

**MEETING OF THE PACIFIC SCIENTIFIC REVIEW GROUP
RED LION INN, ASTORIA, OREGON
6-8 NOVEMBER 2000**

The eleventh meeting of the Pacific Scientific Review Group (SRG) was held at the Red Lion Inn, Astoria, Oregon from 6 to 8 November 2000. All Pacific SRG members were in attendance with the exception of John Heyning and Mark Fraker. Meghan Donahue served as rapporteur. Michael Scott served as chairman of the SRG. The SRG members and other participants are listed in Appendix 1, review documents are listed in Appendix 2, and the agenda of the meeting is in Appendix 3.

MMPA Re-authorization

Tom Eagle (NMFS) reviewed the re-authorization status of the MMPA. NMFS submitted a bill to Congress where it is awaiting review. Among the amendments, a new definition of level B harassment is based on any "significant" change in behavior. Under the co-management section, it was proposed that regulation of subsistence harvest be authorized before harvested stocks are classified as "depleted." Under section 118, an amendment was included that recreational fisheries receive the same treatment as commercial fisheries in terms of fishery interactions. The status of the reauthorization process is presently unknown.

Definition of ZMRG

Eagle also briefed the group on the status of ZMRG definition. A progress report on ZMRG definition was due in April 1998. There has been widespread discussion concerning a possible quantitative definition of ZMRG that could be proposed. Some definitions discussed (e.g., 10% of PBR) would lead to very low numbers of takes, especially for endangered whales. He stated that NMFS was also considering the simpler approach used under Agreement for the International Dolphin Conservation Program, which currently limits the mortality of dolphins stocks affected by the tuna purse-seine fleet to 0.1% of N_{\min} (functionally equivalent to current NMFS guidelines of ZMRG with the defaults of 2% for $\frac{1}{2} R_{\max}$ and 0.5 for the Recovery Factor. At the same time, limited resources have also made it difficult to convene Take Reduction Teams for some stocks that are already exceeding PBR. The MMPA states that fisheries must achieve ZMRG by April 30, 2001, and the NMFS will have difficulty in coming to a final decision about the definition of ZMRG by this deadline. The distribution of a draft report in the short term has been recommended within NMFS in order to commence a nationwide discussion on this issue.

Research Funding

Jay Barlow reported that MMPA funds available for annually proposed projects have decreased substantially for fiscal year 2001. The SWFSC submitted a proposal for a large-scale survey of California and Oregon similar to the one completed in 1996 of California, Oregon and Washington (ORCAWALE survey). A \$250K limit on proposals was set, so the survey will be a bare-bones operation (the previous ORCAWALE survey had \$400K in funds available). This project was given the highest priority within the SWFSC's Protected Resources Division because it was one of the SRG's recommendations and needs to be done this year to remain on the 5-year schedule for abundance estimates required by the MMPA. A Hawaii survey was not proposed

for this year because the lack of shiptime and funding. The SWFSC is hoping to receive funding for a Hawaii survey in 2002.

The lack of funding would not allow the proposed survey to be extended further north to address stock and abundance information needs on sperm whales. The SWFSC is trying to collect more genetic samples from longline fishing boats in the Gulf of Alaska, and may have been able to obtain acoustic and biopsy data from other platforms of opportunity in the next few years.

Hawaiian Longline Fishery

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. Previously, the SRG has recommended that this fishery be recategorized as Category II because observer data that indicated serious injuries have occurred to marine mammals that were hooked and released trailing gear. The NMFS is likely to propose it be recategorized to a Category II fishery for the 2001 List of Fisheries.

The California-based offshore longline fishery uses the same fishing methods and sometimes shares the same fishing grounds and could be reclassified at least as Category II to be consistent with other longline fisheries. A request for marine mammal interaction data was made by NMFS's Southwest Region and preliminary review of the initial data indicated few interactions. There is no indication that the California-based longline fishery will be proposed for recategorization for the 2001 List of Fisheries. The SRG recommends, however, that both the Hawaii-based and California-based fisheries be considered a single Pacific pelagic longline fishery given the overlap in fishing grounds.

Data indicate that the estimated serious injuries of Hawaiian stock of false killer whales caused by the Hawaii-based portion of this fishery exceeds PBR and that the fishery could be recategorized as Category I. The abundance estimate for this stock, however, are from a relatively small subarea of the US EEZ (within 25 miles of shore) and a more-complete Hawaiian cetacean survey may change how this stock is classified. Mortality data from the fishery will be available for analysis by January. It was noted that the areas that the abundance data and fishery data come from are not overlapping, which makes a stock assessment more problematic. Though the available abundance estimate for this stock needs improvement, it is used in the SAR for consistency in data use across the reports. The status in the 2000 SAR and in the draft 2001 SAR for this stock remains strategic. The SRG believes, however, that effort should be expended on getting better abundance estimates from the EEZ around Hawaii rather than forming a Take Reduction Team for the fishery.

Continuation of small-scale research in Hawaii is planned, including photo-ID, mark-recapture, biopsy and suction-cup TDR work by Robin Baird and aerial survey work by Joe Mobley. In 2002 the NOAA vessel *David Starr Jordan* will be available for a Hawaii survey if funding is available.

Hawaiian Monk Seals

A brief description of the 1999 monk seal population data was supplied (PSRG-10) in lieu of a draft SAR which will be completed by January. An encouraging finding during 1999 was that juvenile survival at French Frigate Shoals and Lisianski Island increased. The total number of pups born at the six main reproductive populations remained relatively high. At FFS, however, high losses have already reduced this cohort. The main survival problems are thought to be due to shark predation and reduced food resources.

Recently, a multi-agency cruise led by the NMFS recovered 25.5 tons of marine debris from reefs and beaches at Lisianski Island, Pearl and Hermes Reef and Midway Atoll. A prior recommendation of the PSRG and the Monk Seal Recovery was a study of marine debris recruitment; completion of the most recent debris removal cruise will allow this study to proceed.

Harbor porpoise

Susan Chivers presented an update of the intra-specific population structure analyses. Samples from 260 individuals were used for this study, including control region sequences from 199 animals and nine microsatellite loci for 182 animals. Results from molecular genetic analyses using these samples suggest that there are population sub-units within the stocks currently recognized in the Stock Assessment Reports. Data were divided into eight geographic strata, based on sampling discontinuities: Monterey Bay, California; San Francisco Bay and Russian River, California; central and southern Oregon; Columbia River, Oregon; northern Washington; western shore of Vancouver Island, British Columbia; inland waterways of Washington and British Columbia; and Copper River Delta, Alaska. In comparisons of nearest neighbor locales, five of the eight comparisons were statistically significant ($p < 0.05$), indicating very limited dispersal between these neighboring strata. The other comparisons were of strata that were more distant from each other and were expected to be genetically distinguishable because dispersal appeared limited. However, those results were not consistently significant; the researchers believe the most likely reason for this outcome is that sample sizes in some strata are too small to detect differences given the high level of haplotypic diversity observed.

Two analyses were done on strata where there is a management concern about whether separate populations exist. First, the San Francisco stratum, was separated into two substrata, which included specimens collected near San Francisco Bay and those collected near the Russian River. Genetic differences between these strata were not detected. Second, samples from inland waterways in Washington were separated from samples collected in Canadian waters (i.e., Strait of Georgia, British Columbia) and compared to their nearest neighbors. The inland waterways of Washington samples were significantly different from the Strait of Georgia stratum but were not statistically distinguishable from the other neighboring strata. The inability to statistically distinguish between strata in some of these comparisons is thought to be attributable to the low power of the test caused by too few samples representing a stratum with such high haplotypic diversity.

Chivers and Barlow presented the SRG with a proposal for revision of stock structures in the SARs for eastern North Pacific harbor porpoise based on the results of these genetic studies

and with other sources of information on harbor porpoise movement. The proposal was to evaluate potential stock boundaries on the basis of population density, habitat discontinuities, movements, and data. For harbor porpoise density, an index of abundance estimated from data collected on aerial surveys along the entire coast was used. For evidence of movements, the authors used recent molecular genetic analyses, historical difference in pollutant levels, and tracking data from two animals that were tagged off the coast of Washington.

The following stock boundaries were proposed from the reasons described in PSRG-9: (1) between Morro Bay and Monterey Bay along the Big Sur coastline, (2) between Monterey Bay and San Francisco, (3) between Pt. Arena and Pt. Cabrillo, (4) near Coos Bay (5) in the vicinity of Copalis Beach, (6) near the mouth of the Strait of Juan de Fuca. This proposal results in seven stocks of harbor porpoise in California, Oregon and Washington where previously four stocks had been recognized. The group suggested that the stock boundaries for Pacific Coast harbor porpoise be revised for the 2001 SARs incorporating all of the data presented and fishery information. The group would revisit the proposed stock boundaries upon review of the 2001 draft SARs. The group thanked the NMFS scientists involved in this complex and important research.

Karin Forney presented trend analyses for harbor porpoise in northern and central California (PSRG-6). For the central California stock, although encounter rates during the 1999 aerial survey were again higher than in past years, the trend in relative abundance is not statistically significant ($p=0.12$). More detailed studies of encounter rate patterns in relation to satellite-derived sea surface temperature during 1993-1999 are planned to shed light on potential oceanography-related movement patterns of harbor porpoise in this region. For the northern California stock, the 1997-99 survey results continue to show no trend in relative abundance.

California Set Gillnet Fishery

Forney summarized the 1999 fishing effort and marine mammal mortality in the Monterey Bay set gillnet fishery (PSRG-6). Fishing effort in Monterey Bay was higher in 1999 than in the previous ten years, with the majority of effort taking place in the southern areas of Monterey Bay. Harbor porpoise mortality is still well over the PBR with an estimated 128 animals killed in 1999.

At a November 1999 skipper workshop sponsored by the Southwest Region, most fishermen appeared convinced that they would have to use pingers on the nets to reduce bycatch if they wanted to avoid a Take Reduction Team (TRT) process. Several of the fisherman voluntarily started using pingers to reduce harbor porpoise mortality in late 1999 and 2000. Preliminary data for calendar year 2000 indicate that mortality has dropped.

Effective 13 September 2000, the California Department of Fish and Game issued an emergency closure of the Central California set gillnet fishery because of concern over bycatch of seabirds and sea otters. The closure prohibits gillnets in waters shallower than 60 fathoms between Yankee Point in Monterey County and Pt. Reyes, and between Pt. Arguello and Pt. Sal in Santa Barbara County. The closure is effective for 120 days and is likely to become permanent in an amended form. Details of the permanent closure regulations are being evaluated by CDFG at this time, but they may include a 30- to 60-fathom closure from Pt. Conception to

Monterey Bay and a 30-fathom closure north of Monterey Bay. The 60-fathom closure is expected to end gillnet fishing activities although it is possible that some fishermen may be able to set nets that deep. If the 60-fathom closure from the Monterey Bay area northward has the effect of excluding the fishery from this region, this will eliminate the vast majority of the harbor porpoise bycatch in central California. If fishing does continue at 60 fathoms, then porpoise mortality is still expected to decrease considerably, because densities of harbor porpoise are lower at this depth. A possible increase in harbor porpoise mortality in the Morro Bay region could result if effort in this area (where fishing is allowed at 30 fathoms) increases.

As it has done before, the SRG recommended that the Central California harbor porpoise be considered a strategic stock. The SRG also recommended continuation of the observer program of the Monterey Bay shark/halibut gillnet fishery. In light of plans to start a voluntary pinger program by the fishery, this should be done as part of an experimental design to determine the effects on harbor porpoises and other marine life that inhabit Monterey Bay. These suggestions may be moot, given that the area closures that are likely to occur may close down the fishery. Given these circumstances, formation of a TRT at this time would not be warranted.

Review of Harbor Porpoise SARs

Central California Harbor Porpoises.

Changes to the SAR included (a) adding data from 1999 aerial surveys that extended farther offshore to provide a more complete abundance estimate; (b) an updated trend analysis; and (c) information on the fishery closure.

Northern California Harbor Porpoises.

Changes included (a) incorporating a higher abundance estimate that included offshore data from 1999 aerial surveys; and (b) an updated trend analysis.

Sea Otters

Kathy Ralls provided some information on the status of sea otter research and management issues related to the California stock. Counts are being conducted twice a year and results from the 2000 Spring survey indicates the population increased 10.9% from last year. However, the population has never increased more than 5-6% in the past, so it is likely that not all of this apparent increase is due to reproduction. As of August, 105 otters were recorded stranded this year (the 10-year average is 105.3 otters per year).

The Fish and Wildlife Service completed a final Biological Opinion on the containment program and is preparing a supplemental EIS. They expect the final EIS to be finished by Summer 2002 and a decision on translocation to be made by Fall 2002. The recovery plan for this species is in progress.

Steve Jeffries provided a review of the Washington population based on aerial and shore-based survey data that is collected each year. In July a die-off of at least 22 animals was recorded (the bulk of the range occurs across non-accessible beaches so more animals may have stranded and gone unrecorded). A similar die-off occurred in the Spring in British Columbia. The cause of the die-off is not yet known. The range of the British Columbia population appears

to be expanding down Vancouver Island and is now almost across from Neah Bay. The southern range of the Washington population appears to be extending as well.

The SRG recommended that the USFWS update and finalize its Stock Assessment Report on sea otters so that the SRG can meet its responsibility to review annually the Stock Assessment Reports of strategic stocks. The last SAR on sea otters reviewed by the SRG was a draft version updated in 1997.

California Driftnet Fishery

Tim Price provided an update on the management issues related to the California/Oregon drift gillnet fishery. A lawsuit was filed against the NMFS because the take of loggerhead turtles exceeded the level set in NMFS's Incidental Take Statement. The NMFS reinitiated Section 7 consultation and completing a biological opinion for endangered marine mammals and sea turtles. An incidental take permit was issued for the fishery in October. The Offshore Cetacean Take Reduction Team met in May 2000 and made their recommendations to the fishing fleet. No major changes were made in the Take Reduction Plan.

Barlow provided a synopsis of the observed mortalities in the driftnet fishery and the second pinger experiment carried out in this fishery that tested an alternate pinger configuration in which all 40 pingers were attached to the float line (PSRG-11). The experiment began in August 1999. To date, preliminary analyses of these data favor the mandatory configuration for sets included within this experimental protocol through January 2000. There were 12 cetacean entanglements for 190 sets using the mandatory configuration compared to 18 entanglements for 188 sets using pingers on the floatline only.

Monthly cetacean entanglement density has been increasing through the period of November to January 2000. This increase may reflect pinger failure (and pinger operation not being checked by observers) or fishing location (effort has been concentrated in one limited area and water turbidity in that area may prevent the visual cue that a net is present). The new style of pingers that has been developed is expected to be more reliable, although observers may have more difficulty checking pinger operation because the pingers remain attached to the net.

PSRG-12 summarized mortality information by stock in the California/Oregon drift gillnet fishery and 1997-1999 average mortality for all stocks is below PBR. However, four stocks (northern right whale dolphin, short-finned pilot whale, sperm whale, and fin whale) have mortality that exceeds 10% of PBR and are therefore not meeting the proposed definition of ZMRG.

California Harbor Seals

The 2000 aerial photographic survey of harbor seals was successful in obtaining a new estimate for seals counted during peak haul-out periods at the Channel Islands and southern California mainland, but weather and other factors precluded a complete survey for the entire state. The population trend of harbor seals in the Channel Islands appears flat since the early 1980s. A series of site counts from the South Farallon Islands and Point Reyes were published in 1999 and shows the South Farallon Island counts flattening (PSRG-16). Counts from Double Point (just south of Point Reyes) show the number of pups born leveling off.

Review of California Harbor Seal SAR

Changes to the SAR included (a) adding California shark/halibut set gillnet fishery observer data from 1999; (b) adding information on two mortality events in 1997 and 2000.

Sperm whales

Barb Taylor summarized SWFSC analyses of genetic relatedness within groups and the definition of sperm whale stock boundaries (PSRG-5, 21). The SWFSC continues to increase the number of sperm whale samples in its archive and, although most of the samples come from the eastern tropical Ocean, a few were obtained from California/Oregon/Washington and Alaska. The SWFSC also obtained several sperm whale ovaries stored in formalin, but attempts to extract useful genetic material from these samples have not been successful. Molecular analyses on material from dried tissue and bone have been more successful. A computer program by Taylor ("Kin-Be-Gone") has enabled the culling of related individuals from the sample set while retaining the maximum sample size possible. At present, the larger kin-free data set shows less population structure than detected previously. Efforts to define stock boundaries from the coastal waters off California, Oregon and Washington remain hampered by low sample size.

Taylor also summarized the latest results of group-size studies on sperm whales for the 1993 and 1996 cetacean surveys (PSRG-19). No corrections were needed for the 1996 survey, because sufficient time was spent with the few sperm whales that were sighted to obtain accurate group-size estimates. Corrections to the 1993 survey were difficult because many sightings were multiple consecutive sightings and many had insufficient detail describing behaviors. During the 1993 survey, much less time was spent with each sperm whale sighting and, of the 45 sperm whale sightings during this survey, 19 were determined to have asynchronously diving whales and were corrected using a minimum correction factor. After next year, the 1993 survey data will not be included in the SARs and this historical correction problem will no longer occur.

Review of Sperm Whale SAR

In the revised sperm whale SAR, the abundance estimate based on the 1993 and 1996 surveys replaced the previous estimate (PSRG-1). The group recommended amending the statement about genetic relatedness between animals in the eastern Pacific and the California Current in light of the recent work by Mesnick et al. 1999 (PSRG-21). The group concurred with the application of the 1.25 correction factor to the 1993 data as done in the revised SAR. The SRG still considers the abundance estimate for this stock to be an underestimate because of the limited stock area. The group commended the NMFS scientists for their difficult, but important research on sperm whales.

Killer Whales

Jeff Laake summarized the information on southern resident killer whales discussed at the Southern Resident Killer Whale Workshop held in April 2000 (PSRG-3). A decline of more than 15% in this stock has been observed during the last few years (1995-1999). The stock is listed as threatened in Canada and a proposal to list the stock under the U.S. Endangered Species Act was discussed at the April workshop. Analysis conducted by Paul Wade indicated that reproductive age females were surviving but juveniles and older males were not, suggesting that the decline may be a survival event and rather than a declining trend in reproduction. Prey

availability, especially in relation to salmon declines, was discussed as a possible correlation to the resident killer whale decline at the April Workshop.

Review of Southern Resident Killer Whale SAR

Counts from 2000 were added and trend information and fishery observer coverage data updated. Information on the listing status in Canada and on the designation of this stock in Washington State as a “state candidate species” were added.

Review of Large-Whale Abundance Estimates

Large whale abundance estimates were reviewed by Barlow (PSRG-1, 1A, 2). The previous SARs used data from 1991, 1993 and 1996 surveys. The 1991 survey data is now eight years old (1991), so abundance estimates excluding the 1991 were re-estimated using only 1993 and 1996 data. Additional changes in the abundance estimation included: (1) using a observer calibration factor from aerial work for 1993 and indirectly for 1996 data, (2) including the offshore waters of Baja California surveyed during the 1993 cruise, which included sightings of blue, Bryde’s and sperm whales, (3) applying a group size correction factor to sperm whales to the 1993 data, and (4) including “probable species identification” sightings. Abundances estimated in this way were used in the SARs and resulted in a higher estimate for sperm and fin whales.

Review of Fin Whale SAR

Changes to the fin whale SAR included: (a) a new abundance estimate of 1,851 was used, and (b) the 1999 kill of a fin whale in the driftnet fishery was referenced.

Review of Humpback SAR

Barlow summarized a report on humpback and blue whale photo-identification research off California, Oregon and Washington (PSRG-2). Information from this work was included in the SAR. Total mortality for this stock is lower than PBR by a comfortable margin now.

The California/Oregon/Washington-Mexico humpback whale stock name was changed to eastern North Pacific stock. Figure 2 was added to the SAR to show the mark-recapture estimates of abundance for humpback whales based on photo-identification studies. The group recommended changing the wording in the status of stock section to reflect that mortality in the California drift gillnet fishery is less than 10% of PBR.

Topics Proposed for Next Meeting

- 1) Sea otter research and management issues,
- 2) Review progress by the Working Group on Recovery Factors,
- 3) Harbor seal census,
- 4) Updated humpback whale abundance estimates,
- 5) FMP recommendations.

The SRG will review the following SARs at the Fall 2001 meeting:

- 1) Stocks whose status has changed,
- 2) Harbor porpoise SARs that incorporate new stock boundaries,
- 3) Sea otter SAR,

- 4) Humpback whale SARs,
- 5) CA harbor seals.

REVIEW OF PREVIOUS RESEARCH AND MANAGEMENT RECOMMENDATIONS

Sperm whales continue to be a major management and research concern because the current mortality in the CA drift-net fishery exceeds PBR. Despite the intensive sperm whale research efforts conducted by NMFS in recent years, more research is needed to:

- 1) Apply the sperm whale group size correction factor to the abundance estimates from the ORCAWALE surveys and include these revised abundance estimates in the 2001 SARs;
- 2) Determine stock structure and boundaries by:
 - a) increasing tissue sample collection (particularly in the waters of California, Oregon, Washington and the Gulf of Alaska) and effort devoted to genetic analysis of these samples;
 - b) intensifying efforts to acquire genetic samples from formalin-preserved specimens;
 - c) expanding future surveys offshore and northward through the Gulf of Alaska.

The SWFSC has completed a complex analysis to apply a correction factor to group size estimates made during abundance cruises. Genetic analyses have been conducted, but insufficient sample size has made stock structure interpretation problematic. The study is ongoing, and the observer program for Gulf of Alaska longline sablefish boats is gearing up to take biopsy samples of sperm whales. Genetic analyses of formalin-preserved specimens have proved to be unsuccessful. Although a survey of the West Coast is planned for 2001, funding and shiptime are insufficient to expand the range of the survey northward.

The Pacific SRG recommends conducting a comprehensive survey of the Hawaiian archipelago as there are known marine mammal-fishery interactions and yet little or no information 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 have been available to conduct surveys in Hawaii. At the conclusion of the eastern tropical Pacific surveys, the SRG recommends that:

- 1) Adequate funding and ship time be allocated for a survey to fill the large gap in our knowledge of Hawaiian cetaceans.

In addition, the SRG recommends that smaller-scale research projects be initiated to assist in monitoring dolphin mortality and trends in abundance, such as:

- 2) Devote more personnel and resources to develop a comprehensive marine mammal stranding program to collect life history, stock structure, and pathology data, and evidence of fisheries interactions. Including trained local marine mammalogists in such a network should be adopted as has been effective in other successful stranding programs.
- 3) Conduct photo-identification and biopsy studies of cetaceans to estimate population abundance using mark-resight methods, to acquire genetic samples, and to monitor evidence of gunshots or fishery interactions.

- 4) Conduct radio- or satellite-tracking studies of cetaceans to determine home ranges and to infer population structure.
- 5) 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.
- 6) Investigate the potential harmful effects on spinner dolphins caused by the increase in tourboat and human swimmer interactions.

Comprehensive surveys of the Hawaiian archipelago have been delayed until at least the year 2002. Independent researchers (Robin Baird, Hannah Bernard, and Marc Lammers) have initiated photo-identification and tracking studies on nearshore Hawaiian cetaceans.

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. Previously, the SRG has recommended that this fishery be recategorized as Category II because observer data that indicated serious injuries have occurred to marine mammals that were hooked and released trailing gear. Data now indicate that the estimated serious injuries of Hawaiian stock of false killer whales caused by this fishery exceeds PBR and that the fishery could be recategorized as Category I. The California offshore longline fishery uses the same fishing methods and sometimes shares the same fishing grounds, and should also be reclassified at least as Category II to be consistent with other longline fisheries.

NMFS has indicated that at least the Hawaii-based portion of the Pacific pelagic longline fishery will likely be listed as Category II on the 2001 List of Fisheries.

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.

There were inadequate funds to implement the market squid research program.

The SRG recommends that the USFWS update and finalize its Stock Assessment Report on sea otters so that the SRG can meet its responsibility to review annually the Stock Assessment Reports of strategic stocks.

The last SAR on sea otters reviewed by the SRG was a draft version updated in 1997.

The SRG recommends continued study of the recruitment of marine debris into the reefs and waters surrounding monk seal rookeries, and continued removal of the debris to reduce the risk of monk seal entanglement.

This work is being done and should be continued.

The SRG recommends that the stock boundaries for Pacific Coast harbor porpoise be revised for the 2001 SARs. These revisions should be based on current genetics data, along with information on harbor porpoise densities, research survey strata, and fisheries information.

The analyses have been completed and presented to the SRG. New stock boundaries will be incorporated into the 2002 SARs.

The SRG recommends that the Central California harbor porpoise be considered a strategic stock. The SRG also recommends continuation of the observer program of the Monterey Bay shark/halibut gillnet fishery. In light of plans to start a voluntary pinger program by the fishery, this should be done as part of an experimental design to determine the effects on harbor porpoises and other marine life that inhabit Monterey Bay.

The stock has been designated as strategic and the observer program has been implemented. The voluntary use of pingers is widespread but not experimentally designed. New regulations that will move the fishery further offshore to reduce the mortality of murrelets and sea otters will likely reduce the mortality of harbor porpoise as well. In light of these fishery area closures, the SRG does not believe that the formation of a Take Reduction Team for this fishery is required at this time.

The SRG recommends that the Working Group on Recovery Factors should prepare guidelines for alternative Recovery Factors to the defaults for endangered species, and that these guidelines be adopted in the 2001 SARs.

The guidelines have not yet been developed.

RESEARCH AND MANAGEMENT RECOMMENDATIONS

Pacific Scientific Review Group – December, 2000

Sperm whales are a major management and research concern because the mortality in the CA drift-net fishery has often exceeded PBR. Despite the intensive sperm whale research efforts conducted by NMFS in recent years, more research is needed to determine stock structure and boundaries by:

- a) increasing tissue sample collection (particularly in the waters of California, Oregon, Washington and the Gulf of Alaska) and effort devoted to genetic analysis of these samples;
- b) expanding future surveys offshore and northward through British Columbia and the Gulf of Alaska;
- c) using acoustic arrays off Alaska and along the West Coast to monitor migration patterns.

The Pacific SRG recommends conducting a comprehensive survey of the Hawaiian archipelago as there are known marine mammal-fishery interactions and yet little or no information about the abundance and status of Hawaiian cetacean stocks. Because Congress has mandated that intensive dolphin surveys and stress-related studies be conducted in the eastern tropical Pacific during 1998-2001, neither NOAA ship time, funding for suitable charter vessels, nor SWFSC personnel have been available to conduct surveys in Hawaii. At the conclusion of the eastern tropical Pacific surveys, the SRG recommends that:

- 1) adequate funding and ship time be allocated for a survey to fill the large gap in our knowledge of Hawaiian cetaceans.

In addition, the SRG recommends that smaller-scale research projects be initiated to assist in monitoring dolphin mortality and trends in abundance, such as:

- 2) devote more personnel and resources to develop a comprehensive marine mammal stranding program to collect life history, stock structure, and pathology data, and evidence of fisheries interactions. Including trained local marine mammalogists in such a network should be adopted as has been effective in other successful stranding programs.
- 3) conduct photo-identification and biopsy studies of cetaceans to estimate population abundance using mark-resight methods, to acquire genetic samples, and to monitor evidence of gunshots or fishery interactions.
- 4) conduct radio- or satellite-tracking studies of cetaceans to determine home ranges and to infer population structure.
- 5) 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.
- 6) investigate the potential harmful effects on spinner dolphins caused by the increase in tourboat and human swimmer interactions.

Observer data from the Pacific pelagic longline fishery (based in Hawaii and the West Coast) indicate that there is more than a remote likelihood of serious injury and mortality (Category III) for cetaceans in this fishery. Previously, the SRG has recommended that this fishery be recategorized as Category II because observer data that indicated serious injuries have occurred to marine mammals that were hooked and released trailing gear. Data now indicate that the estimated serious injuries of Hawaiian stock of false killer whales caused by this fishery exceeds PBR and that the fishery could be recategorized as Category I.

Although the mortality of Hawaiian false killer whales currently exceeds PBR, the SRG does not recommend the formation of a Take Reduction Team for the Pacific pelagic longline fishery at this time. The abundance estimate for this stock is based on a survey that covered a small fraction of the US EEZ, and more effort should be devoted to obtaining better estimates.

The SRG recommends that the USFWS update and finalize its Stock Assessment Report on sea otters so that the USFWS and the SRG can meet their statutory responsibilities under the MMPA to review annually the Stock Assessment Reports of strategic stocks. The last SAR on sea otters reviewed by the SRG was a draft version updated in 1997.

The SRG recommends that the Working Group on Recovery Factors should prepare guidelines for alternative Recovery Factors to the defaults for endangered species. The SRG notes the fast-approaching deadline (30 April 2001) for determining whether or not fisheries have met the Zero Mortality Rate Goal. It is important that this analysis be completed and reviewed by the SRG in advance of this deadline.

Appendix 1

Attendees at the 11th Meeting of the Pacific Scientific Review Group

Scientific Review Group - Pacific Region

Hannah Bernard

Hawaii Wildlife Fund

Robin Brown

Oregon Department of Fish and Wildlife, Marine Region

Mark Fraker (not attending)

Terramar Environmental Research

Doyle Hanan

HDR Engineering, Inc.

John Heyning (not attending)

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

Department of Zoological Research, National Zoological Park, Smithsonian Institution

Michael Scott

Inter-American Tropical Tuna Commission

Terry Wright

Manager of Enhancement Services, Northwest Indian Fisheries Commission

Invited Participants and Observers:

NMFS Southwest Fisheries Science Center

Jay Barlow

Barbara Taylor

Susan Chivers

Karin Forney

Meghan Donahue

NMFS Southwest Region

Tim Price

NMFS Office of Protected Resources

Tom Eagle

National Marine Mammal Laboratory

Marcia Muto

Jeff Laake

Oregon Dept. of Fish and Wildlife

Brian Wright

Appendix 2

Pacific Scientific Review Group Meeting Documents 6-8 November 2000

- PSRG-1 Estimates of large whale abundance off California, Oregon, Washington, and Baja California based on 1993 and 1996 ship surveys. J. Barlow and B. Taylor.
- PSRG-1A 1993-1996 Whale abundances updated to include “probable species identifications” for 1993. J. Barlow.
- PSRG-2 Humpback and blue whale photo-identification research off California, Oregon and Washington in 1999. J. Calambokidis, T. Chandler, K. Rasmussen, L. Schlender and G. Steiger.
- PSRG-3 Southern resident killer whale workshop (1-2 April 2000). National Marine Mammal Laboratory.
- PSRG-4 Population dynamics of southern resident killer whales. P. Wade, D. Bain, and K. Balcomb.
- PSRG-5 Genetic relatedness within groups and the differentiation of sperm whale stock boundaries from the coastal waters off California, Oregon and Washington. S. Mesnick, B. Taylor, B. Nachenberg, A. Rosenberg, S. Peterson, J. Hyde and A. Dizon.
- PSRG-6 Background materials for California harbor porpoise draft stock assessment reports 2001. Prepared by K. Forney.
- PSRG-7 Intra-specific structure of harbor porpoise, *Phocoena phocoena*, inhabiting the eastern North Pacific Ocean inferred from mitochondrial and nuclear DNA. S. Chivers, A. Dizon and P. Gearin.
- PSRG-8 Chlorinated hydrocarbon concentrations and their use for describing population discreteness in harbor porpoise from Washington, Oregon and California. J. Calambokidis and J. Barlow.
- PSRG-9 Discussion Draft: A proposal for revising the stock boundaries for harbor porpoise inhabiting the coastal waters off California, Oregon and Washington. National Marine Fisheries Service.
- PSRG-10 Monk seal population data. J. Baker.
- PSRG-11 Preliminary estimates of cetacean mortality in California/Oregon gillnet fisheries for 1999. G. Cameron and K. Forney.

- PSRG-12 California/Oregon drift gillnet mortality information for SRG meeting 11/6-8/00. National Marine Fisheries Service.
- PSRG-13 Hawaii longline cetacean entanglement update. National Marine Fisheries Service.
- PSRG-14 Taking of threatened or endangered marine mammals incidental to commercial fishing operations; issuance of permit. Federal Register Notice.
- PSRG-15 Draft stock assessment reports. National Marine fisheries Service.
- PSRG-16 Harbor seal counts and trends.
- PSRG-17 Hawaii longline fishery map, including closure areas.
- PSRG-18 U.S. District Court order regarding the Hawaii longline Fishery.
- PSRG-19 Estimation of sperm whale group size for the 1993 and 1996 surveys. B. Taylor.
- PSRG-20 A technique to remove related individuals when estimating population structure. B. Taylor and S. Mesnick.
- PSRG-21 Update to SWFSC Administrative Report LJ-99-12 (PSRG-5) on Genetic relatedness within groups and the definition of sperm whale stock boundaries from the coastal waters off California, Oregon and Washington. S. Mesnick.
- PSRG-22 Sub-surface and night-time behavior of humpback whales off Maui, Hawaii: A preliminary report. R. Baird et al.
- PSRG-23 Diving behavior of two false killer whales off Lana'i, Hawaii. R. Baird.
- PSRG-24 Sub-surface and night-time behavior of pantropical spotted dolphins off Maui and Lana'i. R. Baird et al.
- PSRG-25 Population size of bottlenose dolphin around an oceanic island chain. R. Baird et al.
- PSRG-26 Notice for California/Oregon Drift Gillnet Vessel Owners and Operators. NMFS.
- PSRG-27 Year 2000 recommendations report of the Pacific Offshore Cetacean Take Reduction Team, 11 May 2000.

Appendix 3

AGENDA FOR PACIFIC SRG MEETING Red Lion Hotel, Astoria, Oregon 6-8 November 2000

6 November 2000

General topics

- MMPA re-authorization (Tom Eagle)
- MMPA implementation issues/a fishery perspective (Chuck Janisse)
- Definition of ZMRG (Tom Eagle)
- Research funding allocations (Jay Barlow)

Review of HI longline fishery (Tim Price)

- Legal status
- Reclassification of the Hawaii false killer whale
- Fishery recategorization
- Updated HI longline fishery mortality data (Jay Barlow)
- Review SAR for Hawaii false killer whale
- Hawaii research plans

Monk seals

- Updated abundance estimates

7 November 2000

Harbor porpoise genetics analysis (Susan Chivers)

- Revised harbor porpoise stock structure
- Trend analyses for N and Central CA stocks (Karin Forney)
- Review harbor porpoise SARs

Review of California set gillnet fishery (Karin Forney/ Tim Price)

- Legal status
- Voluntary pinger program
- Mortality estimates
- Future monitoring plans

Sea otters

- Review of CA population trends and management issues (Kathy Ralls)
- Review of WA population (Steve Jeffries)

Review of CA driftnet fishery (Chuck Janisse/ Tim Price)

- Legal status
- Take Reduction Team activities
- Mortality estimates (Jay Barlow)

CA harbor seals

- Aerial surveys
- CA harbor seal SAR

Southern Resident killer whales

- Update of legal status and research
- Review revised SAR.

Revised abundance estimates of large whales (Jay Barlow)

Review revised humpback whale SAR
Review revised fin whale SAR
Preliminary discussion of new and old recommendations

8 November 2000

Sperm Whales (Barbara Taylor)
 Sperm whale group size estimation
 Sperm whale stock structure
 Review sperm whale SAR
Recommendations
Timing, location, and topics for next meeting
Adjourn