Minutes: Fifth Meeting of the Alaska Scientific Review Group (7-9 May 1997)

1. Introduction and Review of SRG Procedures

The fifth meeting of the Alaska Scientific Review Group (ASRG) was held at the NOAA Sand Point facility in Seattle, WA from 7 - 9 May 1997. The first day of the meeting was a joint meeting with the Pacific SRG, except for the first hour of the day, while the second and third day of the meeting involved ASRG members only (see participation list, Appendix 1). Four new members to the ASRG were welcomed: Craig Matkin, Mat Kookesh, John Gauvin, and Milo Adkison. Appendix 2 presents the final agenda. The meeting was convened by the Chair, Lloyd Lowry. Doug DeMaster agreed to be the rapporteur.

The circulated minutes from the fourth meeting (11-13 September 1996) were discussed as to the accuracy and completeness. There was general agreement that the minutes reflected the discussion of the meeting. Carl Hild suggested that as he had missed the last meeting, but had provided written comments regarding items on the agenda, his written comments be included as an appendix to the minutes of the fourth meeting. There were no objections. The question was raised as to how existing members could be removed from the ASRG and how new members would be added. DeMaster responded that as service on the ASRG was voluntary, a member could request to be relieved at any time. Regarding the identification of new members, DeMaster noted that at the fourth meeting of the ASRG the group had nominated four names for consideration by NMFS and FWS, including a justification for each person as to how that person would strengthen the group's expertise. All four of the nominations had been accepted by the agencies. Another question was raised regarding the election of a chair and the possible need for a co-chair. There was general agreement that at the start of the annual review and revision process for the SARs, the election of a chair would take place. Such a meeting typically occurs in the fall with the distribution of the revised draft SARs. Regarding a co-chair, it was agreed that the chair would assign a co-chair to run any meetings to which the chair could not attend.

2. Joint Meeting of the Pacific and Alaska SRG

It was agreed that the following topics would be discussed in a joint session: 1) philosophy in reviewing the SARs; 2) status of shared stocks (gray whale, killer whale, humpback whale, Steller sea lion, harbor seal, harbor porpoise, and others); 3) pinger experiments in WA; 4) pinniped-salmonid interactions in WA and OR; and 5) issues related to subsistence and co-management in AK.

2.1. What is a stock

It was noted that in the GAMMS workshop report (Wade and Angliss 1997) the definition of a stock was revised relative to the initial PBR workshop report (Barlow et al. 1995). It was further noted that stocks were equated with management units, where management units were ideally composed of demographically isolated populations. However, it was recognized that

lacking sufficient data and because of the goal to manage in a risk adverse manner stocks were not always biologically (i.e., genetically) distinct. Lowry commented that many of the discussions of the ASRG involved stock issues, where some members of the group tended to be "splitters" while others were "lumpers." Michael Scott responded that most of the PSRG members were comfortable with the concept of management units that did not necessarily represent biologically distinct populations. As an example, it was noted that the California-Oregon border was the current stock boundary for stocks of harbor seals and harbor porpoise, although no one suspected that this geographic landmark had any specific biological significance. Doyle Hanan commented that one potential problem with using management units that did not represent biologically distinct stocks was that the resulting PBRs were necessarily smaller than the PBRs that would result from defining stocks as biologically distinct units, which has the potential to disadvantage fisheries. Chuck Janisse added that defining stocks was a dynamic process that should be driven by data, not speculation. Hannah Bernard responded that the NMFS approach was conservative by design and was appropriate in the absence of better information on movement patterns and genetic diversity. Scott added that for some stocks (e.g., beaked whales) management units were units greater than biologically distinct populations, as several species were pooled into a single stock. This was done because of the inability of researchers to identify beaked whales to species during surveys, thereby making species specific abundance estimates impossible.

There was no general agreement among participants as to what constitutes a stock. However, it was recognized that: 1) where possible, stock designations should be based on data; 2) lacking sufficient biological data to define stock structure, stock designations should not be arbitrary, but should be based on international boundaries or the distribution of fisheries; and 3) in general, state borders should not be used as stock boundaries unless additional information supported such a decision.

2.2. Shared Stocks

A recommendation was adopted that for all of the "shared" stocks both the ASRG and PSRG would review the status report. At this time, the term, "shared stocks," refers to the following species: gray whale, humpback whale, killer whale, Steller sea lion, harbor seal, and harbor porpoise. For example, draft status reports of shared stocks prepared by the Alaska Fisheries Science Center (AFSC) staff should be sent to all members of the PSRG for distribution and vice versa.

2.2.1. Gray whale

The question was raised as to whether all observed or reported mortalities for the eastern Pacific stock were included in the status report. DeMaster reported that mortalities caused by fishery interactions in Alaska, Washington, Oregon, and California were included in the report. He added that mortality information from the government of Mexico was reported annually to the IWC, and where reported, would be included in the status report. Regarding mortalities due to fishery interactions in Canada, a request to the Department of Fisheries and Oceans had been made, but to date no mortalities were reported. It was also agreed that the AFSC would continue

to take the lead in preparing status reports for this species.

2.2.2. Killer whale

Jay Barlow noted that in Barlow et al. (1995) it was assumed that there was only one stock of killer whales along the west coast and it contained approximately 700 individuals, based on line transect, vessel surveys. Subsequent to that report, a catalog of killer whale photographs for photo-identification has been completed. The analysis of the new data indicates that there may be as many as four distinct stocks of killer whales off the west coast (i.e., transients, residents, offshore animals, and Los Angeles). Further, animals from some of these putative stocks should be included in the population estimates of stocks from Alaskan waters (e.g., transients). Barlow noted that such efforts were beyond the scope of changes that could be incorporated into the current revisions of the SAR, but that these new findings would be incorporated into next year's revision of the SAR.

Craig Matkin presented a brief summary of the work that he and his colleagues at the University of British Columbia and the Department of Fisheries and Oceans have completed regarding the genetic stock structure of killer whales in the eastern North Pacific. He noted that prior to this and other genetic studies, the photo-identification studies indicated little mixing among resident, transient, and offshore groups. However, based on sequencing of mtDNA, as many as eight distinct groupings of killer whales have been identified from British Columbia and Alaska, which indicates that the stock structure of killer whales in this area is more complicated than previously thought: 1) northern residents, 2) PWS residents-group 1, 3) PWS residents-group 2, 4) British Columbia, southern residents, 5) offshore animals, 6) AT1 transients in PWS, 7) British Columbia transients, and 8) Gulf of Alaska transients (e.g., PWS westward). It was further noted that among these eight groupings, transients were more closely related to each other than resident and offshore animals. **Given the preliminary nature of these findings (e.g., nuclear DNA analyses have not yet been completed) and the relatively small sample sizes used, Matkin recommended that the existing stock structures reported in the Pacific and Alaska SARs for killer whales be maintained at this time, but consideration of changing the stock structure be made during the next round of revisions. The SRGs agreed with this recommendation.**

Barlow commented that the complicated stock structure of killer whales would make classification of animals seen during vessel surveys very difficult. There was general agreement with this conclusion. **Further, it was recommended that the best way to proceed was to undertake a detailed cross matching of all catalogs with the goal of deriving minimum estimates of abundance for each stock of killer whale in the Pacific and Alaska regions.** It was noted that a large fraction of the animals from the west coast currently are not included in any catalogs. Barlow recommended that mark-recapture techniques also be considered in estimating abundance for putative stocks based on data collected during the ongoing photo-identification studies.

After some discussion, it was recommended that a subcommittee with members from both SRGs would be created to specifically discuss killer whale status. Members included: ASRG- Mathews, Matkin, and Straley; PSRG- Heyning; others- Barlow, DeMaster, and Gorbics. Communication among the group would likely have to take place through email or conference calls. One of the primary objectives of the group would be to determine the spatial distribution of animals from each of the putative stocks. It was also agreed that killer whale researchers from British Columbia should be invited to participate in the meetings of this subcommittee.

2.2.3. Steller sea lion (eastern stock)

There was agreement that the AFSC should take the lead on the status report for this stock. **After some discussion, it was recommended that estimates of abundance and human-related removals from British Columbia should be included in the status report and in classifying the stock as strategic or not.** Some members noted that there was evidence of demographic independence between Steller sea lions in SE Alaska (i.e., increasing numbers) and in California (i.e., decreasing numbers), which suggested these groups should be managed as separate stocks. Others noted that Steller sea lions in Oregon were demographically similar to animals in SE Alaska. **It was recommended that additional genetic information from animals from British Columbia and the west coast of the US was needed, but that until such data were available, the currently recognized stock structure should be maintained.**

2.2.4. Humpback whale

Jan Straley and Barlow presented an overview of the status of humpback whales in the North Pacific. They noted that the proposed stock structure of humpback whales in the eastern North Pacific should be considered preliminary at this time. The currently recognized stock structure indicates that the animals in the central North Pacific are from a separate stock than animals from the eastern North Pacific, and that animals from the eastern North Pacific should be separated into two stocks (Mexico mainland-California stock and Mexico offshore islands and "unknown feeding grounds" stock). Barlow reported that the results of a three-year study by Cascadia Inc. should be available shortly (July 1997) and would likely indicate that the number of animals in the North Pacific (i.e., all stocks) is in excess of 6,000 animals. Further, given the study is based on mark-resight information from a three-year period (1991-1993), the results should provide information that can be used to test the current stock structure model. There was some discussion as to whether animals that winter near and around offshore islands off the coast of Mexico should continue to be afforded stock specific status, but it was agreed that changes in the current stock structure should only be made after the release of the three-year study.

2.2.5. Harbor porpoise

Sue Chivers presented an overview of the available genetics data on stock structure of harbor porpoise. She noted that the material she was presenting would be available shortly (summer 1997) as a SWFSC report. Based on a paper by Rosel et al. (1995), there is evidence for subspecific structure within the distribution of harbor porpoise along the west coast of North

America, although they reported no concordance between distribution and the genetics data (i.e., no unique haplotypes or haplotypic frequency by area). The Rosel et al. study was based on an analysis of mt DNA. The results of a similar study (Chivers et al. in prep.) using mt DNA and a larger sample than used in the Rosel et al. study supported the conclusions of Rosel et al. A subsequent study using nuclear DNA (Chivers et al. in prep.) concluded that there was more structure than previously suspected within the harbor porpoise population along the west coast. For example, animals from central California were significantly different from all other population centers, except for Oregon. Further, animals taken from the Spike Rock area (Washington coast) were significantly different from all other population centers except from inland waters of Washington and British Columbia. Chivers concluded that while the results to date support the establishment of different stocks along the west coast of North America and Alaska, more samples are needed from animals from the San Juan Islands, coastal Washington (e.g., Spike Rocks area), British Columbia, SE Alaska, Bristol Bay, and the Aleutians. **A recommendation was agreed that the significant differences found in genetic diversity from animals that were continuously distributed along the west coast of North America and Alaska supported the establishments of stocks within this species.**

Jeff Laake noted that the use of density gradients to identify stock boundaries was generally not valid and that genetic studies or mark-recapture studies were much preferred. He added that given the cost of conducting observer programs of sufficient effort to provide reliable estimates of mortality in relatively small areas with low per-set mortality rates and that alternate methods to assess the status of harbor porpoise stocks should be considered. He suggested that monitoring trends in abundance for some of the stocks of harbor porpoise in Washington state waters might be cost effective. There was some discussion as to whether such an approach would satisfy the legal mandates for classifying a stock as strategic. It was agreed to address this issue at a subsequent meeting of the PSRG.

2.2.6. Harbor seal

Tom Loughlin presented an overview of the stock structure of harbor seals based primarily on genetic information (i.e., mt DNA analysis). This information is based on a preliminary report by Robin Westlake and Greg O'Corry-Crowe (SWFSC), who are preparing a final report that should be available by the summer of 1997. Loughlin noted that while harbor seals in Alaska, British Columbia, and the west coast of the US are continuously distributed, the Bering Sea population of harbor seals was genetically distinct from animals from the Gulf of Alaska and SE Alaska. Further, animals from the central portion of SE Alaska were genetically distinct from those in the southernmost area of SE Alaska. Barlow noted that a recent publication in Marine Mammal Science (Lamont et al. 1996) reported that significant genetic diversity existed between harbor seals from California and Washington.

A recommendation was agreed that until additional information was available on genetic diversity based on nuclear DNA the existing stock structure suggested in the Pacific and Alaska SARs should be maintained. Further, it was noted that, given the DNA results,

there must be little movement of animals between subareas. However, it was also noted that while the currently available genetic information indicated that at least three stocks of harbor seals should be recognized in Alaska, the current boundaries are not consistent with these data. It was noted that additional tissue samples are needed from the following areas: 1) western Aleutians, 2) SE Alaska, and 3) British Columbia. In addition, Andrew Trites commented that a recent Master's Thesis by T. Burg also addressed the issue of genetic diversity in harbor seals in the North Pacific and that Burg's findings should be integrated into any final conclusions that are drawn regarding stock structure.

2.2.7. Other species

Three other species of cetaceans were briefly discussed: 1) sperm whale, 2) fin whale, and 3) Pacific white-sided dolphin. Regarding sperm whales, Barlow noted that recent work by Barb Taylor (SWFSC) indicated that the conventional wisdom on stock structure of sperm whales in the North Pacific (i.e., similar to humpback whales with an eastern and western population, where within a population animals migrate north in the summer and south in the winter) is likely incorrect (see appendix 4). Rather, animals in the northern North Pacific may summer in waters off Alaska and winter in the waters off Japan and China. Further, a separate stock may spend the winter months off California and summer in areas as yet unknown. In addition, given the large number of sperm whales taken during the period of commercial whaling (over 250,000 in the eastern North Pacific) and the relatively low rate of sightings during a recent vessel survey in the waters between the continental U.S. and Hawaii, the current population of sperm whales in the North Pacific is likely to be much lower than commonly thought.

Regarding fin whales, it was noted that the current structure for fin whales identifies three separate stocks: 1) Hawaii, 2) Alaska, and 3) CA/OR/WA. It was noted that if the migratory pattern of fin whales is similar to most other baleen whales the Alaska stock and the Hawaii stock could possibly be combined into a single stock. However, Wynne noted that fin whales are seen year round in the vicinity of Kodiak Island, which might indicate the current stock structure is more appropriate. **Finally, Barlow recommended and it was generally agreed that the original Discovery Tag data for fin whales be reviewed prior to changing the existing stock structure for fin whales.**

Barlow noted that in California, Pacific white-sided dolphins were observed year round within 50 miles of the coast, and were not typically pelagic. DeMaster commented that based on the results of the high seas driftnet research program an offshore stock existed in the North Pacific, and that this may be another species of small cetacean that has both an offshore and coastal form. Mark Fraker noted that around Vancouver Island, Pacific white-sided dolphins had been observed frequently over the last 10 years, but prior to that were relatively rare. Matkin and Straley noted that sightings of this species in SE and PWS Alaska had also increased in recent years.

2.3. Review of Pinger Experiments

Barlow and Laake summarized the results of pinger experiments in 1996, where pingers had been tested as to their efficacy in reducing entanglement of cetaceans in gill-net fisheries. Barlow reported that in the later half of 1996, a pinger experiment had been conducted on the CA/WA/OR driftnet fishery, a fishery which targets sharks and swordfish. The results indicated that the pingers had reduced the entanglement of cetaceans in nets by 75%, with only a slight (non-significant) reduction in the catch rate of swordfish. Janisse commented that some of the fishermen believed that the pingers attracted (at least initially) swordfish to a net. Barlow commented that there were plans in place to implement a 100% pingered net policy during the 1997 fishing season.

Laake summarized the results of an experiment in 1996 where 3 kHz pingers (spaced 10m apart) had been tested to determine if they would reduce the entanglement of harbor porpoise in a native Indian setnet fishery for salmon off the coast of Washington (i.e., Spike Rocks area). The results indicated that there was a 90% reduction in harbor porpoise entanglement in pingered nets. Further, a behavioral study of harbor porpoise was performed around pingered and control nets. The results indicated that harbor porpoise generally stay 150m away from a pingered net. Laake added that in 1997 plans were underway to repeat the experiment for a 6-week period to evaluate whether habituation to the sounds produced by the pingers would be a problem and to test whether the catch of herring in pingered nets was reduced relative to control nets. This latter test would be used to infer why harbor porpoise were not approaching the pingered nets.

2.4. Pinniped-Salmonid Interactions

Jefferies and Brown summarized ongoing studies related to pinniped-salmonid interactions. It was noted that acoustic harassment devices had been employed at Ballard Locks to discourage California sea lion predation on winter-run steelhead, but the results to date were inconclusive due to the small number of returning steelhead. Further, it was noted that a draft document prepared by NMFS and the Pacific States Fisheries Commission was available for public comment. The recommendations of this group included: 1) implement site-specific management of California sea lions and Pacific harbor seals; 2) develop safe, effective non-lethal deterrents; 3) selectively reinstate authority for the intentional lethal taking of California sea lions and Pacific harbor seals by commercial fishermen to protect gear and catch; and 4) collect additional information needed to evaluate and monitor California sea lion and Pacific harbor seal impacts on salmonids and other components of the West Coast ecosystem. Finally, it was noted that research on west coast pinnipeds in 1997 would include surveys for harbor seals in WA and OR to determine abundance and trends in abundance, food habit studies of harbor seals on the Columbia River (and other sites as funding allows), and a continuation of the Acoustic Harassment Device (AHD) study at Ballard Locks.

2.5. Subsistence and Co-management of Marine Mammals in Alaska

Lowry summarized the issue for the group. He noted that Congress did not originally intend to use the PBR system for managing subsistence takes in Alaska; however, in the 1994

reauthorization process of the Marine Mammal Protection Act, it was required the FWS and NMFS include the number of animals killed by subsistence hunters in evaluating whether a stock was strategic (see Section 117). Further, Congressional intent regarding the management of species taken predominantly by native subsistence hunters was for the implementation of co-management agreements between Alaska Native Organizations and Federal managers for stocks such as beluga, ice seals, harbor seal, Steller sea lion, sea otter, walrus, and polar bear (note: a cooperative agreement had already been negotiated by NMFS and the Alaska Eskimo Whaling Commission for the management of bowhead hunting in Alaska).

There was a general discussion among participants as to whether the use of RF's of 1.0 was appropriate (e.g., belugas) and whether it was appropriate to classify a stock as non-strategic in the absence of a reliable estimate of Nmin, where the level of mortality due to subsistence hunting was substantial (e.g., ice seals). Lowry noted that the Native community in Alaska was very concerned about the ramifications of classifying stocks of seals or belugas as strategic, when there was not evidence that the current level of take had caused these stocks to decline to levels less than their optimal sustainable population level. Barlow and others noted that the critical feature of the PBR process was to incorporate uncertainty in estimating safe levels of annual removals. Therefore, if the correction factors for sightability were conservative, while the RF was set at 1.0, there would be at least some assurance that stocks would remain at healthy levels. **Scott recommended and it was generally agreed that where estimates of Nmin did not incorporate uncertainty or were not considered conservative, RF values should be less than 1.0.** Lowry added that for all of the beluga stocks, surveys to estimate abundance were conducted approximately once every 3-5 years. Therefore, over time (e.g., 10 - 20 years) an index of abundance could be used to estimate trends in abundance. In this situation, any problems regarding over harvesting should become evident over time. It was agreed that the key problem related to the PBR system was for ice seals (spotted, ribbon, ringed, and bearded), where reliable abundance estimates for each stock had never been made and substantial human-related mortality took place, and where none of these stocks had been classified as strategic in the past. **A recommendation was agreed that abundance estimates for these stocks should be determined as soon as possible.** DeMaster commented that ongoing studies by the ADFG and NMFS, supported by Minerals Management Service, and planned studies by NMFS and ADFG, supported by NMFS, would hopefully provide estimates of abundance for at least ringed and bearded seals over the next five years.

2.6. Other Business

There was a brief discussion of research plans for 1997 by all participants. **In addition, it was recommended that all members both SRGs would receive copies of the NMFS workshop report on serious injury, as soon as it was available.** Regarding the activities of the only Take Reduction Team for the CA/OR/WA driftnet fishery (note: the only TRT for North Pacific fisheries), Janisse (a member of the TRT) commented that the TRT had made four recommendations: 1) conduct a pinger experiment (which was done); 2) implement a policy of hosting skipper workshops on marine mammal entanglement; 3) mandate a minimum depth of six

fathoms for the top of the net; and 4) limit the number of permits in the fishery to no more than the current number.

At this point, the joint session of the Pacific and Alaska SRGs was ended. It was agreed that the session had provided valuable insight into how the members of the other SRG formulated recommendations for NMFS and FWS. **Future joint meetings were recommended on an as-needed basis.**

3.0. How to Incorporate Uncertainty When CV (CF) is Unknown

Milo Adkison led a discussion on how to incorporate uncertainty in the estimate of Nmin when an estimate of the variance for the correction factor is unavailable. He noted a natural reluctance among scientists to set the value of an unknown CV, so that often a value of zero was used. In effect, this results in the PBR being calculated as if there were no uncertainty. That is, the PBR would be based on Nbest rather than a lower Nmin and might put the stock at risk. An example was given where the counting error was known to be low, but the uncertainty in the fraction of the population available to be counted was unknown. This unknown CV was set to zero in the PBR calculation. The result was that the minimum population estimate was only 2% smaller than the best estimate of abundance, which certainly didn't reflect a conservative estimate of abundance for this stock. Several options were identified for incorporating uncertainty when all of the sources of variance have not been estimated: 1) use a default CV of 0.2 - 0.3 (see Wade and Angliss 1997, GAMMS report); 2) use a conservative correction factor in estimating Nbest and then use Nbest as an estimate of Nmin (e.g., if the best estimate for the CF was 2.0, use 1.75 in estimating Nmin); 3) use 90% of Nbest as an estimate of Nmin; and 4) incorporate expert judgement in evaluating what Nmin should be for a particular stock.

Lowry commented that for several of the stocks in Alaska, the area used to extrapolate the estimated density of animals to total abundance was substantially less than the true area (i.e., known distribution of animals at that time of year). In this case, the estimate of abundance would be conservative by some unknown degree. Denby Lloyd noted that at the last meeting of the ASRG it was recommended that default CV's not be used in estimating Nmin, but that efforts should be made to ensure that the estimate for Nmin was genuinely conservative. **Sue Hills recommended and it was agreed that in the future, the status reports in the SAR should include explicit statements regarding how Nmin's were derived.** It was also agreed that a paper by Wade, which has recently been accepted for publication in Marine Mammal Science, should be distributed to all members of the ASRG, as it details the simulations and assumptions used in the development of the PBR system for managing marine mammals under the MMPA.

4. Review of NMFS Stocks in the draft Stock Assessment Report

DeMaster circulated a summary (Appendix 3) of public comments regarding Hill et al. (1996). In addition, Wade circulated comments (Appendix 5) from the Office of Protected Resources regarding Hill et al. (1996).

4.1. Northern fur seal

It was noted that there was no estimate for the CV for the correction factor used to extrapolate pup numbers to total abundance. After some discussion it was agreed that the rationale in the text of the Hill et al. (1996) was adequate for explaining the rationale behind the use of Nmin. **It was recommended that NMFS: 1) determine whether the ratio of bull counts to pup counts has been constant over time, as a check on whether the correction factor was likely to have been constant over the last 15 years; 2) develop a new correction factor for this stock based on more recent information on pup and non-pup survival and rates of reproduction; and 3) if a new correction is determined to be necessary and appropriate, consider reviewing the depleted status of this stock given that the historic estimate of abundance would not change while the current estimate of abundance will likely increase.**

The question was also raised as to whether the number of animals that are entangled and subsequently die as a result of the entanglement should be included in the estimate of annual removal levels. Lowry commented that, while such mortalities certainly occur, it is not possible with available data to estimate the number of animals that are killed due to entanglement in marine debris.

It was also noted that the Marine Mammal Commission had recommended including mortalities from other countries (i.e., Russia and Canada) for this stock (and other stocks, as appropriate). There was general agreement that mortalities were likely taking place incidental to fisheries in Russia and Canada. **A recommendation was agreed that such mortalities should be included in the status report for this stock and other stocks, as appropriate (e.g., harbor seals: SE and western stocks, Steller sea lions: western and eastern stocks, Alaska harbor porpoise: eastern and western stocks; bowhead whale, gray whale, humpback whale: stocks in the eastern North Pacific, and killer whale: all stocks).**

Kate Wynne noted that in the draft status report in Hill et al. (1996) a comment was made that data from log books would underestimate the number of fur seals incidentally killed in fisheries. She noted, and it was agreed, that for PWS the likelihood of a fur seal interacting with a fishery was sufficiently remote that the comment about log book data should be clarified or deleted.

4.2. Beluga whale

DeMaster noted that the Alaska Beluga Whale Committee had recommended that the name of the Norton Sound stock be changed to the Eastern Bering Sea stock and that subsistence related harvest mortality be averaged over a five-year period rather than a three-year period. There was general agreement with these recommendations. Wade commented that for all of the stocks of beluga whales, an RF of 1.0 had been used in Small and DeMaster (1995) with the endorsement of the ASRG, while little justification had been provided in the minutes of previous meetings of the SRG or in the SAR. DeMaster noted that given a CV of 0.2 for Nbest resulted in

an estimate of Nmin that was approximately 80% of Nbest, and if it were possible for the ASRG to agree that the estimates of abundance for a particular stock of belugas was likely to be underestimated by at least 25%, using the estimate of Nbest for Nmin would meet the PBR guidelines. Lowry responded and it was agreed that in general this was the case. For example, he noted that when researchers in Canada expanded their surveys of belugas to offshore waters in the vicinity of the summer concentration off the Mackenzie delta, the resulting estimate of abundance increased by more than 300%. Lowry noted that plans were in place to attach satellite tags to beluga whales in Alaska at two sites (Cook Inlet and Pt. Lay), which should provide additional information about the extent to which unsurveyed areas contain beluga whales.

4.2.1. Eastern Chukchi Sea stock of beluga whale

There was general agreement that Nmin was suitably conservative, given the limited areal extent of the surveys used to estimate abundance. It was further agreed that the text of the status report should include the raw counts reported in Frost et al. (1993). It was also noted that while commercial gill-nets and personal use nets were used to catch salmon in this area, reports of incidental mortalities due to commercial fisheries in this area had not been received to date.

4.2.2. Eastern Bering Sea stock of beluga whale

There was general agreement that the estimate of Nmin, which was based on a CV of 0.26 for the abundance estimate, but lacking an estimate of variance for the correction factor, was suitably conservative. It was further noted that abundance for this stock is estimated on a 3 -5-year cycle and that mortality is estimated annually. Because of the ongoing monitoring programs, it was considered unlikely that this stock would become disadvantaged prior to detecting a negative trend in abundance. Also, it was recognized that while commercial and personal-use nets for salmon were used in this area, reports of incidental mortality due to these fisheries had not been received to date. Finally, Beth Mathews asked how reliable the estimates of subsistence related mortality were. Lowry and DeMaster noted that the ABWC convened an annual meeting, including hunter representatives from each association of villages, where harvest levels from the previous year were reported. For those villages not reporting, subsequent efforts were made by the ABWC to solicit this information. Hunters were also instructed to include struck and lost animals in their reports.

4.2.3. Bristol Bay stock of beluga whale

Adkison asked whether for this stock the estimate of abundance was conservative. Lowry responded that in this area it was likely that all of the whales were available to be counted. **Based on this, it was recommended that a default value for the CV of 0.2 be used in the estimate of Nmin. It was further recommended that NMFS develop as soon as possible a CV for the correction factor for this stock based on the radio telemetry data used to derive the correction factor.**

It was also recommended that here, and elsewhere, years for which no estimate of mortality were available, not be included in estimating the average mortality over the

previous five years. Lloyd recommended and it was agreed that an appendix should be added to Hill et al. that summarizes the various observer programs that have been conducted over the last five years. Hill commented that he would try to incorporate such an appendix into the revised 1996 SAR, but that it could certainly be added to the next revision of the SAR. Wynne agreed to provide a summary of the observer programs for salmon fisheries in Alaska.

4.2.4. Cook Inlet stock of beluga whale

It was noted that, as agreed at the last ASRG meeting, the estimate of Nmin did not incorporate any uncertainty because there was no estimate of CV for either the count of belugas or the correction factor in the estimate of Nbest. **After some discussion, it was recommended and agreed that a more conservative approach should be taken and that the second estimate of abundance described in the text of Hill et al. be used in estimating Nbest because it did include an estimate of CV for the estimate of abundance (i.e., the estimate of 881 animals for Nbest).** It was also agreed that the text of Hill et al. should be changed to reflect that there is currently no evidence that this stock is declining.

Hild questioned whether the November aerial survey for abundance that had been recommended by the native hunters had been carried out by NMFS. DeMaster responded that a proposal to NMFS Headquarters had been submitted for such a survey, but was not funded due to funding constraints and the number of projects considered of higher priority. Hild added that the Minerals Management Service had supported a small winter survey by NMFS to determine the winter distribution of belugas in the northern Gulf of Alaska. Matkin commented that he had heard that the researchers doing this survey had considerable difficulty locating animals.

DeMaster presented a summary of harvest levels reported in Hill et al. (1996). He noted that while a final report for 1996 had not yet been received from the Cook Inlet Marine Mammal Council (which was required under the terms of a contract with the Alaska Regional Office of NMFS), the estimated number of animals landed was approximately 50 and the estimated number of animals struck and lost was between 50 and 100. Therefore, it was likely that at least 100 animals were removed from this population in 1996, which is over 10% of the estimated population size. There was general agreement that this level of removals was not sustainable. Hild asked if a survey to estimate abundance, which could also be used with the last four years of survey data to detect trends in abundance, was planned for 1997. DeMaster responded that a proposal had been submitted and accepted to NMFS Headquarters to undertake satellite tagging of whales in this area in 1997 and to conduct an aerial survey in 1998. **After some discussion, it was recommended and agreed that the satellite tagging should proceed as planned, but if at all possible NMFS should support annual surveys to determine abundance at least through the year 1999 (i.e., 1997, 1998, and 1999). It was further agreed that the Chair would draft a letter to the NMFS Office of Protected Resources (F/PR) recommending that funding be allocated to support such a survey.**

4.3. Bowhead whale (Bering-Chukchi-Beaufort Sea stock)

It was agreed that takes of animals by native subsistence hunters in Canada should be included in the estimate of annual removals.

4.4. Harbor porpoise

It was agreed that by analogy with the stock structure of harbor porpoise in California, Oregon, and Washington, that it was likely that there was subspecific structure in Alaska. Therefore, the stock structure presented in Hill et al. should be maintained pending the availability of additional information. It was also recommended that the CV for the correction factor for harbor porpoise in the Gulf of Alaska be reevaluated based on the comments from F/PR (p.20).

4.5 Humpback whale (Central North Pacific stock)

Regarding the comments from the Humane Society, U.S. to incorporate kills due to entanglement with gill-nets and various pot fisheries, Straley noted that in Alaska there was no system to support a rapid response to reports of stranded animals, as there is for the east coast. Therefore, information on such entanglements, given the lack of observer coverage in most fisheries in Alaska, is unlikely to be available. Kaja Brix responded that while the AKR had funding to support a response to stranding events, these funds were administratively barred from supporting travel. **It was recommended and agreed that NMFS should reevaluate its policy of restricting funding for the purpose of responding to stranding events and should include support for travel, at least in Alaska.** Wynne also recommended that NMFS take advantage of expertise on the east coast regarding the best way to disentangle large whales entangled in commercial fishing gear. To this end, an ad hoc committee of Wynne, Straley and Mathews was established, where their objective was to draft a letter for the Chair from the ASRG to the AKR requesting more flexibility in the use of funds dedicated to respond to stranding events and to encourage NMFS to expand its efforts to train people as to how to best disentangle large whales from fishing gear.

Regarding estimates of annual removals caused by human activities, it was agreed that: 1) there were no data to estimate the number of entanglements in commercial fishing gear at present; 2) any data on entanglements and mortalities in Canada should be included in the status report; and 3) any data on entanglements and mortalities from Hawaiian waters should be included in the status report.

4.6. Minke whale

No changes were recommended to the text of Hill et al. (1996).

4.7. Fin whale

It was agreed that after a review of available information on distribution and movements, including information from the Discovery Tagging program, consideration should be giving to combining this stock with the fin whale stock listed in the SAR of the Pacific Region. Such an undertaking should only be considered with the concurrence of the Pacific SRG. It was also

agreed that, if possible, surveys for the purpose of collecting biopsy samples and estimating local density should be undertaken in the vicinity of Kodiak Island, where Wynne reported fin whales were sighted throughout the year.

4.8. Sperm whale

It was recognized that the stock structure presented in Hill et al. (1996) is likely incorrect, as is the stock structure currently recognized by the IWC. **Therefore, it was recommended that NMFS should place additional priority on expanding efforts to get biopsy samples from live or stranded sperm whales throughout the North Pacific (e.g., it may be possible to collect biopsy samples on surveys in the vicinity of Kodiak Island, where surveys to biopsy fin whales have been recommended).**

4.9. Harbor seal

DeMaster summarized the public comments (Appendix 3) as being split, with several groups (Marine Mammal Commission, Center for Marine Conservation, and Humane Society U.S.) supporting the proposed stock structure and classification reported in Hill et al. (1996), while others (all of the Alaska Native Organizations that commented and the Pacific Rim Research) supported either the same classifications (i.e., not available for classification at this time) as in Small and DeMaster (1995) or a reclassification, where only one stock was designated and an RF of 0.75 was used in calculating the PBR.

The first issue discussed was whether it was reasonable for NMFS to update the status report from the one reported in Small and DeMaster (1995). There was general agreement that there was sufficient new information on abundance and mortality levels to warrant updating the status report for these three stocks. It was noted that the language in the MMPA directs the agencies to update the status reports whenever the status of a stock has changed or can be determined more accurately. In this case, the latter clause seems to apply.

The second issue discussed was stock structure. It was noted that in Westlake et al.'s analysis the stock boundaries reported in Small and DeMaster (1995) were used in the AMOVA rather than the stock boundaries reported in Hill et al. (1996). **It was recommended that the AMOVA be redone using the stock boundaries reported in Hill et al. Mathews recommended and it was agreed that areas for which additional samples were needed to better understand the stock structure of harbor seals in Alaska should be identified by NMFS as soon as possible. It was further recommended that a summary of locations where genetic samples have been previously collected be prepared.** It was also noted that the analysis of Westlake et al. supported the establishment of multiple stocks of harbor seals in Alaska, but that the boundaries reported in Hill et al. were not entirely consistent with the results reported in the Westlake et al. analysis. That is, it appears that part of the SE stock of harbor seals in Alaska should be combined with the GOA stock, but the extent to which animals in the southern portion of SE Alaska mix with harbor seals in British Columbia is unknown at this time.

After some discussion it was recommended that at this time the stock structure reported in Hill et al. be maintained, even though there is preliminary information that indicates the current stock boundaries do not reflect all of the existing genetic information. However, it was noted that the existing genetic information is consistent with there being three or more stocks of harbor seals in Alaska. **It was further recommended that an analysis of the nuclear DNA be undertaken as soon as possible and that the results of all of the genetic studies be incorporated into the next status review for this species.**

4.9.1. Gulf of Alaska stock of harbor seal

There was a general discussion of what RF should be used in calculating the PBR for this stock. **A recommendation was agreed that an RF of 0.5 should be used for this stock at this time.** In part this recommendation was based on the lack of information suggesting this stock is either stable or increasing. Lowry noted that while comments submitted by Anne Hoover-Miller claim that counts at trends sites in the western and northern portions of PWS showed an increase between 1991 and 1995 in PWS, these data and analyses have not been available for review. Furthermore, the general trend was negative for all other areas in the Gulf of Alaska between 1989 and 1996. Lowry asked whether a report for the 1996 NMFS survey data would be available soon? Dave Withrow responded that the report should be available by July 1997.

Regarding the status of this stock, it was noted that the 1995 status report included a statement that an evaluation as to whether this stock should be classified as strategic would be made based on the results of negotiations with Alaska Natives regarding the co-management of harbor seals in Alaska. It was further noted that while a co-management agreement for this stock had not been finalized, significant progress had been made. DeMaster pointed out that the current level of take of female harbor seals reported in Hill et al. was less than 0.5PBR, which indicates that the current level of take is unlikely to adversely affect this population. Finally, it was recalled from earlier discussions that the stock structure of harbor seals in Alaska will likely change during the next revision of the SAR. **Therefore, because of theses three considerations, the ASRG recommended that the status of this stock be classified as non-strategic at this time.** It was recognized that some groups or individuals might disagree with this recommendation because the annual level of removals for this stock exceeded the PBR, which is one of the definitions of strategic in the MMPA. Nonetheless, if, as suspected, the current level of take is unlikely to disadvantage this stock and given the progress in developing a co-management agreement for this species in Alaska, a classification of non-strategic seems most consistent with the general intent of Congress in the amended MMPA.

4.9.2. Bristol Bay stock of harbor seal

There was a general discussion of what RF should be used in calculating the PBR for this stock. **Based on the PBR guidelines (i.e., stock status and trend in abundance unknown; Barlow et al. 1995), a recommendation was agreed that an RF of 0.5 should be used for this stock at this time.** In addition, it was agreed that if possible an estimate of the rate of decline for the number of animals utilizing the northern side of the Aleutian Peninsula should be included in

the text for this stock in Hill et al.

4.9.3. Southeast Alaska stock of harbor seal

There was a general discussion of what RF should be used in calculating the PBR for this stock. **A recommendation was agreed that an RF of 1.0 should be used for this stock at this time, as this stock was thought to be increasing in the presence of an annual subsistence hunt by Alaska natives.**

4.10. Steller sea lion

4.10.1. Western stock of Steller sea lion

It was noted that the status of the western stock had recently been changed from threatened to endangered, while the status of the eastern stock had remained as threatened. It was further noted that the PBR guidelines indicate that the RF for an endangered stock can be changed from the recommended level of 0.1 after careful consideration and with the understanding that the stock was not in immediate danger of extinction (Barlow et al. 1995). Wade added that in the GAMMS workshop report (Wade and Angliss 1997) there is also a requirement for scientific justification to support RF's greater than 0.1 for stocks listed as endangered. After some discussion, a working definition of immediate danger was agreed at roughly 25 years. Loughlin noted that the western stock currently contained approximately 40,000 animals and was declining at a rate of about 3% per year. Upon being asked whether this stock was in immediate danger of extinction, he responded that in his opinion, while there was cause for concern for the viability for this stock over the next 100 years, it was not likely in immediate danger of extinction.

No consensus was reached regarding a specific recommendation for the RF for the western stock. Some members believed that any stock that had declined 35% in the last five years and was listed as endangered should have an RF of 0.1. Others believed that because the observed rate of decline was slowing and given the relatively large population size of the western stock, the RF should be somewhere between 0.1 and 0.3. They added that having similar RF values for stocks like the North Atlantic right whale with a population size of less than 400 and the western stock of Steller sea lions with over 40,000 animals was incompatible. After some discussion, a census was taken of individual recommendations: six members recommended 0.1; three members recommended 0.2; and two members recommended 0.1+.

Several members noted that reducing the RF to 0.1 would result in a PBR of 255 animals (i.e., one-third the current PBR, where the RF was equal to 0.3). Given that fisheries are classified based on the total take of a stock by all fisheries, and, where such takes exceed 10% of the PBR, are based on the take of a stock by an individual fishery, those fisheries taking more than three animals per year (i.e., 1% of the PBR) from this stock would be classified as category II fisheries. It was further noted that, while the current take (35 animals per year) exceeded 10% of a PBR of 255, reducing the kill caused by commercial fisheries to 26 animals or fewer would have a negligible impact on the population dynamics of the western stock of Steller sea lions.

4.10.2. Eastern stock of Steller sea lion

Loughlin reported that the eastern stock of Steller sea lions has had no significant trend in abundance since 1985 and included approximately 24,000 animals. Lowry commented that the RF proposed in Hill et al. (1996) was the same as in Small and DeMaster (1995) (i.e., 0.75). **After some discussion a recommendation was agreed that the RF for this stock should be 0.75.**

Adkison commented that the CV for the multiplier going from beach counts to total abundance was not estimated and asked whether the estimate for Nmin for this stock was sufficiently conservative. Loughlin and Richard Merrick (NMML) responded that the best estimate of abundance was likely to be on the order of 20% negatively biased based on the following: 1) estimates of abundance based solely on pup counts are 5-10% larger; 2) estimates of abundance based on non-pup counts solely are 5-10% larger; 3) beach counts of pups and non-pups are negatively biased to some unknown degree; and 4) counts are made just prior to the period of peak haulout and are therefore negatively biased by some unknown degree. **Based on this information, a recommendation was agreed to accept the estimate of Nmin in Hill et al. as reasonable.**

Regarding takes in Canada, Hill noted that the only data he was able to get from the Department of Fisheries and Oceans was information on seals and sea lions killed as part of their predator control program for salmon aquaculture. No other information on takes in other commercial fisheries is available. There was general agreement that whatever data are available should be included in the status report for this stock.

4.11. Killer whale

Matkin summarized the discussion regarding the stock structure from day 1 of the SRG meeting. He recommended using the stock structure in Hill et al. (1996) at this time, but consideration should be given to an alternate stock structure during the next revision to the status reports for this species. He also noted that the abundance estimates were based on the number of individually identifiable animals that had been seen within the last 5-10 years, but that these estimates were not based on a full cross-referencing of all of the data bases held by NMML, DFO, UBC, his own work, and several other researchers in Alaska. **A recommendation was agreed that the above research groups should be encouraged to work together to produce a new estimate of abundance based on all available data as soon as possible.**

The question was raised as to the availability of mortality information caused by fisheries in Canada. Matkin responded that to his knowledge such information was not available. **A recommendation was agreed that NMFS should approach DFO or other suitable fishery agencies in Canada about a list of fisheries which used gear that was likely to entangle killer whales.** It was further noted that where possible, the information necessary to photographically identify an individual whale should be collected from all stranded animals in Canada, as well as the U.S.

Finally, the issue of whether abundance estimates based on photo-identification were sufficiently conservative was discussed. Matkin noted that the estimates for transients in Alaska were likely conservative because of the lack of survey effort west of PWS. Regarding the resident stock, if all of the available catalogs were cross-referenced, the resulting estimate of abundance would likely not be positively biased. After some discussion, it was agreed that the estimates of Nmin in Hill et al. were acceptable.

4.12. Other issues

Hill led a discussion regarding the suitability of the draft maps of marine mammal distributions that were intended to be incorporated into the Hill et al. (1996). The inclusion of such maps, which were to include the tracklines of surveys for abundance, had been one of the general recommendations from the GAMMS workshop (Wade and Angliss 1997). Comments on individual maps were given directly to Hill. Hill commented that he would try to get all of the recommended changes into this year's status report; however pending the response of the contractor responsible for the graphics and the availability of any funding necessary to expand the contract, some of the recommended changes may have to be delayed until next year's review.

Hill also led a discussion on the draft maps showing the distribution of category II fisheries in Alaska This information had been requested by the ASRG at the last meeting. Lloyd and Gauvin noted that it was very difficult to get such maps accurate due to the constant closures and openings of areas to fishing. Others noted that while it was likely impossible to accurately reflect all of the areas fished by category II fisheries in a given year, some type of summary data on the distribution of the category II fisheries was likely useful to many readers interested in marine mammal-fishery interactions in Alaska. After some discussion, it was recommended that maps showing the distribution of all of the category II fisheries not be included in revised 1996 SAR. In addition, it was agreed that the information on the number of vessels in the text of the status reports would be moved to the appendix on commercial fisheries.

5. Review of FWS Status of Stock Reports

Carol Gorbics led the discussion on the review of the status reports for polar bear, walrus, and sea otters. She noted that the FWS had decided, as noted at the last SRG meeting, that there was insufficient new information to justify revising the stock assessment reports in 1996. Further, what little new information there was (i.e., harvest data from 1995) would not change any of the classifications for any of the stocks. Finally, she added that in 1997 the status report for sea otters would be revised. She noted that in subsequent years the new kill data and evaluation of Rmax for polar bear and walrus stocks would be included in revised status reports.

The question was also raised as to whether NMFS and FWS would coordinate their respective status reports and publish them as a joint report. Both DeMaster and Gorbics considered the likelihood of such an action as low, given the agencies are in different departments of the Federal government, or that if such an action was accomplished, it would delay the publication of the revised status report significantly. Gorbics did comment that the FWS did

intend to publish the next revision of their stock assessment reports as a single volume. DeMaster noted that once the two documents were finalized, it should be possible at that time to combine them into a single document, if the ASRG thought that such a volume would be useful. It was also noted that the FWS could send some number of their status reports for Alaska marine mammals to NMFS to be distributed jointly by NMFS upon request, and vice versa. Finally, it was noted that all of the final reports are available on various Web sites, so access to the most recent information regarding the status of stocks should not be a problem.

6. Additional recommendations

Several of the members of the ASRG commented that they would like to receive copies of the following reports, when they become available: 1) a workshop report on the effects of buffer zones on the western stock of Steller sea lion, and 2) a workshop report on approaches for defining serious injury of marine mammals caused by interactions with commercial fisheries. DeMaster agreed that the above reports would be distributed, as requested. Both reports should be completed during the summer of 1997.

It was noted that progress had been achieved regarding recommendations from last year's report for the following activities: FWS (DeMaster 1996: Table 1)- 1) expand sampling regime for genetic analysis for sea otters, 4) determine best available estimate of Rmax for walrus, and 5) improve estimates of annual removals (including removals by Russian hunters) and NMFS (DeMaster 1996: Table 2)- 2) improve survey design for harbor porpoise in Alaska, 3) expand genetic analysis for harbor porpoise in Alaska, 4) expand genetic sampling for harbor seals, 5) improve estimates of abundance of harbor seals, 7) expand seasonal coverage of beluga whales in Cook Inlet, 9) improve the harvest monitoring program for all four species of ice seals, and 10) initiate research on the impact of tour boats on marine mammals in SE Alaska and the Gulf of Alaska. However, it was agreed that those research activities not addressed in the last year should be addressed, if at all possible, in the following year. After some discussion of the research recommendations from last year and those developed at this meeting, the following list of research recommendations was agreed (Table 1):

Table 1. Summary of specific research recommendations for NMFS and the FWS (not listed by priority). A complete list of all recommendations is presented in Appendix 6.

Species	**Research Recommendations- High Priority Only**
Humpback whale	1. Determine boundaries of feeding areas for different stocks through photo-identification and biopsy studies.
Sperm whale	2. Collect biopsy samples from animals that interact with long-line fisheries.

Species (cont.)	Research Recommendations- High Priority Only (cont.)
Harbor seal	3. Compile all available data that could be used to evaluate stock structure.
Beluga whale- Cook Inlet	4. Complete report on 1996 harvest.
Ice seals	5. Complete report on 1996 harvest for all species. 6. Establish trend monitoring program for ringed and bearded seals.
Polar bear	7. Determine take of bears off coast of Russia.

Concerning management activities (DeMaster 1966: Table 3) it was noted that progress had been made on the following: 1) finalization of deterrent regulations (NMFS), 2) evaluation of status of Steller sea lions (NMFS), and 3) encourage efforts to reduce the current level of take of beluga whales in Cook Inlet (NMFS). As noted for the research actions, it was agreed that management actions not addressed in FY1997 should be addressed in FY1998, if at all possible.

7. Publication schedule for the Status of Stock Reports

DeMaster and Hill commented that they expected to complete the revisions recommended by the ASRG by mid-July 1997. At this time, the revised draft of Hill et al. would be sent to the Director of the Alaska Fisheries Science Center (AFSC), the Director of the Alaska Regional Office, the Director of the Office of Protected Species, and members of the ASRG for final comments. Pending approval from the Director of the AFSC, the revised SAR would be finalized by September or October, 1997.

Regarding the next revision of the SAR, DeMaster anticipated a draft version being available for comment by the ASRG by October 1997. However, based on a request from some of the Alaska Native Organizations to revise only those reports where substantial new information was available, which would minimize the amount of time required to review the revised SAR, Lowry asked the ASRG if such a request was reasonable. After some discussion, it was recommended that the schedule for revising the status reports of stocks for FWS and NMFS should be as listed in Table 2. However, it was noted that any stock where new information would change the classification from strategic to non-strategic or vice-versa would be included in the next round of revisions of the SARs. It was noted that this schedule was not consistent with the schedule reported in Wade and Angliss (1997), which called for draft revisions to be completed in July of each year (check). DeMaster commented that he would work with the other SRG coordinators and the Office of Protected Species regarding the schedule for revising the SARs in 1997 and inform the ASRG of the results of these discussions.

Table 2. Summary of Schedule for Revising Stock Specific Status Reports for NMFS and FWS. The number in parentheses indicates the number of stocks to be revised for that species.

FY1998	FY1999	FY2000
all strategic stocks (10)	all strategic stocks (10)	all strategic stocks (10)
harbor seal (3)	beluga whale (5)	harbor porpoise (3)
killer whale (2)	beaked whales (3)	Dall's porpoise (1)
sea otter (1)	gray whale (1)	Pacific white-sided dolphin (1)
	walrus (1)	all ice seals (4)
		minke whale (1)
		polar bear (2)

8. Arrangement for next meeting of the ASRG

There was general agreement that the 2.5 day format of the meeting worked well. It was further agreed that the next meeting would be tentatively scheduled for 20-24 October and would again be held in Seattle. The primary objective of the next meeting would be to provide initial comments on revisions to 1997 stock assessment reports scheduled for completion in FY1998. DeMaster, Hill, and Gorbics agreed to get copies of the revised status reports to ASRG members 2-4 weeks in advance of the meeting. Matt Kookesh recommended that given the importance of reviewing the stock structure of harbor seals and killer whales and the importance of getting better information on removals of animals by Canadian fisheries at the next meeting, efforts should be made to get Canadian researchers to the next meeting (e.g., Peter Olesiuk, DFO, Graeme Ellis, DFO, and Lance Barrett-Lennert, UBC).

The following assignments were agreed to: 1) Lowry- letter to NMFS recommending a Cook Inlet beluga survey in the summer of 1997, 2) Mathews/Wynne- draft letter for the chair regarding the utility of a vessel survey in the Gulf of Alaska to survey and biopsy killer whales, humpback whales, and sperm whales, 3) Matkin- draft text concerning stock structure for killer whales, 4) teleconference regarding stock structure of harbor seals, 5) Working Group-teleconference or working group meeting on killer whales, and 5) Straley/Wynne/DeMaster-teleconference/workshop on methods for identifying feeding areas of humpback whales in Alaska.

The meeting was declared over at approximately 1:00 PM.

Appendix 1. List of ASRG participants.

Scientific Review Group Members

Milo Adkison
John Gauvin
Carl Hild
Sue Hills
Brendan Kelly
Matt Kookesh
Denby Lloyd
Lloyd Lowry (chair)
Beth Mathews
Craig Matkin
Caleb Pungowiyi
Jan Straley
Kate Wynne

National Marine Fisheries Service participants

Doug DeMaster
Paul Wade
Kaja Brix

U.S. Fish and Wildlife Service participants

Carol Gorbics

Appendix 2. Final Agenda.

Alaska Scientific Review Group Meeting

7-9 May 1997
National Marine Mammal Laboratory, Building 4, Room 2079
7600 Sand Point Way, NE
Seattle, WA

Purpose:
1. Review public comments on revised stock assessment reports
2. Meet with Pacfic SRG to discuss shared stocks
3. Continue review and prioritization of research needs
4. Discussion of issues related to stock assessment process

7 May 1997 - Wednesday

9:00 am Introduction and overview
- a. Introductions and new members
- b. Review agenda
- c. Minutes from September 1996 ASRG meeting
- d. SRG procedures
- e. Other business (e.g., travel claims)

9:30 am Meet with Pacific SRG
- a. Philosphy/approach for delineating stocks
- b. Discussion of shared stocks
    1. Gray whale
    2. Killer whale
    3. Humpback whale
    4. Steller sea lion (eastern stock)
    5. Harbor porpoise
    6. Harbor seal
    7. Others

12:00 pm Break for lunch

1:30 pm Continue meeting with Pacific SRG

4:00 pm Update on ongoing and planned NMFS stock assessment/incidental take activities
- a. Management
    1. Definition of serious injury

2. Incidental take reduction teams

b. Research
   1. Stock assessments
   2. Other

8 May 1997 - Thursday

8:30 am Begin review of comments on draft 1996 NMFS SARs

12:30 pm Break for lunch

1:30 pm Continue review of commetns on draft 1996 NMFS SARs

9 May 1997 - Friday

8:30 am Comments on draft 1996 FWS SARs

9:30 am SRG recommendations
- a. 1996 stock assessments
- b. Management actions
- c. Research

11:00 am Stock assessment schedule
- a. Finalization of 1996 stock assessments
- b. Development of 1997 stock assessments

11:30 am Next SRG meeting
- a. Time and place
- b. Topics

12:15 pm Adjourn

Appendix 3. Summary of public comments on: A. Alaska Stock Assessment Report (Hill et al. 1996) and B. Sections of the Pacific Stock Assessment Report (Barlow et al. 1996) prepared by NMML staff.
(Note: summaries by DeMaster. Please read the original submission.)

A. Summary of Comments on Alaska Stock Assessment Report (Hill et al. 1996)

1. Alaska Beluga Whale Committee

All comments pertain to stocks of beluga whales in Alaska.
The comanagement process is likely to be a better process for managing subsistence harvests, as the PBR system was designed to be very conservative in the management of marine mammal mortality caused by commercial fisheries.
NMFS should use a 5 year running average, not 3, in calculating mortality.
The name of the Norton Sound stock should be changed to the Eastern Bering Sea stock.

2. Alaska Native Harbor Seal Commission

All comments pertain to harbor seals in AK.
NMFS should not have updated the status report.
NMFS should use comanagement approach.
If the SAR has to be changed, use 1 stock, not 3 (base stocks on biological data only).
If 1 stock, use an RF of 0.75.
Stock should not be classified as strategic.
If GOA stock is classified as strategic, ANHSC will request an ALJ hearing.

3. Alaska Sea Otter Commission

All comments pertain to harbor seals in AK.
1 stock, not 3, until genetic information is available to support more than 1 stock.
Strategic designation was intended for the management of fishery interactions, not subsistence hunting. Use the comanagement approach to manage subsistence hunting.
Use traditional native knowledge to corroborate proposals regarding stock structure.

4. Center for Marine Conservation

For many of the stocks, better estimates of abundance (esp. Steller sea lion) and fishery related mortality (esp. harbor porpoise and GOA harbor seal) are needed.
For ice seals, abundance estimates are expensive; NMFS should consider indexing approach for PBR management.
E. Steller sea lion- use RF of 0.5.
N. Fur seal- Include estimates of mortalities due to entanglement in marine debris.
Harbor seal- Supports inclusion of minimum population estimate for GOA stock and the revision

to the recovery factors for the GOA and BS stocks.
Beluga whale- RF for NS and ECS stocks be lowered to 0.5 - 1.0.
Killer whale- Include mortalities in Canadian fisheries.
Bowhead whale- Include mortalities due to subsistence hunting in Canada.

5. Humane Society of the United States

In general, don't use RF of 1.0 unless data suggests no bias and healthy stock.
Most of the mortality estimates should be labeled as minimum estimates.
W. Steller sea lion- a. include discussion of indirect effects of fisheries in report, b. include log book reports in total mortality estimates, even if fishery observed and total mortality estimated based on observed mortalities.
E. Steller sea lion- RF of 0.75 is too high.
GOA harbor seal- a. 12% Rmax is too high, b. consider listing under ESA or MMPA (depleted), c. notes that no management measures are in place to protect this stock and none are proposed.
BS harbor seal- include all of the count data in the section on population size and trends.
NS beluga- the statement "no decreasing trends have been detected in the presence of a known harvest" seems disingenuous.
CI beluga- a. 981 minimum abundance estimate is not a true minimum, b. no management actions appear to have been taken or are proposed, c. consider listing under ESA or MMPA (depleted).
Killer whales- consider including mortality/removals in Canada.
Harbor porpoise- need to improve mortality estimates (i.e., observer fisheries).
Gray whale- a. consider mortality in pots and gillnets by analogy with Atl. humpback whales, b. consider mortality/removals in Mexico.
Humpback whale- a. consider mortality in pots and gillnets by analogy with Atl. humpback whales, b. consider mortality/removals in Canada.
Minke whale- include entanglements in total mortality.
N. Right whale- consider mortality in pots and gillnets by analogy with Atl. Right whales.

6. Indigenous People's Council for Marine Mammals

NMFS should only revise SARs for non-strategic stocks as required.
FWS followed the above guideline, NMFS did not.
Changing status of harbor seals may erode comanagement process.
Add distribution maps to allow clearer presentation of stock structure.
CI beluga- strategic designation is appropriate, but consider surveys when TKW suggests maximum numbers may be counted (i.e., Nov.).
Harbor porpoise- 1 stock, not 3.
W. Steller sea lion- reconsider recommendations on status if decline not as rapid as suspected.
N. Fur seal- AK SRG recommended that this stock should be delisted as depleted under MMPA.
GOA harbor seal- continue with the "NA" classification.

7. Marine Mammal Commission

In general, the mortality estimates are minimum estimates. This should be noted.

W. Steller sea lion- a. include in discussion note that PBR premise (that stocks will equilibrate above MNPL) may be invalid, b. include mortalities caused by fisheries outside of US waters.

E. Steller sea lion- a. include mortalities caused by fisheries outside of US waters, b. include harvest data from 1995 and 1996, if possible.

N. Fur seal- include mortalities caused by fisheries outside of US.

GOA harbor seal- a. expand discussion on trends to include recent trends, b. include harvest data from 1995 and 1996, if possible.

GOA harbor porpoise- note that mortality estimate is likely a minimum estimate.

8. Pacific Rim Research

All comments pertain to harbor seals.

PWS population increased 8% since 1991; Tugidak population has increased since 1992 (these are the two primary trends sites in the GOA).

1 stock, not 3 (okay to refer to 3 management units).

Status determination should involve natives.

9. Rural Alaska Resources Association

All comments pertain to harbor seals. Agree with Alaska Native Harbor Seal Commission.

Status reports for non-strategic stocks should be revised every three years.

NMFS should continue to classify status of GOA harbor seals as NA.

If changes are to be made in status reports, use 1 stock, not 3.

10. Sitka Tribe of Alaska

All comments pertain to harbor seals.

1 stock, not 3.

Use comanagement process to address threats, not classification as strategic.

B. Summary of Public Comments Regarding Sections of the Pacific Stock Assessment Reports (Barlow et al. 1996) Prepared by NMML Staff:

(Note: summaries by DeMaster. Please read the original submission.)

1. Center for Marine Conservation

For many of the stocks, better estimates of abundance and fishery related mortality and are needed (esp. the stocks around the Hawaiian Islands).

The following should be rectified: 1) failure to uniformly use logbook data, 2) failure to incorporate estimates of mortality from other countries, and 3) the use of 1993-1995 mortality data to derive estimates of mortality.

2. Humane Society of the United States

Uniform standards and formulas should be used for setting PBRs in all Regions.
As many sources as possible should be utilized in estimating total mortality.
Use of 5 years of data in estimating average annual mortality rather than 3 years of data.
Most of the data for the Hawaiian stocks are inadequate.
Mortality information from Mexico should be included where appropriate.
In some reports, the mortality data in the charts and in the text do not seem to agree.
In general, the sections on mortality should incorporate a statement that mortality is likely underestimated.
Expand the information on strandings to more than one year.
OR/WA harbor seal- explain why kills in lower Columbia River were not included in the extrapolation to total mortality. Also, include any data on subsistence kills.
WA Inland harbor seal- mortality estimate is likely a minimum estimate.
N. Fur seal- Include any information on "gun shot" seals in the section on mortality.
HI monk seal- Expand research on indirect and direct effects of commercial fisheries.
Short-beaked common dolphin- the derivation of the abundance estimate is unclear.
Killer whale- Include mortality that may be associated with long-line fisheries or illegal shooting.
Pilot whale- Include mortality that may be associated with the long-line and purse seine fisheries.
Baird's beaked whale- NMFS should reconsider listing this stock as non-strategic.
Mesoplodont beaked whales- This complex should be separated into five species, where if necessary PBRs are not calculated. All five stocks should be considered strategic.
Dwarf sperm whale- NMFS should reconsider the non-strategic classification.

3. Marine Mammal Commission

As of 21 April 1997 (close of comment period), comments from the MMC regarding the Pacific Region had not been received.

Appendix 4. Comments by B. Taylor (SWFSC) on status of sperm whale stocks in the Pacific Ocean.

What we do and don't know about sperm whales in the eastern temperate Pacific: a summary for the Pacific and Alaska SRGs (Barb Taylor's own take on the state of our ignorance)

On average about 5 sperm whales die in gillnets per year compared to a PBR of 1. The current abundance estimate is about 1,200 from prior CA surveys. Preliminary analysis of ORCAWALE indicate that this number may decrease slightly. The literature reports that North Pacific whales are concentrated between 20-40N during the breeding season (March-May). However, no whaling took place during this season and that report was based on a few observations of groups of sperm whales with no reporting of effort. I could find no report where anyone attempted to look for sperm whales in waters north of 40N in winter months (admittedly a gruesome and likely unproductive task). The IWC currently draws a stock boundary through the Hawaiian Islands and considers only an Eastern and Western stock, though there is strong evidence that at least two stocks (which are divided longitudinally) exist in the Western Pacific. Japanese sperm whaling efforts were concentrated in the Western Pacific and most of what we know of sperm whales comes from that region. However, the Soviets removed astounding numbers of whales from the Eastern Pacific. From the 1950s through the 1970s 289,000 sperm whales were killed. More whales were removed through the mid 1980s and there is good reason to believe that there was substantial under-reporting. The last abundance estimate made from Catch-Per-Unit Effort data in 1986 was 250,000 whales that were >35 feet long. Soviet scientists did no genetic studies to illuminate stock structure within the region. Discovery tag data revealed a great deal of east-west movement between both the Gulf of Alaska and north of the Aleutians and populations in the Western Pacific (Japan and the Bonin Islands). Of the several hundred whales tagged off San Francisco, 10 were recovered several hundred miles off OR or WA, one was recovered mid-Pacific at the latitude of Vancouver Island and none were recovered in the Gulf of Alaska despite very large takes there. However, outside the CA whales, discovery tagging and recovery both occurred in the summer feeding season when there was known mixing of stocks from the Western Pacific. Interpretation of these data to infer breeding units is therefore flawed.

From the thousands of whales taken in the North Pacific estimates were made that the of calving period was August-October and that length of gestation was 16.4 months. Prior SWFSC surveys off CA-OR-WA are thus conducted in the calving season and typically very small calves are observed throughout the period. This would suggest that the calving season of whales in CA waters match with whales taken even further north and thus could be considered to be on a temperate North Pacific schedule. Whalers in the 1800s reported year round calving in equatorial waters (including Hawaii). Very young calves were observed off Hawaii in April 1997 which would match historical observations. Whitehead, however, observed changes in the amount of time adult males were observed with female groups off the Galapagos and inferred that there was periodicity in breeding which matched most closely with the temperate North Pacific schedule. Small calves were observed in June/July which doesn't closely match the calving season in CA. Individuals photographed off the Galapagos have been matched off Peru raising doubts that these whales are North Pacific animals or even whether they migrate south to north. Very small calves have also been reported in winter/spring in the Gulf of California. At this point, we cannot exclude the possibilities that: 1) there are tropical whales without pronounced calving seasons, which are separate from the more migratory temperate whales, 2) Gulf of California whales may be from a "tropical" stock meaning that there is a stock division somewhere between there and

CA, 3) Gulf of Alaska whales may migrate largely or entirely to the Western Pacific in winter.

The ongoing Sperm Whale Abundance and Population Structure cruise (SWAPS) is designed to fill in some of the large gaps in our understanding of whales in this region. The survey was designed to extend into areas of potentially four different stocks during the North temperate breeding season: CA/OR/WA, Hawaii, the Gulf of Alaska and "coastal" whales south of the U.S./Mexican border. It is a paired survey with independent teams of visual and acoustic observers. So far we have found low densities within several hundred miles of California and Hawaii with a very low density of animals in between (approximately 1 group/3 days). Acoustic efforts have revealed a small proportion of sightings missed within 5nmi of the trackline and have been able to locate whales to at least 15nmi, which greatly increases the amount of area surveyed. All acoustic localizations made during daylight hours are verified and group size data gathered.

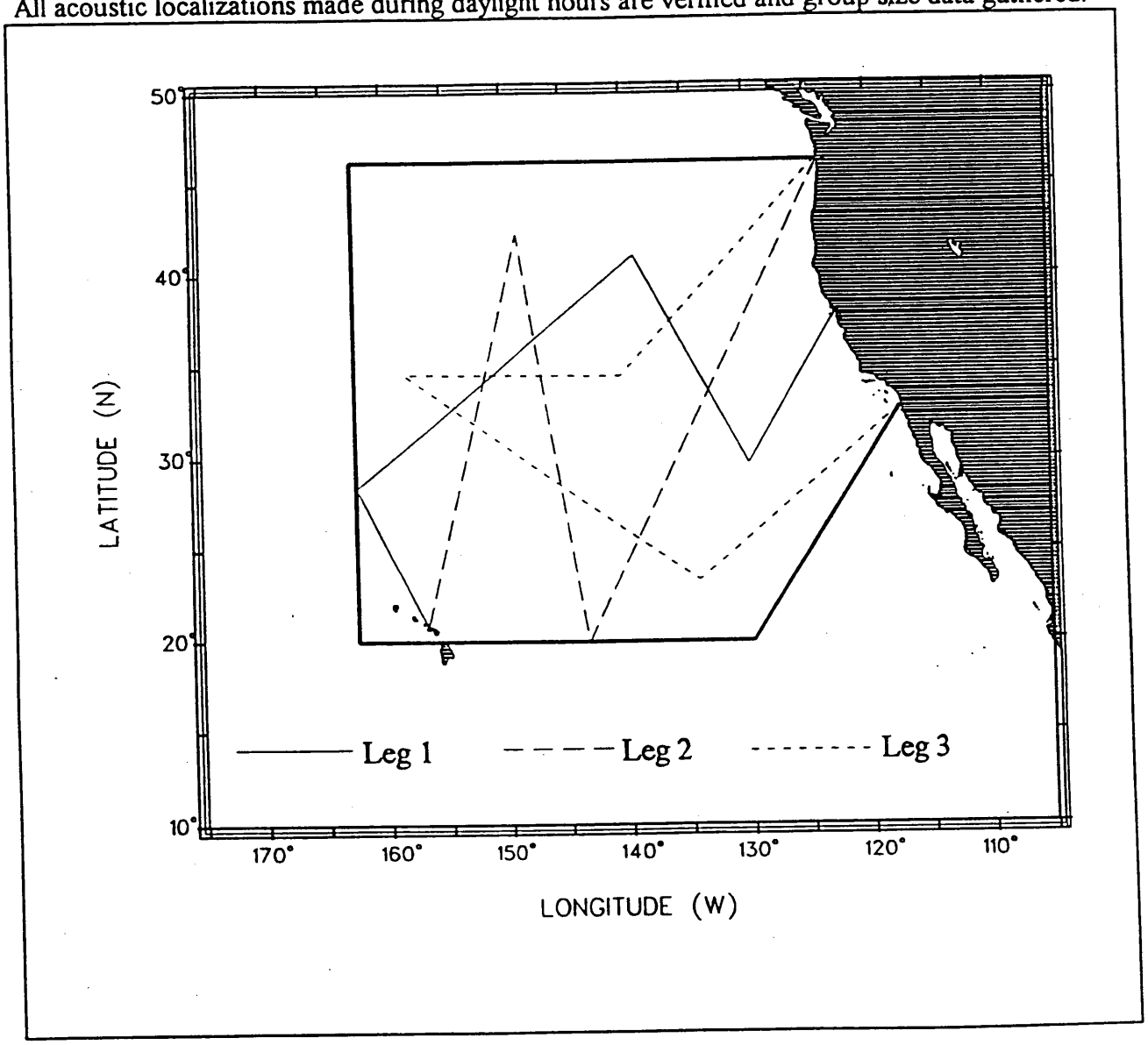

Figure 1. Tracklines for the SWAPS cruise of which legs 1 and 2 are now nearing completion.

We have also learned about seasonality in sperm whale abundance. First, Dale Rice provided data on takes by San Francisco whaling operations which surprisingly revealed August and September (our typical survey months) as the highest take months. Also, to our surprise and unlike last year, whales were not found on the sea mounts or along the continental shelf break in central California during February, previously thought to be a high abundance month. Thus, the season during which our abundance estimates were made may not be a poor choice.

Most groups encountered in SWAPS have been diving asynchronously. We have collected data on the total number of blows over a 90-minute period in anticipation of being able to estimate the number of whales by the number of blows. Although there are data on respiratory behavior from tropical whales, we had hoped to gather data on temperate whales during our February tagging cruise. Unfortunately, we were unable to tag any of the only 3 whales encountered in February. At the end of September, the D.S. Jordan will complete an anticipated cruise for vaquita in the northern Gulf of California. The month of October is currently designated for marine mammal use and we propose to use that time to 1) tag whales to obtain the needed dive time data, and 2) conduct a dedicated biopsy cruise from the Gulf back to San Diego to increase our sample sizes on many species (emphasizing sperm whales) which are likely to have a stock boundary in this area. Our genetics laboratory has currently analyzed both mitochondrial and nuclear DNA (microsatellites) for sperm whales: CA/OR (n = 9), and the Gulf of CA (n = 19). It is clear that we need more samples from both areas and that we have no samples from the outer coast of Baja California. We plan on using SWFSC personnel to staff the cruise and are seeking an additional funds from FPR (the office of Protected Resources of NMFS) for minor expenses like travel, communications and food.

We have only one genetic sample (courtesy of Kate Wynne) from Alaska. Although we have contracted a Swedish researcher who obtained ~400 samples from the Japanese (only ~40 from the Eastern North Pacific), he has no samples north of 40N. We would clearly like more samples from this area and would appreciate SRG advice on how to obtain more. We know that sperm whales have been associating with long-liners in the Gulf and may be habituated to boats. Can you suggest economical ways to get samples from these animals? Our experience with acoustics and bad weather for visual operations suggests that perhaps the best way to approach understanding seasonality in Alaskan waters is using a long-term anchored acoustic recorder. It would be most economical to piggy-back this recording effort on another project that may be leaving anchored devices in the area of interest. Again, any suggestions would be welcome.

Let me make a last note on abundance. Many people feel uncomfortable about the endangered status of sperm whales. I believe this is largely based on the mythical CPUE estimates that estimate millions of sperm whales in the ocean. However, sperm whales continue to be among the rarest of the large whales in our surveys. For example, in the recent ORCAWALE cruise there were 63 sightings of fin whales, 73 blue whales, 55 humpback whales, but only 19 sperm whale sightings. In a survey south of the Aleutian Islands in 1994, there were 57 humpback sightings compared with 12 sperm whale sightings. Based on preliminary information, sperm whale density in the SWAPS area (map) appears no higher than densities seen off CA. The SWAPS area is approximately 10 times larger than the ORCAWALE area. Thus, the abundance estimate (without stock boundary considerations) should be at least 10 times greater. With the

correction for groups missed and past underestimation of group size this number could double. Therefore, it is likely that the IWC estimate of 250,000 harvestable whales, which was not based on any dedicated survey effort, is probably high by an order of magnitude. If abundance is 10-20,000 (again ignoring stock boundaries) sperm whale the lower bound for abundance is approximately the same some estimates for fin and humpbacks within the same area, which are listed as endangered. Of course, it is possible that sperm whales are concentrated during the breeding season in one of the many areas not surveyed. However, it is also possible that this most recently whaled species was drastically depleted. Whether the PBR is truly being exceeded will depend on both the new estimated abundance and stock boundaries. The new abundance estimate will increase but will also have very large CVs. We need more samples for genetic analyses and better information on calving season before stock boundaries can be improved.

Appendix 5. Summary of comments from F/PR on Hill et al. (1996).

From: Paul Wade
To: MAILHUB.MAILHUB.Eagle-Tom, MAILHUB.MAILHUB.Payne-M...
Date: 5/13/97 2:19pm
Subject: Notes on SRG meetings

Some brief notes on the AK and Pac SRG meetings of May 6-9, from P. Wade. These are my own interpretations of what was said, and I am in no way speaking for either SRG. We need to wait for their meeting reports to be sure of what they have recommended.

AK SRG meeting of May 7 and May 9

Harbor seals.
The AK SRG recommended the same 3 stocks be used for now, while recognizing that genetic data becoming available will lead to changes in the boundaries next year. They clearly recognized that there were multiple stocks in Alaska (they sometime use the semantic distinction of "management units" rather than stocks). They noted that the total human-caused mortality of the GOA harbor seal does exceed the calculated PBR, but it is nearly all subsistence harvest. They recommended against calling it strategic at this time, for three reasons (I believe, this is my own list after listening to them). (1) such a designation accomplishes nothing at this time except to allow for a fisheries take reduction team, which they felt was clearly not called for at this time. (2) They anticipate having to change the stock boundaries considerably once they have the final results from Robin Westlakes thesis in hand to really look at. Therefore, designating a stock as strategic this year was premature when the stock boundaries will certainly change next year, and would certainly send a confused signal to the public, because next year either no stock will be strategic or a different stock will be strategic. (3) Given that calling the stock strategic accomplishes nothing this year, and that the stocks will certainly be re-defined next year, they recognized that calling it strategic will lead to complaints and probably an ALJ hearing from the native groups, and given that stocks will be changed next year, could be perceived by the native groups as sending fairly confused signals, particularly when a co-management umbrella agreement is about to be signed (according to Carl Hild and others). I believe they are concerned that the perception of the science will be bad if things change so much from one year to the next, or if a stock is called strategic while the same document states that the stock boundaries are clearly wrong. However, they saw no reason to report the abundance, PBR, and mortality information, as that was considered accurate for the current management unit structure. I believe that once they feel comfortable with the stock structure, they will be willing next year to call it strategic if it deserves it (as they are doing with cook inlet beluga).

Believe it or not, I actually agree with the decision for right now, but would not want to see it continue next year once the stocks are clearer and co-manage is signed. If co-management is not signed by next year, I don't know what to do. I talked very briefly with Doug about it. I noted that the definition in the act has them strategic. However, Doug pointed out we can do what we want, if we are willing to be sued by someone trying to force us to do something. I will point out that nothing in the act really allows us to call all 33 bay sound and estuary stocks strategic in the Gulf, but we did that too.

Steller sea lions (western stock)

There was a long discussion and a vote on the recovery factor. By my unofficial count, there was 1 vote for 0.3, 2 votes for 0.2, and the rest of the votes were for 0.1. Doug was not prepared to state what NMFS would do (he of course wants to consult with Tom Loughlin, Dick, Howard, and others), but he indicated that given the advice given it would likely be within the range of 0.1 to 0.2.

A heads-up -- a quick look at the numbers suggests that if a FR of 0.1 is used, this may cause the category III Bering Sea/Aleutian Is groundfish trawl fishery to rate as category II, with a take of 14 per year (PBR will likely be around 255 if Fr is 0.1, and total takes are at least 38 across all fisheries). This is due to the 1% PBR rule when more than one fishery is involved that Doug and I were arguing may in some circumstances become overly conservative.

Steller sea lions (eastern stock)
Recommended Fr stay the same at 0.75.

Harbor porpoise
The AK SRG I believe firmly agreed that there were likely to be multiple stocks in AK, that they had no information that can help them delineate stock structure at this time, and they had no problem with NMFS going ahead and designating multiple management units in the way we did at this time.

Beluga (Cook Inlet)
They expressed great concern for this stock given the estimated take of 100-150 for 1996, and are making an emergency request to fly a count trend survey this summer to continue the time-series. They re-iterated that this stock was strategic.

General
Having Craig Matkin on the AK SRG now appears to be great, particularly for killer whale knowledge, but for other reasons, as he seems a straight shooter who does not back down from the science for political expediency. Ditto for Milo Adkinson, who adds some quantitative expertise and similarly an apparent willingness to keep the science straight, while at the same time allowing for some pragmatic expediency such as the recommendation to not call the GOA harbor seal strategic. I think they were both swayed by the arguement that it accomplishes absolutely zero at this time as far as they could tell.

Notes on the joint Pacific/Alaska SRG meeting on May 7.
As far as I can tell, most felt the meeting was useful and productive, and it ended up taking up most of an entire day. A few notes on the discussions:

Killer whales
They have formed an informal working group to draw up a proposal for revised stocks of killer whales. Matkin helps tremendously in this regard, as does the new catalogue from California that Jay contracted with I believe PR money. To take a guess, overall there will be at least one offshore stock, at least one transient stock, and at least 2 resident stocks. There could be more of any of those. Note that one stock may be strategic given the take in driftnet fishery in California.

Sperm whales

Barb Taylor (not in attendance) had a white paper that suggests that the available evidence from Discovery tag movements and other information indicate that there is a stock using California coastal waters that may actually run from Baja to B.C., but is not apparently connected to Alaska. Gulf of Alaska whales were only matched through tags to western Pacific, such as Japan. There have been no matches between California and Alaska. The closest (which was misleading in the large boxes in IWC reports, Barb went back the original lat-longs) thing was a tagged animal in California was harvested pretty far offshore of Vancouver Island, B.C. Given the interaction with long-line fisheries in Alaska, some AK SRGers suggested an opportunity exists for trying to biopsy from fishing boats in the gulf, which would be very useful. Matkin and Wynne also have some sperm whale bone from the Gulf from which dna might be extracted, they will send to Dizon. No one in either SRG attempted to refute Barb's conclusions. Connection between California and Hawaii is still unknown, although sightings of calves from recent on-going survey I believe indicate different calving seasons and thus breeding seasons between the two regions, indicative of different stocks. The current 3 stocks of Hawaii, coastal lower 48, and AK seemed most appropriate at this time.

Harbor porpoise
Nice presentation about genetic structure from Dr. Susan Chivers confirms definite stock structure in CA/OR/WA, still not completely defined, and that animals from the Copper river delta in AK are different from those animals, also. Group acknowledge a real problem in dealing with this species in Washington, given likely multiple stocks, the spike rock bycatch, the puget sound commercial 7/7a bycatch, and the un-quantified but probably substantial gillnet bycatch in B.C. The latest survey last year showed lower densities in Canadian waters (inside waters) than just across the border in the U.S., which might be consistent with higher gillnet mortality. The real possibility of a mortality sink in B.C. was raised by Jeff Laake and acknowledged by the group. Spike rock animals were genetically different from all other groups, which was puzzling. The usual need for more samples was recognized.

Harbor seals
Briefly, both groups recognized that there were multiple stocks of this species both within AK and within CA/OR/WA, which are still being resolved. AK SRG got in a few digs regarding the OR/CA stock boundary being suspicious.

General issues
Recognizing that some stocks are in the sphere of influence of both groups (e.g., one example being central humpbacks) the groups agreed on which stock assessment reports they would send to the other group for comments before the SAR is finalized.

Sort of out of the blue, one Pacific SRG member made a statement (strongly implying that it was unsatisfactory) that the AK SRG had no member who could be considered a representative of an environmental NGO. This created a brief moment of silence.

I think both groups felt it was a very useful meeting. I heard a few members suggest that it might be appropriate to hold such a joint meeting every other year or so.

Notes on the Pacific SRG meeting on June 6 and June 8.

I could only attend part of the June 8 meeting while the AK SRG was at lunch. While I was there, I don't remember any particularly controversial issues coming up. On the 6th, Jay gave an update as to the stocks which are no longer strategic because of improved abundance estimates (beaked whales, Kogia, etc.). Left with sperm, humpback, pilot, minke whales as strategic because of bycatch in drift gillnet fishery (I may be leaving one stock out, thought there were 5). Jay also gave a preview of what will likely happen once the new abundance estimates are made from the 96 survey (not to be included in this round of SARs). I believe that one stock of killer whales might become strategic because of an observed take last year in the driftnet fishery.

Most of the time on the 6th was spent going over the revised SARs and dealing with lots of details.

One thing that I mostly missed on the 8th was that the Pac SRG was making some statements regarding the pinniped-salmon report and draft recommendations.

Please give me a call if you have any questions on any particulars.

Appendix 6. Summary of recommendations to NMFS and FWS from the ASRG.

Summary of Recommendations from the Alaska Scientific Review Group (5th Meeting: Seattle, WA 7-9 May 1997)

1. A recommendation was adopted that for all of the "shared" stocks both the ASRG and PSRG would review the status report.

2. Regarding killer whales, given the preliminary nature of genetics data (e.g., nuclear DNA analyses have not yet been completed) and the relatively small sample sizes used, it was recommended that the existing stock structures reported in the Pacific and Alaska SARs for killer whales be maintained at this time, but consideration of changing the stock structure be made during the next round of revisions. Further, the following were recommended: 1) a detailed cross matching of all catalogs with the goal of deriving minimum estimates of abundance for each stock of killer whale in the Pacific and Alaska Regions should be performed, 2) a subcommittee with members from both SRGs would be created to discuss killer whale status specifically, 3) all of the active killer whale research groups should be encouraged to work together to produce a new estimate of abundance based on all available data as soon as possible, and 4) NMFS should approach DFO or other suitable fishery agencies in Canada about a list of fisheries which used gear that was likely to entangle killer whales.

3. Regarding the eastern stock of Steller sea lions, it was recommended that estimates of abundance and human-related removals from British Columbia should be included in the status report and in classifying the stock as to being strategic or not. It was also recommended that 1) additional genetic information from animals from British Columbia and the west coast of the US was needed, but that until such data were available, the currently recognized stock structure should be maintained, 2) the RF for this stock should be 0.75, and 3) the estimate of Nmin in Hill et al. was reasonable.

4. Regarding harbor porpoise, it was recommended that the significant differences found in genetic diversity from animals that were continuously distributed along the west coast of North America and Alaska supported the establishments of stocks within this species in Alaska.

5. Regarding harbor seals, a recommendation was agreed that until additional information on genetic diversity based on nuclear DNA the existing stock structure suggested in the Pacific and Alaska SARs should be maintained. It was further recommended that 1) the AMOVA be redone using the stock boundaries reported in Hill et al. ; 2) an analysis of the nuclear DNA be undertaken as soon as possible and that the results of all of the genetic studies be incorporated into the next status review for this species; 3) areas for which additional samples were needed to better understand the stock

structure of harbor seals in Alaska should be identified by NMFS as soon as possible; 4) for the Gulf of Alaska stock of harbor seal an RF of 0.5 should be used for this stock at this time and the status of this stock should be classified as non-strategic at this time; 5) for Bristol Bay stock of harbor seal an RF of 0.5, while for the Southeast Alaska stock of harbor seal an RF of 1.0 should be used; and 6) a summary of locations where genetic samples have been previously collected be prepared.

6. It was recommended that a review of the original Discovery Tag data for fin whales be reviewed prior to changing the existing stock structure for fin whales.

7. It was recommended that where estimates of Nmin did not incorporate uncertainty or were not considered conservative, RF values should be less than 1.0.

8. It was noted that a key problem related to the PBR system was for ice seals (spotted, ribbon, ringed, and bearded), where reliable abundance estimates for each stock had never been made and substantial human-related mortality took place, and where none of these stocks had been classified as strategic in the past. A recommendation was agreed that abundance estimates for these stocks should be determined as soon as possible.

9. It was recommended that all members of both SRGs should receive copies of the NMFS workshop report on serious injury, as soon as it was available. In addition, future joint meetings were recommended on an as needed basis.

10. It was recommended that in the future the status reports in the SAR should include explicit statements regarding how Nmin's were derived.

11. Regarding northern fur seals, it was recommended that NMFS: 1) determine whether the ratio of bull counts to pup counts was constant over time, as a check on whether the correction factor was likely to have been constant over the last 15 years; 2) develop a new correction factor for this stock based on more recent information on pup and non-pup survival and rates of reproduction; and 3) if a new correction is determined to be necessary, and if appropriate, consider reviewing the depleted status of this stock, given that the historic estimate of abundance would not change, while the current estimate of abundance will likely increase.

12. There was general agreement that mortalities of Steller sea lions were likely taking place incidental to fisheries in Russia and Canada. A recommendation was agreed that such mortalities should be included in the status report for this stock and other stocks, as appropriate (e.g., harbor seals: SE and western stocks, Steller sea lions: western and eastern stocks, Alaska harbor porpoise: eastern and western stocks; bowhead whale, gray whale, humpback whale: stocks in the eastern North Pacific, and killer whale: all stocks).

13. It was recommended that a default value for the CV of 0.2 be used in the estimate of

Nmin for the Bristol Bay stock of beluga whale. It was further recommended that NMFS develop as soon as possible a CV for the correction factor for this stock based on the radio telemetry data used to derive the correction factor. It was also recommended that here, and elsewhere, years for which no estimate of mortality were available, not be included in estimating the average mortality over the previous five years.

14. It was recommended that an appendix should be added to Hill et al. that summarizes the various observer programs that have been conducted over the last five years.

15. Regarding Cook Inlet beluga whales, it was noted that, as agreed at the last ASRG meeting, the estimate of Nmin did not incorporate any uncertainty because there was no estimate of CV for either the count of belugas or the correction factor in the estimate of Nbest. After some discussion, it was recommended and agreed that a more conservative approach should be taken and that the second estimate of abundance described in the text of Hill et al. be used in estimating Nbest because it did include an estimate of CV for the estimate of abundance (i.e., the estimate of 881 animals for Nbest). It was also recommended that: 1) the satellite tagging should proceed as planned, but if at all possible NMFS should support annual surveys to determine abundance at least through the year 1999 (i.e., 1997, 1998, and 1999) and 2) the Chair would draft a letter to the NMFS Office of Protected Resources (F/PR) recommending that funding be allocated to support such a survey.

16. It was recommended and agreed that NMFS should reevaluate its policy of restricting funding for the purpose of responding to stranding events and should include support for travel, at least in Alaska.

17. Regarding North Pacific sperm whales, it was recognized that the stock structure presented in Hill et al. (1996) is likely incorrect, as is the stock structure currently recognized by the IWC. Therefore, it was recommended that NMFS should place additional priority on expanding efforts to get biopsy samples from live or stranded sperm whales throughout the North Pacific because without this information it would not be possible to develop classification criteria under the ESA and MMPA.