Minutes for the Pacific Scientific Review Group Meeting
Marriott Hotel, Del Mar, California
April 2-4, 2013

The 23rd meeting of the Pacific Scientific Review Group (SRG) was held at the San Diego Marriott Del Mar in San Diego, California from 2-4 April 2013. All SRG members except Robin Brown and Steve Jeffries were present. Karin Forney and Jim Carretta served as rapporteurs. Michael Scott served as chairman of the SRG. The attending 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.

General Management and Planning

List of Fisheries

Monica DeAngelis reported that the proposed 2013 list of fisheries (LOF) is currently in clearance and should be finalized this summer. NMFS will release the proposed 2014 LOF soon thereafter and solicit public comments.

Serious Injury Policy Implementation

Shannon Bettridge reviewed the revised 2012 serious injury policy and implementation procedures. One difference is that successfully mitigated interactions (*e.g.*, disentanglements) now will be reported only for LOF evaluation and not as a serious injury that counts against the Potential Biological Removal (PBR) level. Under the new policy, serious injury categories are determined based on a database of known-outcome events. There was some discussion of how and when this database would be updated, and how scoring will be done in the SARs after the update, as this could be confusing and less transparent depending on whether past interactions were re-scored based on new data. NMFS is interested in receiving input on this process, and recognizes that some of these issues need to reviewed when the procedural directive is revised in 1-2 years.

GAMMS III update

Shannon Bettridge reported that the revised guidelines for assessing marine mammal stocks following the 2011 GAMMS III workshop are still under review and deliberation within NMFS.

Oceanic cetacean and ecosystem assessment cruises: future prospects

Lisa Ballance provided an update on marine mammal assessment cruises and the number of sea days required. The NMFS Science Centers combined efforts to estimate the total number of sea days required to conduct cetacean and ecosystem assessments nationwide (including 15 EEZ regions and the eastern tropical Pacific). Total sea days required, rotating regions with back-to-back surveys every 6 years, was about 1700 days, or 23-40% of the total NMFS fleet allocation per year. NMFS leadership requested scaled-back alternatives, which included: 1) a 5-yr cycle without back-to back surveys, which reduced the total required sea days to 15-41% of the NMFS allocation; or 2) stratified (split) surveys across two back-to-back years, resulting in 14-32% of the NMFS allocation. However, both of these alternatives compromise abundance estimates as well as ecosystem sampling. The consequences of lower effort would be greater imprecision, translating into lower PBRs and longer time periods required to detect trends. Other options could include vessel-of-opportunity surveys, combining fish and marine mammal surveys, developing new analytical methods to detect trends with lower survey frequency, and

augmenting surveys with other sampling tools (*e.g.*, unmanned aircraft, aerial surveys), but these alternatives have many logistic and scientific challenges.

There was a general discussion of the challenges involved, including funding limitations on the total number of sea days, prioritizing sea days for marine mammals vs. fish stock assessment, prioritizing based on potential impacts (to fisheries or marine mammals), use of alternate platforms, chartering vessels, or partnering with other agencies. The Navy is currently supporting near-island marine mammal survey efforts within the Marianas Archipelago, but their monitoring requirements do not extend out to the full EEZ. The SRG discussed potential recommendations, an analysis of risks to fisheries, and the lack of consequence for not having assessments. Cisco Werner indicated that the issue has been successfully raised and a conversation is happening within NOAA. Sarah Courbis also expressed concern that the Navy is not using SAR information when estimates are considered poor, so they end up doing EIS based on EEZ-wide stock assumptions.

CA/OR/WA Management

Monica DeAngelis and Lynne Barre (by phone) provided an overview of West Coast management updates. The recent sperm whale takes in the driftnet fishery necessitated a re-consultation under the ESA and the Biological Opinion will include fin, humpback, and sperm whales, and sea turtles. Changes to the Leatherback Conservation Area are also being considered for this fishery. As part of the terms and conditions in the *Biological Opinion on the Continued Operation of the Pacific Coast Groundfish Fishery*, NMFS will coordinate formation of a Pacific Coast Groundfish and Endangered Species Workgroup to review fishery effort, observer coverage, take information, and conservation measures. The Pacific Offshore Cetacean TRT last met in 2009; skipper workshops will be held in May and additional pinger testing studies are underway with support from The Nature Conservancy. Observer coverage in 2012-13 was 20% for the driftnet fishery, 8% for the set gillnet fishery, and 100% for the deep-set pelagic longline fishery. The small-mesh fishery, which was observed in 2004-2010, is no longer observed.

There currently is an Unusual Mortality Event (UME) for California sea lions, with pup strandings at triple the historical average. For OR/WA, Lynne Barre noted that there were some killer whale strandings, and a large number of Guadalupe fur seal (outer coast) and harbor porpoise strandings (especially in inland waters). The latter may be due to the recent increase in harbor porpoise abundance in Puget Sound. Participants at a harbor porpoise workshop to address this emphasized the need for updated population estimates.

A collaborative effort is ongoing to address large whale ship strikes, involving the SWFSC, SWR, Cascadia Research, the Sanctuaries, and a NASA-funded project called Whalewatch. Shipping lane changes for San Francisco and Los Angeles/Long Beach are currently in consultation under ESA. Joint Working Group recommendations for the San Francisco area included shipping lane changes, voluntary measures including slowing down, and encouraging use of lanes away from whales. Sanctuaries are actively involved in shaping recommendations and getting support from multiple constituents in a TRT-like process. Whale disentanglement efforts have included the development of a guide for fixed fishing gear (by Lauren Saez), a summary of overlap of whales and fixed gear, two whale disentanglement training sessions, and development and posting of a fact-sheet and whale entanglement DVD to show how and what to document. There were quite a few entanglements during 2012, including 6 disentangled whales (of which 2 subsequently died).

DeAngelis also reported on the Pacific Gas and Electric seismic surveys off the Diablo Canyon Nuclear Power Plant. There were problems with the assessment of impacts and proposed monitoring plans, causing SWFSC to become involved to collect baseline information and conduct monitoring. Other ongoing management issues include the Makah request for takes of gray whales (particularly given that Western Pacific gray whales may migrate through the proposed hunt area), a revision of acoustic guidelines related to marine mammals, the development of a blue whale recovery plan, and increasing numbers of Guadalupe fur seals in Pacific Northwest. The latter is a species of concern and NMFS requests feedback from the SRG on how to deal with this issue. Southern resident killer whale management is now coordinated between SWR and NWR, and there is a joint scientific panel with Canada regarding prey resources. Pinniped deterrent research has continued, in collaboration with the fishing community, to address concerns over pinnipeds as salmon predators and competitors of southern resident killer whales. Lynne Barre reported an unusual occurrence of a ribbon seal in Puget Sound, a possible indication of changing environment. The animal was tagged, sampled and followed.

CA/OR/WA Research and SARs

US West Coast Serious Injury Determinations

Jim Carretta reviewed >800 marine mammal injury reports for the most recent 5-yr period; 89% involved pinnipeds, and there were 82 large whale and 9 small cetacean events (*PSRG-2013-08*). Dominant injuries involved hook and line, shootings, entrainments in power plant intake systems, and constricting entanglements. The SRG expressed concern that the absence of information on vessel speed reduces the proration of injuries as serious, potentially creating an incentive to report less information.

CA/OR driftnet and CA setnet fishery bycatch

Jim Carretta reviewed bycatch estimates (*PSRG-2013-09*) for these two fisheries in 2011. Take levels are low, with no species near PBR. Effort in the drift gillnet fishery is at a record low (only about 16 vessels participating). Caretta reviewed three alternative bycatch estimation methods: 1) the standard ratio estimator, 2) a Poisson-based method, where bycatch rate is estimated from all years to estimate annual bycatch (even in years where none observed), and 3) tree-based methods, which identify factors associated with takes. Estimates were similar for all three methods, and there was some discussion of the various methods.

Whale ship-strike risk models

Jessica Redfern presented an overview of a recently published study (*PSRG-2013-B02*) of ship-strike risk to whales in Southern California. The study used habitat-based density models of whales to examine risk under various shipping lane scenarios, taking into account other user needs. A similar effort is currently underway for central California.

Fin and blue whale genetics

Karen Martien gave an update on fin whale and blue whale genetics projects ongoing at SWFSC. A paper presenting genetic analyses that support the existence of separate fin whale subspecies in the North Pacific and North Atlantic Oceans is in press, and a separate paper formally describing separate subspecies is now in preparation. Further lab work to investigate fin whale population structure within the North Pacific Ocean is scheduled to begin in 2014 and a project examining the global taxonomy of blue whales is underway.

Trends in fin whale and beaked whale abundance off the US West Coast
Jeff Moore reviewed his recent papers (including a 2011 paper and *PSRG-2013-B01*) that apply a Bayesian trend-analysis method to examine trends in abundance of fin whales and beaked whales off the US West coast. Fin whales are increasing in abundance, Baird's beaked whales are stable, and Cuvier's beaked whale and Mesoplodont beaked whales have declined. Causes are unclear but could include habitat changes or anthropogenic causes. There was discussion of these potential causes and additional research.

US West Coast cetacean SARs
The SRG provided minor comments on the West Coast SARs (*PSRG-2013-01*). There was some discussion whether beaked whales should be strategic based on the declining trend (even though GAMMS III has not been implemented). John Calambokidis noted that *Mesoplodon* seem to be of particular concern, while *Ziphius* are common in an active Navy range, and suggested adding trend figures to the SARs. Terry Wright suggested that changing PBR to 'not defined' could be possible because, as with the case of monk seals, the populations are not increasing without a known source of human-related mortality. Karin Forney noted that the level of decline (>50%), would place the population below OSP, such that the recovery factor should be <0.5. The level of decline may warrant a "depleted" designation under the MMPA. The SRG questioned whether strategic or depleted status was appropriate given that it is unclear whether the animals died or just moved outside of the study area.

The humpback whale and blue whale draft SARs need to be updated with John Calambokidis' latest information (*PSRG-2013-13*). For humpback whales, the SAR updates should take into account the two different foraging groups for CA/OR and WA/BC. The revised SARs will be sent to the SRG for review. Overall, the humpback whale population increase seems to be slowing. Terry Wright suggested this supports delisting. Shannon Bettridge indicated that the Status Review has not yet gone out for public comment but is working its way through the process.

Northern fur seal and OR/WA harbor seal SARs
Marcia Muto (by phone) summarized changes to the stock assessment reports for northern fur seals and OR/WA harbor seals (*PSRG-2013-03*). The northern fur seal stock name was changed from San Miguel Island to California to include the Farallon Islands breeding animals. The Washington Inland Waters harbor seal SAR now includes prospective stocks to reflect Harriett Huber et al.'s genetic study presented at the last SRG meeting. There are no PBRs in the harbor seal SARs because abundance estimates are outdated, but new surveys of harbor seals in Washington's inland waters are planned during 2013.

Southern resident killer whale SAR
Brad Hanson (by phone) provided updates on the southern resident killer whale population status and SAR (*PSRG-2013-02*). Progress has been made on the previous SRG recommendations to obtain biopsies, tag animals, and conduct additional studies.

Southern sea otter research/management and draft SAR
Lilian Carswell (by phone) provided several management updates, including the official termination of the San Nicolas Island Translocation program. A recent concern is the increasing numbers of shark bite mortalities, especially off San Luis Obispo County. There were minor updates to the SAR (*PSRG-2013-04*).

Diablo Canyon Seismic Survey Monitoring
Karin Forney described the SWFSC involvement in the Diablo Canyon Seismic Survey monitoring project. A three-part monitoring plan of aerial surveys, passive acoustic monitoring, and stranding response was developed last summer/fall to address concerns over harbor porpoise and ESA-listed whales. The project was terminated once the California Coastal Commission failed to approve the power company permit. John Calambokidis pointed out that a separate seismic survey had previously been permitted off Washington, and that there were some problems with the permitting process in that case. He also expressed concern that the Diablo Canyon monitoring efforts did not include enough large whale monitoring and research. There is a need to consider potential effects in advance and support comprehensive studies to assess impacts.

West coast harbor porpoise abundance estimates & SARs
Karin Forney presented new aerial survey estimates of abundance for five harbor porpoise stocks from central California to Cape Flattery, Washington (*PSRG-2013-13*). The estimates have been incorporated in the SARs (*PSRG-2013-01b*). All stocks appear to be stable or increasing; the Monterey Bay and Morro Bay stocks appear to be recovering after the elimination of gillnet bycatch in 2002. A Bayesian trend analysis is planned in the coming year to evaluate trends. John Calambokidis commented on the increase in harbor porpoise strandings in WA, especially in inland waters, and noted that these may in part reflect population increases and shifts in distribution. The SRG had no comments on the SARs.

Gray whale update and SAR
Dave Weller summarized the results of the workshop on gray whale stock structure (*PSRG-2013-B03*). A plausibility point allocation system was used to evaluate questions related to stock structure of gray whales. After reviewing results from photo-identification, genetics, tagging, and other studies, there was a substantial level of uncertainty in the strength of the lines of evidence supporting demographic independence of the Pacific Coast Feeding Group (PCFG). The task force advised that Western North Pacific gray whales should be recognized as a separate population stock under the MMPA.

The SRG suggested that the gray whale SAR be shortened. The list of the serious injuries should be listed in a separate report to keep the SAR concise and the genetics section should be shortened to only include current genetic information.

SRG Terms of Reference
Shannon Bettridge provided an overview of the motivation for Terms of Reference. She emphasized that NMFS is extremely grateful for the service and expertise provided by the SRGs. There have been requests from outside groups to add new members to represent them, and questions asked about SRG procedures and scientific expectations. People outside of the agency do not have a clear idea of what the SRGs do, and therefore the NMFS wants to establish clear criteria for SRG expertise and scientific expectations, while making it clear that the SRG is not a forum for advocacy. There is a NMFS expectation of a single consistent document for all SRG regions. To that end, NMFS staff, in consultation with the SRG Chairs and liaisons, developed a draft Terms of Reference document (*PSRG-2013-07*) and NMFS requested feedback and comments on that document from each of the three SRGs. Several versions of a draft were circulated to the Pacific SRG: one version was provided to SRG Chairs and SRG liaisons (sent to Pacific SRG by e-mail); a second revised version is *PSRG-2013-07*; a third is a Pacific SRG-

written version provided to NMFS; and one additional version that was circulated to the NMFS Science Centers. *PSRG-2013-07* was also sent to the Marine Mammal Commission.

Several members wanted better clarification on the issue of advocacy. Shannon Bettridge stated that there has not been any problem with advocacy by SRG members, but recently there have been requests to put people on the SRG to advocate certain viewpoints, so there is concern and interest in clarifying the scientific expectations and expertise for SRGs.

Chuck Janisse agreed that it was good to clarify for the public the role of the SRG, but he believes the proposed Terms of Reference are inconsistent with the MMPA. Statutory law is based on the intent of Congress and courts often look to the congressional record to perceive legislative intent. The 1994 congressional record reveals that Congress wanted to allow for regional differences in the SRG process. They did not want NMFS to be involved directly in that review process, but instead allowed for as much incorporation of regional differences as possible, and that was why they exempted SRGs from FACA. The proposed Terms of Reference, however, are trying to make all the SRGs the same, ignoring congressional intent. Janisse suggested that each SRG can and should be able to have its own Terms of Reference. Kathy Ralls stressed that the different SRGs are mandated to be independent under the MMPA, otherwise a single nationwide SRG would have been mandated.

Jeremy Rusin commented that SWFSC supports a single Terms of Reference that allows for regional differences. They should focus on the general process and scientific expectations, rather than detailed meeting procedures. Appendix B still needs to be fleshed out with scientific expectations, and once this is done the need for procedural things will be reduced. This would allow more independence of SRGs. Other SWFSC comments included a desire for a mechanism of turnover among membership in the SRGs, but the default would be continuation of members, and not automatic rotation if a member's expertise is still needed and the members are conducting themselves according to TORs. Bettridge agreed that Appendix B needs to be developed because it is the heart of the document.

Asuka Ishizaki indicated that the Western Pacific Fisheries Council requested addition of expertise on the SRG because, from the Council's perspective, Pacific Islands fishing expertise is not covered. Chuck Daxboeck, the Council's Scientific and Statistical Committee Chair, and fisherman John LaGrange have been recommended as members to provide some of this expertise. She said this is not intended as Council advocacy. As reviewers of science, the SRG needs to be aware of the management context because the outcome affects livelihoods. Bettridge clarified that the effort for TORs had been underway before the Council's letter.

SRG members emphasized that they have long recognized the need for Hawaii expertise. Janisse commented that the SRG has previously noted it would be good to get a longline expert, and they approached John LaGrange and others, but no one came forward. The SRG has actively involved longline fishermen in past meetings as invited experts (*e.g.*, John Hall, Pete Dupuy). Hannah Bernard added that the SRG has for many years tried to get individuals from Hawaii to participate, including the State. Ishizaki indicated that Terms of Reference are very helpful, but she suggested that the member-auditioning process makes it look to her that the SRG is not independent but rather trying to find people that fit in. Kathy Ralls explained that the audition is to see if they have expertise that complements the existing SRG expertise and to determine whether they are committed enough to attend the meetings and do the work required.

Terry Wright inquired whether NMFS would accept a Pacific SRG-written Terms of Reference. A specific problem discussed by the SRG was the removal of members, because the Chair does not have that power and the removal of members is not in the MMPA. The SRG believes that the FACA exemption and independence from NMFS means NMFS should not have power to remove members. Bettridge explained that NMFS believes that there is a need for some new expertise, and there needs to be a mechanism to add that expertise without growing the SRG beyond funding capabilities. Doyle Hanan expressed concerns that giving NMFS the ability to appoint and remove members will make this just another NMFS-controlled body.

Dennis Heinemann (Marine Mammal Commission) stated that the Commission has not yet fully developed its position but it does not entirely see a need for Terms of Reference. Having been on similar bodies, he can see the value of having set terms for members and exchanging expertise and perspective and knowledge, but based on his two-year experience with SRGs, he has seen that the SRGs operate in a consensus process with input from other participants, rather than by vote. SRGs are very open to accepting expertise from the entire community in attendance, and there are is lots of opportunities to provide input even for attendees who are not an SRG member. This input plays a role in the SRG recommendations. Heinemann added that MMC would be supportive of more consistent application of GAMMS by the SRGs. There should be general agreement on principles, and he encouraged the NMFS and the SRG to continue working towards a consensus on a document to achieve those principles.

Ishizaki commented that, as written, the Terms of Reference are inconsistent with the MMPA because they give NMFS authority to appoint members without consultation with the other entities described for the initial formation of the SRGs. John Calambokidis indicated he did find the Terms helpful. John LaGrange noted that the constraint to be disqualified from advising on anything with financial interest creates a problem for fisherman, who by definition have a financial interest in the topic of their expertise. This is something that concerns the SRG as well because members with specific and valuable expertise usually obtained that expertise as a result of working for an entity that might be affected by the SRG's recommendations. Karin Forney noted that the SRG has always avoided such conflicts of interest implicitly.

Sarah Courbis commented that HI State would like to coordinate with SRG on Hawaii marine mammal and fishery issues, but does not seek to have DLNR on the SRG. Jim Harvey suggested that SRG members must have specific abilities to function effectively and not just represent a particular interest group.

The SRG gratefully acknowledged the efforts of Shannon Bettridge. The SRG will continue drafting its own terms of reference.

Pacific Islands Research and Management

Nancy Young discussed Pacific Islands Regional Office management issues. Monk seal recovery efforts continue, and a new permit process is underway for research and management actions. A Main Hawaiian Islands (MHI) Monk Seal Management Plan draft is under development and the critical habitat designation process is underway. The MHI insular false killer whale ESA endangered listing was finalized effective 28 Nov 2012 after additional BRT review and public comment. The next steps will be to consider critical habitat and form a recovery team to develop a recovery plan. Resources are limiting, so the recovery team meeting is probably a year or more off.

The False Killer Whale Take Reduction Plan final rule has been completed. It establishes a variety of measures, including gear requirements, two longline closure areas, and measures to improve captain and crew response to hooked or entangled marine mammals. Serious injury determinations for certain false killer whale interactions will need to be expedited to assist in implementing the "Southern Exclusion Zone" longline closure area.

The marine mammal health and stranding response program responded to at least 53 marine mammal strandings, including 16 Hawaiian monk seal interventions and large whale disentanglement efforts, involving at least 10 animals. Sarah Courbis mentioned that local pot gear was implicated in at least two entanglements.

Spinner dolphin management efforts included the preparation of a Draft EIS for new regulations, and a Dolphin SMART education and recognition program that currently includes four tour operators. PIRO is also supporting additional research projects by Duke and Murdoch University. Mark Fraker inquired about infectious disease types and details. Young explained that *Morbillivirus* was first detected in 2010 and 12 cetaceans of 11 species have tested positive. *Brucell*a has been detected in 3 individuals of different species. Fraker commented on the nature of *Morbillivirus* and its potential to cause mass mortality. Courbis clarified that testing had not previously been done, so the presence is not necessarily new.

Young also provided an observer program summary, including levels of observer coverage and observed marine mammal interactions in 2011-2012 and 2013 to date. Three longline fisheries were observed during 2011-2012: the deep-set fishery at 20% coverage, the shallow-set fishery at 100%, and the American Samoa fishery at 20-30%. Deep-set interactions included the first documented take of a pygmy killer whale. In American Samoa, there was a rough-toothed dolphin mortality during 2013. Locations of false killer whale takes include two within the Insular/Pelagic overlap zone during 2012. Changes in observer program forms and protocols have been made in response to the TRP and to obtain more precise gear information and improve species identifications.

Hawaiian monk seal research and SAR

Jason Baker (by phone) summarized the Draft Hawaiian monk seal SAR (*PSRG-2013-06)*, which is current through the 2011 field season and has been shortened and streamlined. Funding has been cut dramatically since 2011, so that was the last field season with adequate abundance and trend estimates. Injury information reflects new 2012 guidelines applied by John Henderson. Kathy Ralls inquired whether the MHI information is adequate or if another systematic survey is needed. Baker indicated there is generally good coverage in accessible areas, but it is difficult to get to areas that are not part of the network (Kahoolawe, offshore remote islands). Baker noted that some people in Hawaii do not accept monk seals as native to Hawaii, and that may have in part motivated shootings and harassment. There are many myths about monk seals and impacts on fisheries, so outreach is important. Lisa Van Atta (by phone) noted the difficulty in getting information to prosecute these cases.

Hannah Bernard inquired about staffing and field camps. For 2012, budget cuts of 50-80% will increase uncertainty in abundance and pup production trends, and will reduce the ability to maintain the identification data base and document natural marks. This will have impacts into future years. There had been some improvements in seal survival at some sites, but survival to 2012 is uncertain due to a shortened season. The shortened season also reduced the ability to dis-entangle seals, mitigate shark predation, and conduct translocations. Albert Harting and others

evaluated the effects of past interventions and found that 25-30% of seals in the population today have had past interventions or rehabilitation; this is an important aspect to recovery and survival of the species. In 2013, there will be some field camps, but efforts will be relatively short and costs will be reduced by using volunteers at summer camps. Charles Littnan also has a critter-cam project with the National Geographic Society in MHI to define foraging habitat and understand body condition. Bernard inquired what would be needed to reprioritize funding to staff field camp efforts. Ship time has been reduced but the reduced funding is currently the most critical limitation.

Hawaiian spinner dolphin abundance & trends
Dave Johnston (by phone) addressed questions on document *PSRG-2013-17*. Their team has worked for 3 years doing a photo identification project (1st week of every month for 3 years) off the Big Island. Mark-recapture abundance estimates are about 820 individuals (SE=29.5), which is the lowest abundance estimate for this coast. Two methods were used to estimate marked rates, and the marked proportion is quite high (79-81%). Johnston could not quantify the degree of underestimation due to the monitoring of only four leeward bays and none of the windward areas, but noted that there do not seem to be animals south of the study area, while animals do move around to northern areas.

Beaked whale research in the Pacific
Simone Baumann-Pickering (SIO) provided an overview of HARP data to detect and classify beaked whale sounds (*PSRG-2013-B07*). The most notable pattern is that a single type (species or call type) dominates at each HARP. The detections were overlaid with range distribution maps. For four species with unknown call types, the authors deduced, based on known distribution and other factors, which call was produced by each species: *M. carlhubbsi*, *M. peruvianus*, *M. perrini*, and *M. gingkodens*. Some species fit well but others did not. Specific locations of HARPs are important because detection range is about 5 nmi. The SRG inquired about possibilities for assessing trends from such data. Baumann-Pickering indicated that there should be some ability to evaluate trends in detection rates, taking into account the temporal variation in signal detections. *M. hotaula* (Deraniyagala's beaked whale) is very localized in its occurrence; Robert Brownell described this new species, which is known from sightings off Palmyra, several specimens, and many acoustic detections at Palmyra/Kingman Reef. It was first described in Sri Lanka by Deraniyagala in 1963, with some other possible specimens elsewhere. Additional genetic samples will clarify whether *M. hotaula* is its own species, and acoustic data can provide information on geographic distribution of this beaked whale. If *M. hotaula* is an insular stock like *M. densirostris*, then the high rate of strandings in 2001-2006 is of concern.

Western Pacific Regional Fishery Management Council SSC Review
Asuka Ishizaki provided an overview of WPFMC's jurisdiction and management responsibilities, with respect to Pacific fisheries under the Magnusson-Stevens Act (MSA). She reviewed some of the current fishery regulations and measures that were adopted into fishery ecosystem plans and regulations as a result of protected species issues. The Councils are mandated under the MSA to have a Scientific and Statistical Committee (SSC) to review scientific and technical aspects of fisheries and provide scientific advice for fishery management decisions under MSA. The SSC meets three times per year and meetings are open to the public. A false killer whale subcommittee of the SSC was tasked with reviewing false killer whale stock assessment and associated documents, including a review of guidelines for calculating PBR and M&SI.

The resulting report (*PSRG-2013-B04*) was endorsed by the SSC and the Council and includes the following recommendations: 1) comprehensive photo-ID mark-recapture analysis to estimate key parameters, 2) comprehensive analysis of genetic stock structure, 3) use of hierarchical or state-space distance sampling approaches in future stock assessment surveys, 4) a team-based working group for serious injury determination, with additional outside expertise (cetacean veterinarians, fishery experts, captains and crew), particularly for case-by-case determinations, 5) enhanced quality of observer data; 6) a NMFS review of the recommendations from SI workshop, and 7) the development of an additional model for allocating 'blackfish.' Terry Wright commented that many of these concerns go back to at least the 1994 amendments and were heavily debated during that process. Chuck Janisse pointed out that all of the things the SSC noted in the report apply to the entire MMPA process. Ishizaki indicated that they are looking into ways to obtain more resources to improve the science, and are working with Ray Hilborn to take a different look at pelagic false killer whale populations to examine the impact of the fishery. Janisse indicated that a new model may be useful and informative, but questioned the use of a different metric just for false killer whales. Barbara Taylor further pointed out that the SSC report did not cite many peer-reviewed publications on false killer whale genetics and the PBR process, indicating that key science was overlooked in the development of the report. The report was included as a background document only; the PSRG was not asked to review it.

Hawaii State/DLNR and HI National Marine Sanctuary updates
Sarah Courbis presented updates for the HI Department of Land and Natural Resources (DLNR) and Humpback Whale Sanctuary. They are filling vacant and new positions, including commercial and recreational fisheries managers, and an ESA/MMPA coordinator. The Sanctuary Management Plan Revision is expected by the end of the year. They are evaluating ecosystem-based management to include other 'resources of national significance, and are interested in feedback from the SRG. The Sanctuary is involved in whale disentanglements, ship strike assessments and strandings, and they have been engaging the community in monk seal issues. A new state representative (Alton Miyasaka, with alternate JoAnne Kushima) has been proposed for the False killer whale TRT, and insular false killer whales have automatically been listed as endangered by HI state following the ESA designation. HI State is supporting Julian Tyne to extend his spinner dolphin study in Kealakekua Bay through the 2013 kayak closure, to provide insights into the effects of traffic on spinner dolphins. Research were coordinated with the local community as cultural use and local access issues can be sensitive.

Courbis also reviewed available data on HI State fisheries. There are no State observer programs, but a commercial reporting form is required for anyone selling fish commercially. The form provides fishing data within grid blocks and in a nearshore 2-mile strip, and depredation information can be included at bottom but it is not always clear which records the depredation info goes with. The State have been trying to connect these records better with an on-line form, since 2010. Depredation information has also been collected by species category (dolphin, monk seal, FKW, porpoise) during 2002-2012. Courbis requested input from the SRG on information that would be helpful to request on this form. Data are shared with NOAA in aggregate (individual records are confidential), and the State could also do in-house analyses on specific questions of interest. There are also efforts by the fishing community to reduce depredation. DLNR is also in the process of revamping the form for recreational fishing to include details on depredation.

Pacific Islands cetacean serious injury determinations.
Amanda Bradford reviewed the cetacean mortality and serious injury determination process and results for Hawaii and American Samoa longline fisheries (*PSRG-2013-11*). Pacific SRG review resulted in the refinement that category S2 (ingested gear) be included if the location of the hook in or near the mouth could not be ascertained. There were four cases where the injury severity could not be determined. Twenty-five cases involved injury of a possibly dependent animal (*i.e.*, category S15 could be applied if criteria for S15 were clarified). Most of these cases were determined to be serious based on other criteria, but six cases are currently non-serious and would change if S15 was applied. John LaGrange asked about revisiting effects of hook types on marine mammals given the change to circle hooks and that such hooks act differently on fish. Karin Forney responded that at the most recent workshop there was no detailed information available on effects by hook type, but if additional information can be obtained this question could be revisited.

A second effort by Bradford and Ed Lyman (NOAA/NMS) involved the assessment of injuries from strandings and at-sea reports of entanglements and vessel collisions of humpback whales and other cetaceans in Hawaiian waters (*PSRG-2013-12*). This work is very preliminary and Amanda would like to receive feedback from the Pacific SRG. The humpback injury determinations are currently in review by the Alaska SRG, and all records have been reviewed by the NEFSC or SWFSC experts and PIRO. The Pacific SRG is willing to review the information as well. Unresolved issues for the humpback determinations involve 1) cow/calf pairs when the animal struck is unknown, 2) cases for which vessel speed upon impact with the whale was unknown, 3) uncertainty surrounding unconfirmed and unobserved vessel collisions (just lacerations observed) , and 4) influence of health impacts after disentanglement for whales in poor condition. For cetaceans other than humpbacks, there were 6 hookings or entanglements, with 5 determined to be serious injuries (one animal was later seen without hook, so it is known to have survived and was not counted against PBR). Prior to 2007, there were 26 reports of vessel collision, fisheries, and possible shootings of at least 6 non- humpback species. Data indicate a variety of human-caused injury sources, but for cetaceans other than humpbacks, more effort is needed to report, document, and monitor injured animals.

False killer whale research and SAR
Robin Baird provided a preliminary analysis of photo-ID data to estimate abundance and survival rates (*PSRG-2013-14*). There are a number of complications including effort characterization (given collaborator differences and increased effectiveness of sampling over time), and the existence of three known social clusters. Survival rates appear within the range of expected (0.95-0.97). Estimates of abundance take into account that about 75% of animals have identifiable marks. Additional analyses are needed to examine robustness of models and take covariates into account (*e.g.*, social cluster, collaborator, area, effort).

Erin Oleson presented the updated false killer whale SAR. There are now three stocks within the EEZ around Hawaii plus a high-seas component of the pelagic stock, with all except the NWHI stock being strategic. Uncertainty in mortality and serious injury is underestimated because some of the variance associated with prorating has not yet been included statistically. The SRG found the section on high seas PBR calculations confusing and unnecessary and suggested that it be removed. The SRG recommended that the lead-in part of the sentence for N_{min} be removed from all SARs as it is unnecessary and the redundant fishery information repeated for each SAR could be moved to the fishery appendix.

Pacific Islands cetacean research update
Erin Oleson summarized additional research, particularly the Guam and CNMI survey efforts (*PSRG-2013-B08*) that included 77 survey days and resulted in 95 sightings of 8 identified species and *Mesoplodon* beaked whales. Weather was challenging, but spinner and spotted dolphins were the most common, with short-finned pilot whales also seen several times. Photo-ID catalogs are under development, and planned tissue analyses include an examination of contaminant loads. Higher levels have been documented near Anderson AFB. This year's survey efforts will include deployment of satellite tags. Oleson also noted that the Navy and Marines have funded other groups to conduct surveys at Tinian and Pagan to assist with understanding the effects of amphibious vehicle training operations there. Photos from these efforts will be added to the PIFSC photo-ID catalogs for the region.

Long-term acoustic monitoring stations throughout the Pacific Islands have been scaled back due to cost of maintenance and analysis. There are currently two at CNMI, one at Wake, and two in the Hawaiian Archipelago. These stations have documented seasonal baleen whale presence, including areas where little prior information existed, and Oleson is currently working on a publication. Odontocete species that can be identified include Risso's dolphin, pilot whale, false killer whale, sperm whale, killer whale, and *Kogia*. The Wake Island station did not detect many dolphin sounds, but did detect many sperm whale sounds. Oleson would like to develop a method of distinguishing false killer whale stocks in the acoustic record (particularly, at Kauai where the three stocks overlap). The CNMI stations also detected low frequency active sonar in 2010, and mid-frequency sonar probably as well.

The PIFSC, in collaboration with Hawaii Longline Association and with funding from the MMC and the NMFS Bycatch Reduction Engineering Program, has made progress toward completing the design of acoustic monitoring units for the longline fishery. The units have been deployed on 8 sets, some with depredation, and a trip just left at the end of March with an observer and five instruments to deploy along the mainline to assess movements of false killer whales during depredation.

During 2011 and 2012, shipboard surveys were completed within the Palmyra EEZ, resulting in 52 encounters of 10 species, though only 23 on-effort sightings were of identified species). Although similar to 2005, these encounter rates are very low and mostly in Beaufort sea states 5-6, and line-transect estimates within the Palmyra EEZ may not be the most effective assessment method. All PIFSC assessment efforts are very challenging in the face of declining ship time and funding. During May-June 2013, 30 sea days are allocated to conduct a sightings survey and photo-ID, acoustics, biopsy sampling, and tagging studies from Kauai to Pearl and Hermes Reef,. PIFSC has new acoustic instruments that may enhance localization of groups. The PIFSC cetacean program is now also plugged in to a new web site, *iNaturalist.org*, where the public can provide photos or sighting information. This could be helpful in Marianas, where people are interested in contributing but need to know how to provide information.

Pacific Islands cetacean genetics
Karen Martien described the ongoing and upcoming genetics projects in the Pacific Islands region. Pilot whales are known to have southern and northern forms and a more comprehensive study of phylogeographic structure is being conducted by Amy Van Cise. The Hawaiian Archipelago is most closely aligned with the southern form and morphologically match that form (they have a square head). There is a separate genetic study of population structure of pilot whales in the Marianas Archipelago based on 38 samples, with more to be collected during 2013.

There is also a potential (not yet funded) project to examine structure of Hawaiian pilot whales using microsatellite genotyping and sequencing.

A phylogeographic study of melon-headed whales has also been initiated, including population structure within the North Pacific. This effort has been slowed by the difficulty in finding microsatellite markers in this species. The study has identified 45 haplotypes, but there is no phylogeographic structure (common haplotypes are found around the globe). Several strata, including HI, have enough samples for comparison. Martien also provided an update on Renee Albertson's study of genetic structure in rough-toothed dolphins. Samples from the Hawaiian and Society Islands are significantly different, and Hawaii Island is different from Garner Pinnacle and Kauai.

There is an ongoing project to examine the genetic structure of false killer whales in the Hawaiian Islands. Eleven new samples have been added since the past SRG meeting, and there were no qualitative changes to the results. A separate study of social structure of Main Hawaiian Islands false killer whales is awaiting data and analyses. A new project has been initiated to sequence the entire genome of 150 false killer whales to estimate divergence time of Hawaiian haplotypes from other North Pacific haplotypes, and to examine global taxonomy. This will also provide a single nucleotide polymorphism (SNP) data set as an alternative to microsatellites. Lab work is underway and expected to be completed by summer 2013. However, there are difficulties with respect to U.S. interpretation of CITES requirements that limit access to critical samples. The U.S. does not recognize export permits issued by countries that don't have both a management authority and scientific authority, so samples are not permitted to be imported from some locales, including many South Pacific nations. This is affecting several samples we could have access to, and will impact future beaked whale studies.

The recent and expected future samples of several species (including sperm whales, pilot whales, spinner dolphins, melon-headed whales, bottlenose dolphins, spotted dolphins) from the Marianas Archipelago will be analyzed. For spinner dolphins (n=73), samples will be sexed and genotyped to look at genetic structure within the Marianas and relative to other geographic areas.

Asuka Ishizaki inquired whether there are any new samples from pelagic false killer whales to examine whether the MHI or NWHI haplotypes might be detected in the pelagic population if we had more samples. Martien indicated there is a small sample of the pelagic population and confirmed it would be valuable to get additional samples to reduce uncertainty. A potential source of DNA might be flesh adhering to hooks that pull out (the samples should be frozen). Ishizaki wondered whether DNA could be obtained from depredated fish heads, but Martien indicated this would probably be difficult. The SRG suggested that would be good to distribute information and a collection protocol to the fleet. John LaGrange commented that there are more straightened hooks coming back now that weaker hooks are in use, so the potential for collecting samples may have increased. Martien noted that costs would be considerable if ancient DNA techniques are required, but if there is tissue on a hook that is properly handled and stored, this would facilitate the extraction and make it less expensive.

Island-associated stocks in Hawaii

There are eight species in Hawaiian waters with some evidence of island-association (*PSRG-2013-16*). Erin Oleson examined these in the context of the guidelines on stock structure. Demographic independence has been used as a benchmark. The 'prospective stock' concept was intended when there is evidence of stock structure that may warrant revision of boundaries. The

current stocks fall into three categories 1) data-rich, with evidence of a stock and data for boundary placement (in these cases, new stocks are proposed for melon-headed whales and spotted dolphins; 2) data-poor stocks, with evidence of multiple stocks, but few data to define boundaries and poor prospect of new data becoming available in the near future (in these cases prospective stocks were proposed for Blainville's beaked whale, Cuvier's beaked whale, dwarf sperm whale, and pygmy killer whale); and 3) stocks with increasing data on stock structure and significant information expected to become available soon and no revision would be done until better information is available (pilot whales and rough-toothed dolphins).

Oleson reviewed two sample stocks to illustrate concepts and solicit input from the SRG. Photo-identification data reveal two separate populations of melon-headed whales with high site fidelity to MHI and very low interchange rates (0.0009/yr). One is estimated to have 5794 animals (the Hawaiian Islands stock) and the other 447 (the Kohala stock). The SRG questioned whether these proposed stocks are different populations or different social communities, and questioned whether, if the Kohala stock were to be eliminated, the Hawaiian Islands stock would fill this habitat given the geographic overlap of the two proposed stocks. Oleson indicated that the ecology of the stocks is different and any replacement would probably take time. Karen Martien added that preliminary genetic data show significant genetic differentiation between the groups, indicating not much interbreeding is going on. Terry Wright wondered whether there were localized impacts that necessitate the recognition of separate stocks and requested that this be clarified in the SAR. Oleson and Baird noted that there are differential impacts from fisheries and naval activities, and Brandon Southall is preparing a report on mass strandings of melon-headed whales suggesting that this species is particularly sensitive. Martien emphasized that even if there is a low level of gene flow, the population is demographically independent if animals do not disperse among populations. Photo-ID data indicating an extremely low interchange rate demonstrate that the populations are demographically independent.

Short-finned pilot whales have clear evidence of at least two distinct populations with island-association, but ongoing studies are expected to provide considerable information to clarify stock identity of individuals, social structure, stock boundaries, and abundance. For this reason the SAR is not yet separating stocks until the additional information becomes available. Ongoing studies of rough-toothed dolphin also suggest two island-associated stocks but the designation will be stronger once analyses are complete.

For species in the data-poor category, the pace of data collection is very slow because of the difficulties in encountering and collecting information on these species. These are proposed as prospective stocks because they are recognized as distinct but there is no likelihood of resolving details in the future. Blainville's beaked whales have an island-associated population with some individuals resighted over 17 years and a total of 76 total known individuals with 57 island-associated during the entire study period. Animals seen farther offshore and in deeper waters did not link to this population and were not resighted. Beaked whales are known to be vulnerable to sonar and seismic operations, and Navy exercises regularly take place in the Alenuihaha Channel.

The SRG discussed the process and need for prospective stocks, particularly when N_{min} and boundaries are not available and continued this discussion of these stocks via email after the SRG meeting.

The issue of “prospective stocks” is a problematic one for the SRG. The GAMMSII guidelines state that "Prospective stocks would be expected to become separate stocks in a timely manner unless additional evidence were produced to contradict the prospective stock structure." Some of the disagreements with the use of this category are:

a) If there is enough evidence to distinguish one stock from another, then it should be considered as such; if there is not enough evidence, it should not be put on an almost-automatic track to stockhood. In effect, the prospective stock category means that insufficient data are available to designate a separate stock right now, but that somehow, with the passage of a year it would considered a stock even though no additional information may have been gathered to support this status.
b) In the initial SAR that designates the prospective stock, the null hypothesis is the traditional “the two samples examined are the same” and evidence must be produced to show that the samples are different. Once the prospective stock is designated however, the null hypothesis switches to “the two samples are different,” with no additional supporting data, and evidence must be produced that the samples are the same.

Some SRG members believe the “prospective stock” designation does have value in highlighting those potential stocks that may face particular threats, but the SRG has preferred to accomplish this in a different manner. For the Eastern North Pacific gray whale, the Pacific Coast Feeding Group was not designated as a prospective stock, but the SAR described the evidence regarding population separation on their feeding grounds and mixing on the breeding grounds. Because there was a potential for take if the Makah tribe exercised their Treaty rights, a PBR was calculated for this segment of the population for informational purposes.

HICEAS 2010 abundance estimates
Amanda Bradford presented a line-transect analysis of the 2010 HICEAS cruise data to estimate the abundance of 19 species of cetaceans other than false killer whales (*PSRG-2013-18*). Although there were some refinements in the analytical framework, the 2010 estimates are similar to the previous 2002 estimates published in Barlow 2006 and indicate low cetacean density in the Hawaiian EEZ. The coefficients of variation remain high overall, but are generally lower than for 2002.

Hawaiian cetacean SARs
The SRG provided comments on the Hawaiian Cetacean SARs (*PSRG-2013-05*), and recommended that the fishery information be moved from the individual SARs to the fishery appendix (Appendix 1). Asuka Ishizaki had concerns about old fishery interaction data that are used to infer current fishery interactions (*e.g.*, Nitta and Henderson), and noted that the NWHI bottomfish fishery no longer exists (in contrast to MHI bottomfish fishery). Sarah Courbis confirmed some gillnet interactions with bottlenose dolphins and spinner dolphins, and said that there was no reported depredation by dolphins in gillnets. For species that do not overlap with the nearshore gillnet fishing, the reference to gillnet fisheries should be removed. Chuck Daxboeck commented on the length limit for gillnets and described how they are fished. Ishizaki noted that fishermen have stopped throwing discards over and this appears to have resolved the cetacean interactions, according to Kurt Kawamoto, PIFSC. Robin Baird commented that the depredation of bait and catch reference is very old, but there is more recent information. Karin Forney suggested that the individual SARs could be revised to report only the interactions documented for each species, and some general text could be included for all/most SARs to

indicate that there are unobserved fisheries that use gear types known to take cetaceans elsewhere. Kathy Ralls requested that language about fishery interactions ("alleged interactions") be worded more neutrally. Edits were suggested to address interactions between humans and bottlenose dolphins.

Spotted Dolphin SAR
The SRG believes the evidence (genetics plus the typical occurrence of resident island populations of spotted dolphins elsewhere in the world) supports the new stock structure.

Spinner Dolphin SAR
Tyne *et al*. presented an underestimate of abundance for the Hawaii Island stock because they only monitored 4 bays on the leeward side of the island. Any animals on the northern, southern, and eastern sides of the island would be missed. If they are correct about the potential effect of human swimmers driving the dolphins out of the resting bays, the estimate is even more of an underestimate when compared to older estimates. It cannot be used to infer a lower abundance or a declining trend. The citation of the estimate in the Population Size section should mention that it is an underestimate, and the second sentences of the Current Population Trend and Status of Stock sections, referring to a declining trend, should be deleted.

Melon-headed Whale SAR
Figure 2 is drawn at too broad a scale to distinguish between the two possible stocks.

The SRG notes that this species was considered data-rich (Oleson *et al*. 2013) yet there have been only 68 sightings over a 11-year period. This may be a lot of data considering how little is known about the species, particularly in Hawaiian waters, but 6 sightings per year is hardly data-rich (long-term studies of coastal dolphins can easily make 6 sightings or more per survey day).

Given the preliminary state of the genetic investigation of melon-headed whale population structure worldwide and the uncertainty about whether the Kohala group is a separate stock or a social grouping, most of the SRG finds it premature to designate the Kohala group a separate stock at this time while some members support separate stock status. The SAR should note the possibility that there is more than one stock and the concern about potential take due to naval sonar exercises. This potential threat could justify the calculation of a PBR for the Hawaii Island Resident population as was done for the Pacific Coast Feeding Group under the Eastern North Pacific stock of gray whales. If a separate stock is proposed, the SRG would like to see a description of how NMFS plans to manage two stocks with asymmetrical spatial overlap.

Pygmy killer, Blainville's beaked, Cuvier's, and dwarf sperm whales SARs
The SRG does not recommend that these "data-poor" populations be considered prospective stocks for the reasons stated above. There is also not enough evidence to distinguish between a single social grouping and a separate inshore stock.

Topics, timing, and location of next meeting
The next meeting should be in Hawaii, if possible, because of the growing number of marine mammal stock assessments for Hawaii and Pacific Island stocks. A mid-March 2014 date was suggested to allow sufficient time to revise the Draft SARs in time for the May 1 deadline for initiating the public release process. Potential topics include:

1. Hawaii insular stocks (look at GAMMS III recommendations)

2. Hawaii fishery descriptions for non-longline fisheries – what types, how licensed, how and where do they operate, what data are collected (Presentations and possibly documents by Hawaii State, PIRO, PIFSC, and WPFMC to provide information).
3. SARs: Harbor porpoise; Palmyra stocks if model-based densities are available.
4. Ship strike updates on the West Coast
5. Southern California study updates
6. Monk seals management plan
7. Sperm whales and the drift gillnet fishery

The SRG also discussed potential strategies for improving the effectiveness of SRG meetings, given the large increase in documents and topics over the years. Approaches that may warrant further consideration include:

- Providing SRG documents only for substantive things that are incorporated into SARs; other items will receive verbal 'heads-up' only (or possibly be distributed as a background document).
- Setting a firm deadline for documents, such that no documents received less than 2 weeks before the meeting will be distributed for review.
- Organizing the agenda more tightly around the SRG documents.
- Holding a mid-year conference call to preview and discuss new or complex issues.
- Holding a webinar with research and management updates or controversial issues 1-2 months before documents are distributed.
- Increasing the meeting duration (but funding is limited)

Additional approaches discussed but not considered helpful were:

- Assigning a subset of SRG members to be primary reviewers for some or all documents.
- Limiting public input to specific times of meeting

PREVIOUS RESEARCH AND MANAGEMENT RECOMMENDATIONS
Pacific Scientific Review Group

The SRG recommends that the NMFS cooperate with the State of Hawaii to collect more information about Hawaiian near-shore fisheries. Published observations have documented small-scale fishery takes of marine mammals, but it still must be determined whether these fishery takes are significant and how they can be reduced or avoided. Additional partners (such as sport and commercial fishing organizations and environmental groups) could also help explore ways that hook-and-line fishing gear and trolling practices can be modified to reduce marine mammal takes.

The State of Hawaii has compiled fishery descriptions that will be reflected in the next SARs.

The SRG recommends that NOAA include the need for acoustic detections of marine mammals in the design and deployment of buoys and ocean gliders. The recent increase in the use of this technology by NOAA and NOAA partners is creating potential opportunities to gather much needed acoustic signals from marine mammals.

HARP installations have provided new data on marine mammals based on vocalizations, however IOOS efforts currently do not include acoustic monitoring of this type.

The SRG recommends that NMFS work with the U.S. Navy to establish the area off the NW side of the Island of Hawaii and the Alenuihaha Channel as an exclusion area for mid-frequency sonar use. This area appears to include the range of a resident group of melon-headed whales as well as those of resident populations of Cuvier's and Blainville's beaked whales. All three of these species are known to be sensitive to naval mid-frequency sonar.

The NOAA CetSound project has identified Biologically Important Areas (BIAs), including this area, but these areas have not been considered in permitting of naval activities.

The SRG recommends that harbor porpoise assessment surveys be conducted off Oregon and Washington and in Washington inland waters in light of 1) the long interval since the last surveys (2002 for the outer coast, 2002-2003 for inland waters), 2) the Unusual Mortality Event that occurred in this region since the last surveys, and 3) the evidence for recent ecosystem changes and changes in distribution of harbor porpoise into Puget Sound. This is particularly important given that PBRs can no longer be calculated because abundance estimates are greater than 8 years old.

Harbor porpoise surveys have been completed for coastal stocks done, but surveys for WA inland waters still are needed.

The SRG recommends that new surveys be conducted for harbor seal stocks in Oregon and Washington. There are no current abundance estimates, and thus no PBRs, for these stocks.

New surveys planned for May 2013.

The SRG recommends that a schedule of shipboard marine mammal surveys, with cost estimates, be provided to aid in the SRG's review of NMFS research planning.

Lisa Ballance presented a coordinated NMFS-wide assessment of Science Center shiptime needs for marine mammal assessments.

RESEARCH AND MANAGEMENT RECOMMENDATIONS
Pacific Scientific Review Group – 2-4 April, 2013

The SRG recommends that the NMFS cooperate with the State of Hawaii to collect more information about Hawaiian near-shore fisheries. Published observations have documented small-scale fishery takes of marine mammals, but it still must be determined whether these fishery takes are significant and how they can be reduced or avoided. The PIFSC/PIRO Fishery Monitoring Branch should include marine mammal data on its forms for Hawaiian fisheries, and data from the State of Hawaii should be included in SARs.

The SRG recommends that the NMFS Permit Office consider excluding the area off the NW side of the Island of Hawaii and the Alenuihaha Channel for mid-frequency sonar use. This area has been identified as a Biologically Important Area as it includes the ranges of resident groups of melon-headed, Cuvier's, and Blainville's beaked whales. Such sonar has been implicated in mortalities in these species.

The SRG recommends that harbor porpoise assessment surveys be conducted in Washington inland waters in light of 1) the long interval since the last surveys (2002-2003), 2) the evidence for recent ecosystem changes and changes in distribution of harbor porpoise in Puget Sound, and 3) the increased strandings in these waters in 2012. This is particularly important given that PBRs can no longer be calculated because abundance estimates are greater than 8 years old.

The SRG recommends that new surveys be conducted for harbor seal stocks in Oregon and Washington. There are no current abundance estimates, and thus no PBRs, for these stocks.

The Pacific SRG has previously urged NMFS to conduct shipboard surveys to obtain new abundance estimates for marine mammal populations. The SRG is very concerned that NMFS is giving a low priority to marine mammal research when allocating ship time. The US West Coast survey has been postponed until 2014, uncertainties have increased regarding whether funding will be available to support field work to monitor the Hawaiian monk seal population and mitigate human impacts, PBRs cannot be calculated for new Hawaii pantropical spotted dolphin stocks, and the lack of data puts populations at risk. When PBRs cannot be calculated, either for lack of abundance estimates or abundance estimates more than 8 years old, a negligible impact determination cannot be made for ESA-listed species and managed fisheries cannot achieve required MMPA standards. Either outcome places an inappropriate burden on managed fisheries. A multi-year allocation of ship time for marine mammal surveys should be rapidly developed, and the priority and funding for such surveys should be increased to conduct abundance estimates and other research required to calculate appropriate.

The SRG recommends that Regional Offices and Science Centers be consulted prior to NMFS issuing permits for activities such as seismic surveys. We note that these activities often involve uncertain consequences and opportunities for assessing impacts to marine mammal species, and therefore recommend that an appropriate monitoring/research effort before, during, and after the large-scale activities be required to gain information on impacts.

The SRG recommends that NMFS develop methods to estimate the total human-related mortality of marine mammals (*e.g.*, from ship strikes or unobserved fisheries), based on strandings and other reports of injury or death. The SRG believes the Southern California area would be a good place to begin a feasibility study.

The SRG recommends that NMFS, in collaboration with the Fish and Wildlife Service, the Marine Mammal Commission, the SRGs, and outside experts, conduct a systematic review on defining marine mammal population structure. The SRG recommends that the NMFS focus on how genetics can complement more traditional information such as morphology and distribution in determining marine mammal stock structure and in defining the terms 'stock' and 'population.' The workshop should provide guidance and consistency for deciding how much genetic differentiation in what type of genetic markers justifies defining a stock. It should also examine how to best integrate the different, and sometimes conflicting, types of information: morphology, distribution, genetics, and contaminant and parasite loads. The SRG would like to have the following questions be addressed: How do we mesh the MMPA's goal of maintaining a population as a functioning part of the ecosystem (that emphasizes the replaceability of the populations) with the statute's definition of a stock (that emphasizes breeding interchange)? In a continuum of levels of genetic exchange (for example, the continuum in killer whale populations from matriline, to subpod, to pod, to clan, to population), where does one draw the line between what is a stock and what is not? How do we balance the conservation concerns resulting from stocks being defined very broadly *vs.* the costs and practical management concerns resulting from stocks being defined very narrowly?

A**ppendix 1**

Attendees
Pacific SRG Meeting, 2-4 April 2013 (Del Mar, CA)

Scientific Review Group - Pacific Region:

Hannah Bernard	Hawai'i Wildlife Fund
John Calambokidis	Cascadia Research
Mark Fraker	Terramar Environmental Research Ltd.
Doyle Hanan	Hanan & Associates, Inc.
Jim Harvey	Moss Landing Marine Laboratories
Chuck Janisse	Fisheries expert
Katherine Ralls	Smithsonian Institution
Michael Scott	Inter-American Tropical Tuna Commission
Terry Wright	Northwest Indian Fisheries Commission

Invited Participants and Observers:

NMFS Southwest Fisheries Science Center
Lisa Ballance
Jay Barlow
Bob Brownell
Jim Carretta
Susan Chivers
Alex Curtis
Karin Forney
Annette Henry
Aimee Lang
Karen Martien
Sarah Mesnick
Jeff Moore
Jessica Redfern
Jeremy Rusin
Barbara Taylor
Dave Weller
Cisco Werner

NMFS Southwest Region
Monica DeAngelis
Tina Fahy
Elizabeth Petras
Penny Ruvelas (by phone)
Lauren Saez
Sarah Wilkin

NMFS Pacific Islands Fisheries Science Center
Jason Baker (by phone)
Amanda Bradford
Siri Hakala
Erin Oleson

NMFS Pacific Islands Region
Lisa Van Atta (by phone)
Nancy Young

NMFS Northwest Fisheries Science Center
Brad Hanson

NMFS Northwest Region
Lynne Barre (by phone)

NMFS Alaska Fisheries Science Center
Marcia Muto (by phone)

NMFS Office of Protected Resources
Shannon Bettridge

USFWS
Lilian Carswell (by phone)

Marine Mammal Commission
Dennis Heinemann

HI Dept. of Land and Natural Resources
Sarah Courbis

Makah tribe
Jon Scordino

Western Pacific Fisheries Management Council
Chuck Daxboeck
Asuka Ishizaki

Hawaii Longline Association
Svein Fougner
John LaGrange
Jim Lynch (by phone)

Cascadia Research
Robin Baird

Duke University
Dave Johnston

Scripps Institution of Oceanography
Simone Baumann-Pickering
Marie Roch

Appendix 2

Document List
Pacific SRG Meeting April 2-4, 2013 (San Diego, CA)
Last revised: 03/29/2013

Document No.	Title/Topic	Contributor(s)	Distribution Date
Documents for Pacific SRG review			
PSRG-2013-01	West Coast Cetacean SARs (Pacific white-sided dolphin, offshore bottlenose dolphin, beaked whales, *fin whale, blue whale, humpback whale, gray whale*)	Carretta, Lang	3/18/2013
PSRG-2013-01b	Harbor porpose SARs	Forney, Muto	3/29/2013
PSRG-2013-02	Southern Resident Killer Whale SAR	Hanson	3/22/2013
PSRG-2013-03	Oregon/Washington pinniped SARs (northern fur seal, harbor seal)	Muto	3/22/2013
PSRG-2013-04	Southern sea otter SAR	Carswell	3/18/2013
PSRG-2013-05	Pacific Island Cetacean SARs	Oleson	3/27/2013
PSRG-2013-06	Monk Seal SAR	Baker	3/22/2013
PSRG-2013-07	Draft Terms of Reference	LeBoeuf	3/22/2013
PSRG-2013-08	US West Coast Serious Injury Determinations	Carretta	3/18/2013
PSRG-2013-09	Marine mammal bycatch in CA fisheries	Carretta	3/18/2013
PSRG-2013-10	West Coast Harbor Porpoise Abundance	Forney	3/22/2013
PSRG-2013-11	Serious injury determinations for Hawaii and American Samoa longline fisheries	Bradford	3/27/2013
PSRG-2013-12	Serious injury determinations for Pacific Islands strandings, entanglements, and ship strikes	Bradford, Lyman	at meeting
PSRG-2013-13	Updated abundance estimates of blue and humpback whales off the US West Coast	Calambokidis	3/29/2013
PSRG-2013-14	Mark-recapture abundance estimate for MHI insular false killer whales	Baird	at meeting
PSRG-2013-15	Odontocete Cetaceans around the Main Hawaiian Islands:	Baird	3/18/2013
PSRG-2013-16	Potential island-associated stocks in Hawaii, with proposed new stock boundaries	Oleson, Baird, Martien, Taylor	3/29/2013
PSRG-2013-17	Hawaiian Spinner Dolphin abundance and trends	Tyne, Johnston, et al.	3/18/2013
PSRG-2013-18	Hawaiian Islands cetacean abundance estimates from HICEAS 2010 survey	Bradford, Forney, Oleson, Barlow	3/29/2013
Background Papers - FYI only		**Submitted by**	
PSRG-2013-B01	Moore and Barlow 2013- PLoS paper on beaked whale trends	Moore, Barlow	3/18/2013
PSRG-2013-B02	Redfern et al. shipstrike paper	Redfern	3/22/2013
PSRG-2013-B03	Gray whale stock structure report	Weller et al.	3/29/2013
PSRG-2013-B04	Western Pacific Regional Fishery Management Council SSC Subcommittee Report on False Killer Whales	Ishizaki	3/18/2013
PSRG-2013-B05	Baker JD, Howell EA, Polovina JJ. 2012. Climate variability and direct anthropogenic impacts on monk seals.	Baker	3/18/2013
PSRG-2013-B06	The Indo-Pacific beaked whale, *Mesoplodon hotaula* : A review of current status, biology, threats and future research needs. R. L. Brownell, Jr., R. L. Pitman and S. Baumann-Pickering	Brownell et al.	at meeting
PSRG-2013-B07	Spatio-temporal patterns of beaked whale echolocation signals in the North Pacific - REVISION	Baumann-Pickering, Brownell	3/29/2013
PSRG-2013-B08	Cetacean Surveys in the Waters of the Southern Mariana Archipelago, 2010-2012	Hill	3/18/2013
PSRG-2013-B09	Niche Partitioning of Beaked Whales: Comparing Diving Behavior and Habitat Use of Cuvier's and Blainville's Beaked Whales off the Island of Hawai'i	Baird	3/18/2013
(Documents are posted at: http://swfsc.noaa.gov/srg.aspx)			

Appendix 3

Pacific SRG Meeting Agenda
2-4 April 2013, Marriott Hotel, Del Mar, CA

TUESDAY, 2 APRIL 2013

Welcome and Introductions – *M. Scott, Pacific SRG Chair*

General Management and Planning

List of Fisheries – *DeAngelis*
Serious Injury Policy implementation – *Bettridge*
GAMMS III update – *Bettridge*
Oceanic cetacean and ecosystem assessment cruises: future prospects – *Ballance*

CA/OR/WA Management

SWR & NWR Management Updates – *DeAngelis/Barre*

CA/OR/WA Research and SARs

US West Coast Serious Injury Determinations – *Carretta*
CA/OR driftnet and CA setnet fishery bycatch – *Carretta*
Whale ship-strike risk models – *Redfern*
Fin and blue whale genetics – *Martien*
Fin whale trends; beaked whale trends – *Moore*
US West Coast cetacean SARs – *Carretta*
SMI northern fur seal and OR/WA harbor seal SARs – *Muto* (by phone)
Southern resident killer whale SAR – *Hanson* (by phone)
Southern sea otter research/management and Draft SAR - *Carswell* (by phone)
Diablo Canyon Seismic Survey Monitoring – *Forney*
West coast harbor porpoise abundance estimates & SARs – *Forney*
Gray whale update and SAR – *Weller*

Adjourn

WEDNESDAY, 3 APRIL 2013

SRG Terms of Reference

Discussion – *Bettridge/Scott*

Pacific Islands Research and Management

Pacific Islands Management updates – *Young*
2012 Observer Program updates –*Young*
Hawaiian monk seal research and SAR – *Baker* (by phone)
Hawaiian spinner dolphin abundance & trends – *Johnston* (by phone)
Beaked whale research – *Brownell/Baumann-Pickering*
Western Pacific Regional Fishery Management Council SSC Review – *Ishizaki*
Hawaii State/DLNR and HI Sanctuary updates – *Courbis*
Pacific Islands serious injury determinations – *Bradford*
False killer whale research and SAR – *Oleson*
Pacific Islands cetacean research update – *Oleson*

Review recommendations

Adjourn

THURSDAY, 4 APRIL 2013

Pacific Islands Research and Management (cont'd)

Pacific Islands cetacean genetics – *Martien*
Island-associated stocks in Hawaii – *Oleson*
HICEAS 2010 abundance estimates – *Bradford*
Hawaiian cetacean SARs – *Oleson*

Discuss recommendations

Topics, timing, and location of next meeting

Adjourn meeting