Minutes: Fourteenth Meeting of the Alaska Scientific Review Group
4-5 March 2002

1. Introductory Business[1]

1.1 Nominating replacements for SRG members

B. Kelly reminded the SRG members that, at the November 2001 meeting, the SRG had decided that it might be appropriate to nominate new SRG members. At the November meeting, SRG members had indicated that the group would benefit significantly by adding a population geneticist to the team and another individual with expertise in subsistence hunting.

R. Angliss had circulated a list of geneticists and their recent publications to the group a few days prior to the SRG meeting. Of the names on that list, a few could be eliminated because they are very likely to be overcommitted and presumably uninterested in participating (e.g., Allendorf, Avise). Of the remaining names, the SRG selected a "short list" of possible nominees[2] who appear to have a strong publication record in population and/or conservation genetics; most of these individuals were also known, at least by reputation, by at least one SRG member or NMFS staff. Angliss agreed to contact the potential nominees for SRG members to assess their interest.

SRG members discussed whether it would be useful to add another participant who could provide the SRG with a better understanding of the Alaska Native subsistence harvest. C. Johnson and L. Lowry both indicated that it might be very helpful to add someone to the SRG who has experience with the subsistence harvest in the Gulf of Alaska. Some names were discussed (Henry Huntington, Monica Riedel), but no final decisions were made. Kelly agreed to circulate suggestions to all SRG members to solicit their opinions.

A few SRG members observed that, although NMFS seems to be quite adept at developing estimates of abundance, new, rigorous estimates of mortality were not forthcoming for many stocks. Members questioned whether it would be useful to add a member to the team who has expertise in observer programs or in estimating mortality. There was general recognition that K. Wynne fills the role of the former; the role of the latter can be filled by Adkison.

M. Riedel questioned whether there were representatives from commercial fisheries on the SRG. Kelly indicated that J. Gauvin and Wynne both provide important information on commercial fisheries, but that there was no real effort to include equal representation since the purpose of the SRG is to review the science used by the agency, not to allow a forum for stakeholders to provide

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[1] This document is intended to summarize the main points of discussion at the 14th meeting of the Alaska Scientific Review Group. The document does not attempt to repeat everything that was said during the meeting.

[2] Honeycutt, Scribner, Haig, Hare, Waits, Utter

their opinions. Lowry added that since Gauvin and Wynne are doing a great job, there is no clear need to add an additional commercial fisheries expert.

Lowry suggested that, in order to have a full understanding of what marine mammal research is occurring in Alaska, it would be appropriate to add someone from the ADF&G's marine mammal program to the SRG. M. Payne suggested that, in order to better understand state fisheries, it might be good to have a representative from the ADF&G fisheries department, particularly since many of the foreseeable problems with incidental mortality are very likely to involve state fisheries. Including a member of the ADF&G Division of Commercial Fisheries on the SRG would provide the state with an early warning and better understanding of possible fisheries incidental take issues. SRG members decided to postpone further discussion about adding an ADF&G staff until the November 2002 meeting.

1.2 Review of the draft minutes from November 2001 meeting

Kelly and Lowry provided handwritten comments on the draft minutes; Angliss requested that other comments be provided by 5 March. No other comments were provided.

1.3 Responses to November 2001 SRG recommendations

Although the Assistant Administrator had not yet responded to the letters sent by the SRG, Angliss provided a brief overview of the draft responses that had been sent to Silver Spring for clearance.

- NMFS has no plans to develop an independent database to organize data on subsistence harvest of ice seals. Instead, NMFS will rely on the information is currently organized and provided by the ADF&G Division of Subsistence, and NMFS will augment this information when other sources become available. SRG members pointed out that NMFS does have an obligation to collect the best information available on the subsistence harvest; Angliss acknowledged that this is understood and reiterated that this will be pursued.
- In contrast to an earlier letter sent to the SRG, NMFS will not require that all agency decisions regarding appropriate stock structure be postponed until a workshop can be convened to develop guidelines for separating marine mammal stocks[3]. SRG members asked whether this workshop was going to be "NMFS only" or if outside parties would be invited to join. Angliss indicated that she would find out and report back to the group.

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[3] At the SRG meeting, Payne reported that the stock structure workshop was being planned to occur in Charleston in the spring of 2002. However, plans have changed, and the workshop is now being planned in conjunction with a marine mammal stock assessment improvement workshop, and both will be held in Woods Hole during fall of 2002.

2.0 Population status of the sea otters in the Aleutian Islands

R. Meehan and D. Burn were contacted via conference call so they could provide an update on the population status of sea otters in the Aleutian Islands. As a follow-up to recommendations by the Marine Mammal Commission and the SRG, the FWS has scheduled a workshop on 3-4 April to discuss sea otter research. The main objective of the workshop is to develop a research/monitoring plan to use as a blueprint for the next few years. Workshop results will be circulated to the public, including the affected Alaska Native communities.

Burn reported that, contrary to previous expectations, FWS did receive sufficient funding to move ahead with a listing of Aleutian sea otters under the ESA in 2002. At this time, FWS plans to send a draft proposed Federal Register notice to FWS headquarters by September. Outreach to the affected Alaska Native communities about the sea otter decline and the management needs will commence after the research workshop.

FWS will also be proposing critical habitat, and FWS expects to use the April research workshop as a forum to solicit suggestions from researchers regarding what should be considered critical habitat. Because an economic analysis is requires for critical habitat to be proposed, critical habitat would probably be proposed in a final rule, not a proposed rule.

FWS also received a small amount of funds from the "species at risk" pot to initiate studies on sea otters. These funds will be used by a graduate student who will be doing a study of foraging behavior.

Other research in 2002 will include working with Estes and Tinker to"learn" how to do skiff surveys in order to preserve data continuity. At this time, FWS cannot commit to continue the habitat studies started by Estes. It is not yet clear whether additional surveys will be flown, since aerial surveys are quite expensive. Additional trend sites may be added and skiffs may be used to survey these sites.

One SRG member questioned whether the USGS going to pursue the orca hypothesis (killer whales are responsible for the decline in otters). Burn indicated that this will be a topic at the April sea otter workshop.

M. Riedel questioned whether the Aleut marine mammal commission was invited to the workshop. Burn indicated that they have been working closely with the comanagement committee via Lianna Jack of the Alaska Sea Otter and Steller Sea Lion Commission.

Meehan indicated that the draft FWS SARs for 2002 were in review in FWS headquarters, and that they hope that the draft SARs will be published soon. Angliss indicated that, because the draft NMFS SARs might be published a little late, the FWS SARs will be published independently. However, final SARs for both agencies will be published together.

3. Discussion of NMFS research/management issues

3.1 Right whale critical habitat

Payne indicated that on 20 February 2002, NMFS published a FR notice indicating that critical habitat for North Pacific right whales cannot be determined at this time. More specifically, NMFS found that, while right whales certainly do use a small portion of the petitioned area from at least July through October, the entire petitioned area (which included most of the continental slope in the Bering Sea) could not be found to have the factors critical to the persistence of the species. Upon publishing this finding, NMFS received 2 FOIA requests.

NMFS does commit in the FR notice to review the need for critical habitat again within a year and currently plans to initiate the economic assessment of the designation of critical habitat this winter. NMFS will raise this issue to the North Pacific Fishery Management Council to solicit their opinions regarding what management measures they would like to recommend for the area where the right whales occur.

Kelly questioned whether NMFS should be concerned about protecting the area where the right whale population was historically located. Payne indicated that the historical whaling data for the Bering Sea is not very good; Angliss added that the historical whaling data also doesn't overlap completely with the area petitioned as critical habitat.

Payne also indicated that, until recently, he personally was not very concerned that there were human activities going on in the Bering Sea which could cause injury or mortality to North Pacific right whales. However, at the November 2001 meeting of the Marine Mammal Commission, Craig George (North Slope Borough, Department of Wildlife Management) presented new information on entanglements of bowhead whales in line. It is possible that this line is from the Bering Sea crab pot fishery, which indicates that NMFS should take a second look at whether the crab fishery could impact right whales. However, Payne also indicated that he's reasonably confident that the crab pot fishery does not overlap temporally with right whales.

Lowry questioned what information would be necessary before NMFS would designate critical habitat for right whales. Payne indicated that his opinion is that another year of survey data, hopefully in conjunction with a tagging program, would provide sufficient information to determine what should constitute critical habitat. However, Payne also noted that tagging of North Atlantic right whales has not been particularly successful.

Kelly commented that it makes more sense to extrapolate what we think we know about these animals to a large area to avoid underestimating the habitat needed by these animals. Payne responded that there is nothing which indicates that the entire petitioned area is useful to right whales.

Small noted that the last five years of survey effort has occurred in the same "box" in the Bering Sea, and asked what effort has occurred outside the box. Payne indicated that no dedicated right whale survey effort has occurred outside the box in previous years. Angliss added that additional surveys for cetaceans outside the box had occurred in previous years (1999 and 2000) and no right whales had been seen.

Payne indicated his interest in knowing the SRG's comments on what might constitute critical habitat. Lowry responded that, because we don't know the animals' range, it is very difficult to say what part of that range might be critical. Clearly, the best way to determine the range of the animals is to institute a tagging program.

3.2 Bowhead whale critical habitat petition

Payne provided a brief overview of the AKR Protected Resources Division's recommendations for responding to the petition for designating critical habitat for bowhead whales[4]. Payne stressed that recommendations from his office had not yet been cleared at the AKR or NMFS level; thus, all of his comments reflect only what his office is currently supporting. One important point is that, because the listing of bowhead whales under the ESA occurred prior to the amendment to the ESA which requires the designating of critical habitat, NMFS is not required to designate critical habitat for bowhead whales.

Payne summarized that, according to the ESA, the areas defined as critical habitat must be necessary for the survival of the species and the habitat must require special management action. Although there are 20 years of data on bowhead whales and foraging areas can be identified, many of the foraging areas seem to be in the Canadian Beaufort Sea, not the Alaska Beaufort Sea. Given the abundance of management already taking place in the petitioned area (cooperative agreement with the AEWC to set harvest limits through the IWC, small take permits for harassment by the oil/gas industry, letters of authorization for the potential for injury/mortality), it is not clear that additional management of critical habitat is necessary. In addition, the status of the bowhead whale under the ESA bears reconsideration given the current population size and rate of increase (8,200 and 3.2%, respectively), the anticipated new abundance information, and the fact that a recent publication (Shelden et al, 2001[5]) applies conservation criteria to the bowhead whale stock and concludes that the status of the stock under the ESA should be reconsidered. Payne indicated that his opinion is that NMFS should not designate critical habitat for a species for which a thorough status review would likely suggest that the stock had

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[4] The petition to designate critical habitat for bowhead whales was received on 22 February 2000; on 22 May 2001 NMFS determined that the petition presented substantial information which indicated that a petition may be warranted.

[5] Shelden, K.E.W., D.P. DeMaster, D.J. Rugh, and A.M. Olson. 2001. Developing classification criteria under the U.S. Endangered Species Act: Bowhead whales as a case study. Conservation Biology. 15(5):1300-1307.

recovered. Thus, the recommendation from the Protected Resources Division is that it is not prudent to designate critical habitat for bowhead whales until NMFS can conduct a status review for the species.

Lowry indicated that the biggest problem for bowhead whales is displacement by noise from certain oil and gas operations. He also pointed out that, even if there are agreements between the industry and Alaska Native whalers, this may help the whalers have successful hunting seasons but it will not necessarily help conserve the whales. Lowry was not confident that the available mechanisms are being fully implemented to protect bowhead whales.

C. Johnson questioned what was the legal basis for applying the IUCN criteria (as done by Shelden et al., 2001) to determine the status of bowhead whales. Lowry pointed out that there is not a legal basis for this, but that in the absence of quantitative criteria for listing/delisting under the ESA, it is common to use the IUCN criteria to attempt to assess the status of a species. Angliss pointed out that Shelden et al. (2001) did use criteria in addition to the IUCN criteria.

Payne acknowledged that any major action taken on the management of bowhead whales has to be done after consultation with the AEWC. This group of constituents has indicated in public comments that they support retaining bowhead whales as "endangered" under the ESA.

Payne also indicated that, because of the oil and gas exploration activities in the Beaufort Sea, NMFS has conducted section 7 consultations on the area on a regular basis; to date, NMFS has not found adverse modification to be an issue for this species. Thus, NMFS position for some time seems to have been that habitat impacts are not a serious concern.

Kelly questioned whether NMFS would ever consider delisting bowhead whales. Payne noted that the lead on this action would have to come from the Alaska Fisheries Science Center; however, if but if the AFSC made a recommendation to change the status of the stock, at this time, the AKR would probably support the change. Kelly then questioned whether NMFS has to be petitioned to delist a species. Payne responded that the ESA does not provide specific guidance for the delisting process, but that he believed that someone could petition to delist.

3.2 Dall's porpoise and harbor porpoise abundance estimates

Angliss indicated that, although estimates for these species are not currently available, both estimates should be available in time to be included in the upcoming round of draft SARs.

SRG members discussed the concept of whether it is important to continue improvements in population estimation in general without corresponding improvements in estimates of fishery-specific mortality rates. This is an issue not only for harbor porpoise, but also for harbor seals and humpback whales. Small clarified that the SRG members seemed to suggest that NMFS should shift funding priorities to ensure that mortality estimation is accomplished more frequently than current funds allows.

Payne indicted that the Alaska fisheries marine mammal observer program funding is secure for the next 2 years, but after that the program funding will be reduced by half. Some savings may be realized if staff at NMML can take on the responsibility of analyzing the observer data.

Kelly questioned whether anyone had considered reviewing the data available on mortality incidental to all fisheries in Alaska to highlight which fisheries urgently need to be observed. In response to SRG comments indicating concern about harbor porpoise takes in commercial fisheries, Angliss pointed out that the PBR levels for harbor porpoise stocks in Alaska are all over 80 animals.

In summary, the SRG would like to have an update on the NMFS observer program. Payne indicated that Amy VanAtten would provide this update at the November 2002 SRG meeting.

3.3 Cook Inlet beluga whale research and conservation plans

Cook Inlet beluga whale research plan

Angliss provided a few words of introduction for the draft Cook Inlet beluga whale research plan, which was distributed prior to the meeting for SRG review. This plan was drafted by NMML staff, in coordination with AKR staff, to describe the research needed to answer key management questions about beluga whales. The plan is still in draft form, and the research has not yet been prioritized. Kelly questioned what NMFS' overall goals are for the Cook Inlet beluga whale stock. Payne indicated that there are dual goals of population conservation and ensuring that animals will be available for subsistence use, and indicated that the conservation goal is to ensure that a population level of at least 780 whales (60% of the estimated carrying capacity).

Kelly pointed out that there are several places in the draft research plan which refer to estimation of carrying capacity. Kelly questioned whether these references mean that R. Hobbs is not comfortable with the estimate of carrying capacity as it is currently estimated. Payne responded that nobody was entirely comfortable with the estimate of 1300 animals presented in the past, but this still represents the best historical information available.

SRG members were complimentary of the efforts that Hobbs et al had made to document their research plans. Kelly indicated that any additional comments on the draft research plan should be provided to him by 20 March, and those comments will be forwarded to Hobbs.

Cook Inlet beluga whale conservation plan

Payne distributed an outline of the AKR's conservation plan for Cook Inlet beluga whales. The outline cross-references the research identified in the research plan so it is clear what research will be addressing the major conservation issues. Payne asked the SRG to review the conservation plan and recommend any additional conservation measures that they think are appropriate. Payne pointed out that one conservation issue for Cook Inlet beluga whales will be coordination with the

State of Alaska. For instance, NMFS will have to work with the State to eliminate any possibility of competition between state commercial fisheries and beluga whales for prey resources in upper Cook Inlet.

Lowry complimented NMFS on the significant progress towards completing a recovery plan and conservation plan for Cook Inlet beluga whales, and added that it is very useful to see these types of documents, even if they are still in draft form.

Payne indicated that there has been considerable recent discussion about what research is needed in the immediate future. His perspective is that NMFS will need a good population estimate in 2005 in order to evaluate whether the subsistence quota (current set at six animals every four years) can be increased. Payne indicated that, in preparation for this need for an abundance estimate, beluga whales should be tagged during the spring in 2004 and 2005 in order to provide a correction factor for the aerial survey counts. Lowry pointed out that NMFS seems to have learned via tagging that the animals never leave the upper inlet; thus, more satellite tagging for that purpose may not be necessary.

Lowry and other members of the SRG recommended that NMFS direct effort to finding beluga whales that die in order to determine the cause of the mortality and collect samples. This would require setting up a stranding network and perhaps flying surveys to search for carcasses. In addition, it will be necessary to have aircraft/vessels "on call" to collect carcasses.

Kelly indicated that SRG members should provide any comments on the research plan to him by 20 March; Kelly will then compile the comments and provide them to Rod Hobbs.

4. Update on the range-wide abundance estimate of Alaska harbor seals

4.1 Revision of population estimates

J. Bengtson noted that, at the November 2000 meeting, he and Peter Boveng presented a summary of the methods used to survey and count harbor seals in Alaska. Two different adjustments to aerial survey counts were described:

- An adjustment that reduces variability from haulout behavior in response to environmental covariates (e.g., tidal height, wind speed, time of day, temperature, date) by adjusting to a set of "ideal" environmental conditions.
- A correction that accounts for the proportion of seals that remains in the water, even under "ideal" environmental conditions.

At the November 2000 meeting, Bengtson committed to provide the SRG with a range-wide abundance estimate in one year. At the November 2001 SRG meeting, a range-wide estimate was provided (see final minutes from the 2001 SRG meeting). Bengtson and Boveng have now returned to the SRG to review the methods used to determine the range-wide abundance estimate

and to answer any questions that the SRG may have about these methods.

Adjusting survey counts for covariates of haul-out behavior

Boveng provided a brief overview of a manuscript which has been accepted for publication in Marine Mammal Science[6]. Historically, harbor seal researchers have attempted to "design away" variability in counts of animals made during aerial surveys by conducting surveys at the same tidal height, the same dates, and during "good" weather. However, it has become clear that this approach cannot reduce the effects of all those variable simultaneously and does not provide information about the relationship between those variables and seal counts. A regression modeling approach seems better able to account for the effects of environmental covariates on harbor seal counts. The manuscript develops the methods for the 1996 data on the numbers of harbor seals in the Gulf of Alaska. The method developed for the Gulf of Alaska sites was then applied to sites in Southeast Alaska, Bristol Bay, and the Aleutian Islands; the important environmental covariates varied by region (Table 1).

Kelly pointed out that one confusing aspect is that both manuscripts refer to the period between 12 August and 6 September as "the molt period", while this period actually varies both demographically and geographically. While this is addressed in the Simpkins et al manuscript, it is not addressed in the Boveng et al. paper. Boveng acknowledged that this is an important issue and will make some changes to the manuscript.

One SRG member questioned how the negative binomial model used by Boveng et al related to the Poisson model that has been used in other analyses, such as Frost, Lowry and VerHoef (1999; *Marine Mammal Science*, 15:494-506). Boveng indicated that the negative binomial can better accommodate overdispersion that seems typical in surveys of large numbers of harbor seal haul-out sites. The Poisson model may be sufficient for studies of a smaller number of well known sites with greater numbers of replicate counts per site. Under those conditions, low counts resulting from various sources of disturbance can more easily be detected and removed, reducing the overdispersion problem. Adkison agreed that the negative binomial approach is probably more appropriate for the Boveng et al method. In response to a question from Hills, Boveng indicated that the use of a different approach was unlikely to affect the means, but would affect the variance in the population estimate and the selection of covariates to include in the regression model.

Kelly questioned whether surveys should be conducted during a different season, when harbor seal numbers might be low but would be less variable. Boveng indicated that this might be an argument for changing the survey protocol, but would not result in a change in how the data are analyzed.

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[6] Boveng, P.L., J.L. Bengtson, D.E. Withrow, J.C. Cesarone, K.J. Frost, and J.J. Burns. In press. The abundance of harbor seals in the Gulf of Alaska: Adjusting survey counts for covariates of haul-out behavior. Marine Mammal Science.

A few SRG members questioned how a covariate-adjusted ("corrected") abundance estimate could be lower than a maximum count (e.g., Bristol Bay, 2000). Boveng indicated that, one situation that can produce such a result is when a group of seals moves between haul-out sites on successive days. The mean (or adjusted) counts for those sites will reflect the fact that the seals don't use all the sites in every day, but the site-wise maximum count would overestimate the number of seals in the area. Covariance between adjacent sites is an aspect of the survey and analytical design that could benefit from additional study, particularly through simulations such as the one developed by Adkison and Quinn. Small added that this is very likely the case in Bristol Bay, where hundreds of animals will move from one sand bar to another between tidal cycles.

Boveng added that there is an aspect of the analysis of counts in Bristol Bay which is troubling; the preliminary result that wind is the only environmental covariate which drives the haulout behavior is probably related to some extreme observations that were made on a very windy day. If these observations are eliminated from the analysis, than covariates other than wind are important. This will require additional attention in the future.

Table 1: Preliminary, corrected estimates of harbor seal abundance in Alaska. Final corrected abundance estimates will be provided in a future publication which applies the methods published by Boveng et al and Simpkins et al to harbor seal counts in other regions of Alaska.

					Boveng et al correction		**Simpkins et al correction**		
Survey Region	**Survey year**	**Significant Covariates**	**Site-wise mean count**	**Site-wise max count**	**Adjusted count**	**SE adj. count**	**Corrected estimate**	**SE pop estimate**	**CV**
Gulf of Alaska	1996	date, time, rel tide height, wind, sky	16,355	23,815	30,035	1,177	35,982	1,833	0.05
Northern SE	1997	date, relative tide time	17,529	28,205	27,090	1,304	32,454	1,885	0.06
Southern SE	1998	date, time, rel tide height, wind	26,502	42,686	66,725	2,539	79,937	4,002	0.05
Aleutian Islands	1999	date, time, rel tide height, wind, sky	3,500	4,842	8,341	450	9,993	629	0.06
Bristol Bay	2000	wind	15,224	23,864	18,073	1,756	21,651	2,218	0.1
Total			**79,110**	**123,412**	**150,264**	**3,580**	**180,016**	**5,314**	**0.03**

Boveng indicated that correction factors will have to be developed for each survey, because the combinations of date, time of survey, tidal height, and weather will never be identical from one survey to the next.

Mathews registered concern about pooling very large areas in the analysis, and questioned whether correction factors should be developed instead for smaller regions. Boveng replied that, while there is a rationale for taking this approach, once smaller regions are used, the sample size (i.e. number of haulouts) in each area is reduced and the variance will increase.

Future investigations will probably involve additional examination of interactions between environmental covariates. Although the current papers treat date/time of day/tidal height/etc as independent variables, analyses indicate that there probably are interactions between the variables that have not yet been teased out.

The SRG discussed what harbor seal data would be provided in the revised SARs for Alaska harbor seals in the 2003 revision, and indicated concern that there might not be "new" abundance estimates available when the SARs are next revised (Sept 2002). Bengtson indicated that the current plan is to identify new harbor seal stock boundaries in the draft 2003 SARs; counts for these new stocks will be easy to determine once the new boundaries between stocks are determined.

Adjusting survey counts for animals that do not haul out under ideal conditions

Boveng provided a brief summary of the results of Simpkins et al.[7], which proposes a correction factor for harbor seals which do not haul out even under ideal conditions. During "ideal" conditions (near local solar noon, good weather conditions, around low tide), the maximum proportion of seals will haul out; Simpkins et al. hypothesizes that this proportion will not vary between regions. This hypothesis is based on the rationale that, regardless of where seals live, they need to spend some minimal amount of time doing certain things, such as foraging.

Mathews pointed out that there could be one area where the foraging is very poor and seals have to spend a larger proportion of time in the water, whereas in other areas the foraging could be good and seals would spend a smaller proportion of time in the water. Kelly agreed that there are probably very subtle differences in behavior at different sites depending on the availability of forage. Boveng replied that, in contrast, some studies with long time series on foraging time budgets (e.g., Antarctic fur seals) have shown very little response to variation in prey density except when prey density is very low. When these periods of extreme prey scarcity occur, they are evident from many other measures than foraging time alone.

Although NMML has conducted VHF telemetry studies at several sites, only two sites were used for this analysis, Cape Peirce and Grand Island in Bristol Bay and Southeast Alaska, respectively. Simpkins et al did find that the proportion of seals which hauled out under ideal conditions at these sites was not significantly different (0.813 and 0.857 for Bristol Bay and Southeast Alaska,

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[7] Simpkins, M.A., D.E. Withrow, J.C. Cesarone, and P.L. Boveng. The abundance of harbor seals in the Gulf of Alaska: Predicting the proportion hauled out based on covariates of haul-out behavior. Submitted.

respectively; pooled proportion was 0.835 with a standard error of 0.026). Mathews indicated that if proportion hauled out under ideal conditions is a fundamental aspect of the biology of harbor seals, then this pattern should be apparent in other data sets, such as Harriet Huber's work in Puget Sound and other long-term studies. This should be pursued.

Lowry indicated that the methods and results presented at the SRG meeting provide a great start towards a better understanding of haulout behavior. In addition, these analyses raise three questions: 1) are there some seals missing, 2) can you quantify the number of seals missing, and 3) is there a magic correction factor which can be extrapolated to many other areas.

Adkison indicated that the initial results of a similar analysis of harbor seal haulout patterns being conducted by John Moran are similar to those found by Boveng et al. and Simpkins et al. Kelly pointed out that Moran had observed some haulout sites where he felt that 100% of the animals were hauling out. Adkison confirmed that sometimes, the maximum count appears to be the same as the mark-recapture estimate.

Riedel questioned whether there are any video observations of harbor seal haulout sites similar to those for Steller sea lions; a respondent indicated that there are no similar video observations.

Mathews indicated that the Simpkins et al. manuscript should include some description of the haulout substrate, because this may affect the proportion of seals which haul out at a particular site.

SRG members indicated that there is one aspect of survey technique that will be very important to consider when conducting future surveys. Lowry indicated that observers often count harbor seals which are "loafing around in the water" near a haulout site as "on" the haulout site. However, if these animals had been tagged with VHF transmitters, they would not have been identified as being on the haulout. Thus, observers must take care to only count the animals which are clearly on the haulout site. Boveng indicated that this situation had occurred in the past, but that counting procedures in the NMFS surveys are now standardized to not include any animals that are in the water.

Kelly mentioned concern that Simpkins et al. eliminated some tagged animals from the analysis because they had apparently left the area. Boveng responded that the animals eliminated from the analysis were "extreme cases", such as a seal that was tagged and then never recorded as "hauled out".

Kelly questioned whether a major change in harbor seal behavior could change the correction factor, and thus whether the correction factor itself could be used to highlight potential problems with the harbor seal population. Boveng reiterated that foraging patterns may not change substantially until forage availability is very poor, and indicated that NMFS probably will not have the funds to detect range-wide changes in foraging behavior using other methods in the foreseeable future. Lowry added that the proportion of time spent in the water is probably a

reality of harbor seal biology; not every seal will haul out every day regardless of whether the animal is molting. This does highlight the importance of conducting long-term land-based studies like those at Tugidak; these studies can determine whether the basic biology (such as proportion hauled out or molting phenology) is changing linearly over time. Linear changes in population parameters over time will result in the largest biases in the corrected abundance estimates.

Bengtson summarized the plans for the upcoming field season: surveys will be conducted in northern Southeast Alaska, another radio tagging study will be undertaken, and NMFS will try to further improve survey techniques for glacial haulout sites.

The SRG members complimented Bengtson and Boveng on both manuscripts.

4.2 Revision of harbor seal stock structure

Payne indicated that the AKR had just recently received the draft results of genetics analyses from the Southwest Fisheries Science Center. These draft results indicate that there are 10-12 discrete groups of harbor seals, but there are many gaps between discrete groups where we have little or information available to help draw boundaries between areas[8].

Payne indicated that he will be briefing the Alaska Regional Administrator (Balsiger) and the Assistant Administrator (Hogarth) in the near future to update them on the results of the genetics analysis and on the process that NMFS will use, in conjunction with the ANHSC, to recommend new stocks to NMFS.

Kelly questioned why this "new" information on genetics was not being officially presented at this meeting. Payne responded that there are two reasons that the information was not being presented here; first, the information is essentially the same as presented to the SRG in earlier meetings, and second, neither NMML nor the ANHSC have reviewed the information.

Riedel indicated that it is the ANHSC's intention to have the results of the genetics work peer reviewed. However, it is not clear that this can happen soon. Bengtson indicated that it is not clear how this additional scientific review process dovetails with the schedule for developing new SARs, but it should be completed in time for NMFS to make the changes in the SARs this fall, as agreed.

Johnson noted that Payne had indicated that the results of the genetics studies were unequivocal, and questioned whether this means that the results won't be peer reviewed. Payne indicated that the genetics analyses will be published in scientific journals and will be made available to the ANHSC for review and comment.

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[8] These draft results are nearly identical to those presented to the SRG at the fall 2000 meeting.

Lowry pointed out that he is not troubled by having management units that include multiple genetic units. For instance, since all of the harbor seal groups in Southeast Alaska are increasing, it may make sense to group those into a single stock. The key issue is to avoid having source/sink situations where if you take up to the PBR in a particular area, depletion of the population in that area will result.

Payne indicated that there is still the specter of a petition to list harbor seals under the ESA. Although NMFS can justify combining stocks as management units under the MMPA, if they get petitioned for listing a unit under the ESA, it may be necessary to further subdivide harbor seal groups using the genetics information.

Lowry questioned whether the publication of a FR notice is necessary if NMFS and the ANHSC can come to an agreement on stock structure. Payne responded that the ANHSC is not the only portion of the public that is interested in the results of the genetics. Publishing a FR notice makes the results available to a much broader audience, and alerts the public that NMFS is moving forward on identifying new stocks for harbor seals.

Bengtson reiterated that, as part of the comanagement committee, the message that the SRG should know is that NMFS/ANHSC agreed to a three-step process. The first step is to inform constituents about the new information on genetics, the second step involves meeting to have a dialog to discuss the new information, and the third step is for the comanagement committee to make stock recommendations to NMFS.

Riedel indicated that a lot will depend on how the ANHSC's scientific peer review comes out. However, she could not tell the SRG what the timetable is for the review. Riedel hopes to discuss the data and the scientific peer review with the board of the ANHSC at the Dillingham meeting at the end of April.

4.3 Reporting units for fishery mortality, subsistence takes

Angliss indicated that, once new boundaries are identified between groups of harbor seals in Alaska, the fishery mortality information and subsistence take information will also have to be separated to correspond with these new areas.

5.0 New information on stocks to be updated in 2003

5.1 Killer whale abundance and stock structure

The SRG acknowledged the receipt of the Matkin et al paper on killer whale abundance and population dynamics.

Adkison questioned whether NMFS would be separating the AT1 killer whale pod from the other transient groups based on Lance Barrett-Lennard's genetics analysis. Angliss indicated that

NMFS is not proposing to separate the AT1 pod into a separate stock. Although the genetics information does indicate that the group is genetically separate from other killer whale groups, the GAMMS workshop indicates that stocks should be management units, and it's not clear what management would be applied to this group of killer whales even if it was identified as a separate stock. Kelly and Lowry responded that, when there is a group of animals which is clearly genetically and demographically isolated, the group should be managed separately. Kelly further stated that the consequences of designating a stock should be clearly separated from the scientific information used to support a stock designation. Lowry responded that considering the management implications of designating a stock is appropriate, but not for this group of killer whales because of the size of the pod and because the biology is clear.

Adkison indicated frustration that there seem to be some inconsistent decisions being made regarding stock structure; he asked when the NMFS meeting on stock structure designations will be held. Payne reiterated that the meeting will be held in the spring and that he would ascertain whether SRG members could attend.

Lowry questioned whether NMFS is concerned about potential impacts on commercial fisheries if the AT1 group is identified as a separate stock. Angliss responded that this has not yet been analyze fully, but is not anticipated to be a major issue since the incidental take of killer whales in commercial fisheries is low (< 0.5 animal per year) and the fisheries which do incur incidental takes of killer whales are already classified as Category II in the List of Fisheries. Angliss indicated that, in addition, there would be no way to determine whether animals from the AT1 pod were being disproportionately impacted since identification of which killer whale was injured/killed in a commercial fishery is unlikely. Mathews responded that researchers could identify mortalities for AT1 because each animal is known and because Matkin knows when there's an animal missing from AT1 pod. Lowry indicated that, by putting all transient killer whales in one big stock, it means that any takes are "watered down" by the fact that they're pooled into a larger unit.

Angliss asked the SRG what the management benefits would be of separating out AT1 pod. SRG members indicated that it would provide a better focus for scientific research and would improve the likelihood that killer whales taken in commercial fisheries would be sampled and identified genetically. Kelly questioned whether there was funding to study AT1 pod. Mathews indicated that information on the pod is collected incidental to other studies, and that there was no funding available specifically for AT1. Payne added that there is a lot of new funds for killer whale research available due to the funds appropriated to study the cause of the Steller sea lion decline; he indicated that he was uncertain whether any of these funds were going to be used to focus specifically on AT1.

Angliss pointed out that there will be a great deal of new information on killer whale genetics available in the immediate future and that it might be very useful to consider the SRGs recommendation to designate AT1 as a separate stock in the context of these new papers. Specifically, a manuscript by Rus Hoelzel has been accepted and will be published very soon. In

addition, as a result of the petition to list the Southern Resident killer whale group under the ESA, the SWFSC is in the process of finishing some additional analyses on worldwide killer whale genetics. Lowry added that, to complicate the AT1 picture, the SWFSC recently analyzed a sample from a stranded animal found on the Yukon Delta (well beyond the known range of the AT1 pod) which was genetically an AT1 animal; this does raise the possibility that the AT1 group may be larger than currently thought.

Lowry stated that the SRG has already indicated that the appropriate way to deal with the AT1 pod is to designate it as a separate stock and that the SRG does not need to make another formal recommendation to do so.

Kelly recommended adding an agenda item to the next SRG meeting to receive an update on the new information on killer whale genetics.

5.2) Southeast Alaska humpback whale feeding aggregation

Angliss reiterated that NMFS is following up on the SRG's recommendation to separate the Southeast Alaska humpback whale feeding aggregation from the remainder of the Central North Pacific stock. NMFS is currently exploring options for developing a separate abundance estimate for Southeast Alaska, and has been talking to Jan Straley to solicit her ideas. SRG members observed that, while there is good photo-identification coverage in northern Southeast Alaska, the effort in southern Southeast Alaska is low. In response to a question about whether the data in northern Southeast Alaska could be extrapolated to southern Southeast Alaska, Angliss indicated that this might not be possible and that the population estimate may reflect only the northern portion of Southeast Alaska.

An SRG member indicated that, given there have been 35 entanglements of humpback whales in Southeast Alaska in the past 5 years, it is critical that this group of animals receive more attention. Angliss indicated surprise that the number of entanglements was that high since the SAR includes ~25 entanglements in the past 5 years; Angliss committed to work with Straley to find out what records might not be incorporated in the SAR. Mathews stated that a procedure will have to be developed to ensure that entangled animals are not double-counted.

SRG members indicated that, once the Southeast Alaska feeding aggregation is separated from the remainder of the stock, it will significantly raise the profile of several major issues of concern, such as fishery impacts on humpback whales and harassment by vessels.

6.0) Conclusions and recommendations

Kelly noted that this meeting seemed very small without Gauvin, Matkin, Wynne, and Straley. SRG members commented that, while the low attendance was unavoidable in this case, it is really to everyone's benefit to schedule meetings so that most members can attend.

Kelly summarized the discussion about replacing SRG members who have left the group. Angliss will contact the geneticists identified earlier in the meeting to ascertain their interest and availability. Kelly will poll SRG members electronically to solicit additional suggestions regarding adding a representative of the subsistence harvest community and will provide Angliss with a final recommendation. Additional discussion occurred regarding the utility of adding ADF&G staff familiar with Alaska state fisheries; no conclusion was reached and the SRG agreed to table the discussion until the November 2002 meeting.

Angliss pointed out that, while fin whales were not officially on the agenda, Sally Mizroch did provide a copy of her fin whale paper to the SRG members for their review prior to including the information in the new draft SAR for fin whales. Angliss asked that the SRG members review the paper and revisit the proposed changes in the draft SAR circulated in preparation for the fall 2001 meeting. A discussion of this new information should be on the agenda for the fall 2002 meeting.

Kelly identified three USFWS issues that should be addressed at the fall 2002 meeting: 1) a review of the polar bear manuscript, 2) a review of the results of the upcoming walrus mark-recapture workshop, and 3) a review of the results of the upcoming workshop on sea otter research.

The SRG reiterated its concerns about a general lack of good fisheries incidental take data for many stocks of marine mammals in Alaska, and noted the disproportionate amount of effort being spent on population estimation instead of mortality estimation. The SRG would like NMFS to put more resources into collecting better mortality data for marine mammals. The next SRG meeting should include a discussion about 1) priorities and tradeoffs for setting up observer programs (e.g., if an observer program is designed to collect good information on harbor porpoise mortalities, will it also collect good information on mortalities of other species) and 2) update on NMFS' plans for implementing observer programs for Alaska fisheries. Payne committed to have Amy VanAtten present the latest information on the Alaska marine mammal observer programs.

The SRG reiterated their compliments on the draft research plan for Cook Inlet beluga whales. Any comments on the plan should be sent to Kelly by 20 March so he can compile the comments and forward them to Hobbs.

The SRG reiterated their compliments on the Boveng et al. and Simpkins et al. papers on harbor seals. Any detailed comments on these papers should be sent directly to Boveng and Bengtson. There were no additional comments from the SRG on harbor seal stock structure.

The SRG is interested in when the NMFS stock structure workshop will be held, and whether non-NMFS participants can attend. Payne and Angliss indicated that they would keep the SRG in the loop.

Killer whale genetics will be added to the agenda for the fall meeting of the SRG. The SRG will review the new Hoelzel paper and would like to hear about the new results on worldwide genetics

from the SWFSC.

Mathews will provide an update on harbor seal abundance and population dynamics in Glacier Bay at the next meeting.

Lowry mentioned that Steller sea lions have not been discussed by the SRG in some time. It might be useful to focus on the SAR for the stocks at a future meeting of the SRG (perhaps March 2003).

The next SRG meeting will be held in Anchorage on 4-5 November 2002. Kelly recommended that the meeting be held at the USFWS office.

List of Appendices

Appendix 1: Final agenda
Appendix 2: List of participants
Appendix 3: Draft list of topics to cover at the 4/5 November 2002 meeting

Appendix 1: Final agenda

Alaska Scientific Review Group Meeting
4-5 March 2002
Lake Room, Mourant Bldg.
University of Alaska Southeast
Juneau, AK

Major topics: 1. Review of FWS sea otter estimates and reports
2. Review of NMFS papers on cetaceans and harbor seals

Materials needed: USFWS reports on sea otter population size and trends

NMFS documents:
Boveng et al. on harbor seal estimation
Simpkins et al. on seal correction factors
Mizroch et al. on humpback whale survival estimate manuscript
Fed. Reg. notice on right whale critical habitat

Other documents:
Matkin and Olesiuk

4 March 2002—Monday

1:00 pm Introductory business
1. Introductions
2. Review and approve agenda
3. AKSRG membership—replacements
4. Other business (e.g., travel vouchers)

1:45 NMFS responses to AKSRG letters

2:15 pm Aleutian sea otter population status (teleconference w/ USFWS)

3:00 pm Discussion of NMFS research/management issues
1. Bowhead & right whale critical habitat
2. Harbor & Dall's porpoise abundance estimates
3. Cook Inlet beluga whale conservation & research plans

5:00 pm Adjourn

5 March 2002--Tuesday

8:30 am Harbor seals
1. Revision of population estimates
2. Stock designations
3. Reporting units for fishery and subsistence takes

10:00 am Coffee break

10:20 am Harbor seal discussion continued

12:00 pm Lunch

1:00 pm	Reconvene
	Killer whales
	1. First reading of Matkin and Olesiuk on population size & dynamics
	2. Stock definition progress
2:30 pm	Humpback whales
	1. CNP stocks definition
	2. Population dynamics
3:00 pm	Coffee break
3:15	Continue humpback whales
4:30 pm	SRG discussion and recommendations
5:00 pm	Adjourn

Appendix 2: List of Participants

SRG members
Brendan Kelly, Chair
Robyn Angliss, Executive Secretary
Milo Adkison
Sue Hills
Charlie Johnson
Lloyd Lowry
Beth Mathews

Non-members
John Bengtson
Peter Boveng
Doug Burn
Harald Martin
Rosa Meehan
Michael Payne
Monica Riedel
Bob Small

Appendix 3: Draft list of topics to cover at the 4/5 November 2002 meeting

Administration
– Update on new SRG members (expertise in genetics, subsistence harvest)
– Continue discussion regarding adding ADF&G staff

USFWS topics
– review polar bear manuscript
– review the results of the walrus mark-recapture workshop
– review the sea otter research workshop
– update on sea otter listing decision

NMFS topics
– review results of the stock identification workshop
– summary of decision on bowhead whale critical habitat
– update on killer whale genetics (Hoelzel paper, SWFWC analyses)

Estimating mortality incidental to commercial fisheries
– update on the observer program used to estimate marine mammal incidental takes in federally-managed fisheries
– Alaska marine mammal observer program
– discussion of priorities (e.g., what stocks are most in need of mortality information and how is this reflected in NMFS planning for observer programs); discussion of trade-offs (e.g., if an observer program is designed to collect good information on one stock, how does that impact the information that can be collected on another stock?)

Review new draft SARs for 2003 (no updates to FWS SARs planned for 03)
– Non-strategic stocks
    Harbor seals (new stock structure, new abundance estimates, abundance/population dynamics in Glacier Bay)
    Dall's porpoise
    Pacific white-sided dolphin
    Killer whale, North Pacific resident
    Killer whale, North Pacific transient

– Strategic stocks
    Fin whales (particularly the new information on range from the Mizroch et al ms)
    Cook Inlet beluga (new population estimate)
    North Pacific right whale
    Bowhead whale
    Steller sea lion, western and eastern
    Northern fur seal
    Humpback whale, central North Pacific, Southeast Alaska, and western North Pacific