mortality event in 2007 through 2008 and Streptococcus was a major cause. Mathews asked if there was any work done to assess body condition of walrus at the Point Lay mass haulout. Hamilton said that the USFWS' biggest concern when walrus form mass haulouts is to avoid disturbing the animals. Anything that could trigger a walrus stampede could be catastrophic. However, the U.S. Geological Survey (USGS) conducts some biopsy sampling on the periphery of these mass haulouts. Mathews asked if any photogrammetric studies were being conducted. Hamilton said that aircraft can cause a stampede, but there are remote cameras that can be set up in

advance. Unfortunately, anticipating the mass haulout locations can be difficult as the haulout site locations tend to vary, and therefore effective camera placement is a challenge. Pendleton asked when the Chukchi Sea polar bear SAR would be published. Hamilton said the USFWS was hoping to finalize both polar bear SARs this year if the SRG provided timely comments.

Lowry said that he, Robert Suydam, and Bob Small had already completed SAR reviews for the southern Beaufort Sea stock. Lowry said the report could use some editing, but the critical elements were present. Small said that he struggled with the report. He thought there is substantial editing required. Small said he would be willing to sit down with Hamilton to go through the SAR. He also expressed concern over the boundary change of the stock. Hamilton said the boundary change to the stock was undertaken by Canada, therefore the USFWS has very little control over any modifications to the SAR in this regard. Small said that the boundary adjustment resulted in a reduction of the population estimate for the southern Beaufort stock, and he thought the SARs should reflect the implications of that decision. Hamilton said he would consult with others at the USFWS and clarify the decision-making behind the boundary adjustment and the implications of that adjustment. Small said the population estimate in the SAR has gone down by 600 animals, and the SAR should include information from data collected since the 2010 population estimate. Lowry said the SRG will follow up Hamilton and the SAR's author on their concerns, and the USFWS will have a better SAR after the SRG's concerns and comments are addressed.

Steller Sea Lion: Eastern U.S. SAR Review

Pendleton had concerns with Table 3. In particular he was concerned that the serious injury and mortality numbers for some sources, such as marine debris and southeast Alaska troll fishery gear, were zeroes for some years when such low numbers were implausible. Pendleton encouraged indicating that data were not available for these years, rather than using zeroes. Pendleton also suggested grouping multiple similar fisheries into a single category and asked that gunshot animals be included in human-caused mortality, unless a specific gunshot mortality was known to be a struck and lost animal from a subsistence hunt. In unknown cases, it would be better to assign the mortality to human-caused mortalities and to subsistence harvest data, rather than just assume the mortality was a struck and lost animal. Lowry said he and the SRG recommend that gunshot animals in Alaska be counted both under struck and lost and illegal shootings where the circumstances are unknown.

Pendleton said that the SAR's maximum productivity rate (Rmax) used the default pinniped value, and he advocated for calculating a stock specific value using survival rates, average age at first reproduction, and other known variables. Lowry proposed this be included in the 2017 SAR.

Steller Sea Lion: Western U.S. SAR Review
Haflinger said the draft 2015 SAR that the SRG reviewed at the previous meeting included a sentence with an estimate of the total abundance of the western US stock. He said this sentence was not included in the 2016 draft SAR, but also does not appear as struck out text in the 2016 draft SAR. He did not agree with dropping the total abundance estimate, and furthermore, thought it was really tricky that the strike-out and changes that the SRG is provided with prior to the meeting are not based on what the SRG saw at the last year's meeting. Instead, they are based on the finalized 2015 SARs. Haflinger said the SAR is now using the best estimate of the total count of western U.S. Steller sea lions as the minimum population estimate rather than applying a 4.5 multiplier to the total count to obtain a total population abundance estimate. In comparison, the Eastern U.S. Steller sea lion SAR relies on the 4.5 multiplier. Lowry said the SARs have used multiple approaches to derive abundance in the past. Sometimes the actual counts of adults and juveniles are considered Nmin and sometimes counts and a multiplier are used to estimate Nmin. He said it was important for continuity to note any changes in how Nmin is calculated and it would be helpful to present multiple methods of calculating Nmin until a new method is established and vetted.

Haflinger asked Muto which edits and revisions a draft SAR undergoes following SRG review. Muto said that the SRG initially reviews draft SARs and provides comments on draft SARs. MML staff then revise the draft SARs and NMFS solicits public comments. Following public comments MML staff revise the draft SARs again and then finalize the SARs. Haflinger said that neither the SRG nor the public requested the abundance estimate for the entire stock be removed. He said it is difficult to determine what has actually changed from the previous year's SRG review and he recommended that the SAR include an estimate of total abundance for the stock. Small said the SAR lists problems associated with multipliers on page 2. Haflinger said he found it stunning that there is not a better estimate of the total population than a count. Lowell Fritz said that MML does not have a model to convert counts to total abundance that will encompass the entire western U.S. stock, but it is something MML is working towards. Lowry added that it is inevitable that there will be changes to the draft SARs after they are viewed by the SRG. Pendleton said that some of the other SRGs receive the SARs after comments and revisions are made. Bettridge said that generally the SARs do not go back out to the SRG for review unless a change in methodology or something else major has been altered.

Pendleton said that human caused mortality and serious injury in the draft SAR is less than 10% of PBR (there were 30 recorded mortality and serious injuries and 10% of PBR is 31). Pendleton recommended incorporating some type of running average or other system that would prevent this stock from being compliant or noncompliant with the Zero Mortality Rate Goal (ZMRG) depending on the year. Lowry thought Pendleton's proposal was a Joint SRG issue. Mathews recommended adding a cautionary statement to the SAR regarding how close the recorded takes are to 10% of PBR. Pendleton asked if the SRG should advocate for consistent trend duration. Last year, the SAR included a 15-year trend and this year it includes a 16-

year trend. Pendleton proposed SARs be consistent and use a 10-year trend and an historic trend, and said he would draft his proposal into a recommendation.

Northern Fur Seal: Eastern Pacific Stock SAR Review
Haflinger said he did not have any significant comments. Mathews said that under 'Stock Definition and Geographic Range' there is a reference to Dickerson et al. 2010, and a statement that there is little evidence of genetic differentiation among breeding islands. She said there should be a statement regarding why, in spite of a lack of genetic differences, the California and eastern Pacific populations are treated as two separate stocks. Mathews said under 'Population Size' there is an expansion factor being used, but there are no coefficients of variation (CVs) available. Mathews asked if CVs could be calculated. Devin Johnson said that his program is just starting to receive information that will allow them to calculate a new expansion factor and CV. Mathews requested that Table 1 be improved so that the 140,209 figure used with the 4.47 multiplier in the text under 'Population Size' is evident in the table.

Mathews said that unpublished data is cited under 'Current and Maximum Net Productivity Rates' to derive an 8.6% maximum productivity rate, however, there is also an 8.1% maximum productivity rate mentioned that is supported by a publication. The SARs should make use of the published rate unless there is a good justification for citing unpublished data. Mathews asked if there were any climate change predictions that could be included in the 'Habitat Concerns' section.

Bearded Seal SAR Review
Lowry said the SAR should clarify the legal issues associated with the ESA listing decision under the 'Status of Stock' section. Lowry said Suydam had a few minor comments that he will provide to Muto.

Ringed Seal SAR Review
Small said the ringed seal SAR read very well. He had a number of comments that were minor points that did not need to be discussed. He was pleased to see ocean acidification mentioned under the 'Habitat Concerns' section. Lowry had minor comments that he would provide to Muto directly.

Marine Mammal Commission (MMC) Listening Sessions
Vicki Cornish said the MMC typically holds an annual meeting in a location where there are issues of interest to the Commission and scientific community. In 2016, the MMC held Alaska village-based listening sessions in Barrow, Kotzebue, Nome, and Anchorage. A team of eight members of the MMC staff participated in the sessions. The Commission's intent was to reach out to Alaska Natives and learn about how climate change is affecting their ability to hunt for marine mammal species. Accordingly, the sessions were timed so as to not interfere with any hunts.

At Barrow, the major themes and concerns raised by the community included:

- Tribal consultation – Concerns were expressed about a lack of adequate and timely consultation by federal agencies with Alaska Native tribes, and also the need to incorporate traditional knowledge into federal agency decision-making
- ESA listing and critical habitat determinations – Comments relayed the need for listing criteria that take into account the current abundance of species proposed for listing and the potential for species to adapt to changing climate. The MMC heard about the need for timely consultation and also the potential impact of listing and determinations on subsistence livelihoods
- Implementation of the U.S. / Russia bilateral agreement on polar bears – There is confusion and a lack of information and consultation with Alaska Native communities on how the agreement is being implemented. There also is concern that there is inadequate scientific basis for the proposed the harvest limits and "boundary change" that would be implemented as parts of the agreement. The MMC heard about the importance of polar bear hunting in community life and heard about fears for its loss
- Enforcement – Talk of new regulations raises concern about harassment by enforcement agents. The MMC heard stories of overzealous enforcement and insensitivity to individuals and communities. There is also the perception of a double standard between Alaska Native communities and industry on enforcement
- Other issues – Commercial sale of marine mammal products; impacts of shipping; climate change

At Nome, the major themes and concerns raised by the community included:

- Climate change – Ice conditions and winds are increasingly unpredictable; weather changes are creating safety concerns and limiting access to marine mammals; there are concerns about food security and safety of consuming marine mammals
- Impacts on subsistence – the seal unusual mortality event (UME) was the first UME declared for a subsistence species. A lack of subsistence resources will have profound impacts on traditional culture, and there is a need for flexibility on when and where hunting can occur
- Communication issues – Agencies do not consult/communicate adequately with Native communities or do so late in the process. Agencies need to consult with the hunters, not just the leaders in the 'hub communities.' There is a lack of communication on issues affecting Native communities, e.g., the U.S. Fish and Wildlife Service's proposed polar bear harvest limit; reliance on the Federal Register and website postings are not sufficient
- Walrus – There is concern that a potential ESA listing may lead to limits on hunting and other activities, and that USFWS is not consulting adequately with Native villages about the listing. Walrus appear to be plentiful, but ice conditions are preventing access by hunters. Clearer guidance is needed on issues such as wasteful take and handicraft uses
- Enforcement – Agency presence in villages is focused on enforcement, and unclear guidance has led to unintentional violations. Weather-related safety concerns need to be considered. Penalties under federal law appear to be more severe than under state law, and prior offenses unrelated to marine mammals are being considered in sentencing. Interpretations of the hunting rules appear to vary by agency, and enforcement officials are over-zealous. The question was raised as to whether Native villages or organizations could play a role in enforcement
- Strandings/health concerns – Alaska needs a more extensive stranding network. Beach stranded animals are seen by Alaska Native communities as food sources, not something to investigate. Hunters are concerned that animals that look normal may be diseased or contaminated, and there is no testing being done. Better guidance is needed on how to handle stranded animals as the UME has people worried about safety of consuming stranded marine mammals

At Kotzebue, the major themes and concerns raised by the community included:

- Changes in weather patterns – Participants noted ice is increasingly thin, unstable, and 'dirty'; there is no shorefast ice or it is late; break-up is earlier and freeze-up is later; there are stronger, more variable winds and stronger currents
- Impacts of climate change on hunting – Beluga whales are increasingly rare in nearshore waters, making them less available to hunters; there is increasing killer whale presence that may be affecting beluga whale and walrus movements; the hunting season is more compressed (e.g., bearded seal hunt limited to one or two weeks); hunting is more dangerous on thin ice
- Shipping – Increased open water means more vessels and uncertainty regarding how ship traffic will affect subsistence. Five of the Alaska Native organizations are developing best practices for ships entering Arctic water through the Arctic Waterways Safety Committee
- Science / Research Needs –
    - better information is needed on killer whales and their effect on prey species
    - aerial surveys for beluga whales in Kotzebue Sound
    - beluga whale genetics from Russian stocks to determine the extent of mixing
- Consultation / co-management – There is a need to ensure that federal agencies consult with Alaska Natives early in the process, and specifically with tribal governments. Any proposals for Marine Protected Areas in the Arctic must also involve Tribal consultation early in the process. Additionally, it was noted that there is a lack of village-based federal agency contacts to provide accurate information on regulations and pending federal actions
- 'Sick' seals – Lethargic seals with sores, patches of hair loss, and breathing difficulties started to appear in 2011, which prompted an UME declaration by NMFS. The sickness appeared to affect all seal species. Hunters do not use affected seals for subsistence and these 'hairless' seals are still being seen. Causal factors for the UME have yet to be determined and communication with hunters is lacking

Common themes to all listening sessions:

- Climate change to its impacts on marine mammal hunting
- Enhancing communication/consultation between federal agencies and Alaska Native communities
- Potential impacts of ESA listing and critical habitat determinations on Alaska Native communities
- Health of marine mammals and concerns about impacts on subsistence use
- Increasing ship traffic and potential impacts
- Traditional knowledge and its incorporation into federal decision-making

Cornish said that meeting information is available on the web at the following address:

http://www.mmc.gov/events-meetings-and-workshops/marine-mammal-commission-annual-meetings/2016-annual-meeting/

The MMC is now undertaking follow up actions. The MMC has developed a draft communications plan, is planning some visits to deliver the messages that were heard in the Arctic communities to Capitol Hill, they are reviewing their position on polar bear regulations, and they intend to work more closely with federal agencies and Alaska Native organizations to increase communication on issues that are of concern to subsistence communities.

Lowry said that NMFS and the USFWS should closely cooperate with Native organizations to pursue alternatives to traditional approaches for collecting information on stock status. Indigenous people have a considerable amount of information on hand, but federal agencies have not made much progress in taking that information and applying it to stock assessments. Lowry asked if Cornish had any thoughts on how to facilitate better sharing of information. Cornish said the MMC heard from the communities that there are concerns with sharing harvest data, but there is a willingness to share some information. Many people thought members of Native communities could provide assistance with scientific survey design. Community members also wished that the federal government would reach out to communities early on and make research and studies a collaborative process. Lowry said the challenge would be turning the MMC's and communities' willingness and interest in collaborating into concrete programs and helpful information. Cornish added that it would be helpful to identify specific people in Native communities with expertise and a willingness to engage with visiting scientists. She said Alex Whiting, in particular, is a great example of a scientist that works in communities, works with hunters, works with visiting scientists, and creates a cooperative effort that benefits all sides.

Beluga Whale: Cook Inlet SAR Review

Small said that the SAR was well written and only contained a couple items that needed to be addressed. Small thought Figure 2, which presented the population trend, was confusing because harvest information was included in the same graph. He would prefer to see two separate figures; one presenting trend and the other presenting harvest numbers. Small added that the caption below Figure 2 contains more information on population trends then is in the text of the 'Current Population Trend' section. Small thought the 'Current Population Trend' section should contain at least a 10-year and a longer-term trend.

Small said that the PBR for this stock is listed as 'undetermined.' He said this seems odd, given that NMFS has a considerable amount of information about this stock. Stating that the PBR is unavailable, rather than undetermined would be better. Angliss said that MML will look into making this change if it is supported by the Guidelines for Assessing Marine Mammal Stocks (GAMMS).

Small said that killer whale predation was listed as a cause of mortality in the 'Other Mortality' section of the SAR. A preliminary analysis of a Cook Inlet acoustics project conducted over the last several years detected a fair number of killer whales in Cook Inlet, but the majority were residents, not transients. It would be good to clarify what that new information means in terms of beluga mortality when the analysis is complete. Small added that including killer whale predation under the 'Annual Human-Caused Mortality and Serious Injury' section did not seem appropriate. Lowry suggested moving the killer whale predation details to another section of the SAR. Lowry said he had some minor editorial comments that he would provide directly to Muto.

Alaska Killer Whale Stock Delineation
Lowry said Craig Matkin, who had been the SRG's killer whale expert for the last 20 years, declined to review the eastern north Pacific, Gulf of Alaska, Aleutian Islands, and Bering Sea transient and eastern north Pacific Alaska resident killer whale SARs because the stocks, as they are currently delineated and defined, do not represent reality. Matkin believed these SARs are misleading, because the stock structure has not been updated as new information has become available. Matkin did indicate that the AT1 SAR was minimally acceptable. Lowry asked if the SRG should follow Matkin's lead and reject the Alaska killer whale SARs. Lowry added the SRG could also request a qualifying statement be included in the SARs stating that the existing transient and resident stocks will be broken down into separate stocks in future SARs.

Wade said that he did not update these killer whale SARs in 2016 since these will be divided into new stocks in coming years. Muto said that MML only updated the mortality section of these SARs. Wynne asked if the stocks would be updated before the next meeting. Wade said he did not know. Lowry said there is currently enough information on stock structure to revise the SARs to reflect new information on stock structure. Mathews proposed adding a header to the top of each killer whale SAR stating that the current stock structure was known to be outdated and that existing stocks would be divided into separate stocks in the future. Pendleton proposed that the SRG not review or revise the SARs. Lowry said the SRG would provide a statement to be included in the transient and resident killer whale SARs clarifying that the existing stocks are known to include an amalgamation of stocks that will be separated in future SARs.

Killer Whale: Eastern North Pacific Alaska Resident Stock
Pendleton said the SAR had a number of inconsistencies. The numbers in the tables do not match those in the text. There are also time intervals and population size estimates in the tables do not match those in the text. These discrepancies need to be addressed. There are also contradictions in the definition of the stock from one paragraph to the next. In particular, one range definition states that the killer whales range from southeast Alaska to the Aleutians and Bering Sea, and another states the whales range from Kodiak to the Aleutians and Bering Sea. Pendleton asked why mark-recapture has not been used to estimate population size, and said he would prefer an estimate based on mark-recapture to the count that is currently used. The recovery factor of 0.5 is used under 'Potential Biological Removal,' this is the value for cetacean stocks with unknown population status. Pendleton asked why, considering there is a good amount of information known for this stock, a recovery factor representative of unknown population status was used rather than a recovery factor of 1. Wade answered that the recovery factor of 0.5 was appropriate under GAMMS. Pendleton pointed out that this SAR did not contain a 'Habitat Concerns' section.

Mansfield asked when the stocks would be updated. Wade said his original plan was to author a white paper with Matkin and Parsons and share it with the SRG at the

2015 meeting. That paper was be a starting point for the discussion on delineating new stocks. However, the paper was not ready to share last year and is still not ready.

Pendleton asked why mark-recapture is not being used to generate population estimates. Wade said the primary reason for not using mark-recapture was due to a lack of funding. Wade said there is a substantial amount of resident killer whale data on record, and Holly Fearnbach and Janice Waite worked together to match available data from 2001 to 2010. Fearnbach presented a mark-recapture estimate for her PhD and is working on a new mark-recapture analysis based on the new genetic stock boundaries. Wade said that MML also conducted line-transect surveys from 2001 to 2003, but the decision was made to not use the estimates obtained from those surveys because the minimum counts based on the catalog were higher.

Lowry said the SRG will provide editorial changes and a statement regarding stock structure to be included in the SARs to Muto.

Killer Whale: Eastern North Pacific Gulf of Alaska, Aleutian Islands, and Bering Sea Transient Stock
Small did not have any major comments and said he would provide his comments directly to Muto.

Killer Whale: AT1 Transient Stock
Haflinger did not have any concerns with the AT1 SAR.

Harbor Porpoise: Southeast Alaska Stock
Angliss said that MML did not have the SAR ready, but she expected to circulate the SAR in March and would schedule a conference call for SRG's input.

Harbor Porpoise: Gulf of Alaska Stock
Wynne said that the SAR's text and Table 2, both on page 4, are not in agreement. Mathews said the most recent survey for this stock was 17 years old, and she thought the SRG needed to pressure NMFS into conducting a replicate survey. She acknowledged this would be expensive, but said it was a priority since a repeat survey was necessary to identify any population trends. She also encouraged anyone that conducts work in the Bering Sea or the Gulf of Alaska to attempt to obtain scraps from killer whale predation events on harbor porpoise. These samples are helpful in building an inventory of genetic samples. Mathews would like to see a statement regarding fisheries interactions similar to that which Pendleton has proposed, and also requested the authors include a statement regarding the potential effects of climate change and the possibility of a shift in the range of this stock. Angliss said that any statement about the effects of climate change on this stock would be speculation.

Harbor Porpoise: Bering Sea Stock
Pendleton was concerned that the reported human-caused mean annual mortality of 0.2 under 'Status of Stock' is misleading. He said that publishing a mean annual mortality estimate for 0.2 harbor porpoise per year killed by commercial fisheries is not factual and misleading. Pendleton advocated for studies into the recovery probabilities of animals killed by fishery gear in order to better quantify fishery mortality for cases like this. Mathews agreed that a mean annual take of 0.2 harbor porpoise was misleading. Small asked if the SRG should recommend new phraseology for how the mean annual mortality is conveyed. He said the SAR could specify that there is no observer coverage in near-shore fisheries, and that one harbor porpoise was reported taken in a commercial gillnet fishery from 2010-2014. Lowry asked if Muto would be willing to work with Pendleton to develop a suitable statement to convey the fisheries-related mortality information for this SAR. Muto agreed. Pendleton also added that this stock's range is difficult to ascertain in the map included in the SARs.

MML's Recent Accomplishments and Budget Summary
Angliss provided an update on research conducted by MML's programs. In fiscal year 2015:

The Polar Ecosystems Program tagged 31 Aleutian harbor seals with satellite-linked data loggers, surveyed 90% of 222 high-priority survey regions for harbor seals from the eastern Aleutians to southeastern Alaska, and designed aerial surveys for bearded seals, ringed seals, and polar bears in the U.S. and Russian Chukchi Sea to be conducted in 2016.

The Cetacean Assessment and Ecosystem Program conducted a vessel survey and biopsy sampling of southeast Alaska harbor porpoise, a north Pacific right whale survey in the Gulf of Alaska, a field comparison of an unmanned aircraft system versus a manned aircraft, published a Marine Fisheries Review special issue on Cook Inlet belugas, and completed a 37th year of consecutive Arctic cetacean surveys.

The Alaska Ecosystems Program (AEP) conducted a full breeding range survey of Alaska Steller sea lions using manned and unmanned platforms in 2014 and 2015, and tagged female Steller sea lions in the western and central Aleutian Islands. AEP also updated northern fur seal pup production estimates for the Bering Sea, tagged female northern fur seals on Bogoslof Island, and tagged northern fur seals at Saint George Island.

The California Current Ecosystems Program documented the lowest growth weights among California sea lions and northern fur seals ever recorded at San Miguel Island, California, documented the firm establishment of a rookery of eastern Steller sea lions on the outer Washington Coast that produced at least 105 pups during the summer breeding season, and contracted and received assessments of harbor porpoise stocks in inland water of Washington.

MML also sent an outreach brochure to Alaska tribal organizations, villages, cities, and corporations and focused efforts to make metadata and data publicly available. About 50% of MML databases for which metadata are available have already been made public, or will be shortly. Pendleton asked whether the data being made available to the public was raw or processed. Angliss said the data type is dependent on the dataset. For example, acoustics data is too large to make publicly available in its raw form. Angliss added that MML staff are spending a considerable amount of time on the effort to make datasets and metadata publicly available.

Angliss described the 2015 Program Review. NOAA Fisheries has been conducting rotating reviews of all of the different research conducted by the agency. Last year, the agency conducted a Protected Resources review at all of the Science Centers, including AFSC's MML. There were specific terms of reference and common questions that were asked during each Science Center's review. These questions included:

- Do current and planned protected species scientific activities fulfill mandates and requirements under the ESA and MMPA, and meet the needs of regulatory partners?
- Are there opportunities to be pursued in conducting protected species science, including shared and collaborative approaches with partners?
- Are the protected species scientific objectives adequate, and is the best suite of techniques and approaches being used to meet those objectives?
- Are the protected species studies being conducted properly (survey design, statistical rigor, standardization, integrity, peer review, transparency, confidentiality, etc.)?
- How are advances in protected species science and methodological approaches being communicated and applied in NMFS?

The panel that reviewed MML consisted of Jim Harvey (Moss Landing Marine Labs), Laura Cowen (University of Victoria), Mike Simpkins, (Northeast Fisheries Science Center), John Stein (Northwest Fisheries Science Center), and Mike Tillman (Scripps Institute of Oceanography). The review structure consisted of a review of the Alaska Region's management needs and how MML's lead researchers are meeting those needs. All of the background materials, the panel's full report, and the AFSC response are available at:

http://www.afsc.noaa.gov/program_reviews/2015/default.htm

The review panel recognized the excellence of MML scientists and MML's publication record. There were 58 specific recommendations for MML including:

- Work to improve the permit process to facilitate research
- Develop transparent mechanisms for deciding funding priorities
- Develop more formal process for crosswalking management needs and science
- Explore alternative approaches for providing advice for stocks difficult to assess or underfunded
- Develop explicit strategies for assessing stocks, including alternatives for PBR
- Pursue support for bycatch and harvest monitoring in particularly risky fisheries or regions
- Seek more opportunities to piggy-back projects with other funded research efforts

- Update and revise 5-year science plan considering high priority information needs
- Revise list of outdated abundance estimates and work with the Alaska Region to develop a plan for updating them

Angliss provided the SRG with an update on MML's science operations spending, (i.e., non-labor spending) for the 2008 to 2015 period. The trend in spending has varied by species for this time period. Steller sea lion spending declined in 2015, northern fur seals held steady, harbor seals and ice seals fluctuated depending on the year's research plans, Cook Inlet beluga funds have been fairly stable. In fiscal year 2015, MML received substantial new non-AFSC funds for a southeast Alaska harbor porpoise survey, an Aleutian Island harbor seal survey charter vessel, a north Pacific right whale survey, and a study to assess using unmanned aircraft to assess large whales in the Arctic. Currently, the FY16 outlook is unknown. NOAA has a budget, but it not yet been allocated at the NMFS level. However, it is expected to be slightly lower than FY2015. Angliss said that MML is increasingly reliant on funding from the ARO and other parts of the agency for operational money. MML has submitted about a dozen proposals recently seeking funding from sources outside AFSC. Beyond FY16, MML expects stable NOAA funding, particularly for Steller sea lions, northern fur seals, and ice-associated seals. MML also expects permanent staffing levels to decline by 10% over the next 4 years. People will retire and their positions will not be backfilled.

Angliss said that many North Slope communities have expressed concerns over researchers showing up in and offshore from their communities without prior notification or communication. These communities are addressing their concerns through the Arctic Waterways Safety Committee, a committee composed of representatives from Alaska Native groups and federal agencies, including MML. A voluntary set of guidelines called the 'Standard of Care' is being negotiated, which will assist researchers in contacting the appropriate Native communities before, during, and after the research.

Sperm Whale: North Pacific Stock SAR Review

Wynne said there are unpublished fisheries bycatch data cited in the 'Fisheries Information' section of the report, and asked if these data should be removed. Angliss said the methods for fisheries bycatch data are published, and generally MML has not published annual bycatch reports if the methods remain the same. Wynne suggested the SAR authors include some additional information regarding military exercises which occur in this stock's range and said she would provide a sample statement to Muto.

Humpback Whale: Western North Pacific Stock

Lowry said Suydam had some minor comments, which he would pass on to Muto. Tallmon wondered if a PBR should be calculated for this stock if the abundance data was derived from surveys conducted during 2004, 2005, and 2006. Typically, a PBR should be listed as undetermined if the abundance estimate is greater 8 years old.

Humpback Whale: Central North Pacific Stock
Mathews said the banner on this draft SAR contains much less information than previous versions that she had seen. She requested that the banner of this SAR be edited to include a statement regarding stock structure. Muto said that any change to the banner would require coordination with Bettridge and General Counsel. The current banner statement was drafted in consult with NOAA General Counsel.

Mathews said the SAR's introduction could be improved, and pointed out a couple personal communication citations on Page 3. She said there should be a publication for the reader to refer to, and if there is a report available it should be cited. Mathews said that the best abundance estimate on page 4 of the SAR does not have a CV. Wade said that Terry Quinn calculated abundance estimates for the SPLASH final report, but never calculated CVs. Wade recently finished an analysis of the SPLASH data and there will be updated estimates and CVs published in a manuscript before the next SAR cycle. Mathews said there is unpublished data cited under 'Fisheries Information' on page 5, and page 7 that could use editing to make it more readable. Mathews did not like the 'totals' section at the bottom of Table 3. She said it was challenging to cross-reference the totals with the information in the table.

Mathews provided an update on humpback whales in Glacier Bay National Park. In 2014, the numbers of whales photographed and identified in the Glacier Bay and Icy Strait area was 173, which was 28% lower than the numbers identified in 2013. This represents the largest inter-annual decline in humpback whales in this area since monitoring began in 1985. In 2014, there were also 5 of 14 mothers with calves that were later spotted without their calves present, which is a rare event. Mathews said she would provide this information to Muto for inclusion into the SARs. Tallmon said that a PBR is listed for this stock, but the data it is based on are old, so the PBR should be undetermined.

Fin Whale: Northeast Pacific Stock
Wynne said that there are some new additions to this SAR, including updated information from acoustic studies in the Chukchi Sea. Wynne also requested that more information be included in this SAR about the 2014 ship strike mortality and asked that the location of the ship strike be included in the SAR. She said this was important because she expected to see increasing mortality caused by ship strikes as ship traffic increases. There is discussion in the SAR about the UME under 'Other Mortality' in the 'Annual Human-caused Mortality and Serious Injury.' Wynne asked if the UME should be included under this header or have its own header. Wynne said there is speculation the UME could be related to harmful algal blooms and she was going to provide Muto with a statement about the UME that should be included in this SAR. Lowry said that Suydam had some comments which he would provide to Muto directly.

Pendleton said the mortality due to entanglement in the ground tackle (anchor cable) of a commercial mechanical jig fishing vessel fishery should not be assigned

to a commercial fishery since it was not engaged in fishing at the time. This mortality should be included in the 'total other causes' category.

North Pacific Right Whale: Eastern North Pacific Stock SAR Review
Pendleton said the population estimate for this SAR would soon become outdated and unusable, as it was now eight years old. Under the 'Potential Biological Removal' section there is a new sentence inserted which states,

"However, since the eastern north Pacific right whale population is far below historical levels, the calculated value for PBR is considered an unreliable estimate of the true PBR."

Pendleton requested the SAR author remove this statement, borrow similar phrasing from the Cook Inlet beluga SAR, and include that phrasing in this SAR. Pendleton also mentioned that there is an unpublished report cited on page 2. Small added that there is also a personal communication citation on the bottom of page 1 and top of page 2. Small also asked why the information regarding possible acoustic detections of right whales was included, because it was preliminary and inconclusive. Lowry said this information was worth including considering how little information is available on north Pacific right whales. Wynne said there is a recent unpublished sighting from Kodiak that she will send to Muto.

Bowhead Whale: Western Arctic Stock SAR Review
Lowry said that he and Suydam reviewed the SAR and had some minor edits that they would provide directly to Muto. Small said under the 'Population Size' section of the SAR the reported minimum worldwide population prior to commercial whaling was estimated to be 50,000; with 10,400 to 23,000 in the western Arctic stock. The SAR also states that Brandon and Wade estimated the western Arctic stock consisted of 10,960 bowheads in 1848. Under 'Status of Stock,' the population estimate is listed at 16,892, which is stated to be between 31% and 170% of the pre-exploitation abundance. Small said that does not add up when compared to the numbers presented in the 'Population Size' section. Muto agreed to look into it. Pendleton said the SAR authors should not use 'recent,' 'current', or 'now,' all of which are used in this SAR. These words easily become dated. Tallmon said that last paragraph under 'Population Size' includes information about an aerial photographic survey which was conducted near Point Barrow in conjunction with the ice-based spring census in 2011, and the SAR states these data are currently being analyzed to produce a revised abundance estimate based on sight-resight data. Tallmon pointed out that those data were collected five years ago and asked when this analysis would be completed.

SRG Membership Turnover Revisited
Lowry said the Alaska SRG will have five members leaving the SRG this year and it would be helpful to identify some prospective replacements for departing members. Lowry proposed that the SRG continue discussions regarding the SRG's recommendations for potential replacements for resigning members.

Tallmon reiterated his support for Heidi Pearson, an associate of his at the University of Southeast Alaska (UAS) who would be an excellent candidate for his replacement. Tallmon had spoken with Pearson and she had expressed her interest in the position. Haflinger reiterated that Steve Martel, a coworker and knowledgeable fisheries biologist who is already familiar with the stock assessment structure and process, would be an excellent candidate for his replacement.

Wynne added that she was willing to extend her membership on the Alaska SRG for one additional year, and agreed to assume the role of SRG Chair following Lowry's departure.

SRG Meeting Structure and SAR Development Process

Angliss asked the SRG if the traditional SRG meeting structure was suitable for accomplishing the SRG's objectives. In previous meetings, SRG members mentioned that it would be helpful to spend less time discussing the SARs and more time discussing research and science. Angliss said MML is open to changes in the meeting, and the SRG Chair should coordinate with MML to define alternative discussion and presentation topics at future SRG meetings.

Lowry said he was interested in a presentation and discussion with Wade about Alaska killer whale stock structure at the next SRG meeting. Small proposed minimizing the discussion on the SRG's editorial comments at a future meeting and focus instead on the science behind the content in the SARs. Lowry said there is a diminishing amount of editorial effort and suggestions required for each NMFS SAR review, and that Small's proposal was feasible. Lowry acknowledged that he would not be a part of the next meeting, but advocated for more science-related discussion. Wynne agreed with Lowry, and was interested in having discussions of a higher level than the typical SRG discussions of the editorial nature.

Pendleton said that in order to minimize the amount of editorial discussion and maximize the higher-level science related discussion, the SRG would need to receive the draft SARs earlier than usual. Angliss and Muto said that draft SARs are distributed to the SRG no less than three weeks before the SRG meeting, and agreed that it would not be possible to provide the SRG with the draft SARs earlier than they are currently distributed. Angliss explained that there is a rigid SAR development and approval process with a series of timelines that need to be adhered to. There is no flexibility to provide the SRG with SARs outside of that timeline.

Haflinger said that he was surprised that the draft SARs were not posted online for public comment until six months after the 2015 SRG meeting. Muto explained that the SRG's comments are incorporated into the draft SARs following the meeting, then the updated draft SARs are provided to NMFS headquarters for comment. MML then incorporates those comments and returns the draft SARs to headquarters. The draft SARs are only then published for public comment after NMFS headquarters receives all updated draft SARs from each area. This process takes roughly six

months. Hamilton said the USFWS had a similar, but even more demanding internal clearance process.

Wynne asked if it was possible to hold the SRG meeting in March, rather than February. She explained that this might provide the additional time the SRG needs to provide substantive edits prior to the meeting, as long as MML was able to continue providing draft SARs in mid-February. Muto said it would be necessary to obtain approval from Bettridge in order to change the timing of the SRG meeting and she reiterated that there is no possibility of distributing the draft SARs any sooner than mid-February.

Small asked if MML could provide the SRG with new information, such as publications, technical memos, or draft papers that are used by MML authors to update draft SARs in October. This would provide the SRG with new information to review well before the meeting, without requiring earlier distribution of the draft SARs to the SRG. Small also added that sometimes the SARs are in really good shape, but there are also times when the SRG needs to provide a thorough technical review of the science. This can be a challenge because the SARs are often in need of structural or grammatical edits. He asked if there was somebody at MML who could go through the SARs and edit each section before distributing them to the SRG. Muto said that MML does that already, but additional effort can be made to clean up and edit the SARs in future years. Lowry said the SRG has recommended scrubs, revisions, and rewrites for certain SARs in the past. He said this has been done recently for Steller sea lions, humpback whales, and killer whales. A rewrite takes a considerable amount of effort, and the SRG needs to make a recommendation when it is necessary to do that.

2017 SRG Meeting

Wynne asked if the 2017 SRG meeting should be based in Seattle in 2017. She said there are more experts based in Seattle who would be available for presentations and discussions. Hamilton urged the SRG to meet in Anchorage for the 2017 meeting. This would allow his Anchorage staff to interact with the SRG, which is valuable to the USFWS and USGS. Hamilton added that if alternating each year between Seattle and Anchorage was impractical, then a meeting every third year in Anchorage would be appreciated by USGS and USFWS. Small said that proportionally, both in terms of stocks and the number of SARs reviewed, the SRG should lean towards meetings at AFSC. Lowry said the meeting schedule has happened to alternate between Seattle and Anchorage, but it certainly did not need to alternate annually. Lowry said the SRG would discuss the location of the next meeting and come up with a plan.

Alaska SRG Review of Joint SRG Recommendations

Lowry requested that the Alaska SRG review the draft recommendations that were proposed during the Joint SRG Meeting. The Alaska SRG then reviewed and approved all of the following draft recommendations:

1. The Alaska, Atlantic, and Pacific SRGs commend the efforts by the NMFS Climate Vulnerability Project to estimate the effects of climate change on marine mammals and offer their individual and collective expertise to assist in this effort. The SRGs stress the critical value of establishing baselines from which to measure the effects of climate change. The SRGs recommend that: 1. NMFS and USFWS collaborate on the Climate Vulnerability Project; 2. NMFS and USFWS establish and maintain baselines for abundances, status, vital rates (particularly reproductive rates), prey abundance, and distributional range; and 3. Identify those species that may be less resilient to climate change and those that may benefit climate change.
2. Where necessary (e.g., when PBR cannot be calculated due to no Nmin or outdated abundance data and it is known that interactions with fisheries occur), alternative methods to the PBR process should be allowed for evaluating status of stocks.
3. Where appropriate and possible, methods other than observer programs should be used for determining where, when, and approximately how many marine mammals are being seriously injured or killed in fisheries.
4. If there are known interactions between marine mammals and fisheries resulting in serious injury or mortality, mitigation should be conducted whenever possible, whether or not known strategic stocks are being taken and take reduction teams can be required.
5. The USFWS should annually produce updated Stock Assessment Reports for manatees and other strategic stocks under its jurisdiction that incorporate the most recent information on abundance, mortality, trends, management actions taken or other updated information as required by the Marine mammal Protection Act.
6. (Wording from Pacific SRG previous recommendation) The SRG recommends that NMFS rapidly develop a multi-year allocation of ship time for marine mammal surveys and increase the priority and funding for these surveys necessary to obtain the abundance estimates required to calculate PBR and thus enable fisheries to meet the standards required by the MMPA. We have repeatedly urged NMFS to conduct shipboard surveys to obtain new abundance estimates for marine mammal populations and remain extremely concerned that the agency continues to give a low priority to marine mammal research when allocating ship time. In the Pacific area, the US west coast survey has been postponed, uncertainties have increased regarding whether funding will be available to support field work to monitor the Hawaiian monk seal population and mitigate human impacts, and PBRs cannot be calculated for new Hawaii pantropical spotted dolphin stocks. When PBRs cannot be calculated, either for lack of abundance estimates or abundance estimates more than 8 years old, a negligible impact determination cannot be made for ESA-listed species and managed fisheries cannot achieve required MMPA standards. Either outcome places an inappropriate burden on managed fisheries, and the lack of data puts populations at risk.

7. The MMC (Heinemann) and SWFSC (Carretta) presented on the likelihood of cryptic mortality for cetaceans, wherein estimated levels of human-caused mortality and serious injury suffer from negative biases due to incomplete detection and recovery of carcasses. A correction factor for this mortality has been derived for some coastal delphinids and could be applied to assist in addressing this negative bias in mortality. We recommend research on cryptic mortality be done on a regional basis in an effort to establish a correction factor and its application.
8. In GAMMS III there is guidance for calculating PBR when it has previously been classified as "undetermined" in certain cases, e.g., species that are declining and listed as endangered. We recommend that this value calculated for PBR not be included in the summary table, but that it contain a footnote referencing the explanatory sentence.
9. Although some SARs contain a narrative section with discussion of potential adverse impacts of habitat changes or degradation on the status of a stock, most do not. The Services should, where possible or pertinent, add a section of this sort to the SARs for stocks likely to be adversely affected by climate change or other natural or anthropogenic habitat alteration or degradation.
10. The SRGs recommend that communication between science centers be improved with regards to developing, refining, and sharing methodologies of relevance across regions, perhaps through regular (annual or biennial) workshops.

Closing Comments

Lowry said the Alaska SRG covered everything on the agenda. Pendleton asked if there were any Alaska specific SRG recommendations.

Wynne replied that she would like to see the fisheries tables which Pendleton proposed included in future SARs. Mathews expressed an interest in motivating MML to update the killer whale and humpback whale stock structure and SARs. Lowry said he had continuing concerns that the current bycatch estimates for some stocks were not representative of reality. Pendleton agreed that he would like to see further investigation into whether SWFSC's bycatch estimation methods were applicable to Alaska stocks.

Angliss thanked the SRG, and in particular Lowry, Mathews, Tallmon, Matkin, and Haflinger who were resigning their positions for their time and contributions over the years.