



Report of the Fourth Meeting of the Protected Species Advisory Committee

March 30-31, 2017

Council Office

1. Welcome and Introductions

Jim Lynch, Chair, welcomed members of the Protected Species Advisory Committee (PSAC) and other meeting participants. Members in attendance were George Balazs, David Hyrenbach, Sam Kahng, Lyn McNutt, Jim Lynch, and Milani Chaloupka (by phone). Erin Oleson and Carl Meyer were excused. Other meeting participants included Melanie Brown, Russell Ito, Phoebe Woodworth-Jefcoats, and Kevin Brindock.

2. Approval of Agenda

The agenda was approved without any changes.

3. Status of the Third Protected Species Advisory Committee Meeting Recommendations

Asuka Ishizaki, Council staff, reviewed the status of recommendations from the April 7-8, 2016 meeting. Ishizaki noted that most of the recommendations from the 2016 PSAC meeting were adopted by the Council and are being addressed by staff, while some were addressed as work items for the Annual Stock Assessment and Fisheries Evaluation (SAFE) report update. Recommendations regarding research priorities were also adopted by the Council and reflected in the updated priorities.

4. Review of the Draft 2016 Fishery Ecosystem Plans (FEP) Annual Report

A. Overview of the 2016 Annual Report Updates

Ishizaki provided a brief overview of agenda structure for the SAFE report review section of the agenda.

i. Data integration chapter development

Marlowe Sabater, Council staff, provided a presentation on the effort to develop a data integration chapter for the SAFE report. Sabater explained the drivers for this effort and an overview of the workshop convened in December 2016. The workshop included brainstorming sessions to identify indicators and relationships, and conducted a prioritization exercise. Sabater presented the top priorities identified during the workshop for both insular and pelagic fisheries. Seven relationships were identified as highly important for the insular fisheries, including bottomfish catchability and wind speed, and akule and opelu by rainfall. Three relationships were identified as highly important for the pelagic fisheries, including the relationship between seabird interaction trends, fishing operation, multivariate El Niño-Southern Oscillation (ENSO) index and/or other oceanographic factors. Sabater also emphasized that the purpose of the SAFE

report is to monitor the fishery and to feed back the information into the management of the fishery.

PSAC members sought clarifications on whether the workshop discussed model assumptions and appropriateness of the models, and whether the workshop had participation from different groups such as Native Hawaiians, others with indigenous knowledge, community members and stock assessment experts. Sabater explained that the workshop focused on the factors that should be considered for the models and that model development will be part of the next steps.

Involvement of community members will also be done at a later stage, and their input will be sought in identifying other indicators that may be important for fish recruitment and other fishery performance measures. One PSAC member explained that community members with indigenous or traditional knowledge understand the timing of when recruitment will come through a few years in advance from seeing certain smaller fish, and that the Native Hawaiian management system was an ecosystem management approach. Sabater noted that the data integration chapter is one way of moving toward the ecosystem approach by taking the available data and evaluating what ecosystem factors are affecting the stock, which in turn provides more flexibility in management and promotes adaptive management. Another PSAC member commented that there are models that have been developed in Alaska for nearshore areas that incorporate traditional ecological knowledge, and that a modeling workshop inviting those experts may be informative.

A PSAC member asked the extent to which Pacific Islands Fisheries Science Center (PIFSC) stock assessment scientists were involved in the workshop and commented that they have likely looked at the connections with Pacific Decadal Oscillation (PDO) and ENSO. Ishizaki indicated that surprisingly there has not been a lot of work done on that front, especially for protected species interactions.

ii. Ecosystem chapter updates

Ishizaki provided a brief overview of updates in the other sections of the SAFE report ecosystem chapter, including the socioeconomics and human dimensions, climate and ocean indicators, essential fish habitat and marine planning. The socioeconomic and human dimensions sections are being developed for the first time for the 2016 report, and the climate and ocean indicators sections will include new indicators.

A PSAC member sought clarification on the Department of Defense (DoD) activity updates to be included in the marine planning section, and asked whether updates regarding the various DoD activities in Hawaii will be considered. Ishizaki responded that she will ask the marine planning section staff lead to follow up on the details.

B. Pelagic Longline Fishery Sections

i. Summary of relevant fishery data

a. 2016 Hawaii and American Samoa Logbook Reports

Russell Ito, PIFSC, provided a summary of the 2016 logbook data for Hawaii and American Samoa.

Hawaii longline fishery participation increased for deep-set vessels in 2016 but has been declining in the shallow-set vessels, with zero vessels targeting swordfish exclusively in 2016. Number of deep-set trips has been relatively stable in recent years, while shallow-set trips have been declining after peaking in 2009-2010. Overall effort by hooks in the Hawaii longline fisheries have been steady over the last four years, but effort is increasing outside of the exclusive economic zone (EEZ), with declining effort in the Northwestern Hawaiian Islands (NWHI) and Pacific Remote Island Areas (PRIAs) and relatively stable in the main Hawaiian Islands (MHI). In terms of the spatial distribution of effort, there was more deep-set effort in the Inter-American Tropical Tuna Commission (IATTC) area in 2016 than the long-term average over the previous 11 years. Shallow-set spatial effort appeared to be more concentrated in certain areas in 2016 compared to previous years. Bigeye tuna catch in the deep-set fishery was lower in 2016 than in 2015, but the quota was reached earlier in 2016 due to a recruitment pulse moving through the fishery with larger fish observed in 2016. The recruitment pulse is also reflected in the bigeye catch-per-unit-effort (CPUE) in recent years. Swordfish catch in 2016 was less than 2014-2015 and the lowest year since the fishery reopened in 2004. Ito also presented catch statistics on marlin and other Pelagic Management Unit Species (PMUS), as well as recent developments in the Hawaii longline fisheries.

Partial-year data through October 2016 were presented for the American Samoa longline fishery. The effort and catch in the American Samoa longline fishery has been in a decline, while albacore tuna CPUE has been relatively stable since approximately 2004 and the annual CPUE in 2016 similar to that of 2015. Ito also provided a brief overview of fishing effort in the Large Vessel Prohibited Area (LVPA) since the exemption was implemented in January 2016.

One PSAC member pointed out that the seemingly small effort in the 5 degrees grid that includes the EEZ off California is misrepresented as that EEZ is closed to longline fishery, so the effort is more concentrated in those grids. It was also noted that albatross interaction rates are higher in areas east of 135 degrees west, so increase in effort at the eastern end of the shallow-set longline area could disproportionately affect seabirds. Another PSAC member commented that some of the effort shifts may be explained by sea surface temperature (SST) and where fish are, and suggested that overlaying the effort map with SST may be informative.

A PSAC member asked if weather was a factor in the shallow-set fishery effort decrease, noting that 2016 was a challenging year for tuna-targeting vessels due to the frequent storms. Ito replied in the negative, given that summer is off-season for the swordfish fishery. He added that the shallow-set vessels were traveling further north and the quality of swordfish was also low, which is seen during warmer conditions. Another PSAC member commented that the fishery's operational characteristics and socioeconomic factors such as price need to be considered in CPUE trend analyses and that an understanding of the factors influencing effort need to be considered in the models. Ito noted that those types of data are included in the SAFE report but wondered if more could be done with those data. He also added that foreign fisheries may also be a factor influencing domestic effort. Ishizaki noted that the data integration chapter will begin to tie these different datasets together.

A PSAC member asked whether the Turtle Watch product is still being distributed and whether an evaluation could be done to assess how the product is being used. Ito was not sure how much

fishermen rely on Turtle Watch over SST data. Ishizaki responded that an evaluation could be done through captain interviews given that it is not a mandatory program. Another PSAC member explained that the weather service office in Alaska produces a blended product targeting fishermen and wondered why the weather service office in Hawaii does not offer a similar product.

b. 20 years of spatial and temporal changes in the Hawaii longline fishery

Phoebe Woodworth-Jefcoats, PIFSC, provided a presentation on the spatial and temporal changes in the Hawaii longline fishery over 20 years. The analysis used the deep-set longline fishery observer and logbook data, international longline effort from the Western and Central Pacific Fisheries Commission (WCPFC) and IATTC, and oceanographic data. Woodworth-Jefcoats noted that the observer data provide a good representation of logbook data given that the correlation between the 1 degree grids of annual effort was on average 0.85 for 2001-2014.

The analysis divided the entire fishing area into five grids based on international management boundaries as well as distribution of hooks. Within each of the grids, effort is concentrated in areas closest to the main Hawaiian Islands (MHI). Distribution of fishing effort has shifted from greater effort in the southwest grid in earlier years to more even across the four main grids in later years, with a strong increase in effort in the northeast grid during the third quarter over the time series. This expansion of effort in the northeast grid in the third quarter is likely driven by the relatively high bigeye CPUE and low discard rates, vertical overlap between deep-set gear and bigeye's preferred thermal habitat, and competition with international effort. It was also noted that the effort shift toward the northeast has resulted in high lancet fish CPUE in recent years.

A PSAC member asked whether the increase in lancetfish catch indicate that the area northeast of the MHI is lancetfish habitat. Woodworth-Jefcoats responded that it does appear that lancetfish are generally more prevalent farther north, but added that they are working with the observer program to gather more data. Another PSAC member asked whether historical thermal data have been considered to determine whether that has moved over time. Woodworth-Jefcoats responded that they could look at that data, and noted that the area northeast used to be fishing grounds for the Japanese fleet in the 1950s-1960s. She added that the thermal habitat is projected to move to the northeast in response to climate change, and the 300 meter thermocline will be tracked in the SAFE report.

ii. Protected species section

PSAC reviewed the Hawaii and American Samoa longline portions of the draft 2016 SAFE report protected species section. Ishizaki provided a brief overview and Catherine Pham, Council contractor, provided the presentation on the details of this year's draft report.

Interaction trends remained stable for most species of sea turtles, marine mammals, and seabirds, as well as the scalloped hammerhead shark, with interaction levels below applicable incidental take statements (ITS) and potential biological removal (PBR) in most cases. Several trends were highlighted for additional discussion, including loggerhead turtle and albatross interaction trends

in the Hawaii shallow-set fishery, the first observed Guadalupe fur seal interaction in the Hawaii shallow-set fishery, olive ridley turtle interaction trends in the Hawaii deep-set fishery, and green turtle interaction trends in the American Samoa longline fishery.

PSAC discussion on the review of this section is summarized under “iii. Discussion and synthesis”.

iii. Discussion and synthesis

Discussion stemming from the review of the pelagic longline portions of the draft Annual Report protected species section included the following:

- PSAC members discussed the observed increase in nominal CPUE in loggerhead interactions in the shallow-set longline fishery. PSAC noted that the number of interactions are still low, making it difficult to evaluate the data for spatial patterns. Evaluation of operational characteristics as they relate to interaction patterns may be informative.
- Pinniped interactions have been observed in the shallow-set longline fishery since 2013 as well as the one Guadalupe fur seal observed in 2016. A PSAC member sought clarification on the unidentified pinniped interactions and asked whether tissue samples were collected on those interactions. Ishizaki clarified that all available information including photographs and tissue samples are considered in identifying species that are observed interacting with the longline fishery.
- PSAC members noted a similar increase in black-footed albatross catch rates in the shallow-set longline fishery as seen in the deep-set longline fishery in the 2015 report, and suggested that both sectors of the fisheries be considered in the upcoming seabird workshop to be coordinated by the Council.
- A higher number of interactions with olive ridley turtles were observed in the Hawaii deep-set longline fishery in 2016. In response to PSAC member questions regarding the spatial distribution of olive ridley turtle interactions, Ishizaki explained that observer data indicated that olive ridley interactions in 2015 and 2016 were concentrated in a narrow latitudinal band compared to all other years. It was noted that the leatherback turtle and black-footed albatross interactions have also exhibited changes in recent years, and that the olive ridley turtle interactions may add additional data to examine these changes. PSAC members noted that it would be informative to compare interaction trends with long-term data of sea turtle abundance. Members also noted that the increase may be related to the fishery’s operational characteristics and may also be related to the overlap with habitat depth as presented by Woodworth-Jefcoats for bigeye tuna data. PSAC members noted a similar trend with the increasing CPUE trend for olive ridley turtles in the American Samoa longline fishery, and suggested that both trends could be evaluated together.
- PSAC members discussed the green turtle interaction trends in the American Samoa longline fishery. Bycatch mitigation measures for green turtles were implemented in 2011 in this fishery, but no formal evaluation has been done on the effectiveness of the measures. PSAC members noted the lower nominal CPUE from 2011-2015 and indicated that an evaluation of the mitigation measure effectiveness would be useful, but acknowledged that statistical power may be low due to the small number of observed

interactions. It was noted that the implementation of the LVPA exemption may be a confounding factor in evaluating the effectiveness of the green turtle management measures, but a suggestion was made to use spatially segregated data for 2016 so that only effort outside of the LVPA is used in the analysis. It was also noted that the evaluation of the green turtle mitigation measure was a topic of interest at the recent Workshop on Joint Analysis of Sea Turtle Mitigation Effectiveness led by the WCPFC, where the American Samoa longline fishery was seen as the only case in which the removal of shallowest hooks have been operationalized for mitigating interactions with sea turtles.

- One PSAC member commented that the green turtle interactions in the American Samoa longline fishery is with smaller size, which would be rare to see such age classes in deeper waters, suggesting new information on life stages and habitat utilization of juvenile green turtles.

In addition to the discussions regarding interaction trends for specific species, a general observation was made that these short-term time series need to be put into a longer-term perspective, and that a statistical approach would be useful in evaluating the interaction trends so that discussions are not reactionary to what may appear as an increase or decrease in a given year. This may be done through a control-chart type approach or using standard deviations, running means or other statistical metric to detect changes in protected species interactions in the longline fisheries.

C. Pelagic Non-longline Fishery Sections

i. Summary of relevant fishery data

Paul Dalzell, Council staff, provided a presentation of pelagic non-longline fishing effort data and noted that the presentation is similar to what was presented at the previous PSAC meeting as 2016 effort data are still pending. The overview included time-series data for Hawaii troll and handline fisheries, and American Samoa, Commonwealth of the Northern Mariana Islands (CNMI) and Guam troll fisheries. Dalzell also presented the Hawaii recreational fishing effort data from the Hawaii Marine Recreational Fishing Survey (HMRFS), which is conducted as a part of a national phone survey. The data show gradual decline in effort overtime.

A PSAC member asked whether the recreational data are backed up by other data such as recreational fishing gear sales. Dalzell responded that there are still substantial gear sales, although he did not have the actual data. PSAC members also discussed issues associated with the HMRFS data collection and noted that the effort data from the survey results should be interpreted with caution. Dalzell indicated that CPUE comparison of commercial and recreational data have shown correlation between the two sectors for marlin and mahi mahi.

ii. Protected species section

PSAC reviewed the pelagic non-longline portion of the draft 2016 SAFE report protected species section. Pham provided the presentation on the details of this year's draft report. Pham explained that limited changes have been made to the report since the 2015 edition, and that the applicable 2016 fishing effort data for this section are not yet available. In general, impacts to protected

species in these fisheries are considered minimal based on Endangered Species Act (ESA) consultations and Marine Mammal Protection Act (MMPA) List of Fisheries (LOF) classifications. There is an ITS of four green turtle mortalities per year from vessel collisions for the Western Pacific troll and handline fisheries, but there has been no reported or observed collisions attributed to these fisheries. Based on the review of the draft 2015 SAFE report, PSAC agreed to use fishing effort and gear characteristics as proxies for monitoring changes in potential protected species interactions.

A PSAC member sought clarification on the vessel collisions in the pelagic non-longline fisheries. Melanie Brown, Pacific Islands Regional Office (PIRO) Sustainable Fisheries Division (SFD), responded that the Biological Opinion for these fisheries evaluated potential impacts from vessels in transit, during which vessel collisions may occur.

A PSAC member asked whether fishing tournament data have been considered for gathering recreational fishing data. Another PSAC member responded that a pilot project could be done to determine feasibility, depending on whether tournament organizers are willing to participate in such a study. One PSAC member noted that site-specific creel surveys may not be appropriate for expanding out to a larger geographic area and commented that the localized surveys need to be scientifically sound before the data are expanded to a larger area.

iii. Discussion and synthesis

PSAC was not able to evaluate changes to the potential for protected species interactions in the pelagic non-longline fisheries due to the applicable fishing effort data not being available in time for the meeting. As such, PSAC deferred the discussion to the Pelagic Plan Team and requested that they flag any changes to the fisheries that may indicate increased potential for protected species interactions.

PSAC also encouraged staff to work with the National Marine Fisheries Service (NMFS) to see if preliminary summaries can be made available to PSAC for discussion at future PSAC meetings.

D. Insular Fishery Sections

i. Summary of relevant fishery data

Sabater presented the preliminary data on 2016 insular fishery data, including Guam creel survey performance, Guam shore-based effort trends, Guam boat-based effort trends, Guam bycatch trends, CNMI creel survey performance, CNMI boat-based effort trends, CNMI bycatch trends, and effort trends for the Hawaii bottomfish, coral reef and crustacean fisheries. American Samoa data for 2016 are still pending.

Effort trends in the Guam and CNMI insular fisheries have been relatively stable in recent years, with a few exceptions including slight increases in Guam shore-based castnet and spear fishing effort as well as a spike observed in the Guam SCUBA spear effort. Sabater explained that the Archipelagic Plan Team will be reviewing these effort increases at their upcoming meeting to determine whether they are true increases or artifact of data quality, but noted that the sharp

increase in SCUBA spear appears to be an error in data. Sabater also noted that the changes in effort may also be attributed to changes in survey coverage as Guam Division of Aquatic and Wildlife Resources is now conducting 24-hour creel surveys in response to increases in night-time fishing effort. There has been no protected species bycatch reported in the Guam and CNMI creel surveys.

Hawaii bottomfish effort (number of trips) has declined slightly in recent years for deep-7 species but effort has been stable for non-deep-7 deep sea handling and slightly increased for non-deep-7 inshore handline. Effort for Hawaii coral reef fishery has been relatively stable in recent years, and some declines have been observed for the crustacean fishery. While 2016 data for American Samoa were not yet available, Sabater explained that there have been some changes to survey coverage to reflect more shore-based fishing effort, and that change is expected to be reflected in the effort data.

One PSAC member commented that changes in Hawaii's state regulations have likely affected changes in effort, stock condition and catches. Sabater responded that the Archipelagic Plan Team will be considering those factors as they review the changes in fishery performance. Noting the higher Guam SCUBA effort data that require further review, PSAC members acknowledged that the increase should not be a concern for protected species given that it is unlikely to have interactions with spear gear.

ii. Protected species section

PSAC reviewed the insular fishery portion of the draft 2016 SAFE report protected species section. Pham provided the presentation on the details of this year's draft report, noting that limited changes have been made to the report since the 2015 edition due to the lack of notable changes that would affect the potential for protected species interactions. Fishing effort and gear characteristics are used as a proxy for monitoring changes in the insular fisheries as these fisheries do not have observer coverage. In general, impacts to protected species in insular fisheries are considered minimal based on ESA consultations and MMPA LOF classifications. There is an ITS of two green turtle mortalities per year from vessel collisions for the MHI bottomfish fisheries, but there has been no reported or observed collisions attributed to these fisheries.

iii. Discussion and synthesis

PSAC members noted that the draft 2016 SAFE report indicate that there are limited protected species issues and concerns in the insular fisheries at this time.

E. Discussion on Emerging Issues

Ishizaki introduced the new section in the draft 2016 SAFE report protected species section for identifying emerging issues. The new section was added in response to PSAC suggestions from the 2016 meeting. The draft pelagic report identifies potential interactions between cetaceans and small-boat fisheries as an emerging issue, and all reports will include a list of candidate species for listing under the ESA or designation for critical habitat.

PSAC members discussed which species to include in the candidate species list, and whether species for which there is a petition but no action has been taken by the agency should be included. Brown suggested only including the species that have been proposed for listing or proposed for critical habitat designation, as that is the stage at which impacts to those species will have to be considered. One PSAC member commented that critical habitat is an interest for the communities so that it would be useful to have information on what is upcoming. Ishizaki added that the SAFE report has multiple audiences, including fishing community members, and thus it would be informative to have species that have made it past the 90-day finding stage.

No additional emerging issues were identified by PSAC for inclusion in the 2016 report.

F. Discussion on Data Gaps and Research Needs

Ishizaki introduced the research, data and assessment needs identified in the 2015 SAFE report and asked the PSAC to identify any changes to the existing list.

PSAC members generally agreed that the needs identified in the 2015 SAFE report were still relevant and should be maintained. For the pelagic report, PSAC agreed to add olive ridley turtles as a species of focus in addition to leatherback turtles and albatrosses.

Regarding the needs for the pelagic report, a PSAC member commented that the analysis of longline fishery spatial and temporal changes addresses the second item (identifying zones to develop a regional look at environmental and oceanographic factors), and that an expanded effort including shallow-set longline fishery and bycatch species data would be informative. Another PSAC member commented that a comparison of interaction trends with abundance trends would be informative. Ishizaki pointed out that abundance trends are considered in ESA consultations. A suggestion was also made for creating a metric that shows the most recent year's data with the long-term standard deviation to help interpreting trends and to avoid being reactionary.

Regarding the needs for the insular reports, PSAC members discussed refining the wording for “developing innovative approaches to derive robust estimates of protected species” to provide more direction. It was noted that the Hawaiian Monk Seal Recovery Team has made progress on this front and is considering ways to work with the community. PSAC members discussed sensitivities associated with protected species interactions, and noted challenges associated with lack of ESA take authorization with state fisheries. Some PSAC members suggested that an ESA authorization for State-managed fisheries may assist in data collection regarding protected species interactions. Sabater indicated that questions regarding protected species interactions are asked in the territory creel surveys, and similar questions could be considered in the Marine Recreational Information Program (MRIP) data collection.

PSAC members also discussed potential opportunities for incorporating in-water survey data for sea turtles.

Additional discussion and changes to the lists are summarized under “9. Committee Discussion and Recommendations” of this report.

5. Public Comment

There were no public comments at the conclusion of day 1.

6. Fisheries and Protected Species Management Updates

A. Recent Council Actions

i. Pelagic fisheries actions

Eric Kingma, Council staff, provided updates of pelagic fisheries management actions. These included the 2017 Territory bigeye catch limit specification, the Western and Central North Pacific Ocean striped marlin limit, American Samoa longline permit modifications, American Samoa longline swordfish limit, and the Papahānaumokuākea monument expansion fishing regulations.

A PSAC member sought clarification on how much bigeye tuna the Small Island Developing States (SIDS) are expected to take and whether there are discussions to place limits on SIDS. Kingma responded that about 10,000-15,000 metric tons total are expected, and noted that the bigeye limit renegotiation will occur this year but there is reluctance to placing limits on SIDS. The member also asked whether the 40% reduction was applied across the board, to which Kingma responded that some of the countries have been subject to 40% but others have been more ad hoc. PSAC members also sought clarification on how bigeye catch is attributed to each of the countries.

ii. Insular fisheries actions

Sabater and Josh DeMello, Council staff, provided updates of regulatory actions for insular fisheries. These included the Pacific Islands and Hawaii 2016 Annual Catch Limits, CNMI bottomfish prohibited area rule, Ecosystem Components Amendment, Aquaculture Programmatic Environmental Impacts Statement, and the Monument Expansion Area action.

In response to a question from a PSAC member, DeMello provided additional details on the non-commercial licensing project by Conservation International, which the Council was also involved. A PSAC member commented that non-commercial licensing would have implications for protected species interactions, specifically with respect to green turtle interactions in shoreline fisheries. Ishizaki pointed out that this relates to State of Hawaii take authorization issued discussed on the previous day. Another PSAC member expressed general concern about the lack of fishery management direction by the state, and that improved structure for scientific data collection is needed at the state level. PSAC members disagreed on whether it may be appropriate to recommend that the state obtain ESA take authorization to address the issue of data collection.

iii. Discussion

There was no further discussion related to recent Council actions.

B. Council Protected Species Activities Update

Ishizaki provided a brief update of the Council's protected species activities since the last PSAC meeting.

i. Seabird interactions in the Hawaii deep-set longline fishery

Ishizaki reported that the Council is in the initial stages of planning a workshop focusing on improving the understanding of the influence of oceanographic factors on albatross interactions in the longline fisheries as well as albatross distribution and demographics. The workshop is in response to a Council recommendation originating from the 2016 PSAC meeting and also addresses a priority identified for the Pelagic SAFE report data integration chapter.

PSAC members suggested Jeff Polovina and Axel Zimmermann as potential participants for the workshop.

ii. Rare events bycatch workshop

Ishizaki provided a report of the Rare Events Bycatch Workshop series convened in 2016 in response to a Council recommendation originating from the 2015 PSAC meeting. The workshop explored a range of methodologies and statistical approaches and considered alternative approaches to estimating anticipated levels of incidental take and their consideration in ESA Section 7 consultations. Options for improvement discussed during the workshop included looking at interactions on a longer-term time horizon than 1-3 years, which would help in smoothing out the inter-annual variability in the observed interactions.

One PSAC member noted that the tools discussed at the workshop have been further refined in recent months. Another member indicated that long-term triggers have been used in the Bering Sea.

iii. Other updates

Other activity updates included the completion of the first SAFE report protected species section, collaboration with industry and researchers on a depredation deterrence device, participation in the International Union for Conservation of Nature World Conservation Congress, and improved coordination on the ESA consultations through the regional ESA-MSA Integration Agreement.

C. Endangered Species Act Updates

i. Section 7 ESA consultations for pelagic and insular fisheries

Ishizaki provided an update of the recent and ongoing ESA section 7 consultations, including the deep-set longline fishery reconsultation for three species of sea turtles and the shallow-set longline fishery reconsultation for Guadalupe fur seals and green sea turtle distinct population segments (DPS).

A PSAC member asked which green turtle DPSs occur in Hawaii and whether that information has been summarized. Ishizaki responded that the new species table in the draft 2016 SAFE report includes that information. Another PSAC member suggested considering Steller sea lions as another possible species that may have been the unidentified pinniped being considered in the consultation for Guadalupe fur seals.

ii. ESA listing and other related actions

Kevin Brindock, PIRO Protected Resources Division, provided updates on ESA and other related actions, including coral and green turtle critical habitat designation processes, oceanic whitetip and manta ray proposed listing rules, blue fin tuna and chamber nautilus status reviews, petition to list giant clam species, humpback and spinner dolphin approach rules, and false killer whale management updates. Brindock also provided additional details on the false killer whale interactions since the False Killer Whale Take Reduction Plan implementation.

A PSAC member asked whether a copy of Brindock's PowerPoint will be posted online so it can be readily available to the public. Brindock responded that he will follow up with PIRO and will consider what can be done.

iii. Discussion

There was no further discussion related to ESA updates.

7. Council's Research Priorities

A. Five-year Research Priorities

Ishizaki reminded PSAC members of their input on the Council's 5-year Research Priority document over the last three meetings. PSAC suggested the following minor changes to the priorities:

- Delete the word "shore-based" in item #1, given that not all recreational fishing is shore-based; and
- Modify item #4 to reflect "changes to important reproductive habitat" as one of the risk factors, given that such changes are anticipated as a result of climate change.

PSAC members asked how the progress of addressing each research priority is tracked. Ishizaki responded that the SSC will be updated on the progress at their June meeting when they review the full 5-year Research Priority document.

PSAC members also discussed specific projects that may fit into one or more of the priorities. One member introduced a plan to establish a research consortium to study the historical sea level in the NWHI, which has relevance to the impacts of climate change on green sea turtles and other protected species that depend on the low-lying atolls for breeding habitat. Another member noted the need for an established regional dataset for physical and environmental baseline, as that is important for understanding changes due to climate change. One member raised the issue of sea turtle post-hooking mortality rates being dependent on a 2006 publication, and that a global meta-analysis of gear-specific marine turtle post-hooking mortality rates would be useful

in supporting more informed marine turtle conservation and development of rigorous fisheries management measures.

B. Cooperative Research Priorities

Ishizaki reported that the cooperative research priority recommended by the PSAC at the 2016 meeting has been incorporated into the document. PSAC agreed that no changes are necessary this year to the protected species cooperative research priorities.

C. Discussion

There was no further discussion related to research priorities.

8. Public Comment

There were no public comments on day 2.

9. Committee Discussion and Recommendations

PSAC Recommends the “Identification of Research, Data and Assessment Needs” Section of the 2016 Annual SAFE Reports Reflect the Following Changes from the 2015 Report (changes underlined):

Pelagic:

- Research on at-sea foraging behavior of albatross species to improve understanding of interaction rates in the Hawai`i longline fisheries;
- Identify zones to develop a regional look at environmental and oceanographic factors for area outside of the EEZ that may focus on areas of high-interactions. Develop metrics to characterize environmental data, effort, and bycatch rates at these regional scales (e.g. leatherback, olive ridley, albatrosses);
- Ecosystem-considerations on catch and bycatch in the DSLR fishery (e.g., bigeye tuna, albatross, leatherback and olive ridley turtles) as they relate to the environmental and ecological drivers of changing species distribution and aggregation; and
- Evaluation of spatial and temporal representation of observer coverage compared to the non-observed effort. While vessel behavior may be motivated by various factors, an assessment of sampling bias may be warranted.

Insular:

- Improve the precision of non-commercial fisheries data to improve understanding of potential protected species impacts;
- ~~Develop~~ Define and evaluate innovative approaches to derive robust estimates of protected species interactions in insular fisheries.; and
- Update analysis of fishing-gear related strandings of Hawai`i green turtles.

Related Discussion: PSAC noted that research is needed first before innovated approaches can be developed for deriving robust estimates of protected species interactions, and thus agreed to a revision to this item. PSAC agreed to remove the item regarding fishing-gear

related strandings of Hawaii green turtles from the American Samoa, Marianas and PRIA reports given that comparable stranding data are not available for the territories and thus similar analyses for those areas are not possible at this time, and that Hawaii stranding rates cannot be generalized to territories. PSAC noted that efforts to compile records of fishing-gear related strandings for sea turtles in American Samoa and Marianas would be informative.

Regarding the 2016 Draft Annual SAFE Report, the PSAC:

1. Recommend evaluation of the increasing trend in olive ridley turtles in the Hawaii deep-set and American Samoa longline fisheries. PSAC noted that the two fisheries are exhibiting similar trends and factors influencing the trend could be evaluated together, and may also be combined with a larger effort to evaluate ecosystem factors influencing bycatch in the longline fishery as previously recommended in the review of the 2015 report. PSAC also noted the narrow latitudinal band in which most olive ridley turtle interactions occurred in 2015-2016 and recommended considering the overlap of olive ridley thermal habitat (vertical and horizontal) and fishery operational characteristics.
2. Recommend evaluation of the effectiveness of the 2011 American Samoa longline fishery (ASLL) green turtle measure that required gear configuration to set hooks below 100m. PSAC noted interest in the effectiveness of the ASLL measure expressed at the WCPFC turtle workshop.
3. Recommend the Council continue the development of control chart as an approach to monitor protected species interactions for longline fisheries with observer coverage through a standardized approach

Other Recommendations:

4. PSAC commends PIFSC for the analysis of spatial and temporal trends in the deep-set longline fishery and recommends that the analysis be expanded to include shallow-set longline fisheries and for bycatch data.
5. PSAC supports the convening of a seabird workshop to evaluate the influence of oceanographic factors on fishery interactions, albatross distribution at-sea and albatross demography. PSAC noted similar increasing interaction rates in the shallow-set and deep-set longline fisheries and recommends including both fisheries data in the scope of the workshop.
6. PSAC recognizes the need for information on protected species interactions with insular fisheries and supports developing mechanisms to gather those data, which may include the State of Hawaii obtaining applicable ESA incidental take authorization.

Related Discussion: PSAC members disagreed on whether a recommendation regarding an ESA incidental take authorization for the State of Hawaii was appropriate or necessary. PSAC agreed to recommendation #6 after extensive discussions on this topic.

PSAC Deferred the Following Discussion to the Pelagic Plan Team:

- Pelagic non-longline fishery data not yet available; Pelagic Plan Team to flag any changes to the fisheries that may indicate increased potential for protected species interactions.

PSAC Identified the Following SAFE Report Work Items for Future Editions:

- Develop statistical approaches for detecting change in protected species interactions in the fishery (e.g., use of standard deviations, running means, etc.); and
- Staff to work with NMFS to coordinate timing of fishery data section of the reports to facilitate review by PSAC (provide preliminary summaries).

10. Other Business & Next Meeting

Ishizaki noted that PSAC membership will be reviewed later this year and that membership changes may be considered by the Council before the next PSAC meeting. The next in-person meeting is anticipated in 2018, timed with the review of the draft SAFE report.