

**MEETING OF THE PACIFIC SCIENTIFIC REVIEW GROUP
NATIONAL MARINE MAMMAL LABORATORY, SEATTLE WA
16-18 NOVEMBER 1998**

The eighth meeting of the Pacific Scientific Review Group (SRG) was held at the National Marine Mammal Laboratory in Seattle, WA on 16-18 November 1998. All Pacific SRG members were in attendance with the exception of Kathy Ralls and Terry Wright. Other participants included Jay Barlow, Susan Chivers, Karin Forney from the NMFS Southwest Fisheries Science Center, Marilyn Dahlheim, Pat Gearin, Brad Hanson, Scott Hill, Jeff Laake, Sally Mizroch, Sue Moore, Marcia Muto, Kim Shelden, and Janice Waite from the National Marine Mammal Laboratory in Seattle, WA, Carl Benz of the US Fish and Wildlife Service, Joe Scordino of the NMFS NW Regional Office, Irma Lagomarsino of the NMFS SW Regional Office, Paul Wade of the NMFS Office of Protected Resources, and invited experts Nancy Black, John Calambokidis, Graeme Ellis, John Ford, Craig Matkin, Peter Olesiuk, Andrew Trites, and Kate Wynne. Susan Chivers, Karin Forney, and Michael Scott served as rapporteurs. Participants and observers are listed in Appendix 1, background documents provided to the groups are listed in Appendix 2, and the agenda of the meeting is in Appendix 3. The meeting was chaired by Robin Brown.

Robin Brown opened the meeting and welcomed the invited participants to this meeting of the Pacific SRG. The meeting focussed primarily on issues concerning harbor porpoises and killer whales.

GENERAL REVIEWS

Jay Barlow reviewed the timing of the Stock Assessment Report (SAR) review and publication process. Paul Wade reviewed the recent meeting of the Atlantic SRG and the activities of the Take Reduction Team for Atlantic large whales. John Calambokidas described some apparent distributional shifts of sperm whales off California associated with the ATOC experiment. Joe Scordino presented an update on the Makah whaling issue. Joe Scordino reviewed the issues and objectives of current state/federal joint research programs focussed on West Coast pinnipeds (98-PSRG-21).

HARBOR PORPOISES

The SRG chose to focus on harbor porpoises at this meeting to examine some of the uncertainties in the stock structure of this species, and to closely monitor the trends in abundance for these stocks, particularly for the Central CA stock that previously had been thought to be declining. The SARs for the four stocks were also reviewed.

Susan Chivers presented an update of the analysis of genetics data pertinent to the population structure of harbor porpoise. The preliminary results presented indicate that a more accurate and appropriate stock boundary between the Inland WA and WA/OR Coastal stocks is different than the currently recognized boundary. There will be additional discussion of stock boundary changes and their implications after the genetics paper has been peer reviewed. The recommendation of the SRG was that NMFS review the genetic, population density, tracking, and contaminant data and present a range of options for stock delineation at the Fall 1999 SRG meeting.

Three papers about the aerial surveys conducted off the coasts of California (98-PSRG-2), Oregon and Washington (98-PSRG-1) and a shipboard survey conducted off the coast of California (98-PSRG-5) were presented and discussed. Jeff Laake noted that the abundance estimate for the OR/WA Coast stock had increased from 26,000 to 44,000. The increase was attributed to a broader survey area, and different estimate of $g(0)$, and a potential shift in porpoise distribution due to El Niño (although the most-recent data for the Central CA stock also showed an increase). Brad Hanson described the satellite and radio tracking of a harbor porpoise in Puget Sound.

Karin Forney discussed the set net fishery operating in the southern part of Monterey Bay, California, which included an analysis of mortality rates based on previously observed entanglement rates for north Monterey Bay and an estimate of fishing effort. There is cause for concern about the takes of harbor porpoise and sea otters in this recently expanded fishery. The SRG recommended that an observer program be implemented for this fishery and that the use of pingers in that fishery should be considered. (Monterey Bay is a National Marine Sanctuary and the effects of pingers in such a limited and protected area would need to be carefully assessed.) Irma Lagomarsino discussed a planned observer program for this fishery which is scheduled to begin in early 1999.

KILLER WHALES

The SRG chose to focus also on killer whale stocks at this meeting because of the uncertainties about the stock structure. At the same time, the SRG wished to take the opportunity to learn from U.S. and Canadian researchers about the complexities of killer whale social structure and the current studies on the species. The SRG invited killer whale experts, including John Ford, Graeme Ellis, Craig Matkin, and Nancy Black, to discuss their work and to solicit their opinions on the SARs reviewed by the SRG and other management issues.

One discussion focussed on whether the proposed Mexico/US stock warranted a separate stock assessment as it is comprised solely of only what's been named the "LA pod" as well as incorporating the "unknown" (*i.e.*, unidentified to resident or transient

group) and “offshore” killer whales, about which relatively little is known, in the SARs. The consensus of the group was that the eastern offshore stock should be included in the Pacific SAR, the “L.A. Pod” did not warrant recognition as a separate stock, and where appropriate the Pacific SAR should cite the Alaska SAR appendix which has the data from fishery log books and other sources of self-reporting for information on fishery interactions. Also the information available for the Alaska longline fishery should be included in the “other mortality” section of the SAR. The SRG accepted the separation of the offshore and transient killer whale stocks off CA, OR, and WA as was presented in the revised SARs.

Specific comments on the southern resident stock: The second sentence of the paragraph about the minimum population estimate should be eliminated as it is incorrect.

OTHER STOCK ASSESSMENT REPORTS

Pilot Whales:

The abundance and mortality estimates were updated and incorporated in the calculation of PBR. Estimated mortality still exceeds the PBR.

There was concern expressed by SRG members about the reference to intentional takes of pilot whales at the bottom of page 2 of the SAR. The only evidence available of these interactions is anecdotal, and there have been no direct takes of animals observed. Re-wording the statement to either (1) end after the phrase “although the extent of such mortality is unknown,” or (2) to modify the clause to say “directed takes MAY include intentional takes” was recommended.

Chuck Janisse reported that there was anecdotal evidence that pilot whales were present when the squid fishery was active last year (Oct 96 - Apr 97 fishery). There have been no reported whale sightings during the squid fishery this year but effort has been sporadic with occasionally large catches. Therefore it was recommended that a clause be added to the SAR that fishermen have observed pilot whales.

The use of mortality data in the SARs and the effect of pingers on entanglement rates for pilot whales was discussed. Currently, the mortality estimates for the drift-net fishery are averaged and includes years from both before and during the pinger experiment. The SRG recommended that the mortality average in future SARs should include only the post-pinger data as previous data are no longer representative of the current fishery. A caveat should be included that average mortalities based on only one or two annual estimates can be greatly affected by the occurrence of rare mortalities. The SRG recommended that the 5-yr mortality table still report pre-pinger mortalities in the SAR along with the post-pinger data. It was also recommended that the Mexican

set net information be updated because the Mexican effort is different since they fish with longer nets.

Sperm Whales:

The updated information in the SAR included (1) stock and abundance information from the 1996 and 1997 survey data, (2) mortality estimates, and (3) added historical whaling information. No progress has been yet on a group-size analysis for adjusting abundance estimates that was described during the last SRG meeting.

The SRG recommended correcting ship strike information presented since no data are available to determine species identification. Historical whaling data should not appear in the Annual Mortality section.

Humpback Whales:

The updated information included data on abundance trends and reproductive rates as well as mortality estimates. The estimated mortality is less than the PBR, but observed injuries due to fishery activities are greater than the PBR.

Review of the sighting record (document 98-PSRG-10) submitted to the group concluded that the observer's determination should not be overruled, because the information provided by the observer could not be interpreted as a "serious injury."

The SRG discussed increasing the recovery factor based on the available mark-recapture data which indicates a 6%/year increase. It deferred a decision until the spring or fall 1999 meeting when John Calambokidis would likely have a paper available describing the results.

SRG recommendations: (1) change the language in the document so that presentation of the AK and Pacific SARs are consistent, (2) move the "historic whaling" information out of the "Annual human-caused mortality" section, and (3) edit the data presented from strandings to remove all links between reported stranding events.

Eastern Steller Sea Lions:

The SRG recommends that a stock-specific correction factor (with associated variance) be calculated for Eastern Steller sea lions to better estimate population abundance, that sites showing obvious differences in population trends (*e.g.*, central CA) be reported separately, and that the data presented in the table be made consistent by reporting methods used for pup counts.

Sea otters:

Carl Benz provided an overview of the current status of sea otters. Karin Forney also presented her estimates for the incidental take of sea otters in gillnet fishery

operating in the south part of Monterey Bay (98-PSRG-4). The effort increased to >750 sets in 1997, which compares to a maximum of 30 sets/year in the early 1990s. Using the observed entanglements of sea otters during the 1987-90 California Department of Fish and Game program, the estimated mortality was 41 animals in 1997. While these numbers are cause for concern, the assumptions made to calculate the estimate could not be verified, and the estimate may be biased. Two important assumptions are that the fishery is now limited to depths >30 fathoms, which likely affects entanglement rates and that the abundance of sea otters has increased since 1987-90. Discussion of the renewed fishing effort in south Monterey Bay identified several high priority needs to fully evaluate the impact on sea otters. 1) start a fishery observer program, 2) include depth distribution of sea otter sightings data available from Jim Estes to refine the mortality estimates and 3) expand the surveys for population abundance estimation farther offshore

The effects of abandoning the sea otter translocation experiment at San Nicolas Island was discussed. If endorsed by the Recovery Team and the FWS, this could result in an end of the "otter-free zones" in the rest of southern CA because Public Law 99-625, which authorized the sea otter translocation and established the no-otter zone, specifies that if the translocation is declared a failure, the no-otter zone will be abolished. The potential conflict in attempting to manage both endangered abalone and threatened sea otter populations was also discussed.

Hawaiian Monk Seals:

Discussion centered around the status of re-categorizing the longline fishery. On the basis of Hilda Diaz Solero's response to the SRG's letter, it appeared that the data could not be analyzed in time for recategorization of the fishery for the 1999 SARs. NMFS will consider this information in the listing of fisheries for 2000.

TRANSBOUNDARY ISSUES AND U.S.-CANADA RESEARCH

Peter Olesiuk and Andrew Trites provided overviews of pinniped programs in Canada. Overall, the SRG was impressed by the amount of cooperative research being conducted between the Canadian and US researchers and the standardization of techniques between groups. One item lacking was the coordination of tagging projects, particularly circulating information about what marks are being used and where animals are being marked and who to contact with re-sight information.

Graeme Ellis provided an overview of cetacean programs in Canada and John Ford talked about the current status of killer whale research in BC. There has already been substantial cooperation between Canadian and U.S. researchers, ranging from providing harbor porpoise samples from BC for NMFS genetic studies, to cooperative studies on killer and humpback whales. The SRG was impressed with the amount of

research being conducted despite the under-staffing and under-funding of government programs. Noticably lacking is information on cetacean population abundances and fishery interactions for British Columbia.

CA DRIFT-NET FISHERY

Jay Barlow reviewed the results of the pinger experiment conducted in the California drift gillnet fishery. In short, the use of pingers significantly reduced the entanglements of common dolphin and northern right whale dolphin as well as pinnipeds without impacting the catch of target species. The data were collected during the experimental period is not sufficient to analyze the affect of pingers on any strategic stocks. Future analyses will include looking at depredation rates between pingered and non-pingered nets. Barlow also presented preliminary results of an analysis of compliance rates based on data collected since pingers were made mandatory in the fishery.

Irma Lagomarsino presented an update on the take reduction team. She noted that the fishery had achieved the 6-month goal of the Take Reduction Plan. There are still concerns about attachment techniques for pingers and how to meet the ZMRG. There has also been discussion about reducing observer coverage if the TRP goals are met because the observer program is so expensive. Enforcement effort, however, will be increased next year.

The question was brought about increasing the Recovery Factors for some of the stocks taken in this fishery because the observer coverage was now greater than 20%. This topic will be reconsidered during the joint SRG meeting in spring 1999 when the general topic of changing Recovery Factors in a consistent manner will be discussed.

POSSIBLE TOPICS FOR A JOINT SRG MEETING

A joint meeting of the SRGs is planned for the spring of 1999 to discuss topics of mutual interest. The Pacific SRG has suggested the following items for the agenda of a joint meeting:

- 1) Review NMFS draft plan, recommended by this SRG, to fine-tune the Recovery Factor defaults for endangered species.
- 2) Review transboundary issues so that stocks and fisheries (and even marine debris) that extend beyond the US EEZ can be better managed.
- 3) Relationship of SRGs and NMFS: standardize the recommendation process and the relationships between NMFS and the different SRGs, and discuss the future role of the SRGs.
- 4) Review new proposed ZMRG definition.

- 5) SAR revision schedule update.
- 6) Review of NMFS report on definitions of serious injury.
- 7) Prepare recommendation to change the focus of stranding programs from rehab and pinniped die-off issues to collecting data relevant to monitoring populations.

RESEARCH AND MANAGEMENT RECOMMENDATIONS

Pacific Scientific Review Group – November, 1998

New Recommendations

The Pacific SRG previously recommended (in Dec. 1994) that the Central California harbor porpoise stock be designated strategic based on an apparent decline in abundance, a fishery mortality that closely approached PBR, and a lack of evidence that populations of this species have recovered after being reduced due to fishery takes in other areas of the world. Since then, the abundance trend no longer indicates a decline. New information on the Monterey Bay set-net fishery suggests, however, that the mortalities of harbor porpoises and sea otters are higher than previously expected and may be well in excess of PBR. The mortality estimates, if confirmed, indicate that the Central California harbor porpoise stock would become strategic. The California sea otter population has been declining in recent years, and any mortalities that may be due to set-net entanglements could partially explain this decline. The Pacific SRG strongly recommends the following:

- 1) Institute an observer program to monitor marine mammal mortalities in the Monterey Bay set-net fishery. This fishery has not been monitored since 1994 and mortality has been estimated from extrapolations based on previous mortality rates and current fishing effort. Obtaining current mortality data from this fishery should be given a high priority.
- 2) Continue the aerial surveys for California harbor porpoises and expand the area covered out to at least the 100-fathom contour to determine if annual variation in abundance estimates is due to distributional shifts and to develop a better estimate of overall abundance.
- 3) Additional analyses of sea otter depth distribution in Monterey Bay should be completed to determine the vulnerability of otters in this area to a fishery that currently is restricted to waters deeper than 30 fathoms.
- 4) The SRG believes that establishing a Take Reduction Team for this fishery at this time would be premature.

Previous Recommendations

(This list is presented here to reassert these recommendations and to review the progress that has been made on each; the order of presentation does not imply a ranking of priority.)

Despite the intensive sperm whale research efforts conducted by NMFS in recent years, significant questions remain. New research should be focused on:

- 1) improving sperm whale group size estimates from past and future surveys;
- 2) determining stock structure and boundaries by:
 - a) increasing tissue sample collection for genetic analysis (particularly in the waters off California, Oregon, and Washington and in the Gulf of Alaska);
 - b) expanding future surveys offshore and northward through the Gulf of Alaska;
 - c) examining movements via telemetry studies.

The SWFSC has received a few more genetic samples. An offshore survey was completed in 1997 and reported to the SRG in 1998.

No recommendation could be made regarding changing the recovery factor for sperm whales from the default value of 0.1 (at the Spring 1998 SRG meeting). The SRG agreed that the sperm whale is not currently in danger of extinction. However, the lack of guidelines for choosing an alternate Recovery Factor that could be applied consistently by all SRGs was identified as a concern. Therefore, the Pacific SRG recommended that:

- 1) NMFS develop criteria to categorize all endangered marine mammal species to differentiate those species that are at very low abundance levels and in imminent danger of extinction from those that are less at risk;
- 2) different recovery factors for each category be developed so that consistent guidelines can be applied for all U.S. marine mammal stocks;
- 3) these guidelines be developed by the NMFS and reviewed by a joint meeting of the SRGs in the fall of 1998.

These guidelines will be discussed in a joint SRG meeting to be held in the spring of 1999.

Observer data from the Hawaiian longline fishery indicate that there is more than a remote likelihood of serious injury and mortality (Category III) for cetaceans in this fishery. The SRG recommended that:

- 1) mortality estimates for the entire fleet be extrapolated from the observed entanglement and mortality;
- 2) this estimated fishery mortality data be incorporated into the next SAR revisions;
- 3) this Hawaiian fishery, and the California offshore longline fishery that uses the same fishing methods and sometimes shares the same fishing grounds, be reclassified as Category-II fisheries.

This recommendation was not received in time for the classification of fisheries proposed for 1999. It will be considered by NMFS for the list of fisheries for 2000.

The Pacific SRG has previously recommended conducting a comprehensive survey of the Hawaiian archipelago to fill the large gap in our knowledge about the abundance and status of Hawaiian cetacean stocks. Because Congress has mandated that intensive dolphin surveys be conducted in the eastern tropical Pacific during 1998-2000, neither NOAA ship time, funding for suitable charter vessels, nor SWFSC personnel will be available to conduct surveys in Hawaii. Instituting observer programs to estimate mortalities would also be problematic because of the small-scale nature of the local fisheries. The problem of dolphins that may be shot at to discourage them from stealing fish from fishing lines was thought to be a law enforcement and education issue rather than one requiring an observer program. The SRG recommended that smaller-scale research projects be initiated to assist in monitoring dolphin mortality and trends in abundance, such as:

- 1) Initiate a comprehensive stranding program to recover marine mammals from the Hawaiian Islands. This would allow trained personnel to examine carcasses for evidence of gunshots or fishery interactions, and to collect life history data.
- 2) Conduct photo-identification studies of bottlenose dolphins and other species that would be good indices of the effects of fishery interactions. Such studies could allow monitoring for evidence of non-lethal gunshots or fishery interactions, to monitor abundance using mark-resight methods to detect potential declining trends, and to take biopsy samples for genetic analysis. Photographs and biopsy samples could also be collected opportunistically during surveys conducted for other research purposes.
- 3) Conduct radio- or satellite-tracking studies of bottlenose, spinner, and spotted dolphins to determine home ranges and to infer population structure.
- 4) Update assessments of fisheries interactions with marine mammals. This could be aided by coordination with the monk seal program to obtain observer mortality data from domestic and foreign fisheries operating near Hawaii.

No progress has been made on the recommendation that comprehensive surveys be undertaken for the Hawaiian archipelago because the surveys have been delayed until at least the year 2001. Little progress has been made on the alternate studies recommended above. It was reported, however, that NMFS had updated mortality estimates for the Hawaii longline fishery and had contracted an aerial survey of Hawaiian waters by the University of Hawaii.

The Pacific SRG recommended that monitoring of the Pacific coast harbor porpoise stocks be continued. Although the reduction in effort by the California coastal set-net fishery had apparently reduced mortality, NMFS data presented at that time suggested that the population may still have been declining (see new recommendation at top of list for more recent description of stock status and current SRG comments on this fishery). The status of harbor porpoise stocks in Washington and Oregon also

remain unclear. Monitoring of these stocks should continue, along with studies to determine whether the declines are due to environmental or human-caused factors, and to document the population growth rate in the wake of fishery mortalities and population decline. Satellite tracking of Washington harbor porpoises could help determine stock structure.

Monitoring of the Central California harbor porpoise stock has continued and the recommendation for this stock was updated during this meeting (Fall 1998). Genetics sampling has also continued to elucidate the stock structure of harbor porpoises in Washington and Oregon, but more samples could help to identify appropriate boundaries between inland and coastal stocks. New analyses may suggest changes to current stock boundaries. Any proposed revisions to these SARs will be reviewed at the Fall 1999 SRG meeting..

It is unknown whether the virtual disappearance of pilot whales from the California coast is a natural phenomena due perhaps to changing environmental conditions or due to fishery interactions (possibly by the squid purse-seine fishery). Because the California Dept. of Fish and Game plans to institute a new research program on market squid, it would be useful for researchers aboard squid purse seiners to document any incidental or directed mortality that may be occurring. Research into the current distribution and migration patterns may shed light on these questions. Satellite-tracking of pilot whales that are captured and released from purse-seine nets could be attempted on an opportunistic basis.

The market squid research program to be conducted by the California Dept. of Fish and Game with NMFS funding has not yet begun. However, when initiated, it could provide opportunities to apply satellite tags to whales that are captured and released (this effort would require additional resources).

The SRG is concerned about the recent decline in the California sea otter population. The SRG recommended that efforts be increased to determine causes of mortality, such as:

- 1) expanding the efforts of the stranding program to recover carcasses that could indicate the causes of death;
- 2) initiating a shore-based observer program to monitor new and expanding coastal fisheries (for example, the finfish trap fishery) to determine whether any sea otter mortality is occurring and contributing to the population's decline.

The percentage of necropsies performed has increased, and the Fish and Wildlife Service has initiated new observer programs. This recommendation was updated during this meeting (Fall 1998).

APPENDIX 1

Scientific Review Group - Pacific Region

Hannah Bernard
Hawaii Wildlife Fund

Robin Brown
Oregon Department of Fish and Wildlife, Marine Region

Mark Fraker
Terramar Environmental Research

Doyle Hanan
California Department of Fish and Game, Marine Resources Division

John Heyning
Natural History Museum of Los Angeles County

Chuck Janisse
Federated Independent Seafood Harvesters

Steve Jeffries
Washington Department of Fish and Wildlife, Marine Mammal Investigations

Katherine Ralls (not attending)
Department of Zoological Research, National Zoological Park, Smithsonian Institution

Michael Scott
Inter-American Tropical Tuna Commission

Terry Wright (not attending)
Manager of Enhancement Services, Northwest Indian Fisheries Commission

Invited Participants and Observers:

National Marine Mammal Laboratory	Alaska SRG
Marilyn Dahlheim	Kate Wynn
Brad Hanson	Craig Matkin
Pat Gearin	Cascadia Research
Scott Hill	John Calambokidas
Jeff Laake	Univ. of British Columbia
Sue Moore	John Ford
Sally Mizroch	Andrew Trites
Marcia Muto	Canada Dept. of Fish. & Oceans
Janice Waite	Graeme Ellis
Kim Sheldon	Peter Olesiuk
NMFS Southwest Fisheries Science Center	Moss Landing Marine Labs
Jay Barlow	Nancy Black
Susan Chivers	Independent Contractor
Karin Forney	Bill Walker
US Fish and Wildlife Service	National Geographic Society
Carl Benz	Anna Marie Hammers
NMFS SW Regional Office	
Irma Lagomarsino	
NMFS NW Regional Office	
Joe Scordino	

APPENDIX 2

Pacific SRG Document List: Fall 1998 Meeting

98-PSRG-0 Agenda and document list.

98-PSRG-1 Laake, Calambokidis and Osmeck. Survey report for the 1997 aerial surveys for harbor porpoise and other marine mammals of Oregon, Washington and British Columbia Outside Waters.

98-PSRG-2 Forney. The abundance of California harbor porpoise estimated from 1993-97 aerial line-transect surveys.

98-PSRG-3 Forney. Trends in harbor porpoise abundance off central California, 1986-95: Evidence for interannual changes in distribution?

98-PSRG-4 Forney. A review of 1990-97 set gillnet fisheries in the Monterey Bay area and revised estimates of mortality for harbor porpoise, *Phocoena phocoena*, and sea otters, *Enhydra lutris*.

98-PSRG-5 Carretta, Taylor, and Chivers. Abundance of harbor porpoise (*Phocoena phocoena*) in northern California estimated from a 1995 ship survey.

98-PSRG-6 SWFSC Pacific Stock Assessment Reports (revised).	Page
Harbor porpoise: Central CA Stock	1
Harbor porpoise: Northern CA Stock	6
Killer whale: Eastern N. Pac. Offshore Stock	9
Killer whale: Mexico/U.S. Stock	13
Short-finned pilot whale: CA/OR/WA Stock	17
Sperm whale: CA/OR/WA Stock	21
Humpback whale: CA/OR/WA - Mexico Stock	26

98-PSRG-7 NMML Pacific Stock Assessment Reports (revised).	Page
Harbor porpoise: OR/WA Coast Stock	1
Harbor porpoise: Inland WA Stock	6
Killer whale: eastern N. Pac. Southern Resident Stock	13
Killer whale: eastern N. Pac. Transient Stock	19

98-PSRG-8 NMML Alaska Stock Assessment Reports (revised).	Page
Steller sea lion: Eastern US Stock	1
Humpback whale: Central N. Pac. Stock	8

- 98-PSRG-9 Cameron. 1998. Cetacean mortality in California gillnet fisheries: preliminary estimates for 1997. Int. Whal. Commn. Working Paper SC/50/SM2. 15pp.
- 98-PSRG-10 Humpback whale entanglement record. "Serious Injury"?
- 98-PSRG-11 Raum-Suryan, K. L. and J. T. Harvey. 1998. Distribution and abundance of and habitat use by harbor porpoise, *Phocoena phocoena*, off the northern San Juan Islands, Washington. Fish. Bull. 96:808-822.
- 98-PSRG-12 Lowry, M. (Nov. 1998 Press Release) 1997-98 El Nino effects on California sea lions.
- 98-PSRG-13 Calambokidis, J. and R. W. Baird. 1994. Status of marine mammals in the Strait of Georgia, Puget Sound and the Juan de Fuca Strait and potential human impacts. Can. Tech. Rept. of Fish. Aquat. Sci. No. 1948.
- 98-PSRG-14 Public comments on Draft Stock Assessments for 1998
Marine Mammal Commission
Humane Society U.S.
- 98-PSRG-15 Barlow, J. and G. A. Cameron. Acoustic pingers reduce cetacean and pinniped bycatch in the California drift gillnet fishery.
- 98-PSRG-16 Hawaiian Monk Seal (*Monachus schauinslandi*) Stock Assessment Report
- 98-PSRG-17 Baker et al. 1998. Population structure of nuclear and mitochondrial DNA variation among humpback whales in the North Pacific. Mol. Ecol. 7:695-707.
- 98-PSRG-18 Baird. Recent population trends for "southern" resident killer whales, and potential causes of a decline. (Manuscript)
- 98-PSRG-19 Pierce et al. 1996. Interactions of marbled murrelets and marine mammals with the 1994 Puget Sound sockeye gill net fishery.
- 98-PSRG-20 Wade and DeMaster. Determining the optimal interval for abundance surveys.
- 98-PSRG-21 Expanding pinniped populations on the West Coast. Cooperative state/federal program.
- 98-PSRG-22 Barret-Lennard, L. Mitochondrial DNA analysis of Alaskan and British Columbian killer whales.

98-PSRG-23 Status of southern sea otter recovery plan revision. Marine Mammal Commission Meeting Document.

98-PSRG-24 Efforts to determine and eliminate or mitigate the causes of the on-going southern sea otter population decline. Marine Mammal Commission Meeting Document.

APPENDIX 3

AGENDA - Pacific SRG Meeting, Fall 1998

98-PSRG-0

Monday, November 16

1300-1700

- Review of SARs (sperm whales, pilot whales, humpback whales, E. Steller sea lions)
- Atlantic SRG update (Wade)
- California ATOC update/correction (Calambokidis)
- Makah whaling update (Scordino)
- West Coast pinnipeds (NMFS-funded predation studies)

Tuesday, November 17

0800-1200

- Pinnipeds (US-BC cooperative efforts)
- Harbor porpoise
 - Stock structure information
 - Abundance, '95 ship surveys, '97 aerial surveys
 - Mortality info update
 - Transboundary discussions
 - Review of 4 SARs

1300-1700

- Killer whales
 - Stock structure
 - Review of 3-4 SARs
 - Transboundary discussions

Wednesday, November 18

0800-1200

- Sea Otters
 - Population surveys (continued decline?)
 - Monterey Bay set net fishery
 - Review sea otter SAR
- California drift net fishery
 - Pinger experiment update
 - Mortality info
- Review of SARs (monk seals)
- Other items and SRG business (NMFS fishery categorization, SPAM cruises)
- Topics and schedule for future SRG meetings