Minutes for the Pacific Scientific Review Group Meeting
Santa Cruz, California, 4-6 January 2005

The fifteenth meeting of the Pacific Scientific Review Group (SRG) was held at the Chaminade conference center in Santa Cruz, CA from 4 to 6 January 2005. Seven SRG members were present. Two SRG members, Chuck Janisse and Mark Fraker, participated via conference call on January 5. SRG member John Heyning could not attend. Jim Carretta 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.

NMFS Reorganization

Karin Forney reviewed the recent NMFS reorganization and highlighted that the Pacific Islands Region has hired Dave Johnston as a cetacean stock assessment scientist. Responsibility for Hawaii-region cetacean surveys and stock assessments will remain with the Southwest Fisheries Science Center in the near future. Bud Antonelis noted that the full transition of cetacean research activities to the Pacific Islands Region would be a long-term process, perhaps on the order of 10 years. In the meantime, cetacean research in this region would continue to be a joint venture between the Southwest and Pacific Islands Fisheries Science Centers.

Update on ZMRG definition

Tom Eagle noted that a final rule was published in July 2004. The published definition adopts the current 10% of PBR guideline. No legal challenges have been made to this published rule. At this time, there are limited funds in which to create any new TRTs, however the Western Pacific Fishery Management Council has suggested convening an advisory committee on marine mammal–fishery interactions to address protected species takes in longline fisheries.

MMPA reauthorization

Tom Eagle summarized the status of the MMPA reauthorization bill which was submitted to Congress by the administration in 2003, but no action has been taken yet. With the new Congress, it is anticipated that a new reauthorization bill will have to be submitted. Greg Sanders (FWS) noted that a Navy initiative to have the definitions of 'harassment' changed for defense-related activities was passed as part of a defense bill (Public law 108-136) that may in effect amend the MMPA.

GAMMS II guidelines

Tom Eagle stated that the guidelines are out for public review and comment, and the public comment period closes in February. Major changes reflect how stock assessment reports are prepared. One issue is how PBR is determined for declining populations. For monk seals, PBR is undefined because the population is below OSP and continues to decline. Thus, there is no value of R_{max} that reflects the current population trend and thus PBR cannot be calculated. Barb Taylor pointed out that this does not mean that there would be allowable takes somewhere between zero and the potential PBR calculation for such a stock.

List of Fisheries

Monica DeAngelis reported (PSRG-23) changes in the List of Fisheries for 2004 and proposed changes for 2005. The CA/OR thresher shark/swordfish drift gillnet fishery was reclassified from Cat. I to II in 2003, but with the take of a short-finned pilot whale in 2003 and a lower abundance estimate, the mean annual take is about 85% of the PBR for this stock and, as a result, the fishery will be reclassified as a Category I, probably in mid-June 2005 after the comment period closes. DeAngelis noted that a humpback was caught by a drift gillnet vessel in November 2004, released alive, uninjured. Asked if the recent 9th circuit court's decision meant that tribal fisheries had to be included on the LOF, Eagle responded that NMFS has not yet determined the complete scope of issues that may be affected by the court's ruling.

Sea Otters

Jim Estes reported on CA sea otters. There is a threshold of 1,850 sea otters, below which the population is considered endangered. Above 3,090 animals, the population is delisted. The most recent population estimate is approximately 2,800 animals, though the three-year average of counts is closer to 2,500 animals. The last few years have shown a dramatic increase in population counts. This may be a male-biased response to changes in prey availability, because males may be moving to areas where Dungeness crabs are more plentiful, whereas females remain in areas where prey availability may be reduced. So, recent population increases may be a temporary result of increased male survival. Estes emphasized that there is great variability in annual counts, which may reflect sighting conditions variability between surveys (despite analysis stratification by Beaufort sea state).

Greg Sanders (FWS) reported on the draft SAR for southern sea otter (PSRG-04). It is unclear when the final SAR will be published. Changes include an updated graphic that includes both 3-year running average and annual otter count data. Counts in spring 2004 are the highest since standardized surveys began in 1982. An Unusual Mortality Event occurred between May and August 2003. High numbers of strandings were also recorded in the spring of 2004 (approximately 3 times the 10-year average), but was not identified as an "Unusual Mortality Event." There are no clear indications of fishery interactions for this stock, though there remains concern over pot fisheries. The SRG suggested including a table or paragraph summarizing human-related mortality for the most recent five years in this SAR. Monitoring of trap/pot fisheries is problematic because of the inability of most vessels to carry observers. Pulling of traps by a regulatory agency is also problematic because it interferes with a state fishery.

Deanna Lynch (FWS) reported on the draft SAR for Washington state sea otters (PSRG-05). As with southern sea otter SAR, it is unknown when the WA state SAR will get cleared for publication. The abundance estimate for 2004 is 743 otters (up from 672 in 2003 and 551 in 2002). and reports indicate that the otters have spread south to Cape Arago, OR. There was discussion over the usefulness of using a three-year average of population estimates. Greg Sanders stated that the three-year average essentially dampens the decision-making over delisting and makes any potential delisting more conservative, given the high variability in annual survey counts. The SRG noted a discrepancy between the use of a recovery factor of 0.5 and the narrative text stating that the population is nearing equilibrium (which would argue for a recovery factor of 1.0). The SRG recommended that the text be changed to be consistent with a recovery factor of 0.5. Barb Taylor pointed out that the Rmax value of 20% used in the WA

SAR is probably too high, given the survey data trend shown, but Deanna Lynch replied that this was the value recommended by the SRG at the last meeting. Mike Simpkins suggested clarification of the mortality table to include information on percent observer coverage. The current table only includes observed mortality and it is unclear that this reflects 100% observer coverage.

Hawaiian monk seal

Jason Baker reported (PSRG-03) that there is some tagging and movements evidence that the main Hawaiian Islands animals might be classified as a separate stock from the NW Hawaiian islands animals. Kathy Ralls pointed out that the males moved from Laysan might have bred with MHI animals and that microsatellites might not be the most appropriate analysis. Future abundance estimates will be improved by using mark-recapture and discovery curve information, rather than relying solely on beach counts. There are now observer data from the bottomfish fishery (Table 1). The nearshore fishery is the only one that has documented serious injuries, but this fishery is unobserved. Hannah Bernard mentioned that the current NWHI Reserve is being considered for status as a National Marine Sanctuary in the future. Hannah shared some of the HI Monk Seal Recovery Team recommendations, which focused on limiting commercial fishing in this area.

The SRG is concerned about the nearshore handline fishery around the Hawaiian Islands and would like to see PIR resources directed at examining potential impacts on monk seals and cetaceans. The SRG would like to see this addressed at the upcoming PIR cetacean research workshop. Similar concerns exist over nearshore gillnet fisheries that are not observed.

Killer Whales

Barb Taylor (PSRG-19) reviewed information on the 2004 Cetacean Taxonomy Workshop, held in La Jolla. Workshop participants agreed that multispecies concepts should be considered in management decisions. Support for designating a species should come from at least two lines of evidence (morphology and genetics), while support for subspecies status might come from only one line of evidence (such as genetics). Evidence from this workshop indicates that southern resident and transient whales probably merit species or subspecies status, based on mtDNA and microsatellite data.

Brad Hanson reviewed the criteria for a "distinct population segment" classification for SR killer whales and reported that the Biological Review Team recommended that SR killer whales did constitute a DPS. Criteria included social/behavioral/cultural isolation, genetic divergence from other populations, and prey/habitat utilization differences. As of July 2004, there were 84 known animals. Four calves were born in autumn 2004. Maximum net productivity rates for this population is about 2.5% per year. Hanson reviewed the decision process and timelines involved in the listing process. In Dec 2004, NOAA Fisheries proposed a threatened status for SR killer whales. There will be 2 public hearings in Seattle in February 2005 and a public comment period through March 2005. A final decision on listing will be made in December 2005. Further information will be gathered for a critical habitat proposal. Mark Fraker asked what the effective population size for SR killer whales is, citing that there are no more than 41 mature individuals in this population, which could pose an inbreeding problem. Barb Taylor mentioned that the low haplotypic diversity in SR killer whales may be an artifact of the population's social structure

and that this social structure may result in the population being less prone to inbreeding. The group believed there should be a priority to biopsy sample older animals in this population, even before a recovery plan (which will take years to develop) is in place.

TRT update

Monica DeAngelis summarized that the TRT last met in 2003, and plans to meet again in May of 2005. The take of a single short-finned pilot whale in 2003 will probably be discussed at this meeting. Skipper workshops will again be mandatory this summer.

Harbor porpoise mortality

Karin Forney reviewed recent strandings of harbor porpoise in central CA and noted that at least six showed evidence of fishery interactions. This is alarming, because the set gillnet fishery in this area has been closed since autumn 2002 and the responsible fishery is unknown. Karin suggested that either illegally fished gillnets or groundfish trawlers could have been responsible for these mortalities. Chuck Janisse inquired about the possibility of purse seines being responsible for these mortalities. Karin is investigating whether using Monterey Bay current models and porpoise stranding locations can be linked to 'back-calculate' potential fishing locations.

Highly Migratory Species Fishery Management Plan update

Cathy Campbell reported on the completed FMP submitted to NMFS in late 2003. The large-mesh drift gillnet fishery is included in this FMP. NMFS issued a final rule on the FMP in April 2004 that includes measures for drift gillnet and pelagic longline. The drift gillnet fishery FMP measures remain the same (pingers required, TRT) as under the MMPA. Loggerhead and leatherback closure areas are included in the FMP regulations and remain in effect. There continues to be some discussion to open a portion of the current drift gillnet fishery leatherback closure. For pelagic longlines, the FMP ruled out pelagic longlines within the U.S. EEZ. The portion of the FMP that would have allowed shallow sets targeting swordfish east of 150°W was disapproved by NMFS, owing to concerns over takes of loggerhead turtles. NMFS received two applications for exempted fishing permits (EFP) for pelagic longlines in October 2003. These EFPs are currently under review by Sustainable Fisheries staff. Prior to issuing an EFP, NMFS would need to conduct analyses under NEPA and a Section 7 consultation under the ESA. Chuck Janisse mentioned that most CA vessels that fished for swordfish east of 150°W were essentially unaffected because they are now fishing under something called Hawaii set certificates. The vessels that fish out of HI are required to have an observer, dyed baits, and gear modifications (circle hooks) intended to reduce interactions with protected species. Janisse discussed FMP 'Alternative 4' which is a proposal to conduct a limited entry experimental longline fishery within the EEZ that might be an alternative to the drift gillnet fishery. Janisse presented a case for NMFS authorization for such an experimental fishery. Questions arose that data from one longline vessel would be insufficient to demonstrate that a longline fishery within the EEZ would have any less of an impact than drift gillnets on protected species in the same area, but Janisse pointed out that there are no data on longline gear interaction rates with protected species from within the U.S. EEZ.

Gillnet mortality

Jim Carretta summarized mortality for 2003 for three gillnet fisheries. The SRG discussed renewing an observer program in the set gillnet fishery.

Hawaii Longline Management Update

Tamra Faris explained that new regulations as of 1 April 2004 lift area closures north of equator and in southern area. There is now a 2,120-set limit on shallow sets per year north of equator, allocated to all interested permit holders and transferable single-set one year certificates. Operators must now declare in advance of trip whether shallow or deep sets will be used. Shallow sets N of equator must have 18/0 or larger circle hooks with 10-degree offset and mackerel baits (no squid allowed). There are fleet-wide annual limits on turtle interactions: 16 leatherbacks or 17 loggerheads. The fishery is closed if either threshold is reached. Deployment and retrieval of gear must occur at night. Observer coverage is 100% for shallow sets, 20% for deep sets. There were three false killer whales observed killed in the HI EEZ in the summer of 2004. Certificates of Authorization were issued to existing registered longline vessels in autumn 2004.

In 2004, following a legal challenge to the existing Category III designation, the NMFS reclassified the fishery to Category I because takes of false killer whales exceeded PBR. Although the MMPA mandates formation of a Take Reduction Team, the NMFS does not have the funding to do so and the Western Pacific Fishery Management Council has suggested convening an advisory committee on marine mammal-fishery interactions to address this issue. The SRG commends WPFMC in its efforts to address these interactions. We encourage the Council to formulate this group with representatives from NMFS, industry, environmental groups, the Pacific SRG, and independent scientists, plus experts on other bycatch species such as sea turtles and sea birds, to facilitate coordination with and/or transition to the TRT when it is formed.

The SRG points out that the formation of this working group is not a substitute for compliance with the MMPA requirement to form a TRT. The SRG recommends that NMFS continue to examine marine mammal interactions with the Hawaii longline fishery so that the necessary information is available for the formation of a TRT.

Hawaii longline mortality estimates

Karin Forney summarized PSRG-07. This analysis has been updated and revised based on classification of set types and the EEZ areas where the fishing effort occurred. Percent observer coverage varied considerably by set type and year, as sampling priorities and fishing patterns changed. This stratified analysis was necessary because observer coverage was not proportional to total fishing effort. Results cover the period January 1994 through June 2004 and during which 15,859 sets out of a total of 132,622 sets were observed. Cetaceans were reported taken on 55 occasions, yielding an average take rate of 3.5 cetaceans per 1000 sets. Observer coverage rates and interaction rates varied considerably by set type, with swordfish sets having higher coverage rates and interaction rates. Cetacean bycatch is dominated by Risso's dolphin in the 'swordfish sets' and false killer whales in 'swordfish type' sets. Takes of false killer whales

around Palmyra are approximately 5 times higher than in other regions (3.5/1000 sets *vs.* 0.7/1000 sets).

West coast observer programs

Karin Forney summarized 2005 observer program plans by fishery for Lyle Enriquez.

Fishery Name	Observer Coverage (% projected)	# of observers	# sea days observed
CA/OR large-mesh drift gillnet for swordfish/thresher shark	18-22%	15	350
CA pelagic longline	10-12%	4	250
Southern CA small-mesh drift gillnet	10%	1-2	30
CA coastal purse seine	10%	4	200
N. Pacific Albacore Troll	1% (voluntary program)	4	150
Recreational Charter/Party vessels	5%	2	75

Karin Forney noted that approximately 28% of overall fishing effort in the large-mesh drift gillnet fishery was unobservable in 2003. This is an increase from 21% in 2002. Karin highlighted a few takes that were noteworthy in the drift gillnet fishery. One probable minke whale, one short-finned pilot whale, and a humpback whale entangled, but released alive. The net with the humpback had pingers that were attached on the buoyline. Pingers should be attached to the floatline, not the buoyline. Lyle has noted an increase in this kind of mislocation of the pingers. Lyle mentioned that this will be discussed at upcoming skipper workshops. Doyle Hanan mentioned that the skipper who had the pingers incorrectly applied should be cited for violation of TRP protocols.

SPLASH project overview

Jay Barlow summarized (PSRG-12) the SPLASH project, which is designed to answer questions about the abundance, distribution, movements, and genetic stock structure of humpback whales in the north Pacific. Many of the migratory destinations of Hawaiian and Mexican and Central American humpbacks are unknown. SPLASH 2004 efforts yielded approximately 3000 fluke IDs and 1000 biopsies in winter and 3000 fluke IDs and > 1000 biopsies in summer. Winter 2005 sampling has already started in Hawaii and will begin in Mexico within a few weeks. Blue whales were seen for the first time in 20 years in the northern Gulf of Alaska and western blue whales were also sighted and recordings made that match western Pacific blue whale call types. There were also approximately 20 right whales with 3 calves seen during the SPLASH cruise in the Bering Sea. SPLASH is funded through summer 2005. There is currently no funding identified for areas outside of HI for 2006.

Blue and humpback whale research

Barlow summarized PSRG-16. A total of 542 humpback whale identifications representing 398 unique individuals were identified. A total of 534 blue whale identifications representing 292 unique individuals was identified. Interchange rates of humpbacks along the U.S. west coast demonstrate that there is 'isolation by distance' among animals, but not any rigid lines of geographic separation. Mark-recapture estimates of abundance exhibited a dip in abundance in 2000, followed by two years of estimates in line with pre-2000 estimates. The abundance estimate for 2003 was considerably higher (~1,400 animals) and there is a large percentage of 'new whales' present in the 2003 identification sample. It appears that there was an influx of previously unidentified animals into the sampling region in 2003. There is a more variance between annual abundance estimates than is reflected in the coefficient of variation of individual annual estimates. The new mark-recapture estimate of blue whale abundance is approximately 1,700 whales.

Common dolphin stock structure

Susan Chivers reviewed CA offshore habitat differences as a prelude to examining potential stock structure (PSRG-11). There are morphological differences in dorsal fin coloration in *D. delphis* from the ETP to northern CA (darker in ETP, lighter in CA). Three ETP stocks differ in body size, but there is no size difference seen off CA. There are higher hydrocarbon pollutant levels found in southern CA than in northern CA. There is reproductive seasonality in CA, with two reproductive peaks in southern CA (spring and fall) and a summer peak in central CA. A genetic feasibility study concluded that the CA/OR/WA stock of *Delphinus* was not panmictic and lends support for at least two prospective stocks associated with the southern CA Bight and the California Current. The SRG encouraged continuation of Chivers' research and discussed the timeline for defining new stocks.

2004 Harbor Seal Survey

Karin Forney reviewed the 2004 surveys conducted during the late-molt period at low tides (PSRG-20). Photographic counts totaled 26,333 animals, compared with 21,433 animals counted from 2002 surveys. Using a correction factor (1.3) for the fraction of animals hauled out, the most recent estimate of abundance is 34,232 animals. Doyle Hanan shared information on a new analysis of radio-tagged harbor seals that are recorded during the time during which survey aircraft are overhead (down to a 15-minute window). Doyle found that approximately 40% of seals are hauled out during that brief daylight period, which would yield a correction factor of 2.5 or greater.

CA/OR/WA SARs

Harbor seal SAR. The statement in the SAR had been revised to more conservatively state that the population *may* be approaching its environmental carrying capacity.

Humpback whale SAR. It was suggested that the 1997 salmon troll-fishery take be removed from the Table 1 since it was deemed a non-serious injury (as stated in the SAR text).

Short-finned pilot whale SAR. The group noted that ZMRG cannot be reached for this stock until 2008 and that if any additional takes occur before then, the human-caused mortality will exceed PBR. There were no pilot whales seen during the 2001 survey.

False Killer Whale Hawaiian Stock

The group revisited the inclusion of provisional Palmyra stock information in this SAR and the concern about using the EEZ boundary as a population boundary. Karin Forney responded that the current genetic work presented by Chivers is still in too early a stage to begin redrawing stock boundaries.

Hawaii Stock Research and Assessments

Susan Chivers (PSRG-10) presented new genetic data on false killer whales and short-finned pilot whales in Hawaiian waters. There is strong mtDNA evidence for both species that animals around the main Hawaiian Islands differ from ETP animals, but geographic boundaries for populations cannot be determined presently. There are unique haplotypes around Clipperton and Galapagos Islands for short-finned pilot whales, suggestive of additional island populations.

Barb Taylor presented new information done by Karen Martien and Robin Baird on bottlenose dolphins around the Hawaii islands (PSRG-8). Evidence from photo-ID work conducted by Robin Baird is suggestive of multiple (4-5) island stocks of *Tursiops*. A high inter-year resighting rate of 80% is suggestive of very small populations. There were no inter-island resightings either. Preliminary genetic results of 121 samples indicate there was significant differentiation between shallow-water and deep-water strata. One animal sampled differs from other haplotypes and may either be a *T. aduncus* or a *T. aduncus/T. truncatus* hybrid. Future work will include using nuclear markers and additional sample collecting. The SRG would like to hear about any advances in stock determination at the next meeting. The haplotypic diversity is high for the small number of animals in this region, suggestive that the historic population may have been much larger. Hannah Bernard mentioned that some NGOs report that *Tursiops* around the Big Island are still shot at by fishermen.

Karin Forney reported on recent spinner dolphin aerial surveys conducted in Hawaiian waters. Dolphins were apparently not distributed randomly with respect to the survey paths, so line-transect estimates are not applicable to these surveys.

Karin Forney reported on recent (2002-2004) studies of odontocete population size and structure in the main Hawaiian Islands (Baird et al.). Work focus is on stock structure, using photo-ID and genetic sampling. Additional work on diving behavior using TDRs is being conducted. To date, 224 bottlenose dolphins, 84 false killer whales, 177 rough-toothed dolphins, >300 melon-headed whales, >200 short-finned pilot whales, and 20 Blainville's beaked whales have been individually identified. Fourteen of 84 false killer whales represent within-year resightings, suggesting that the population is rather small. Baird's work would continue to be supported by SWFSC. Karin briefly reviewed PSRG-9, which suggested that disfigured odontocete dorsal fins may result from interactions with longlines or other nearshore fisheries.

Dave Johnston addressed future cetacean research in the Pacific Islands area. There will be a gradual transfer of cetacean research from SWFSC to PIFSC, probably on the order of ten years.

A cetacean research workshop is planned for the summer of 2005 to review and assess completed work and identify future information needs, resources, and expertise for research for future management. Upcoming research cruises include Palmyra Atoll (2005) and Johnston Atoll (2006), supported by SWFSC and NOS. Opportunistic vessel surveys are also being considered, perhaps using monk seal camp drop-off vessels, local dolphin watch groups, and Sanctuary activities. The SRG inquired about the development of areas of expertise within the PIR that would be necessary to complete the transition of Hawaiian cetacean research activities to this laboratory and about getting data for international fleets operating throughout the Western Pacific region. There are several entities that are looking into bycatch in Western Pacific fleets on the high seas.

Alaska Killer Whale SAR

Killer whale SAR: Steve Jeffries noted that the status of stock section is equivocal with reference to which stock is being discussed. Karin Forney will pass this editorial note and others onto NMML.

Topics and Location of Next Meeting

The SRG suggested early November 2005 for the next SRG meeting, perhaps held in Hawaii to coincide with Hawaiian topics. Tom Eagle mentioned that the Atlantic SRG expressed a desire for a joint SRG meeting, perhaps in San Diego to coincide with the Biennial Marine Mammal Conference.

Suggested topics for the next meeting:

NHWI Sanctuary measures to protect monk seals
Monk seal Prescott grant results
Hawaii Cetacean Research workshop results
Swim with dolphin program effects on Hawaiian Spinner Dolphin
Other Hawaiian fisheries that interact with cetaceans (handline, lay nets etc)

Review of Previous Research and Management Recommendations

The SRG has previously noted that management of marine mammal-fisheries interactions have often been complicated by management and legal decisions concerning other protected species such as sea turtles and sea birds and recommended that Take Reduction Teams include members with expertise in all protected species affected by the fishery, and that the Team consider these multiple-species problems in its recommendations. As a result, a NMFS sea turtle biologist has been providing expertise to the CA drift-net Take Reduction Team and this has proved to be essential. As multi-species bycatch issues have become more common, however, the SRG recommends even tighter integration in the management of marine mammal, sea turtle, seabird, and other bycatch species.

This approach has been adopted by the NMFS in other management issues.

With the completion of the ship surveys for marine mammals in Hawaiian EEZ waters, gaps in scientific knowledge about population size, distribution, and discreteness that are necessary for marine mammal management have become apparent. The SRG recommends the following studies.

1) Mark-recapture, biopsy, and tracking studies of false killer whales and other cetaceans around the main Hawaiian Islands.
2) Aerial surveys within 25 nm of the Hawaiian Islands to estimate abundance in close-inshore waters that could not be covered by the 2002 shipboard surveys.
3) Regular censusing of monk seal haulouts in the main Hawaiian Islands to monitor population status, movements of marked animals, and human interactions.

All three of these studies have been conducted. The monitoring of monk seal haulouts, through the hiring of an island coordinator on Kauii, was only temporary, however, but the NMFS plans to continue this program.

In light of recent changes in the California- and Hawaii-based longline fisheries, the SRG recommends the following management and research actions.

1) Each longline fishery should be categorized by its principal target species and fishing grounds rather than the state of origin. This would likely result in three fisheries: a swordfish fishery operating between the West Coast and Hawaii (currently based in CA, but formerly based in HI), a tuna fishery operating in the Central Pacific (based in HI), and a tuna fishery operating in the northeastern Pacific (based in CA).
2) As the SRG has recommended repeatedly in the past, these fisheries should all be listed as Category-II fisheries.

The Hawaii-based longline fishery was changed from a Category III to a Category I fishery in response to a lawsuit. The fisheries continue to be categorized by the state of origin.

Assigning fishery mortality in the EEZs of US territories to individual marine mammal stocks is problematic because of the lack of population estimates for these areas (and the associated lack

of a calculable PBR) and the likelihood of separate island stocks. Cetacean mortalities associated with the Central Pacific tuna longline fishery have been documented in the US EEZ around Palmyra Island; research in these waters should include surveys for abundance estimation, and biopsy and tracking research for study of population discreteness and movements.

While plans for such studies have been designed by the NMFS, funding was not available to conduct them. A scoping survey of all the U.S.-jurisdiction Pacific Islands is being planned by the PIFSC.

Identification of marine mammal incidental takes to species and population within a species is critical for management of marine mammal stocks. The Pacific SRG recommends that the NMFS implement a standard protocol of photo documentation of each take and biopsy sampling whenever possible.

These have been implemented and are a standard part of observer protocols.

The current sea otter censusing methodology underestimates abundance because there are no corrections for diving behavior and other factors. The SRG recommends that 1) the actual census data be presented along with the 3-year running mean, 2) aerial counts be corrected for diving behavior, sea state, and other factors, and 3) aerial surveys be conducted only under favorable weather conditions.

The census data were presented in the most recent draft SARs. The concerns about the surveys and correction factors were discussed and explained by Jim Estes and the USFWS. Scarce resources limit much progress on the 2) and 3), so the USFWS has adopted a management scheme based on the long-term relative abundance trend.

The SRG recommends that the USFWS revise and finalize its Stock Assessment Report on southern 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 SARs for both the southern and Washington sea otters have been revised, but delays in approval by the legal staff have prevented their publication.

RESEARCH AND MANAGEMENT RECOMMENDATIONS
Pacific Scientific Review Group – January, 2005

With the completion of the ship surveys for marine mammals in Hawaiian EEZ waters, gaps in scientific knowledge about population size, distribution, and discreteness that are necessary for marine mammal management have become apparent. The SRG recommends the following studies.

1) Mark-recapture, biopsy, and tracking studies of false killer whales and other cetaceans around the main Hawaiian Islands.
2) Aerial surveys within 25 nm of the Hawaiian Islands to estimate abundance in close-inshore waters that could not be covered by the 2002 shipboard surveys.
3) Regular censusing of monk seal haulouts in the main Hawaiian Islands to monitor population status, movements of marked animals, and human interactions.

Also, there is increasing concern that habitat loss at French Frigate Shoals (FFS) due to beach erosion has dramatically reduced the pupping beaches for Hawaiian monk seals. The NMFS is planning feasibility studies to examine the causes, to assess the loss of habitat, and to assess potential mitigation measures. The SRG is concerned about the loss of beach habitat at FFS and the possibility that this problem may be more widespread in the NWHI and recommends that these studies be initiated.

The Southern Resident stock of killer whales has been proposed for an ESA listing. Despite the long-term studies on this population, significant information gaps hinder our ability to fully identify critical habitat, determine population discreteness, and assess the potential for Allee effects and inbreeding. The SRG recommends that the following studies be conducted to fill these gaps in our knowledge.

1) Satellite tagging of Southern Resident Killer Whales, in addition to acoustic and visual surveys, to determine their habitat and movements during the seasons when they are not in Puget Sound.
2) Biopsy sampling of all individuals to determine population discreteness, genetic relationships, and genetic diversity within these pods.
3) Obtaining tissue samples for contaminant studies.

The SRG realizes the sensitivity of conducting this type of research in this area, but the research needs are critical and these methods have proven to be the most effective for providing the required information. The SRG stresses that these studies should be conducted soon. The opportunity to sample older members of the population is limited, and delaying biopsy studies may result in irretrievable loss of data.

Assigning fishery mortality in the EEZs of US territories to individual marine mammal stocks is problematic because of the lack of population estimates for these areas (and the associated lack of a calculable PBR) and the likelihood of separate island stocks. Cetacean mortalities associated with the Central Pacific tuna longline fishery have been documented in the US EEZ around Palmyra Atoll and Johnson Atoll; research in these waters should include surveys for

abundance estimation, and biopsy and tracking research for study of population discreteness and movements.

The SRG recommends that observers should be placed aboard vessels in the southern California setnet fishery to monitor marine mammal mortality. Too many years have passed since this fishery was last observed for the NMFS to have much certainty about extrapolating mortality rates to the present.

Identification of marine mammal incidental takes to species and population within a species is critical for management of marine mammal stocks. The Pacific SRG recommends that the NMFS implements a standard protocol of photo documentation of each take and biopsy sampling whenever possible.

The SRG recommends that the USFWS finalize its Stock Assessment Report on Washington and southern sea otters so that the USFWS can meet its statutory responsibilities under the MMPA.

Appendix 1

Attendees at the 15th Meeting of the Pacific Scientific Review Group

Scientific Review Group- Pacific Region:

Hannah Bernard	Hawai'i Wildlife Fund
Robin Brown	Oregon Department of Fish and Wildlife
Mark Fraker (via conference call)	Terramar Environmental Research
Doyle Hanan	Hanan & Associates, Inc.
John Heyning (not attending)	Natural History Museum –Los Angeles County
Chuck Janisse (via conference call)	Federated Independent Seafood Harvesters
Steve Jeffries	Washington Department of Fish and Wildlife
Katherine Ralls	Department of Conservation Biology, Smithsonian's National Zoological Park
Michael Scott	Inter-American Tropical Tuna Commission
Terry Wright	Northwest Indian Fisheries Commission

Invited Participants and Observers:

NMFS Southwest Fisheries Science Center
Jay Barlow
Robert Brownell
Jim Carretta
Susan Chivers
Karin Forney
Barb Taylor

NMFS Southwest Region
Cathy Campbell (via conference call)
Monica DeAngelis
Lyle Enriquez

NMFS Pacific Islands Fisheries Sci. Center
Bud Antonelis
Jason Baker
David Johnston

NMFS Pacific Islands Region
Tamra Faris
Chris Yates

NMFS Northwest Fisheries Science Center
Brad Hanson

NMFS NW Region
Garth Griffin

NMFS Office of Protected Resources
Tom Eagle

USFWS
Deanna Lynch
Greg Sanders

Marine Mammal Commission
Mike Simpkins

Appendix 2

List of Background Documents

SARs

PSRG-01	CA/OR/WA stocks – Pilot and humpback whales, harbor seals
PSRG-02	HI cetaceans – False killer whale
PSRG-03	HI monk seal
PSRG-04	Southern sea otter
PSRG-05	Washington Sea Otter

Other documents

PSRG-06	Southern Resident Killer Whale Status Update
PSRG-07	Updated HI longline mortality/injury estimates
PSRG-08	Martien *et al.* – HI *Tursiops* genetics
PSRG-09	Baird *et al*. – false killer whale paper
PSRG-10	An update on genetic analyses of *Pseudorca crassidens*
PSRG-11	Chivers *Delphinus* genetics – draft report
PSRG-12	SPLASH update
PSRG-13	2003 Gillnet mortality paper
PSRG-14	California set gillnet fisheries summary
PSRG-15	Update of West Coast Fisheries & Observer Programs
PSRG-16	Cascadia - Blue/Humpback research report
PSRG-17	GAMMS II - FR notice and draft revised guidelines
PSRG-18	List of Fisheries 2004
PSRG-19	Cetacean Systematics Report Summary
PSRG-20	Harbor seal survey 2004
PSRG-21	Alaska SARs
PSRG-22	Alaska SRG documents
PSRG-23	Proposed List of Fisheries 2005
PSRG-24	Highly Migratory Species FMP information

Appendix 3

Agenda for Pacific Scientific Review Group Meeting
Santa Cruz, California
4-6 January 2005

Tuesday, 4 January 2005 (1300h)

Introduction

General Topics
Update on NMFS re-organization (Forney)
Update on ZMRG definition (Eagle)
MMPA re-authorization (Eagle)
Review GAMMS II guidelines (Eagle)
List of Fisheries (DeAngelis)

Sea Otters
Sea otter survey correction factors (Estes)
Southern sea otter SAR (Sanders)
Washington sea otter SAR (Lynch)

Monk Seals
Update & SAR review (Baker**)**

Wednesday, 5 January 2005 (0900)

Southern Resident Killer Whales
Taxonomy (Taylor)
Update (Hanson)

Fishery Updates
TRT update (DeAngelis)
Harbor porpoise mortality (Forney)
HMS Fishery Management Plan (DeAngelis/Janisse)
2003 Gillnet mortality estimates (Caretta)
Hawaii longline fishery regulations (Faris)
HI longline mortality estimates (Forney)
CA drift and set net fisheries (Enriquez)
CA longline fishery (Enriquez)

CA/OR/WA Research & Stock Assessments
SPLASH project overview (Barlow)
Blue/humpback whale research (Barlow)
Common dolphin stock structure (Chivers)

2004 Harbor seal surveys (Forney)

CA/OR/WA SARs (Caretta)
CA harbor seal
Humpback whales
Pilot whales

Review Recommendations

Thursday, 6 January 2005

Hawaii stock research and assessments
HI genetic studies of stock structure (Chivers/Taylor)
Summary of HI dolphin studies (Forney)
PIFSC research plans for Central Pacific cetaceans (Antonelis/Johnston)

Hawaiian Cetacean SARs (Karin Forney)

Alaska SRG Documents
Background paper for the North Pacific Fishery Management Council meeting, Dec 2004
Report from the Serious Injury Subcommittee of the Alaska SRG

Alaska SARs
Killer whales

Discuss recommendations

Topics, timing, and location for next meeting

Adjourn