Minutes from the 2014 Meeting of the Alaska Scientific Review Group

18-19 March 2014. Anchorage, Alaska

This report summarizes the 2014 meeting of the Alaska Scientific Review group (SRG). This document is intended to summarize the main points and does not attempt to repeat everything that was said during the meeting.

Meeting Called To Order

Lloyd Lowry, the SRG chair, called the SRG meeting to order. Attendees included:

Alaska SRG Members: Craig Matkin, David Tallmon, Grey Pendleton, Kate Wynne, Beth Mathews, Bob Small, Kate Stafford, Robert Suydam, Mike Miller

Observers and Invited Participants: Dee Allen (AFSC), Van Helker (AFSC), Robyn Angliss (AFSC), Shannon Bettridge (NMFS HQ/PR2), John Kurland (NMFS AKR), Sam Simmons (MMC), Lowell Fritz (AFSC), Lisa Rotterman (AKRO), Charley Hamilton (FWS), Craig Perram (FWS), Brian Wilson (FWS), Michelle St. Martin (FWS), Todd Attwood (USFWS), Jim McCracken (FWS), Verena Gill (FWS), Joel Garlich-Miller (FWS), Patrick Lemons (FWS) Karyn Rode (US Geological Survey (USGS), Chad Jay (USGS), Mark Udevitz (USGS), Rebecca Taylor (USGS)

Alaska SRG 2013 Recommendations and Responses from NMFS

Lowry said that the NMFS response to the SRG recommendations from the 2013 meeting was received a few days ago and it appeared that there was more effort put into responding to this letter than in previous years. The SRG received a detailed set of comments back. Lowry went through last year's SRG recommendations and NMFS' responses (available at: www.nmfs.noaa.gov/pr/sars/group). Bettridge stated that NMFS is committed to getting the SRG a response within two months of receiving a recommendation. The delay this year was the result of working out the new process defined in the Terms of Reference, in which the agency's response to SRG recommendations originates from the Assistant Administrator. Now that the process is known, agency responses should be faster.

SRG Terms of Reference

Bettridge began discussing the SRG terms of reference, and thanked the SRG for its highly valued good work. NMFS relies on SRGs to conduct peer review of marine mammal science. Bettridge said the SRG has been operating without any formal operating procedures since 1995. There is a clear need for terms of reference, especially because SRGs are experiencing turnover of members and NMFS had to identify clear criteria for membership. NMFS has also received questions regarding appointments and the scientific review process, and had a need to outline SRG rules. The SRGs also need guidelines for decision making processes, and there are information quality act requirements which require a guidance document. So the time was right to develop terms of reference specifically to address issues such as roles, responsibilities, terms of service, code of conduct, expectations regarding information review, and minimum selection

criteria for appointing new SRG members. The decision to implement the terms of reference was not because of a problem with the any particular group.

The first section of the terms of reference is the Background, this section clarifies that there is one terms of reference document for all three SRGs. This discusses the establishment of the group. The second section is the Purpose and Scope which outlines what the SRG reviews. Traditionally the SRG spends most of its time reviewing draft SARs, but the group may also review other information. The Roles and Responsibilities section pertains to responsibilities of NMFS and FWS as well as liaisons, chairs, members, and experts. There is a provision to allow members of the public to observe the meeting. The Alaska SRG tends to have fewer observers than other SRG meetings. Membership and Terms of Service discusses the composition of the SRG. SRG reviews and recommendations are not intended to be advocacy positions, but are based on science. Existing members can be reappointed to the SRG as needed.

The first review of membership for each of our SRGs will begin about six months within this document being finalized. New members must be sought through Federal Register announcements and the SRG may recommend new members to NMFS. Nominations are to be accompanied by an individual's CV. Nominations would be reviewed by the Director of the relevant NMFS Science Center with copies to regional administrators. Nominations would be reviewed and nominations would be forwarded to the Assistant Administrator who would then appoint or reappoint members. Appointment and Length of Service describes the appointment for chairs and members, the length of service for members and chairs are three year terms. Members may serve up to three consecutive terms before a hiatus of at least one year from the SRG. Code of Conduct is very straightforward. There are now provisions for resignation or termination of membership.

Meeting Arrangements and Operating Rules states that NMFS will endeavor to support one in-person meeting per year. There are financial challenges, but NMFS will do its best. Agenda, timing, and location are developed by the chair and liaison in consult with the FWS. Future recommendation letters should be directed to the Assistant Administrator for Fisheries or in the case of FWS to the appropriate regional director. NMFS intends to submit a response to the SRG within two months of receiving a recommendation. Minutes from each meeting will be drafted and the SRG will review the minutes for accuracy within two months of the meeting. Following comments from the SRG minutes will be made available to the public. There are times when NMFS may need to consult with the SRG between meetings. This will be done by webinar or conference call, and again, minutes will be made available to the public. Members of the SRG serve without compensation, but may be reimbursed for travel costs.

The Review and Application section states that NMFS will review the terms of reference two years from now and then every five years. The agency, in consultation with the SRG chair will review the implementation of terms of reference within three months of the meeting. The terms of reference will be fully implemented within three years. Appendix A, Marine Mammal Stocks under SRG Review - this section is still being clarified. Appendix B - this is the most important part of the document - it lays out NMFS' expectations for potential SRG members, SRG members, and the public. This section also lays out Agency requirements, such as deadlines for providing draft SARs to the SRG. NMFS makes it very clear that they consider the SRG review of the SARs as the peer-review. NMFS considers this to meet the guidelines of the Data Quality

Act. Appendix C is a link to a webpage showing the current SRG members and chairs. Appendix D - contains criteria for membership, this section requires some clarification specifically in the last sentence of the document.

Mathews voiced concern regarding timing and turnover. With only one meeting a year, if someone steps down, how long will the process take to initiate a new SRG member? Mathews thought it could take longer than a year and she would like to avoid having an empty seat. Bettridge expected that if there were any questions, ambiguity, or snags regarding the nomination process NMFS would reach out to fill in any missing information. Suydam asked if interested applicants could self-nominate, and if so he thought it may be a challenge to apply. Bettridge replied that if there were any questions or ambiguity, NMFS would reach out to assist with any missing information (barring the scenario where NMFS is flooded with applications). Wynne said that there are instances where the SRG makes comments time and time again, and they remain unaddressed. Is that problem something that should be addressed specifically in letter recommendations if it never changes in the SARs? Bettridge said that is a good approach. That way concerns are documented in the administrative record, not just the minutes. Lowry said that under the new Terms of Reference SRG members can be terminated for not performing. What happens if the SRG gets draft SARs late or the SRG doesn't get a response letter in time? Bettridge said there are no penalties articulated, and that the agency is doing its best to get the SRG responses and information in a timely manner. Angliss added that this is the first time NMFS has had deadlines in writing that agency leadership has signed off on. Although there are no penalties, there is extra encouragement to provide the SRG with data in a timely manner.

Bettridge began discussing plans for transition of SRG membership. NMFS will review the membership in consultation with the SRG chairs. NMFS is striving for no more than one-third turnover per SRG per year and intends to work with the SRG to conduct the transition planning. NMFS will do the first review this year and work with the chair to minimize SRG disruption. This review does not mean that NMFS will replace one-third of the membership within three years. For example, if a member has been a part of the SRG for more than nine years, they will not necessarily be replaced immediately. Again, NMFS wants to be open and give the chairs an opportunity to contribute towards this process. Bettridge thought NMFS will review a third of the membership in each year on a three year cycle and make decisions accordingly. Lowry stated that the SRG had four new members come on a year ago, and because they are all such great people it wasn't a problem at all. Lowry was happy the terms of reference are out, and that they are very detailed. He thought it provided good insight into what the SRG does and what is expected so that potential members can assess whether they would be a good fit in advance. The SRG can expect to hear more from Bettridge within the next couple of months regarding the upcoming transition period. Bettridge expressed her interest in working with Lowry to facilitate the upcoming changes. Suydam added that eight members of the SRG had been on for nine years or longer. Lowry said that any SRG members thinking about resigning are able to do so whenever they want. If there are any members in that state of mind, it will get the membership turnover going. Bettridge's expectation was that NMFS would review each third of the group, regardless of how long each member has been on. NMFS would not consider that review to be the end of any SRG member's nine-year period; it would most likely be the end of their first three-year term. There would be the opportunity to stay on for additional years.

Polar Bear Conservation Management / Recovery Plan Update

Charles Hamilton provided a brief update on the polar bear recovery/management plan. The USFWS listed the polar bear in 2008 as a threatened species under the ESA. The primary identified threat to polar bears was loss of sea ice habitat, and no regulatory mechanisms in place to address that habitat loss. Prior to the listing of the polar bear the service spent approximately two years holding open stake-holder meetings, four meetings were held, and stakeholder input was considered from a broad variety of sources. In summer 2013, it was determined that it would be appropriate to form a recovery team for the polar bear. This team is composed of USGS and FWS polar bear biologists, sea ice experts, seal experts, and representatives from the state of Alaska, North Slope Borough, non-governmental organizations (NGOs), and more. The team has met twice, and the recovery effort is ongoing. Hamilton anticipated one more team meeting in May and anticipated a draft recovery plan available to the public for comment in October 2014. The group's goal is to have the recovery plan in place by the Polar Bear Range States Meeting in the fall of 2015. The goal of the Range States is to have a circumpolar conservation plan for all polar bear populations by 2015.

Southern Beaufort Polar Bear Update

Todd Attwood provided an update on USGS polar bear research in the southern Beaufort Sea. In 2013, USGS researchers encountered 28 adult males, 30 adult females, and only encountered 4 yearlings, which is down 70% from 2012. It will be interesting to see this spring how many yearlings and two year olds are sighted. In 2013, the proportion of adults recaptured was 0.6 which is a little higher than the 11 year mean of 0.55. In 2013 USGS sampled bears that visited the bone pile at Point Barrow using a barbed wire hair snag fence. This winter USGS collected ~300 samples, which is quite a bit less than last year's sample count of ~600. This winter was different, in that there wasn't much bone pile stocking. USGS' onshore polar bear study just concluded data collection last fall, so the results being presented are very preliminary. This study ran from 2009 to 2013 and had three objectives:

1. Determine if use of onshore habitat during summer has increased over the baseline period
2. Examine spatial distributions to look at resource selection while on shore
3. Determine exposure of onshore bears to health risks

As ice begins to breakup in June bears begin to segregate and by August bears are segregated due to ice breakup. At this point bears are either on sea ice far offshore or on land. One interesting observed behavior is an increased frequency of long distance swims. To date USGS has documented 50 swimming events by collared bears, with a mean distance of 154 km. Some bears swim up to 300 km. Swims are typically from low concentration sea ice over the shelf to either heavier pack ice, or land. Regarding the use of onshore habitat, bears are arriving on shore about seven weeks sooner than they were many years ago. Increased proportions of collared adult females are coming ashore in summer and the amount of time on land per bear has also increased. USGS estimates that up to 20% of southern Beaufort Sea polar bears are coming ashore.

The number of bears spending time onshore has gone from something trivial to something fairly significant. Why do they come ashore? There must be an advantage to coming ashore, such as access to food at bone piles. When isotope data is analyzed it appears that offshore bears are just

feeding on seals. The onshore bears exhibit greater dependence on bowhead whale from bone piles, especially in late summer and fall, and this is evidenced by the depleted nitrogen signature. Bone piles concentrate bears and other animals in small area for a long period of time which raises the likelihood of density dependent pathogen transmission. In the case of Kaktovik, where the bone pile is close to the village there is also an increased potential for human conflict. Last year, USGS detected the first case of exposure to the bacterium *Coxiella* which was present in about 36% of bears. USGS is investigating whether *Coxiella* causes disease in polar bears. USGS also saw a three times increase in polar bear exposure to *Brucella* and an almost doubling in the exposure to *Toxoplasma*. USGS is further investigating trends in disease exposure by analyzing its serum bank going back 10 years.

USGS completed initial analysis of the Beaufort Sea polar bear mark-recapture study in fall 2013: The study period ran from 2001-2010 and the manuscript is currently under revision. The study addressed three questions:

1. Did survival remain low after 2005?
2. Did abundance change after 2005?
3. Are USGS data alone informative for indexing trends and survival for the southern Beaufort Sea polar bear stock?

USGS used two data sources for the analysis, USGS data and Canadian data. From that, USGS formed two data sets - USGS data only and a combined data set. Key findings included poor survival for all age classes between 2004 and 2006, survival improved and stabilized between 2007 and 2009, except for sub-adults. Of 80 cubs captured from 2003-2007, only 2 are known to have survived to an older age class (based on recapture). The previous abundance estimate based on 2001-2006 data was about 1,500 bears, after analysis is completed, USGS will have a new abundance estimate for 2010. USGS anticipates completing revisions by next month and a paper in press by the end of calendar year 2014.

Suydam asked what happened in 2004 - 2006 that caused such poor survival in those years. Attwood speculated that the poor survival may have been tied to the increased use of the bone piles by polar bears. Suydam speculated that perhaps the southern Beaufort polar bears were transitioning and becoming what Hudson Bay bears may have been like ~10 years ago. It could be that the bears were figuring out a seasonal life-history pattern which led to the drop in survival in 2004-2006. Mathews asked whether the bone pile may meet the bear's caloric needs, but perhaps may not offer the nutrition that seals do. Attwood said that USGS needs to put that question on their to-do list. Attwood said that he has seen evidence of bears packing on several hundred pounds at a feeding period at the bone pile. Mathews asked what would happen to those bone piles as sea-ice trends continue. Suydam said that right now the bowhead population is doing very well. He didn't think the quota or harvests were going to change in coming years. More whales are being caught in Barrow in the fall rather than spring and potentially whale blubber and bones could be available to bears in the coming years. Attwood said USGS will be conducting its first sampling day of 2014 on March 24. The team will spend 2 weeks in Barrow, 16 days in Deadhorse, and 2 weeks in Kaktovik for a total of 6 weeks of polar bear captures.

Chukchi Sea Polar Bears Update

Karyn Rode began discussing USGS work on polar bears in the Chukchi Sea. Polar bears range widely over the whole area. Studies of polar bears in the Chukchi are challenging, coordination with Russia is complicated and bases of operations are limited. Rode discussed some work that was published in Global Change Biology in 2014. The study began in 2008 due to concern regarding sea ice loss in the Chukchi, which is greater than in the southern Beaufort. Between 1986 and 1994 there were 451 captures, and between 2008 and 2012 there were 220 captures. Analysis of polar bear body condition revealed no change in body condition between the two time periods. Polar bears also have maintained their reproduction rates despite sea ice loss. How do these findings compare to the Southern Beaufort? Chukchi bears weigh more than Beaufort bears. Reproduction rates and recruitment appears to be higher in Chukchi bears than Beaufort bears. An obvious factor that may account for the differences between the Beaufort and Chukchi bears is their environment's bathymetry. The Chukchi Sea has shallower water and is more productive than the Beaufort Sea. The southern Beaufort Sea experiences a longer time period of "ice-free days" than the Chuckhi Sea. Chukchi Sea polar bears have greater access to prey as more bears are found to be fasting in the spring in the southern Beaufort Sea than in the Chukchi Sea. The bear's diets appear similar in the two regions, at least in spring.

FWS continued capture work in the Chukchi Sea in 2013. FWS believes they captured the largest recorded bear from that area last year, which weighed 1,390 pounds. In 2014, USFWS will be unable to conduct a capture program, but has at least one survey flight planned. Capture work is planned for 2015. Suydam added that based on his experience in Barrow there are an increasing number of gray whale carcasses washing up on beaches. Bears are also feeding on walrus. This may be impacting bear survival in the Chukchi Sea. Someone asked if there was any evidence Chukchi Sea bears are emigrating to other areas based on telemetry data? Rode answered that bears seem to stay within their sub-population boundaries. Hamilton said there are two or three papers coming out that may have information on stock definitions. Mathews asked if there was any evidence from skeletal studies that Chukchi bears are just larger than Beaufort bears. Rode answered that skull length and body length in Chukchi bears are larger than Beaufort bears and added that the genetics does not show distinctions between the populations. So therefore it could just be a resource issue that allows bears to grow faster or larger in the Chukchi.

Brian Wilson said that prior to this last year, USFWS' understanding of the Chukchi Sea sub-population was based on density and distribution of bears. FWS wanted to identify what was causing bears to use certain areas of the Chukchi Sea. They looked at ice conditions, bathymetry, and chlorophyll concentration in order to identify where bears should be occurring based on those conditions. Significant intrannual variation was observed. During winter and spring, the area north of St. Lawrence Island, up to Point Lay and the Russian coast appeared to be good polar bear habitat. As the ice retreated north during the summer the polar bears followed the ice edge north, and then back south again as the ice formed. Currently FWS is using the historic data mentioned in Rode's talk to conduct a similar analysis. They will be able to compare the habitat bears were selecting then to what bears are selecting today. Wilson said that this should help FWS understand why the bears in the Chukchi have not shown any real changes in vital parameters so far despite sea ice loss.

Michelle St. Martin discussed coastal surveys of polar bears. The coastal surveys monitor distribution, abundance, and body condition from Barrow to Canada. These surveys are conducted in late summer, and FWS coordinates with local communities to avoid disruption to

subsistence activities. This past year they conducted 1 survey and observed 91 bears, but were unable to complete survey due to mechanical issues with the helicopter. October surveys were cancelled due to the government shutdown. The number of bears that were observed in 2013 was about the same as last year 2012. In general, this survey encountered more bears than most surveys in the past decade. The body condition of the bears appeared normal. Following this year, data will be analyzed and published. Dave Tallmon asked about methods used for the survey. St. Martin answered that the surveys are simple counts. Hamilton added that FWS is also focused on management activities, such as completing the recovery plan and minimizing and mitigating of human-bear conflict. He also emphasized that FWS appreciates its partners in the North Slope Bureau.

Suydam was pleased to hear about the field work on Chukchi Sea bears that was planned for 2014. Suydam recognized that FWS had some issues regarding the capture work, but he also pointed out that some of FWS partners offered to help with 2014 fieldwork, but for whatever reasons that didn't happen. Suydam thought it was important to collect as much data as possible and encouraged collaboration with the state, NSB, and the Nanuuq Commission to ensure that field projects happen in the future. Small asked how much new information is in the SAR on polar bears. Hamilton answered that there is a lot of crucial information coming out, so FWS felt that they should defer updating the southern Beaufort Sea SAR until the updated information is available. However, FWS has updated the Chukchi Sea polar bear SAR this year.

Suydam said that a number of people have expressed interest in looking at the polar bear data. How available are those data for other people? Is the population data for the Beaufort Sea available for other people to analyze for trends, etc.? If someone were interested in analyzing data that USGS or FWS have collected could they? Attwood said that there is not a mechanism to share those data and there are not too many researchers that would feel comfortable sharing that kind of data. Suydam said that the International Whaling Commission requires that data to be used for management decisions be made publicly available. For instance, NSB has to provide all raw data during bowhead whale counts. Given that polar bear data are so important, people are interested in looking at the data. Trying to figure out how to make data that is collected and housed by federal agencies more available is worth thinking about and talking about.

Pacific Walrus ESA Listing

Jim McCracken, the FWS walrus program supervisor discussed Pacific walrus. The walrus was made an ESA candidate species in 2011. Thereafter, the FWS was sued by NGOs to address a backlog of 150 candidate species, including the walrus. FWS agreed that they must conduct a scientific assessment review for each candidate species and they will start on this process for the walrus in mid-2015 and could have a rule in place by 2018.

Pacific Walrus Research Update

Patrick Lemons reported that in 2013 FWS wrote up a detailed investigative plan and launched a walrus mark-recapture project. The project exceeded its sampling goals in 2013, with 1,600 samples obtained. There are no results yet as sample collection will take three years. More fieldwork is planned for June 2014. USFWS had hoped to conduct a bilateral research cruise with Russia in 2015, although this is now unlikely. Lemons thought FWS had enough samples

from 2013 to achieve a 1% recapture rate, but that won't be known until the second year of the project during recaptures.

Suydam said that field-work can be the easy part - the lab work on that number of samples may be daunting. What is the plan for analyzing the samples? Lemons answered that FWS' lab is generating SNIPs (a 32 marker panel) that can be run more quickly than alternatives. That should be done by June 2014. With this protocol 2,000 samples could be run in as little as a couple weeks. Suydam thought 80 to 100 SNIPs may be more appropriate. Lemons answered that he was happy to put anyone in touch with FWS lab staff if there were any questions regarding analysis.

Pacific Walrus Monitoring and Management

Joel Garlich-Miller discussed ongoing FWS walrus monitoring and management activities, including a network of walrus taggers who monitor walrus harvest in rural Alaska. The harvest numbers have been quite low - some of the lowest in a century. The harvest over the last 5 years has ranged from about 1,600 animals in 2009 to 460 last year. Russia has a quota of 1,500 animals per year, but their numbers harvested have been substantially lower than that. The FWS' current biological sampling projects are looking for contaminants and disease. Garlich-Miller discussed the northern pinniped Unusual Mortality Event (UME) which began in 2011. This presented as skin lesions on ringed seals into the Bering Strait region. Walrus were also found with reported UME lesions. In 2012 and 2013 the investigative team conducted investigations into UME affected animals, including walrus. The investigative team only came up with one suspected case of affected walrus in 2012 and two in 2013. It is unknown what caused these pathological conditions in seals or walrus. The team is going to suspend the walrus investigation because of the low apparent numbers of affected animals, but will keep the seal investigation open for the next year.

Terrestrial walrus haulouts in the Bering Sea have experienced a considerable decline over time. Coincidentally, there has been an increase in coastal haulout activity further north with about 40,000 animals thought to have hauled out near Point Lay at times. Disturbance events can result in stampede mortalities; in Russia mortality events of 3,000 - 10,000 animals have been known. Mortalities in Russia are reported to be down as a result of local management efforts. Information on terrestrial haulouts comes from a variety of sources, including NMFS aerial surveys that provide real-time information on where haulouts are forming, and FWS works with partners to develop in-season management responses. FWS has been able to restrict flight operations over haulouts by working with the Federal Aviation Authority. Last year FWS observed only about six mortalities in disturbance events.

Suydam mentioned that historically it was mostly adult male walrus that used Bering Sea haulouts. He asked whether the male portion of the population was declining or if the males were shifting their distribution further north into the Chukchi. Garlich-Miller said that there have been big declines in the late 1980s and early 1990s in the number of animals on the Bering Sea coastal haulouts. There are male haulouts seeing greater use in the Chukchi and more of the males are moving north in the spring. They are not showing up at the traditional haulout sites, but the animals seem to have quite a bit of plasticity in their occupancy of coastal haulout sites. Hamilton mentioned that NMML flights are now permitted to collect information on walrus, and

this information is available in the Aerial Surveys of Arctic Marine Mammals reports. Garlich-Miller added that FWS is also mining historical data on haulout use (location, season, and numbers of animals) and including that in a database. Lowry thought it would be a good idea to analyze that data and create a study plan due to how rapidly things are changing for walrus.

Pacific Walrus Trends and Demographics

Rebecca Taylor discussed recent trends in Pacific walrus demographic rates. Walrus inhabit continental shelf waters, foraging on the seafloor for invertebrates. The walrus is a species that depends on sea ice for many aspects of its life history. Historically the main factor limiting the population was thought to be harvest, but now it may be loss of sea ice. With less ice, walrus must rest more frequently on land which means more commuting to feeding areas. This has led to the question of whether there will be changes in birth rates or death rates due to nutritional stress. The loss of sea ice and concern over harvest has raised concerns over impacts on population dynamics and that is a large part of why FWS has considered listing walrus as threatened or endangered. Walrus have low reproductive potential. Age at sexual maturity is 6 years for females and the gestation period is 1.5 years. At most, walrus have one calf every two years. On average the most productive females will have 0.25 calves per year. The reproductive rates in the 1950s and 1960s were 0.15, and in the 1980s were 0.07 averaged across the entire population of females. Researchers assume that survival rates are high given the low reproductive potential. There have been harvested animals aged at 40+ years, so walrus are obviously long lived. Population size remains a lingering question, there have been five population estimates of Pacific walrus to date, but they are imprecise. The survey that did an outstanding job of accounting for the uncertainty associated with population estimates had a 95% confidence interval of 55,000 to 507,000. Taylor said the goal of this current project is to estimate demographic rates and population trends using all Pacific walrus data. It is based on six estimates of age structure from the 1980s and 1990s and five population counts from 1975 to 2006. Harvest estimates from the FWS monitoring program are combined with estimates of high and low reproductive rates in a Bayesian model. Results indicate estimates of survival rates for adults and juveniles of 0.985. Juvenile survival was calculated at 0.97. Average reproductive rates were estimated to be between 0.06 and 0.11 increasing over time. Recent first year survival is thought to be 0.6, and older calf survival is currently thought to be about 0.85.

Taylor said USGS was able to estimate population trends using this model, but was unable to estimate the absolute number of walrus. The model predicts that relative population size has been declining over time, and the population declined by half from 1981 to 1999. Chad Jay collected new age structure data last year and plans on collecting more in subsequent years. USGS combined multiple types of data into this analysis and will refine analysis and predictions based on new data as it is acquired. USGS is currently revising this paper prior to its second round of peer-review. Lowry said it looked like the life-history parameters improve around 1990, but population continues to decline into and through the 1990s. Taylor replied that the population decline appears to be lessening, and the last few years of the trend show that the population decline may have stopped.

Jay discussed age structure estimation of Pacific walrus. USGS did complete a survey in 2013, has another one planned for 2014, and probably another in 2015. Those data will go into the analyses just described by Taylor. Age structure is primarily determined by the length of walrus

tusk in relation to their muzzle. USGS is also looking at habitat selection, movements, foraging areas, and activity budgets relative to haulout substrate. In a recent site analysis, walrus site selection was most strongly related to tellenid clams (*Macoma*). Relative to sea ice concentration, walrus site selection was related to low ice concentrations within areas surrounded by high sea ice concentration. Last year USGS finished a study examining walrus foraging areas by month over the period from 2008 to 2011. It was shown that walrus foraging distribution is dependent largely on sea ice distribution. The concentrations of walrus at Point Lay in September are reflective of the use of land haulouts due to late season sea ice retreat. Walrus in offshore sea ice habitat walrus spend more time resting and little time swimming. Walrus in on shore habitat must transit to offshore feeding areas. These walrus spend a greater proportion of time swimming, and a lesser proportion of time resting.

Mark Udevitz discussed walrus bioenergetic pathways and the changes to those pathways resulting from fluctuation in prey, sea ice, bioenergetics, and population dynamics. As sea ice becomes less available, walrus activity is changing, leading to a need for walrus to expend more energy to forage, leading to demographic consequences. So USGS developed a bioenergetics models to look at effects of these changes. The first model was crude, but allowed USGS to estimate walrus energy needs per day based on age and reproductive status. For the second phase of the model they tried to incorporate some more walrus specific information by working with various zoos. These zoos keep records on walrus calorie consumption and growth, and those data were incorporated into the model. This new model also accounted for storage of excess consumed energy in the blubber which is particularly important for lactating females that draw from blubber stores to produce milk since they cannot physically consume enough calories per day to support milk production. This revised model also accounts for walrus condition, and how condition changes based on activity and energy requirements. So this model links sea ice availability to walrus activity and walrus activity to body condition, which affects demographic rates. Unfortunately, there are no data on how walrus condition relates to demographic rates, but there is information for other related species that will be used in the model.

Mathews asked what the effects of ocean acidification are on walrus prey. Are there any studies analyzing ocean acidification on walrus? Udevitz answered that USGS is focusing on changes in activity and how that will affect walrus, and also their prey availability. In subsequent models they would like to incorporate more information on prey distribution. Udevitz did not know of any work being done specifically on ocean acidification. Ocean acidification could have some influence in the future, but it is hard to know. Mathews asked if there was any routine sampling on walrus prey. Jay answered that there is some benthic sampling occurring, and that there was some interest in comparing growth rates of bivalves today versus growth rates observed 30 years ago to see if there have been any significant changes. Suydam said that he had seen walrus packed full of tapeworms and that walrus in the zoo would not have the same parasite load. Is parasitism considered and could that influence the energetics model? Udevitz answered that parasites were not in the model. There is always the issue of how does a captive animal compare to a wild animal. This model does not account for parasitism. Udevitz would like to get to that, but didn't think it will be incorporated into the model in the near-future. Lowry suggested that Bud Fay's old data may be helpful with parasite loads in walrus gastrointestinal tracts.

Sea Otters in Alaska Update

Verena Gill discussed sea otters in southwest Alaska. Gill said last year FWS was busy conducting a 5-year ESA review. In 2014 there is a series of aerial surveys planned for lower Cook Inlet, Kodiak, and Katmai which will cover quite a bit of the northern portion of the southwest stock. There is also an epidemiological study being conducted that is analyzing the last 10 years of stranding data in southwest Alaska. FWS is conducting diet studies in Kodiak using stable isotopes, and is working with the State of Alaska on an ESA Section 6 project to conduct a study of sea otter by-catch in the Dungeness crab fishery. A big issue regarding southeast Alaska sea otters is conflict with shellfisheries. FWS is looking at sustainability of Alaska Native subsistence hunting on a stock-wide and local scale. Currently the leading cause of mortality in southeast Alaska is hunting, with about 1,600 animals taken in 2013. FWS was funded by North Pacific Research Board (NPRB) to study colonization and movements of sea otters in the southeast and that work is now complete. There is also a project analyzing fur trade records to understand historic distribution in Southeast Alaska. Mike Miller followed up with information on the 'bounty bill.' This is a bill in the state legislature and it would be in conflict with provisions of the Marine Mammal Protection Act (MMPA). It likely won't go forward in its current form. Gill added that additional information could be obtain by searching SB60 on the internet. Gill said FWS is considering setting up monitoring sites in the eastern Aleutians and also is considering an Aleutian wide survey. It is thought is that monitoring sites is a better approach to track the sea otter population.

USFWS SAR Update

Hamilton provided a FWS SAR update. Two years ago the USFWS presented the SRG with updated draft stock assessment reports on the three Alaska sea otter stocks and Pacific walrus. USFWS has received comments on the drafts from many entities, addressed the comments, finalized those reports, and sent them up for approval. These SARs should be cleared mid to late summer. Because of the length of time that has elapsed (more than 2 years), FWS was able to include new population numbers for sea otters. The Alaska FWS marine mammal program is frustrated at the length of time it has taken for internal agency review. For polar bear SARs, the USGS provided updated information on the southern Beaufort Sea stock in November 2013. FWS considered updating both polar bear SARs at that time, but USGS wanted to conduct more work on the southern Beaufort stock, and the decision was made to wait for more information to be finalized before updating the southern Beaufort SAR.

Lowry asked how the FWS behaves so differently from NMFS, and added that strategic stocks require updates annually. Hamilton answered that USFWS interprets the MMPA to mandate that USFWS must make a determination as to whether the stock can be better described. Every year FWS reviews new published information and each existing SAR and determines whether a revision to the SAR is required. In some cases they have made the determination that the information available wouldn't contribute to a better understanding of the status of the stocks. Suydam asked if Hamilton could give the SRG a better idea of what FWS plans are for southern Beaufort Sea polar bear and Pacific walrus SARs. Hamilton answered that they submitted the final draft of the Pacific walrus SAR last summer and it has since gone to the Department of Interior for review and clearance for publication. As soon as that is complete, FWS will finalize and publish the Pacific walrus SAR. For the southern Beaufort polar bear stock FWS will update the SAR after USGS releases their study results this year. Suydam asked how often the MMPA mandated SARs be revised. Lowry answered that SARs should be revised every three years, or if

strategic, annually. Suydam wondered if there would be a revised walrus SAR next year, given how long this SAR took to publish. Hamilton indicated that would depend on the information that the walrus research team would be obtaining now and throughout 2014. Small asked who writes the SARs within FWS. Who leads that process and compiles the information? How does this document come together? Hamilton answered that his program analyzes the information that is available and when new information becomes available, they update the SAR. From there, it goes through the regional director, then to DC for clearance. Suydam asked who wrote the Chukchi polar bear SAR. Hamilton said it was a team effort.

Chukchi Polar Bear SAR Review

Small said that he struggled to get through this SAR. It took a fair amount of time trying to interpret and comprehend the different sections. In general it needs to be tightened up. If part of the SRG's role was to provide editorial comments, this would take a lot of work. Suydam agreed. Small said that he had a difficult time comprehending the stock identification and delineation section; particularly regarding the area of sympatry and that he couldn't get a sense of what is going on. There is also mention of the population to the west, in Russia. He said that it would be good to have the Russian population on the map, so that people can see the collective range of polar bears in the Chukchi. Hamilton answered that FWS had taken the existing SAR and updated it with new information and that a lot had been cut in this revision. Suydam said that this SAR was an improvement, but there is room for more improvement. There is no information given on genetics, and even if there are no genetic differences between stocks, this should be mentioned. The map on Figure 1 appears to be data from satellite tagged bears. Where did this data come from? Maybe the map is the best available science, but these are not the management boundaries that are identified. If a hunter were reading this SAR they may be confused by the actual boundary between stocks. It's alright to keep this map, but there should also be a map showing what the agency uses for management purposes. Suydam also asked FWS to double-check the map with the text description, as they differ.

Small thought there was an appropriate amount of information in the population size section, but there wasn't a statement that identified what and why certain information is being used. Small had a hard time understanding why 2,000 bears is the appropriate population size to use. Hamilton said that he can add some extra sentences to clarify and also added that FWS legal counsel is adamant that FWS must provide a population number in the SAR. Small requested that if a number was required for population size, then the SAR should explain why and also explain how inaccurate that number may be. Suydam suggested that it may be worthwhile to say the data is old and imprecise, and then provide the population estimate. Suydam asked where the 2,000 number comes from; it seems like an incredibly conservative estimate. Hamilton answered that he didn't have a whole lot of confidence in the robustness of that figure. Suydam said that this has an impact on people's lives because the US-Russia polar bear management agreement is based on the 2,000 number.

Lowry said that the 2,000 Chukchi polar bears population estimate is on very shaky ground. It may be conservative, but that is not always a good thing. What's really important is getting a better number for the population. There was some preliminary work done with aerial surveys a few years ago. Was that too expensive, or inefficient? Hamilton answered that it was expensive

and there were complications with Russia. Everyone recognizes the problem of not having a good population number.

Small said there is some good information in the trend section. The last paragraph says the IUCN Polar Bear Specialist Group identified a declining trend but there is not enough detail to explain how the group got to that conclusion. Is the population declining? Hamilton said it would be better to say that FWS does not believe the population is declining, but there is Russian information that could indicate a negative trend. Small clarified that ultimately the trend is unknown. Suydam added that the best available science appears to be the research being conducted on body condition and demographics in the Chukchi Sea, everything else is anecdotal. It is worth emphasizing that best available science suggests that the population is increasing.

Small said that Rmax is the theoretical concept that represents how quickly a population can grow in favorable conditions. Suydam said that Rmax should be 7.5%, rather than 6%. Hamilton said he would follow up on that. Suydam asked if a PBR could be calculated when the data are deficient. Lowry replied that NMFS has undetermined PBRs, because often data are lacking. Small continued and addressed annual human caused mortality. He asked if there were any fishery interactions, and whether commercial fisheries caused any serious injury or mortality to polar bears. Hamilton did not believe there have been any serious injuries or mortalities due to fisheries. Small said that clarity is needed on how terms are used in this section. The terms poaching, harvest, illegal harvest, and illegal take are used. The terminology here should be cleared up so the reader knows the difference between harvest, poaching, illegal harvest, etc. Small clarified that his main suggestion was to come to some consistency with what takes are called in the SAR. Suydam said that it would be helpful to make it clear that there is no legal taking allowed in Russia. Figure 2 should be modified to show where FWS draws the line between Chukchi and Beaufort bears. Small asked if Hamilton could include separate male and female take totals within harvest info. Hamilton asked if there were any thoughts on how to show those data in the SAR. Suydam said it's worthwhile to show that the harvest levels are declining, especially when looking at data going back to the early 1980s. Lowry added there are two schools of thought. One is that the SARs should be an archive and the other is that they should regularly be pruned and information trimmed. Suydam said he noticed that FWS came up with an average harvest for the last six years of harvest. Why choose six when NMFS uses the previous five years. Dee Allen said that NMFS goes with the last five years for injury and mortality data. Small asked about a sentence in the SAR: 'The Commission's action is expected to improve the long term viability of the stock.' Small said the Commission does not know trends and does not have a grasp of the population so it is hard to see how that statement was supported.

Suydam complemented the USFWS for putting information in the SAR on the Russia-US management agreement. Many people do not know about it and getting this message out to hunters is really important. Hamilton said that FWS recognizes that continuing to get the message out is extremely important. Suydam said that enforcement actions have discouraged hunters from participating with FWS, and the message that is being sent out is not one of concern for conservation for bears. Hamilton said that USFWS will continue improving communication. Small thought there should be a summary sentence regarding climate change's impact on bears.

Suydam said that FWS should make sure that all partners in polar bear conservation are recognized, such as the state of Alaska, Red Dog Mine, and others. Regarding oil and gas wells there is a sentence that says, “Of these five all have occurred in 2012”. Suydam said only one well has been drilled since 1980s and encouraged FWS to work with BOEM to understand what has happened and where over the course of Chukchi exploration. Also, only one or two companies have conducted exploration in Chukchi since 2008 or 2009, not three or four. Clarify this section. Suydam continued and discussed the current incidental take regulations - it would be worthwhile to know how many takes of bears have been authorized and what those authorizations have resulted in. Suydam suggested USFWS add a paragraph on commercial shipping, due to the potential risk of oil spill. Stafford mentioned that on the bottom of page 16, the scientific name for ringed seals was not accurate.

The Southeast Alaska Observer Program

Kurland reported that the NMFS southeast Alaska Observer Program completed two years of fieldwork. The data are still being processed and there were no results to share yet. He said that the marine mammal observer program is an important tool to understand marine mammal - fisheries interactions, but there have not been enough funds to properly implement the program. There were no funds for this year, and none in the foreseeable future. Kurland said he had hoped to have four more seasons of observing efforts. He said there are not the resources to conduct extra observing and they will have to extrapolate the program’s findings from District 6 and 8 to other parts of southeast Alaska which could lead to under or over-estimation. Kurland said there was a life-threatening entanglement of a humpback whale observed. Suydam asked which fisheries this observer program covers. Kurland answered that it covers the salmon gillnet fishery which primarily affects harbor porpoise and possibly seals too. Wynne asked if Kurland could statistically extrapolate from observed regions to a broader area. Kurland said he would look into it. He added that there was no expectation that those two districts would be representative of a larger area. There is variation across the larger regions in terms of marine mammals, fisheries, and fishery timing. Kurland said that he hadn’t conclusively resolved that they would extrapolate across southeast Alaska, but it may be the best information to go on. Miller added that the gear is highly variable depending on the water clarity or location. It may be hard to extrapolate as there is a lot of variation in gillnets. Lowry said that nobody should think that extrapolating those types of data would be a good idea.

The Delisting Of the Eastern Steller Sea Lion

Kurland discussed the eastern distinct population segment (EDPS) of the Steller sea lion (SSL) and introduced Lisa Rotterman, the Steller sea lion coordinator for NMFS. Rotterman said on November 4, 2013 NMFS issued a final rule to delist the EDPS of SSL. This was the first delisting by NMFS due to species recovery since 1994. The reason for delisting was that the EDPS met biological and listing factor recovery criteria outlined in the 2008 recovery plan, and that the EDPS no longer met the definition of a threatened or endangered species. The specific criterion for delisting included: The population had increased by an average annual growth rate of 3%+ / year for 30 years (specifically from 18,000 animals in 1979 to 70,000 animals in 2010) based on estimates from pup counts & based on non-pup counts. Other factors included ESA Sec 4(c) (2) (b). Recovery is based on reduction or removal of threats and the improvement of species status during the period in which it is listed. There are other threats that may adversely

affect EDPS SSLs such as fisheries, disease, shooting, climate change, etc. but those threats do not appear to be sufficient to prevent long-term sustained recovery. There is also a requirement for a post-delisting monitoring plan (PDMP). For the EDPS, NMFS required a 10 year PDMP, which is 5 years longer than is required under the ESA. The goal of the PDMP is to monitor the species to ensure the status does not deteriorate. PDMP has 3 primary goals:

1. Monitor the population to detect changes in trends, pup counts, vital rates, and assess how movement across the DPS boundary may be affecting non-pup counts in each DPS.
2. Monitor residual or emerging threats and identify new threats.
3. Determine if there is a northward extension of patterns observed in southern California where rookeries were abandoned or in parts of Central California where population increases either did not occur or occurred only slightly, and hence where population density is low or becoming lower. Also, determine if the breeding and feeding range of this species are continuing to shift northward and if range contraction is occurring.

This stock was originally listed as depleted and strategic due to its ESA listed status, relative to optimum sustainable population (OSP). Now, NMFS is considering re-designating the EDPS as a non-strategic stock or non-depleted stock following the 2014 SRG review. Conservation is the use of all methods and procedures that are necessary to bring any endangered species to the point at which the measures provided in the ESA are no longer necessary. The Alaska SRG annual review and assessment is an important piece of that collective effort (conservation of an endangered species). Rotterman said she thinks the Alaska SRG has had important input on this topic over the years. Kurland agreed with reclassifying the EDPS as non-depleted and non-strategic. He asked for the SRG's input. Lowry said the EDPS SSL has recovered at 4%+ for 30 years and numbers about 70,000 animals. He did not think the SRG believed the EDPS needs to stay depleted. Small added that it is difficult for him to see how the SRG could consider this depleted. There are papers that say the EDPS SSL is at all-time historic highs. His biggest concern was in regard to the southern range. Overall the stock looks okay, but that southern part doesn't look so good. Lowry said these animals could be at record high numbers and if so, that 4% per year growth rate could taper down or disappear. If this happens it could mean that everything is getting better.

Rotterman said there was a lot of discussion about that. The PDMP understands that if we have a decline in certain areas, especially crowded areas, that data will have to be looked at carefully. If there is a decline in an area, is it because the species has reached carrying capacity? Or is it because a new threat has arisen? The challenge is going to be trying to sustain recovery, and properly interpreting a decline or plateau in growth trends. Suydam said that this is similar to gray whales in the early 1990s, when many skinny gray whales died. Fortunately, the whales recovered and no status change was affected. Pendleton added that there are hints and suggestions that this growth rate plateau is already showing up. Rotterman said she has already seen effects of overcrowding and those concerns have been addressed in the status review. Miller asked if the illegal shooting listed under threats was separate from struck and lost in subsistence hunts. Rotterman said that she knows there is illegal shooting, and the range of the species goes all the way to Washington, Oregon, and California where there is no subsistence harvest. There has been a recent uptick in illegal shootings in Washington State. In Alaska, there has been an assumption that animals with a bullet wound are struck and lost. Rotterman said that she didn't know why one would assume all animals found with bullet wounds in Alaska are struck and lost. Allen said that currently for the SARs, a shot animal in Alaska is routinely classified as an

already accounted for struck and lost animal, unless there is reason to believe otherwise. Miller said that there has been a lot of interest within the state to return management of marine mammal stocks to state control, specifically sea otters. Could this happen with EDPS SSL? Lowry answered that the state cannot take over management of a marine mammal stock without going through the process for transfer of management authority specified in the MMPA.

Petitions to List Humpback Whales

Bettridge updated the SRG on humpback whale ESA delisting petitions. NMFS received a delisting petition from a fishing group in Hawaii, specifically seeking to delist the Central North Pacific DPS. NMFS found that a status review was warranted. The biological review team has reconvened to consider the petition and the team is finishing up the status review and NMFS will decide to make any changes to humpback whale status or changes to distinct population segments. Meanwhile, NMFS received another petition from the state of Alaska to delist the Central North Pacific population of humpback whales. The agency is currently investigating this petition. Matkin asked if stock delineations are reconsidered as part of this process, and what DPS would be delisted under the ESA. Kurland answered that the Hawaii petition requested delisting across the North Pacific and the state of Alaska requested NMFS delist the CNP stock. Small asked when these decisions would be made and Kurland said that it could be awhile, Alaska's petition was just submitted, and it is complicated.

How NMFS Uses the SARs

Bettridge gave an overview of how the SRG helps with SARs, and how that is worthwhile to NMFS. NMFS considers the SRG review of the draft SARs to constitute peer review and to meet the requirements of the Information Quality Act. Management actions are based on status of the stock and threats to the stock and these are identified in the SARs. The SARs form a foundation for MMPA management because SARs are compilations of the best available marine mammal science. SARs are a great resource for people applying for permits, and for permit reviewers. Another important feature of the SARs is the 'stock status' for each report. There are a number of implications based on stock status. For example, NMFS may not provide a take waiver for depleted stocks, NMFS may not authorize importation of individual animals from depleted marine mammal stocks, and there are no intentional lethal takes allowed from depleted stocks. NMFS is about to receive petitions to designate as depleted some Russian whale stocks, which would prevent the US from allowing importation from such stocks.

Bettridge said another key component of the SARs is PBR, which is used as an index, and this comes into play within the List of Fisheries (LOF). The LOF is a classification system to determine whether participants of a fishery have to comply with certain provisions of the MMPA, such as observer coverage based on their percentage of take in terms of PBR. These classifications are based on a tiered analysis using PBR as an index. So it is really important that PBR is calculated appropriately. NMFS relies on the SRGs to review the SARs, serious injury determinations, mortality estimates, and the science underlying the SARs. The agency and take reduction teams rely upon information in the SARs when developing take reduction plans. Thus it is very important that PBR is accurate and that mortalities and serious injuries must be accurately reported.

Bettridge explained the SAR development process. First the Science Center staff writes a new SAR or updates an existing one. That SAR is then reviewed at Regional offices and by the SRG. Then the Science Center revises the SAR and it is reviewed by headquarters before going out for a 90 day public comment period which the agency responds to. After that, the SARs become final and can then be used for LOF, MMPA permitting, scientific research, etc. The SRG is early on in this whole process and part of the foundation of the work that NMFS does. Kurland added that he relies on the SARs as a point of reference for a lot of ESA actions. He also relies on them when responding to petitions to list or delist stocks. SARs are a good ESA decision making resource. Lowry said that one thing that concerns him is the amount of uncertainty within the SARs. There is a need to ensure that all the uncertainty is apparent to people, the readers. The SARs may be the best that we have, but there is a lot of uncertainty for some stocks. Lowry thought it was important to be clear within the SAR when information was unknown or uncertain. Suydam said the SARs are helpful, but also added that they make people lazy. There are many consulting firms that use the SARs as a shortcut and frequently they are using Nmins as a population estimate, which is potentially a problem. In some cases it is misleading to cite the SARs. Suydam thought NMFS could provide additional guidance to parties citing information in the SAR incorrectly during application processes. Lowry said that he has cited SARs as a reference because sometimes it is the best information available. Wynne said that she finds it daunting to be thought of as a peer reviewer of the SARs, especially when SRG comments are voiced, but not always incorporated. Lowry said that from an agency perspective the approach is reasonable and he thinks the SRG's comments are fairly considered. Angliss said that even if the SRG does not see a change, it does not mean the SRG's comments weren't discussed internally at NMFS. NMFS and NMML always consider the SRG's input. Lowry asked if Bettridge received any feedback from NGOs regarding SARs. Bettridge said that NGOs pay very close attention to the SARs and sometimes NMFS even receives comments from individuals. Fishing organizations pay particular attention to stocks their fisheries interact with. NMFS receives a lot of public input and questions when the SARs are delayed. Lowry said that SRG members try to make the SAR as helpful and easy to use as possible, but there are so many of them every year and if they are not cleaned up before the SRG gets the SARs it can be a lot of work. It is understandable how SARs get unwieldy some times. Bettridge said there is a provision that if there is significant new information for a stock the SAR needs to be updated. On the Atlantic side they are trying to determine when a SAR should be updated if it is not scheduled to be reviewed in a certain year. Lowry said there may be some latitude that the SRG and NMFS are not using. It would be helpful to take a few SARs off the table each year. Matkin said that the SARs can become unreadable after a while. An experienced non-scientific writer needs to edit SARs to be more readable for the public. Bettridge said that one of the Marine Mammal Commission comments suggested having an editor go through the SARs to ensure they are easier to read.

Marine Mammal Stock Delineation

Bettridge discussed how a new stock is delineated and designated under the MMPA. The Alaska SRG has been investigating more detailed stock structure for some Alaska stocks. This is also a question for gray whales and whether feeding aggregations constitute separate stocks. One of the recommendations of GAMMS III was to hold a stock delineation workshop. GAMMS II, which NMFS is currently operating under, addresses prospective stocks. NMFS has been discussing what makes a stock. How strong does the evidence need to be, and how many lines of evidence

are required? Once NMFS has identified that stock structure may well exist, how does NMFS put it through the process of making it so? NMFS does not have an established or clear protocol for revising the stock structure under MMPA, so the agency is investigating holding a workshop to answer those questions and come up with a procedure for stock delineation. The SRGs will be included in any new guideline development.

Suydam brought up a specific issue with belugas in Kotzebue Sound. The SRG struggled with harbor seals to get NMFS to designate new stocks, and Suydam thinks it will be the same case for harbor porpoise, killer whales, and Kozebue Sound belugas. A well-described process will be helpful. The data suggests that there might have been a unique beluga stock in Kotzebue Sound 20-30 years ago that now shows up there only rarely. Lowry added that a subtlety in the beluga case is the presence of a co-manager, the Alaska Beluga Whale Committee, which could and should get involved. Angliss said that NMFS did not move forward on the harbor seal stock changes without co-manager approval, and she expects beluga would be the same way. Kurland added the absence of a clearly defined process does not mean NMFS cannot change the delineation of a stock if the momentum to do so is there. Suydam said that maybe the SRG should recommend that NMFS be specific on how to deal with stock structure issues in order to set up a process. Suydam said that Kotzebue Sound belugas are facing a number of threats and maybe the beluga committee would make a proposal to NMFS to delineate the Kotzebue Sound belugas as a separate stock. Matkin suggested an approach he is taking with killer whales. That is to independently make a case, or publish a paper, present it to the SRG and NMFS, and ask for changes to stock delineations. Angliss said that when the SRG makes a recommendation on stock structure, NMML consults with its experts in-house and then determines whether it is the right time to identify a new stock. That new stock would be proposed in a new stock assessment report and go through the same process in the other SARs. Conceptually, it is not different than NMML deciding to separate the humpback whale stocks. NMML did the same thing when separating out harbor seal stocks.

NMML Budget and Operations In 2014

Angliss discussed the status of NMML's budget and showed figures of science operations spending (non-labor) for the years from FY08 to FY14. Most project budgets went down between 2012 and 2013. The multi-species cetacean project's budget has increased, and this is primarily due to how people are being paid. NMML doesn't actually have any big new projects. Cook Inlet beluga money is down in 2014 from 2013. Some pots of money have gone to zero, such as cetacean surveys and assessments. There is no support for killer whales and no support for North Pacific right whales. Aircraft costs have gone up dramatically and sometimes it takes more than one year of money to support an aircraft survey. The cetacean money is all from Bureau of Ocean Energy Management (BOEM). Aside from money for Cook Inlet beluga, no operations money comes from NOAA, the rest comes from BOEM. The recent peak in funding was in 2010, and it has been falling off since then. Labor has been flat or declining for the last two years. Projects being conducted in FY14 include Aerial Survey of Arctic Marine Mammals (ASAMM) which ends in 2015, Arctic whale ecology study which ends in 2016, Chukchi Acoustic Oceanographic and Zooplankton Study (CHAOZ) which ends in 2015, the CHAOZ extension to the west is just starting and will continue for a couple years. NMML has received new support from various sources for Arctic cetacean acoustics analysis, spotted seals in China,

Steller sea lion disease work, and southeast Alaska harbor porpoise surveys and stock identification.

NMML will also have a spring ice seal cruise from a NOAA ship, a new project for Steller sea lions which involves using an Unmanned Aircraft System (UAS) to collect aerial photography of haulouts and rookeries. A point of major success in recent years has been the Bering / Okhotsk Seal Surveys (BOSS) which are US / RUSSIA joint ice seal surveys. Data are being analyzed and abundance estimates should be available for three of the ice seal stocks in another year or two.

Regarding data availability which was brought up earlier in discussion with FWS, NMML is struggling with how to do this, both technically and responsibly. Providing raw data will probably not be as helpful as providing data products and data would need to be well documented and well organized. There is a need to convert excel or access files into Oracle and then upload and host that that information which is complicated. NMML is dedicated to doing that over the next couple of years, sooner for some things and later for others, but it is coming. NMML has been getting better with metadata, especially with higher profile databases, but it is a big task. Kurland added that at the Alaska region funding is relatively stable but in a depressed state. Funding is approximately the same as last year.

Spotted Seal SAR Review

Lowry began NMFS's SAR reviews with spotted seals. Lowry said the introduction looked good. For all ice seals, the population information is changing. There are a number of publications coming out based on helicopter surveys conducted in 2007 and 2008 and there were more expansive surveys conducted in 2012 and 2013. For spotted seals the SAR author uses 2012 survey data to determine an Nmin of 391,000. Lowry said he assumes the decision to use 2012 data was based on the best judgment of the scientists writing the SAR, but would like to know why 2013 data was not used to determine the Nmin. Tallmon said that he spoke with Boveng, and the 2013 data have not been completely analyzed yet.

Pendleton had an issue the minimum population estimate. There are some simulations where researchers used the lower 20% bound on the log normal, and there are publications reporting that. In this SAR the authors use a lower 95%. That seems ad hoc and without basis. There is a published paper to back up the 80% Lowry said that the SAR states that Conn acknowledged a potential upward bias resulting from extrapolating beyond survey areas; consequently the lower 95% confidence limit is used rather than the lower 80%. Pendleton thought the 80% bound should be used, unless a much better explanation is provided. Pendleton said there is a report from ADFG and the Ice Seal Committee about the subsistence harvest data and about the completeness of the existing estimates. Lowry said the SRG might make a recommendation to use this information to make better estimates of subsistence take and that these reports could be used to provide best available data. Small added that the report also critiqued the Wolfe et al. papers and also drafted a replacement to the Wolfe et al. paper.

Pendleton said there is ~35 year old data in the subsistence harvest section. He also pointed out that in the last line in that section there are 5,265 spotted seals listed as the best harvest estimate available but for the status of the stock, 392 is used for the harvest estimate. Numbers should be

consistent. Suydam said writing that 5,265 spotted seals are harvested in Alaska is not useful or defensible and should not be in the SAR. Lowry said that probably neither of them is close to the truth. Lowry said NMFS should look at the new information in the reports mentioned above. Tallmon said this SAR does not have a line under mortality rates on whether commercial fisheries take greater than 10% of PBR. This information is listed under status of the stock, but should be moved up to the mortality section. Another point, the human mortality section sometimes emphasizes only commercial fisheries and sometimes subsistence takes, but shouldn't this just focus on commercial fisheries? Lowry answered that subsistence take numbers should be included in the reports, but regardless of the numbers, it shouldn't have an impact on subsistence management. Lowry was surprised to hear about walrus being listed as strategic due to subsistence takes being above PBR. Miller said it would be good to clarify how subsistence fits in with PBR once and for all. Lowry said the SRG recommended that last year. Suydam suggested that the SRG should send a letter to FWS on this topic.

Small continued reviewing the spotted seal SAR. He said the first few sentences of the fisheries information section lists the number of fisheries that could interact with the stock. The SAR writers should make it clear that this fisheries information is current, and should give the reader a reference document in case the reader would like to look up current fisheries. Lowry said a nice summary statement such as "There are x number of fisheries known to take the marine mammal stock, and y number monitored" has still not been included in the SAR. Allen said NMML was investigating whether that information was already being captured, if not in the SAR itself then elsewhere, such as the appendices. NMML was trying to figure out the amount of staff time it would take to conduct this summary. Pendleton replied that such a summary would be just a one-time deal. For example, all that needs to be said is something like "there may be 20 fisheries that interact with this species and of those, 10 have been monitored in the past 5 years…" Lowry asked if there wasn't something in the list of fisheries which lists marine mammal-fishery interactions. Allen said the latest revision of the list of fisheries allows for interactions to be listed going back five years, not indefinitely. A SAR appendix contains historic numbers. Pendleton said his suggestion is not that hard. It's just listing three numbers. What stocks have the potential for overlap, what is the amount of take, what is the percentage of fisheries monitored? Allen said that she thought it would be great to have that info, but the amount of time that it would take, to replicate information that already exists, would require an additional staff person. Small said the proposal would take some work, but said that is the direction things need to go. Allen said that NMML will keep looking at this request and will try to figure it out. Lowry said that the SRG will make sure to be clear with NMML regarding what fishery information should be included.

Wynne suggested the SRG propose one or two stocks to use as a pilot for the new fishery information section and recommended harbor porpoise. Lowry agreed and said the SRG can recommend NMFS start with that, and go from there. In summary, the SRG would like to see NMFS to do a better presentation on which fisheries are likely to take animals in a stock and which of those fisheries have been observed. NMFS should first apply this to harbor porpoise stocks. Small said that the SAR appendices list takes, but don't get at potential interactions. Pendleton said that he will go through that list, write an example using harbor porpoise, and see how long it would take.

Bearded Seal SAR Review

Tallmon described his proposed changes to the bearded seal SAR. He suggested changing population size to incorporate the same information that is used on spotted seal (Conn et al. 2014). There is an estimated abundance of 299,174 seals, with a little work Tallmon calculated a minimum population estimate of 275,000 bearded seals which changes the PBR estimate. He also moved some information around under fisheries mortality section to make it clear that total fisheries mortality is less than 10% of PBR. Tallmon suggested putting percentage of PBR take from fisheries in the fisheries sections and the total take in terms of PBR under status of stock. Lowry said that things should be in the right place consistently. Tallmon said that the bottom line is that PBR is 8,252, and once subsistence takes and fisheries mortality is factored in, takes do not exceed PBR. Suydam noted that NMML uses 2012 and 2013 surveys in the Bering Sea which occurred in April and May. Suydam thought it was worth noting that there are many bearded seals in the Chukchi Sea at that time, so the estimate is definitely biased low because areas of known bearded seal presence were not included. In summary it should be noted within the SAR that "the estimate from the Bering sea is a useful step forward, but is biased low because other areas within the bearded seal range such as the Chukchi and Beaufort seas were not surveyed." Lowry said the SRG needs a briefing from Peter Boveng and Michael Cameron on methods of analysis at the next SRG meeting.

Beaufort Sea Beluga SAR Review

Suydam began the Beaufort Sea beluga SAR review. Under the stock definition and geographic range section he proposed NMML stick with stock names instead of using different areas that don't correspond with the stocks. He also said that the map is a little misleading as it appears to show that the entire Chukchi Sea lacks belugas. He thinks changing that would be worthwhile. Lowry added that the map is a challenging figure, as it attempts to show summer and winter beluga ranges. Lowry said Kim Goetz at NMML has a good color map with all the beluga stocks on it. Perhaps that could replace problematic figure. Suydam said he would emphasize that beluga stocks are separate and have little overlap. Suydam mentioned a recent paper that suggests this stock is stable or increasing. This is a situation where the old data may be appropriate to use in conjunction with the new trend data. Suydam said it is justifiable to use the old numbers due to the trend data. Small asked if there is anything new in terms of correction factors and wanted to understand why a correction factor of 2 was being used when it is biased low. Suydam said he wouldn't be surprised if the population was 100,000 animals. There is not any data to support that, aside for just standing on the ice at Barrow watching belugas stream by for days. Craig Matkin asked what the recovery factor should be if the best data shows a stable population trend. Suydam said that under current and maximum productivity rates, it is recommended that the cetacean theoretical maximum productivity rate of 4% be employed. Pendleton asked if RMax was greater than 4% anywhere. Lowry said there is an observed rate of increase of 4.8% per year in Bristol Bay.

Suydam said that the information under subsistence harvest in table 20 is old. He asked if NMML received new numbers for 2008 - 2012. Allen believed she had the numbers for that section. Suydam added that there is some math that needs to be looked at and editing that needs to be done. Allen asked Pendleton to come up with an appropriate sentence based on his fishery interaction summary statement request. He answered, "There are no US commercial fisheries that potentially interact with this stock." Suydam said that Beaufort Sea belugas spend the winter

in Russia waters and they probably do not interact with crab pot fisheries and certainly not net fisheries. Someone asked if PBR for this stock is still undetermined, even though trend data suggests the population is still stable. Pendleton said if you are going to follow GAMMS II, then yes it is undetermined. Allen said NMFS can divert from GAMMS guidelines with justification. Bettridge said that was possible, as long as it is clearly justified. Lowry thought the idea of using old data with recent supporting information may become a common tool in light of declining research money. This may be a place to start trying it. Suydam agreed and said that he would work with Allen to write something up. Pendleton asked if the SRG was ever supposed to revisit previously made recommendations. Suydam thought that recommendations should be reviewed every time a new SAR is written, and recommendations should be scrapped that are no longer relevant.

Chukchi Sea Beluga SAR Review

Suydam moved onto Chukchi belugas. He had an identical comment to the Beaufort Sea beluga regarding stock definition and geographic range, with the exception of some information on a beluga that had been tracked for 18 months. Robert thought more information should be added on what that animal did and when. Robert also suggested deleting the sentence including "possible extirpation of local populations." Robert requested a paragraph mentioning aerial surveys, with a reference to the data currently being analyzed by the Alaska Beluga Whale Committee which is conducting an updated estimate of population size. That analysis should be available by 2015. Robert said the ASAMM surveys are very helpful and based on satellite tagging data it is possible to confidently say that sightings of beluga in the U.S. Beaufort Sea prior to mid-August were Chukchi Sea stock belugas and not Beaufort Sea stock belugas. After that, there is an overlap of the stocks geographically. Lowry said that surveys between Barrow and the Canadian border showed a preliminary estimate of 9,500 belugas at the surface, confirming that the Chukchi stock is a pretty big stock. There is also dive data and distribution data available and once the analysis is complete, there should be a good population estimate for this stock. Lowry recommended the SAR state that Nmin is undetermined but an Nmin is being calculated, and that PBR is undetermined. Pendleton asked if the trend information was usable or outdated and whether it could be considered a current trend. Bettridge said that she would look into using aged trend information and clarify the guidelines on using old trend information. Suydam asked if it made sense to put in local and traditional knowledge when a lack of other information is available. Pendleton answered yes, assuming it was documented. Mathews read the trend information section from GAMMS II that states that projections of current abundance estimates become less dependable with time. When abundance estimates become many years old at some point the estimates will no longer meet the requirement of providing reasonable assurance that the stock size is presently equal or greater to that estimates. Therefore, unless compelling evidence indicates that a stock has not declined since the last census, the minimum population estimate of the stock should be considered unknown if eight years has passed since the last abundance survey of the stock.

Eastern Bering Sea Beluga SAR Review

Lowry began the review of the Bering Sea beluga SAR and had edits similar to Suydam's regarding information learned from satellite tagged animals. As for population size, there are preliminary results in the SAR from surveys conducted in 2000. Those numbers have been in the

SAR for some time. There are some new analyses of those data but the numbers do not appear to have changed very much. The new number is going to be about 9,600 whales seen at surface. A correction factor is still needed. The SRG could recommend using the same correction factor as the Chukchi sea stock or we could opt to use the 9,600 animals observed at the surface. Suydam said updating the information with animals observed at the surface seems reasonable. Even if a correction factor was calculated, how useful would it be since the surveys are 15 years old? Lowry then recommended it would be appropriate to say that Nmin cannot be calculated since the data are preliminary. Lowry said SARs can use abundance information that is more than 8 years old, and an Nmin can be calculated with that aged data, but a PBR cannot, unless justifiable. Toward the end of the PBR sections there is a sentence that requires some work, "The Alaska SRG recommended using a recovery factor of 1.0 for this stock to estimate abundance for this stock to annually monitor levels of subsistence harvest." Matkin thought it is not consistent to use a recovery factor of 1.0 for this stock since the Beaufort beluga stock has a recovery factor (RF) of 0.5. Dave read from GAMMS I "Stocks known to be in OSP, or stocks known to be increasing, or stocks that are not known to be decreasing, and taken primarily by aboriginal subsistence hunters could have higher recovery factor values up to and including 1.0 provided there have not been recent increases in levels of takes." Bettridge confirmed that the same wording is present in GAMMS II. Lowry thought all belugas qualified for a recovery factor of 1.0 and wondered whether the SAR should clarify that all beluga stocks are harvested by Alaska Natives and that there is no indication of an increase in harvest or decrease in population, thus, the recovery factor is 1.0. Suydam said that also means we can remove the Demaster 1997 citation because the SAR would be conforming to the guidelines.

Bristol Bay Beluga SAR Review

Lowry said there were similar edits required in this introduction as were required in the other beluga introductions. The SAR continues to use the default rate of increase, but there is an observed rate of increase based on data. Does anybody support using the observed rate? Pendleton said if there is something based on data the SAR should use it. Lowry confirmed that most SRG members were okay with using the observed mean rate rather than the theoretical rate. Pendleton said that the sentences referencing data from the 1950s and the 1980s could be removed, and that the SAR should base the trend on recent data. Lowry said this is an instance where current measured trends are available. Also in the fisheries information there is reference to personal use fisheries and subsistence fisheries. These are different things in Alaska. Lowry thought the Bristol Bay salmon fishery is called a subsistence fishery. NMML might want to check on that. Lowry asked Bettridge about the status of GAMMS III and when it will take effect. Bettridge answered that parts of GAMMS III are ready to move forward and it is high on the priority list, but NMFS is short on staff and resources and they are trying their best.

Cook Inlet Beluga SAR Review

Small said this SAR does not share the same text in terms of general background as the rest of the beluga stocks, he was curious as to why that was. A statement is made that says "the following information was considered:" but there is no information on how the information was considered. Matkin wondered why the nuclear DNA work done on Cook Inlet beluga was not included in the SAR. Suydam said the paper is close to being published, but has not been published yet. Small asked if the map (figure 19) could be improved. Can key areas be notated

that are referenced in the SAR? For example, NMML could put the *Forelands* on the map. Pendleton added NMML should put a star at Yakutat (on the inset map), since this is a range of the Cook Inlet stock. Small said there should be additional information on what the 18 killer whale sightings in Cook Inlet means in terms of predation. Were they transients or residents? They may not be marine mammal eating killer whales. Regarding habitat concerns, Small said that when he read through this, he was confused by critical and preferred habitat. What are the habitat concerns and where? If the SAR is going to have that type of information included there needs to be more clarification on general concerns and specific concerns. Mathews wondered if there should be an emerging conservation and health concern section added to the SARs. For example, if there is a significant new mortality or illness event where would it go within the SAR? Lowry asked what the feeling was on adding information to the SARs that could help to interpret the degree of threat to the population. Sam Simmons replied that the Habitat Concerns section are not a required part of the SARs under section 117 of the MMPA (other than for strategic stocks), if the SRG wanted to change the title of that section, and include things like health threats that could be impeding recovery or causing a decline, that would be an appropriate suggestion. Lowry thought it seemed like a bad idea to leave out potential impacts to the population. Angliss added that any recommended changes need to be important; it shouldn't be a laundry list. She said requested changes are stronger when they include a citation that documents the legitimacy of the concern. Bettridge agreed with Angliss. NMFS wants to be sensitive regarding information that needs to be added to the SARs and it is helpful to have supporting documentation such as published material. Things should be as concise as possible. Lowry asked if there was anything that needed to be added to this SAR. Pendleton said because the abundance of this stock is not increasing, PBR is not calculated, but there is a PBR for AT1 killer whale and right whales, with even smaller populations, so why not here? Lowry added that a calculated PBR wasn't appropriate for small declining populations, such as monk seals. There was a cleanup process to remove PBR from such populations and AT1 killer whales and right whales may have been overlooked.

Suydam asked what the middle column signifies in table 25. Having a better explanation on what that column refers to would be good. It was also surprising to see 108 belugas listed as dead from natural or unknown causes in 1994? What does that number mean and where did it come from? Mathews had a concern under status of the stock, specifically, there are no fisheries observers in Cook Inlet, and thus stating a 0% injury rate due to commercial fisheries is inaccurate. This should say unknown. Small answered that this could reference the 1999-2000 observer data. Lowry asked whether the conclusion that mortalities due to commercial fisheries are insignificant and approaching zero is appropriate. Maybe something can be added to the SAR discussing the rate of observer coverage. Small pointed out a statement in the text disclosing the incompleteness of data regarding commercial fisheries in the Cook Inlet. Mathews thought that if the data was incomplete regarding fisheries, then the SAR shouldn't say that takes are approaching zero mortality. Lowry asked whether the SRG should recommend taking out that statement altogether. Small thought the statement should not be included, and that commercial fisheries mortalities should be listing as unknown and the SRG agreed.

Miller had a question regarding 'Habitat Concerns' in which potential impacts to the stock include oil and gas, noise, and seismic surveys. Miller wondered if hydro acoustic surveys were covered by the term 'seismic surveys'? Lowry thought it would be best to use the term geophysical surveys, or oil and gas surveys. Another concern was whether the impact on prey

caused by seismic / geophysical surveys was considered. Angliss said that is considered, but NMML usually has a serious lack of data on the subject. Tallmon said that MMPA requires the consideration of other factors that may be causing a decline for strategic stocks, including effects on marine mammal habitat and prey. Suydam thought there should be a mention of seismic surveys affecting prey availability added to the other factors affecting prey availability. Stafford said there has been a lot of work on this topic, and data on this subject does exist in peer reviewed papers, although it may not be directly applicable to Cook Inlet. Observed effects from air guns include a decrease in catch per unit effort of fish for one to three weeks following the operations. There are many observed fish mortalities, and there were impacts to invertebrates. Stafford said she would locate those papers and send them out. Suydam thought mentioning that seismic surveys can influence prey availability is appropriate. Lowry said given the lengthy list of concerns for this stock there should be a summary sentence listing the primary concerns, such as seismic operations and oil spills. Stafford added that for the St. Lawrence belugas, industrial runoff and industrial pollution are the biggest concerns. Small mentioned the recovery plan may be the best source to identify primary threats to the stock.

AT1 Transient Killer Whale SAR Review

Matkin said the PBR on the AT1 killer whale stock needs to be switched to undetermined to be consistent with the recent discussion on Cook Inlet beluga. Matkin said as killer whale stocks start being renamed it may get a little confusing. AT1 is a haplotype demonstrated by the AT1 transients, but unfortunately the AT1 haplotype occurs elsewhere as well. Matkin has been calling this stock Chugach Transients because there are also AT1s out west. He said it would be nice to tack something else onto the name, and there should be a reference to the fact that there are other AT1 haplotypes in western Alaska. Lowry proposed renaming the stock the Gulf of Alaska AT1. Matkin agreed with 'Gulf of Alaska AT1' being appropriate. Mathews added it might be good to add a disclaimer to the SAR clarifying the stock was 'formerly known as Alaska AT1 Transient'. Mathews said there needs to be consistency with the use of the words 'group' and 'population' within the body of the SAR. The animals need to be referred to as a population all the way through to eliminate confusion. There are also some additional references that need to be added in. Pendleton said that under 'Population Trend' it states the stock's population went from 22 whales in 1989 to 7 whales in 2013. There should be some kind of citation or 'pers comm' associated with that change. Matkin replied that his annual report could be cited and that reference should be added.

SE Alaska Harbor Porpoise SAR Review

Mathews said she was happy to hear about the plans to process harbor porpoise genetics samples. In regards to the SAR, she was troubled that for 19 years harbor porpoise surveys had been conducted in 3 seasons and that the surveys were now going to be conducted during a single season. Mathews wondered why data from those other seasons were collected if they are not useful. Angliss suggested that Mathews or the SRG request a presentation at the next meeting for answers to these questions. Mathews said in 1993 and 1997 aerial surveys were conducted, but since then there have been no aerial surveys, and there is a challenge in getting abundance estimates from boat surveys. Why can't aerial surveys be conducted? Mathews thought there is a need to step back and focus on the kind of sampling that will provide the most helpful information. The PBR for this stock is undetermined. Mathews said if PBR is calculated from the

Nmin from 1997, and assuming the trend suggests a decline or no change, the PBR will be 91, 10% of which is 9. The takes from Yakutat salmon set gillnet is above 10%, and that affects the categorization of that fishery. Mathews asked if sex can be added into table 30. It would be good to know whether those animals are male or female. The last citation is from the abstracts of a conference. The SRG should not be citing abstracts. Mathews asked if the upcoming Dahlheim paper presents abundance information only, or abundance and trend. Allen answered the paper will have a trend. It's relevant to inland waters, and only certain areas that have been surveyed. She thought Dahlheim was trying to be careful about what they are concluding trend wise. The decline in harbor porpoise doesn't seem to be as steep as what was previously reported. It may be that porpoises are moving, or just declining in surveyed areas. Angliss added that NMML could have arranged for Dahlheim and Zerbini to present that at this meeting and suggested as long as the SRG provides NMML with notice, NMML can provide them with answers to specific questions. Lowry said that the SRG had an opportunity to put this on the agenda; part of this was the meeting being in Anchorage versus Seattle and having enough time to fit this topic in. Lowry thought it would be beneficial to spend more time with the scientists doing the science at future meetings. Mathews said the SRG might want to recommend an aerial survey, as an aerial survey is being used currently for the best available information. Angliss said the that NMML's SE Alaska harbor porpoise research team went back and forth on that, and they decided to sort out stock identity first, prior to conducting an aerial survey.

Suydam said he was confused by table 30. The table lists commercial fisheries related mortalities in 2007 and 2008, and Table X lists other mortalities and injuries for 2008 to 2012. Suydam said he was confused because the paragraph right above the table mentions three mortalities of harbor porpoise that do not appear in the table. He also added that a clarifying statement should be included explaining the 'stabbed' harbor porpoise mortality. Allen said that NMML could change that to probable fishing interaction. Miller said there are many porpoises that get caught, and that fishermen can get carried away.

Gulf Of Alaska Harbor Porpoise SAR Review

Wynne began discussing Population Size section. There is a 1998 survey estimate of 31,000, but because it was more than 8 years old it was not used in the Nmin. But yet, the SAR has 24 year old bycatch data. Wynne emphasized that she didn't think 24 year old bycatch data are representative of current events or even conservative. She expressed concern that the annual mortality rate of '71' is based on very outdated information. Lowry asked if the SRG could recommend removing the old bycatch information. Pendleton proposed a statement be added to the SAR clarifying that the SRG does not support this information. This statement could also be applied to the polar bear population estimate. Wynne asked what happens to old bycatch data under GAMMS III when it ages. Would it change over time? Matkin thought the outdated take information should be left in the SAR to show that there is a take issue. Wynne proposed removing the outdated bycatch information from the tables and the information could be conveyed in the text of the SAR rather than putting it in a table and calculating an annual bycatch estimate based on that information. Allen said this is the only available data, and for historical context, it should be presented. If there is a reason to believe these are not the best data, that reasoning should be presented. Allen asked when data became too old. Tallmon answered there is some guidance from Wade and Angliss which specifies that data can, but probably should not be, averaged over anything beyond 5 years. Angliss said that NMML could stop using old data in

the List of Fisheries and adjust the SARs accordingly, or NMML could present the information in the SAR in a different manner. However, until the List of Fisheries nexus is broken NMML needs to keep information consistent. Of course, the wording associated with data can be changed or caveats can be added. Lowry said there is some logical point at which you wouldn't want to use old data, and this is too old and could be misleading.

Bettridge said GAMMS III states that if recommended sampling goals cannot be met, old bycatch data should not be discarded, but there should be a statement clarifying the potential for bias. Bettridge thought the information should remain in the SAR but it should be accompanied with strong caveats. Mathews said that with the marine mammal survey data older data has a larger CV. Can the same method be applied to fisheries takes with older data? Wynne asked if there were other stocks with such dated fisheries take / mortality data. Bettridge was unaware of any mortality data being used that are quite as old.

Lowry asked Simmons if she knew of any data as aged as that included in table 38 of the Gulf of Alaska harbor porpoise SAR. Do other SRGs have this problem with old take data and what do they do about it? Simmons said she didn't believe anyone else has information this old, and the SRG could make an argument for significant changes. Lowry thought the SRG should recommend using more strongly worded caveats. The SRG also agreed to recommend that data needs to be more current than 20 years old. Pendleton said that if someone just read the SAR they wouldn't know that SRG didn't agree with the use of 20+ year old data. The SRG should request that a statement be included in the SAR disclosing that the SRG does not agree with the use of such aged data.

Steller Sea Lion Presentation

Fritz presented recent NMML work on Steller sea lions; Devin Johnson is the primary author of the work discussed. This work includes population trends by region, extinction risks by region and survival estimates from pup branding. Johnson's analysis uses all of the data that NMML has collected since the 1970s on a site by site basis. Trends are calculated from this aggregated data across regions of interest. Benefits of this model include the use of all available data, methodology changes are accounted for, and sites can be aggregated as required. The model can forecast into the future and handles different definitions of trend. The Eastern US Steller sea lion stock is growing and the eastern part of the Western US stock is also increasing, but there is a lingering area of continued decline in the western Aleutians. However, further west in the Kuril Islands the sea lion population is doing well.

The Western US stock of Steller sea lions in Alaska has experienced an average growth rate since 2000 of nearly 2% per year. Based on this model, the estimated count for the Western US stock for 2013 is 36,360. Pup counts are increasing at 1.75% per year, and the best estimate for pup count in 2013 is 12,316. East of Samalga, there has been an increase of about 3% per year. West of Samalga the population is declining at 1.46 % per year. The model also calculates extinction risk. In the Western US stock, the model predicts quasi-extinction would occur at 4,743 animals, which, according to the model would be a count of 2,372. Johnson assessed the probability that the forecasted count was less than the extinction threshold for each region. The only region that has a risk of extinction is the Western Aleutians, which is fairly substantial: 0.3 within 20 years and 0.5 within 50 years. The Eastern US stock has a 0% chance of extinction.

Survival estimates are derived from branded animals. NMML was able to brand 50 pups in 2011 at Agattu and 50 more in 2013. NMML also branded 50+ at Ulak in 2013. Buldir is basically extinct as a rookery now. There hasn't been a pup seen there for at least two years, and the site only has about a dozen animals at any time. NMML has no indication that these animals are moving east of Samalga Pass or west into Russia. Some of the branded pups from Agattu showed up in the Commander Islands which is not unexpected. NMML has seen pups from the Commander Islands that eventually breed on Attu. Samalga pass is a division between 'shelf' and 'pelagic' animals. Out of ~1000 pups branded at Ugamak, NMML has only seen 2 or 3 animals that have move west of Samalga Pass. Lowell thought the mini-stock boundary at Samalga is real.

Western Steller Sea Lion SAR Review

Small thanked Fritz for the Steller SAR revisions. In reference to population size, Small wondered if the correction factor that is being used is robust enough to stay in the SAR. If so, the SAR needs to beef up the rationale for using it. Fritz said that he didn't have anything else to use, and that the correction factor is a ball-park estimator. Fritz said the correction factor is in the SAR mostly to provide another number to compare to the Nmin derived just from counts. Small suggested the SAR include some additional explanation regarding the 4.5 multiplier. Small also wondered how minimum the population estimate is, if it is just a count of animals. Can Nmin be beefed up? Small asked if there is there a minimum amount that we could multiply the counts by to get a minimum estimate. Fritz said that NMML used 'half' for modeling purposes, which is a weighted average of males and females, juveniles, and sub adult males. Across age classes, half of Stellers would be hauled out at any time. Lowry asked if NMML could close the gap between the minimum estimate and the best estimate. Fritz said this has already been done to some degree. In the past NMML took the most recent counts at a site, some of which may have been several years old. The use of the pup count multiplied by the 4.5 multiplier is a much more transparent and defensible method of estimating abundance. Pendleton said that Fritz should beef up the discussion within the Nmin section to make the point clear that the population estimate is not just raw counts. Small said the Nmin for this stock seems more minimal than it should be. There should be a justification for keeping it so low, or caveats. Fritz asked if that was something to be addressed within the next SAR or for this one. He could attempt to derive a weighted average based on age class and sex. Small asked how long that would take. Fritz said it would take several weeks to look at estimates that are available and try to merge them into one correction factor. Matkin asked Fritz if he had considered separating the western stock at Samalga into two sub-stocks. Fritz said there hasn't been any action at this point about changing the stock identification. Lowry asked if Fritz's program would be receptive to a recommendation to improve Nmin over the next year. Fritz said certainly. Small said within the second paragraph of Fisheries Information of the Western Steller sea lion SAR there is a sentence of value: "It is not known whether these incidental mortality levels are representative of the current incidental mortality level in these fisheries." Small said maybe that statement can be applied to other SARs as appropriate.

Eastern Steller Sea Lion SAR Review

Small was concerned that a 4.5 correction factor is used for population size but no correction factor is used for Nmin. Small also requested more recent information on the current population trend for California. Are there any rookeries or haulouts that still exist south of Año Nuevo? Lowry asked if the data are available on haulout frequency that could be used to make a correction factor to bring the counts a little closer to true abundance. Fritz said he would explore that request. Pendleton asked if there was plan to apply the model developed for the Western US stock to the Eastern US stock. Fritz answered yes.

Pendleton had a concern regarding fisheries information, there is no fishery monitoring in British Columbia or Alaska within the eastern stock range, but within the status of the stock the SAR states that takes are approaching zero mortality. Given that there are substantial fisheries that are not monitored that statement seems inappropriate.

Miller said he did not think that gunshots were accounted for under subsistence takes. He was uncomfortable attributing any gunshot as struck and lost. Steller sea lions are being shot (non-subsistence) in CA, OR, and WA. It has to be happening in Alaska as well. Miller said currently for Alaska, any gunshot Steller sea lion is considered to be a struck and lost animal, when in reality there are a lot of gunshots that come from the trawl fleet and gillnet fleet. Small thought this was a good idea but wondered how one could avoid double counting? Angliss said this was a topic of much discussion 12-15 years ago. There was a problem at the Regional office about presuming that shot sea lions were illegal takes but the topic could be revisited with the regional office. Within the PBR section of the SAR it states no determination has been made regarding the status of the recovery factor relative to OSP. Small thought the stock should no longer be depleted and that the recovery factor should go to 1.0. Allen extended her thanks to Lauri Jemison from ADFG who provided a huge number of Steller sea lion injury and mortality records to NMML that are used in the SAR.

Bettridge provided an update on the use of old-bycatch data within the SAR. She said that Jim Caretta provided his input regarding old bycatch data, which was if a fishery historically interacted with a stock and there was reason to believe the fishery still interacts with stock, but the stock does not have a current observer program to estimate current bycatch, then old bycatch data may be used if the fishery characteristics remain the same or it can be adjusted for fishing effort. Old bycatch data may also be retained if the SRG has recommended keeping those data.

Northern Fur Seal SAR review

Pendleton said there should be a statement as to why it is appropriate to treat northern fur seals differently than Steller sea lions regarding Nmin. The entanglements and strandings appear low, but these numbers has not been expanded to account for previous years. Pendleton recommended expanding these numbers in the second paragraph below table 8. In table 9b, the numbers for 2011 and 2012 are much higher than previous years because much more effort went into accounting for entanglements during those years. He recommended averaging those two years to provide for a better estimate, rather than averaging in zeroes from previous years. Also, according to the SAR there is no compelling evidence that carrying capacity has changed since the 1950s, however, it looks like the carrying capacity has changed considering the northern fur seal's food base has changed and they are eating different things. Pribilof animals have been making much longer foraging trips. Miller said that northern fur seals used to be hunted up and

down the coast in British Columbia and southeast Alaska. In the 1940s and 1950s there was a collapse in the fur seal population and there was a belief that the younger northern fur seals were not surviving at that time because of inability to catch fish. Pendleton said that the Hazy Island northern fur seal rookery is not mentioned in this SAR and should be since it is the only rookery in southeast Alaska.

Ringed Seal SAR review

Pendleton said the PBR is undetermined but commercial fishery mortalities are reported to be approaching zero mortality. Pendleton requested that sentence be taken out but Lowry thought there had to be a statement about PBR and mortality. Beth said climate change is the biggest threat to this stock, but it is buried in the back of the SAR. Someone asked why was the sentence "Although land haulouts may be increasingly used due to summer sea ice retreat." taken out? Lowry clarified that there were very few records of ringed seals hauling out on land. Suydam said they are starting to see ringed and bearded seals hauled out on land in the summer time. Pendleton said there is no mention of the unusual mortality event (UME) in the SAR. Angliss said there is no conclusion about what caused the UME. Mathews said she would like to see a table to go along with the first paragraph under population size. Gray said under 'Subsistence', the second paragraph states that 40 ringed seals were harvested during 2012, how does that compare to historic data? Also, how are changes in sea-ice extent affecting pup survival? If those data exist they should be included. Suydam said that someone may have data on pregnancy rates observed during harvest and maybe that could be linked to survival. Lowry said there is a paper by Tom Smith and Lois Harwood that documents fewer pups in Canadian harvests following a bad snow and ice year, so that approach is feasible. Suydam said he had a report from a couple of years ago with harvest numbers from the North Slope that he would pass on. Miller had a comment on the 'Other Mortalities' section. The animal with a gunshot wound to its head may have been abandoned due to UME, so that may actually be added to subsistence take. Mathews asked if it would it be good to have a UME update in the SAR. Suydam supported that and also said the Bering Okhotsk Seal Surveys (BOSS) of the Bering Sea in April / May are missing animals that are north of the survey area, and a caveat should be added stating that the survey is not accounting for those animals.

Bering Sea Harbor Porpoise SAR Review

Wynne said there is an undetermined PBR for this stock but there is an Nmin calculated with 8+ year old data. Within table X, there is an incomplete citation. Suydam added that industry surveys in the Chukchi Sea during the summer have seen a lot of harbor porpoise. This should be in the SAR and information can be found in the project annual reports. Stafford said http://chukchiscience.com also hosts that survey information and other data. Suydam said he would provide Allen with additional information

Sperm Whale SAR Review

Pendleton had a comment regarding the following sentence within stock definition at bottom of first paragraph: "Sightings in NMML surveys during summer months between 2001 and 2010 found sperm whales to be the most frequently sighted large cetacean in coastal waters…" But there is no mention of density or population estimates, and nothing rigorous seems to have been

done with that data. Pendleton thought there was a means to estimate numbers from that survey effort and encouraged investigation into that possibility. Mathews said there is a Mizroch and Rice paper cited as (in press) within the SAR, but that paper was published in 2012. Wynne suggested there may be more recent reports of sperm whales feeding from longline gear than those from 1995 and 1997 in the SAR. She suggested updating. Lowry said that data looks old, especially considering that is an ongoing issue. It would be good to include some newer data. Pendleton said that NMML presented some genetics data to the SRG three years ago. He asked if anything happened to that analysis, and whether there are any updates on stock structure. Allen replied that no further work had been done to update sperm whale stock structure.

Western North Pacific Humpback Whale SAR Review

Mathews said there are still no CVs for the Structure of Populations, Levels of Abundance, and Status of Humpbacks (SPLASH) data. Pendleton said it seems odd that there are point estimates but no CVs. Matkin thought that CVs had been resolved and said Jay Barlow is the one to ask for clarification. Tallmon said last year it was decided that the best estimate should be used, but instead, NMML is choosing the model that gives them the smallest population estimate. Pendleton thought NMML should either model average or use the estimate from the best model, rather than using the lowest estimate. That recommendation applies to both humpback SARs.

Tallmon had concerns with the 'Current Population Trend' text which identified a 6.7% annual increase since 1991-1993 when Ogaswara and Okinawa were used to calculate an abundance estimate. The SPLASH data is based on surveys at three locations, Ogaswara, Okinawa, and the Philippines, so the data does not seem to be comparable. If more areas are being looked at then abundance will appear to be greater. Lowry said that if the rate of increase is included in the SAR, NMML should use comparable areas.

Central North Pacific Humpback Whale SAR Review

Mathews said that when surveys are mentioned, NMML should provide the survey year and publication year. She said it seemed a little odd for the SAR to use an assumed CV for the PBR calculation, especially considering the amount of data available. She asked when there would be updates on the whole SAR, including incorporation of SPLASH data. Mathews also noted the only information that was updated in the SAR was fisheries data. Angliss said Phil Clapham's team didn't have anything to add to this SAR, and updates would not be made until the delisting decision is made. Lowry said there is no reason for us to go through these if the SARs are not updated. The SRG should not receive SARs for review unless there is substantial change. Mathews said that even though the SPLASH data provide good coverage, the SARs should include other published information. There is a Nielson 2012 paper on vessel collisions. There is another new paper out on humpback whales in Glacier Bay / Icy Strait Alaska. Mathews said there is an occurrence of whales with bumpy skin in Hawaii, is that worth mentioning in the SAR? Lowry thought the condition had not matured enough to go into the SAR. The condition was relatively new; if it persisted it may be worth noting in future SARs. Suydam agreed. Mathews was also concerned that people are using drones for filming marine mammals. Mathews said that humpback calves are rolling over and looking up at the drones. Angliss said she had seen the Captain Dave YouTube video and if there is evidence of the calf noticing the drone that would be helpful if it exists. Mathews also said the whale watching activities in

Juneau have gotten out of hand. Miller said there has been growth in cruise ship volume and ship traffic. Matkin asked about naval exercises in the Gulf of Alaska. It is on the agenda and he thought it should be included in the SAR.

Northeast Pacific Fin Whale SAR Review

Wynne said Nmin is stated as unknown, although there are minimal estimates for parts of the range. Is this the only stock where estimates are not added for different parts of the range? Wynne said the SAR says Nmin is unknown for the entire stock, although minimum estimates are available for portions of the stock's range. These minimum estimates had been averaged in the SAR to obtain a provisional minimum estimate. Pendleton said that taking the two partial estimates and averaging them makes no sense. Either add them up or take the bigger of the two, but averaging does not make sense. Wynne said there is a fin whale mortality caused by an anchor cable listed under fishery mortality and she would suggest this gets moved into 'Other Mortality.' Stafford said it is possible to tell fin whale populations apart by acoustic impulse intervals and potentially there may be upcoming new information on current stock and population differentiation in the North Pacific. She said it is frustrating to know that there are a lot of fin whales out there, but not have an Nmin. There seems to be a consistent increase in abundance from 1996 to 2002 based on acoustic hydrophone data. Pendleton asked if the trend is enough to increase the recovery factor above 0.1. Lowry said there are other citations in the SAR indicating an upward trend. Stafford said some of that data came from observers on pollock boats and not a marine mammal specific survey. Zerbini et al was a dedicated survey. Stafford was uncomfortable comparing those two estimates of abundance given the difference in survey protocol. Mathews asked if fin whales migrate into the Bering Sea and back out. Stafford thought some may stay in Bering Sea all the time and others in the Gulf of Alaska all the time. She didn't think these whales followed a strict seasonal migration. Mathews said monitoring a pass in the Aleutians may be a good way to assess numbers going north and south. Stafford said she thought this may be able to be answered by Catherine Berchok's team. Perhaps the SRG could encourage her to get that data out.

North Pacific Right Whale SAR Review

Stafford wondered why the map did not show two stocks if Clapham et al. identified two stocks of right whales in the North Pacific. She said it would be great if analysis of data collected from recorders deployed in the Bering Sea could be encouraged. Stafford was also concerned with Clapham et al reassessing the photo ID catalog, from which estimates are based on the very best photos, but there are a number of photos that might be acceptable. Pendleton said some photo catalogs are problematic because they span long periods of time. This has been a problem with killer whales as well; the whales identified early in the catalog might be dead. Stafford said the SAR has a minimum population estimate of 25.7; can this be rounded up to 26? Also, because of the small apparent size, and male bias, can maximum productivity rate be reduced from 4%? Given that bowhead whales interact with pot fishery ghost gear Kate wondered if that ghost gear might also be problematic for North Pacific right whales. Given how susceptible right whales on the east coast are to ship-strikes, this should also be emphasized for the North Pacific right whale. Stafford said the estimated rate of human caused mortality may seem minimal for this stock, but given the stock's small size and lack of recovery, any mortality due to fisheries or shipping cannot be said to be minimal. Alex Zerbini has a paper in review on movements based

on satellite telemetry, Stafford hoped that many of the 'pers comms' referenced in the SAR can be referenced to that new paper. Tallmon thought the SAR was excessively wordy and he did some editing to bring out the main points. It can be tightened if the SAR is written to focus on necessary information rather than historical anecdotes. Pendleton had a comment on the 'Fisheries Information' section which states 'Since there are no records of fisheries mortalities of right whales, the estimated annual mortality is approaching 0…' His concern was that some fisheries, like crab fisheries, are not monitored by marine mammal observer programs, and it is a stretch to make such a claim.

Bowhead Whale SAR review

Suydam said the minimum population point estimate increased by more than 4,000, the CV is more or less unchanged, but yet, the Nmin only increased by one animal. Is that right? Stafford said that a statement should be added to the fisheries information section that whales had scarring from lines and ship propeller injuries. Stafford had a paper (Reeves et al.) to support that statement which she would send to Allen. Suydam said there is additional good information regarding bowheads soon to be published. Small requested NMML update the range maps with recent telemetry data.

SRG Recommendations for NMFS

Lowry will to write a recommendation on what should qualify as new and substantial information, so that the number of SARs requiring review by the SRG each year might be reduced. This would allow for more in-depth review of SARs with new and substantial information.

Lowry will write a recommendation on revising the humpback whale stocks and calculating CVs for abundance estimates.

Pendleton will write a recommendation describing the fisheries information that he would like to see in each SAR. Fisheries information should identify the fisheries with the potential to interact with stocks as well as those known to interact with stocks.

Wynne will write a recommendation expressing concern over the AMMOP cuts and another paragraph on using old bycatch information in the SARs.

Small will write a recommendation on removing the depleted classification for eastern Steller sea lions and another paragraph on requesting clarification on how subsistence takes fit into the SARs.

SRG Compliments for NMFS

Mathews will to write a complimentary statement on the southeast harbor porpoise genetics progress.

Suydam will write a complimentary statement on the availability of NMFS data and metadata.

Small will write a complimentary statement on the good revision of SSL SARs.

Lowry will write a complimentary statement on the completion of the serious injury and mortality Tech Memo and progress in ice seal research.

Additional Comments, Not Formal Recommendations

The SRG was interested in a presentation on the harbor porpoise surveys for all of Alaska with an emphasis on Southeast Alaska. The SRG was also interested in a presentation on the recent ice seal surveys and analyses. It would be good to see the data collected on all species.

Presuming that the CI beluga recovery plan will be put out for comment in 2014, there might be a final recovery plan by 2015. If so, the SRG would like a brief overview of threats, issues, etc identified in the plan.

It would be helpful to make a decision tree, something that would identify what pieces of information are required in the SAR and how individual pieces of information are determined and relate to other pieces of information.

SRG Recommendations for USFWS and USGS

Suydam will write a recommendation requesting additional information on the whereabouts of male walrus and the importance of Chukchi sea polar bear work.

Lowry will write recommendations regarding the need for USFWS to make SARs consistent with NMFS, finalizing the 2012 SARs, and when it is necessary to revise SARs.

Matkin will write a recommendation on the need to share data with the public and scientific community.

Pendleton will write a recommendation on using the number of 2,000 animals (for which there is little basis) for the Chukchi sea polar bear stocks.

Miller and Lowry will write a recommendation clarifying how subsistence take numbers impact PBR calculations.

SRG Compliments for USFWS and USGS

Lowry will write a complimentary statement thanking USFWS for hosting the meeting, and another to the polar bear recovery team for their work. Tallmon will write a complimentary statement on the walrus mark recapture work.