WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL

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FINAL REPORT

4. Report from the Pacific Islands Fisheries Science Center Director

Evan Howell, Deputy Director of the Pacific Islands Fisheries Science Center (PIFSC), provided an update on their activities, programs, and other noteworthy activities. Activities and accomplishments briefly shared included: PIFSC International Assessments of Stocks, Marine Turtle Biology and Assessment Program, Cetacean Research Program, Hawaiian Monk Seal Research Program, 2nd Annual Collaborative Climate Science Workshop, completed reports on tracking changes in economic performance for regional commercial fisheries, and American Samoa Reef Assessment and Monitoring Program (ASRAMP) 2018.

Other noteworthy activities were reported. PIFSC is changing how it handles Western Pacific Fisheries Information Network (WPacFIN), for example. An assessment of all data streams is underway to determine the efficacy of the WPacFIN restructuring effort and identify the best way forward for data collection and delivery.

PIFSC is developing the Large Marine Ecosystem (LME) framework for the U.S. Pacific Islands and territories. This initiative sets the stage for Ecosystem Based Fisheries Management by defining ecologically and socially significant areas with respect to science and management. Such an initiative will allow for flexibility in acknowledging existing/significant resources outside political boundaries. It also assists managers/stakeholders in making informed decisions. The initiative is starting with the Marianas Archipelago because it is more clearly geographically defined, has an existing Fishery Ecosystem Plan and SAFE Report, and has more direct connections than other locations in our region (such as the Pacific Remote Island Areas).

The SSC suggests a more structured engagement of stakeholders, which notably include fishermen. Other items for consideration include the need to understand various legal constraints and the development of objectives, processes, and benchmarks.

The SSC thanked Evan Howell for the informative presentation.

5. Insular Fisheries

A. Review of the WPSAR Terms of Reference for the Territory Bottomfish Benchmark Stock Assessment

Brett Schumacher, PIRO, presented on the WPSAR for the benchmark assessments of Territorial BMUS, and more specifically reviewed the WPSAR's associated Terms-of-Reference (TOR). The WPSAR is scheduled to be held in February 2019.

The SSC discussed one of the TOR, "Which alternative set of existing stock assessment results should be used to inform setting fishery catch limits instead and describe why". The first concern raised was that it is difficult to identify an alternative set of existing stock assessment results when the previous assessments are not part of the current review. This issue is specific for the coral reef fish assessment reviews and does not persist in the reviews of other stocks.

The SSC also suggested that the TOR should include language that deals with competing models and conducting ensemble modeling, for example. The current TOR language allows consideration of multiple model "sets" when evaluating the assessment. Annie Yau (PIFSC) pointed out that ensemble modeling was a theme at the recent NMFS NSAW (National Stock Assessment Workshop) held earlier in 2018. PIFSC will not be providing ensemble modeling in the upcoming draft Territorial Bottomfish assessments, but may do so in the future using model averaging as an example. The SSC pointed out that model "averaging" per se may not be appropriate, but rather model "stacking" is a better approach. **The SSC recommends the WPSAR Coordinating Committee revisit this TOR and be more explicit in the language pertaining to the review of model ensemble should this be available in the future**.

A SSC member noted the importance of the first two TOR, pertaining to the review of input data quality and CPUE standardization. These are typically the most problematic aspects of assessing data-limited stocks in the insular fisheries.

The SSC endorses the TOR for the Territory Bottomfish Benchmark Assessment and appoints Dr. Steve Martell as the WPSAR Chair.

B. Specification of Acceptable Biological Catches for the Following Management Unit Species/Complexes (Action Item)

1. **Hawaii Non-Deep 7 Bottomfish for Fishing Year 2019 to 2021**
2. **Hawaii Kona Crab for Fishing Year 2019**
3. **Hawaii Deep Water Shrimp and Precious Corals for Fishing Year 2019 to 2021**
4. **Territory Bottomfish for Fishing Year 2019**

Council staff presented on the specification of Acceptable Biological Catches (ABC) for Hawaii Kona crab and Territorial bottomfish for fishing year 2019 and Hawaii deepwater shrimp, precious corals, and non-deep 7 bottomfish for fishing years 2019 through 2021. In general across these management unit species (MUS) groups, there exists no new stock assessment on which to base new ABC specifications. The Kona crab and Territorial bottomfish benchmark stock assessments are scheduled to be released in 2019, explaining the current one-

year ABC specification for these stocks. Newly available information includes updated fishery statistics and the re-consultation due to the listing of oceanic whitetip shark, giant manta ray, and insular false killer whale critical habitat impacting the Territorial bottomfish fishery. Additional new information includes the Essential Fish Habitat (EFH) reviews for the Hawaii crustaceans and precious corals.

The catches for all management unit species are below their prescribed ABCs and MSY reference points. The deepwater shrimp and precious coral catch numbers are confidential, with less than three fishers reporting. NMFS issued one federal permit for each of these fisheries in 2017. Fishing effort and participation, in general, have been decreasing over the years in these fisheries, and Council staff provided two potential options for the SSC to consider in specifying ABC levels. The first option is to take no action, where the SSC will not specify ABCs for these MUS. The second option is to re-specify the new ABC using the previously recommended ABCs. Staff provided a summary of the potential impacts across all MUS.

The SSC noted the general underutilization for these stocks and how best to incorporate this into ACL specification for fisheries with little to no fishing effort. The SSC also noted that under-reporting continues to be an issue for most of these stocks. The last shrimp assessment was in 1988 and there is a clear need to update this MSY. **The SSC selects option two which would re-specify previously recommended ABCs**.

The SSC recommends the following acceptable biological catches (ABCs):

MUS/MUS Complex	Fishing Year(s)	ABC (lb.)
MHI non-deep 7 bottomfish (*Aprion virescens*)	**2019-2021**	**127,205**
MHI Kona Crab	**2019**	**3,500**
MHI Deepwater Shrimp	**2019-2021**	**250,773**
Territory bottomfish complex		
American Samoa	**2019**	**106,000**
Guam	**2019**	**66,000**
CNMI	**2019**	**228,000**
MHI Precious Corals		
Auau channel - black coral	**2019-2021**	**7,500**
Makapuu bed - pink coral	**2019-2021**	**3,009**
Makapuu bed - bamboo coral	**2019-2021**	**571**
180 fathom bank - pink coral	**2019-2021**	**668**
180 fathom bank - bamboo coral	**2019-2021**	**126**
Brooks bank - pink coral	**2019-2021**	**1,338**
Brooks bank - bamboo coral	**2019-2021**	**256**
Kaena point bed - pink coral	**2019-2021**	**201**
Kaena point bed - bamboo coral	**2019-2021**	**37**
Keahole bed - pink coral	**2019-2021**	**201**
Keahole bed - bamboo coral	**2019-2021**	**37**
Precious coral in MHI exploratory area	**2019-2021**	**2,205**

C. Refinement of the Precious Coral Essential Fish Habitat

Michael Parke, PIFSC, presented on precious coral essential fish habitat (EFH), options for refining EFH descriptions in the Hawaiian Archipelago, and updating the EFH information for the Hawaii FEP. At its 170th meeting held in June 2017, the Council requested an options paper based on the review of precious coral EFH from the 2016 Annual SAFE Reports. The Council will be taking action on EFH refinement at its upcoming 174th meeting. New information was presented from the submersible dives conducted in recent years.

There were four options presented for the deep coral EFH revisions. Option 1 is no action where the Council would retain the current EFH and HAPC definitions. Option 2 would revise these definitions to include potential coral habitat between 200 and 600 meters deep with hard substrate. This description would increase the percentage of precious coral observations contained within the EFH areas of the MHI from 56% to 92%. Option 3 would define the geographic extent of precious coral EFH based only on the existing EFH beds. Recently synthesized depth and substrate data would be used to create polygon boundaries around the existing EFH beds, aligned in a 3 km distance envelope around the observations. Option 4 would define the geographic extent of precious coral EFH based both the existing EFH beds as well as the newly identified beds.

For the shallow water precious coral EFH revisions, the SSC considered two options. Option 1 is no change to the EFH definition of shallow water precious corals, which would lead to the retention of the three black coral beds in the main Hawaiian Islands. These areas exclude a substantial proportion of the precious coral observations in the Hawaiian Archipelago; only Auau Channel is described by geographic boundaries. Option 2 is to refine the geographic extent of shallow water precious coral EFH in order to provide an explicit representation of the geographic ranges of the shallow water precious coral beds, facilitate the consultation process, and meet the requirement for such description and identification of EFH.

The SSC generally favors EFH re-specification options that account for newer data and higher resolution bathymetry. The SSC noted that bottom current is admittedly a very important variable towards understanding precious coral habitat, but there is no bottom current data available now or in the foreseeable future. **The SSC recommends Option 4 and Option 2 for the deep water and shallow water precious corals, respectively, as these options maximize the incorporation of new data**.

D. Public Comment

A member of the public raised concerns about the mortality of unreported and undersized Kona crabs by the likely small-boat fleet fishing shallow, nearshore waters for subsistence. The member of the public also described how the State has over-regulated this fishery, that the fishery is waning, and that managers should be wary of a commensurate drop in catch which could be mistakenly interpreted as a stock status concern leading to additional fishery regulations.

6. Program Planning and Research

A. Discussion Paper on the Applicability of the NS1 Carry-Over Provisions to the Western Pacific Archipelagic Fisheries

Council staff presented an overview of the applicability of the NS1 carry-over provisions in managing the island fisheries of the Western Pacific. This idea originated during discussion by the SEEM Working Group, where the bottomfish fishermen had requested the group explore the applicability of the carry-over provision for the main Hawaiian Islands deep 7 bottomfish fishery. The SEEM Working Group recommended the utilization of an annual catch target (ACT) that can be adjusted in-season to maximize catch during highly productive years.

The SSC discussed the scientific merits and requirements of using a carry-over provision to manage island fisheries. The discussion covered the practicality of a carry-over provision, given that recent catches are considerably lower than current ACLs and the fleet's capacity to maximize the ACL is currently low. Also, the delivery of fishery information is not close to near-real-time except for in the main Hawaiian Islands deep 7 bottomfish fishery. SSC members noted that, while a 10% carry-over fraction is commonly used in other fisheries, a model-based approach could be used to determine the optimum fraction for carry-over[1]. Should the need for carry-over arise, the SSC suggests considering life history characteristics of the stock and modeling the effects of the different levels of carry-over as part of the fishery decision framework.

B. MSRA Five Year Research Priority 2020-2024

1. Report on the MSRA Five Year Research Priority Workshop

Thomas Remington, Council contractor, presented on the process and discussion of the MSRA Five-Year Research Priority Workshop held at the Council Office on September 25, 2018 with the intention of finalizing the new set of Council research priorities for the fiscal years 2020-2024. At the workshop, Council staff worked with the PIFSC program leaders to develop the research priorities based on management needs from the Council's Five-Year Program Plan (for 2020-2024), with the ultimate intention of aligning the Council's research priorities with those of the PIFSC Five-Year Science Plan. There were eight groups formed covering each the four research themes (Stocks, Ecosystems, Human Communities, and Protected Species) in the two major fisheries categories (island fisheries and pelagic fisheries). The small group meetings held prior to the plenary session allowed for participants to have more detailed discussions on what research is needed to address the identified management priorities. The plenary workshop participants reviewed the small-group research priority recommendations. The workshop also discussed the process of transmitting the priorities for PIFSC to integrate in their Annual Guidance Memorandum and the PIFSC Five Year Science Plan.

2. SSC Work Session to Refine the MSRA Research Priority

In order to refine the preliminary five-year research priorities for the Council, the SSC was grouped into four sub-groups to review the island and pelagic fisheries research priorities

[1] Chaloupka, M. 2003. 'Phase 2 – Development of a population model for the southern Great Barrier Reef green turtle stock', Research Publication No 81, Great Barrier Reef Marine Park Authority, 62 pp.

under the four research themes (Stocks, Ecosystems, Human Communities, and Protected Species). The sub-groups reviewed the draft research priorities developed through the small working group sessions to determine if there are any research gaps that need to be addressed or any redundant priorities that could be removed.

At the end of the sub-group session, representatives reported the changes suggested by their sub-group to the research priority document. These changes included recommendations to address information needs and uncertainties in managing protected species, the need to develop target reference points and objectives for ecosystem-based fisheries management, improving estimates of unreported catch, and coordination of survey efforts in fishing communities.

C. Public Comment

A member of the public announced the upcoming publication of a Regional Ocean Plan for American Samoa and the creation of a website that would allow the public to visualize use impacts and potential use impacts on marine ecosystems across the region.

7. Pelagic and International Fisheries

A. American Samoa Longline Fishery Report

Keith Bigelow, PIFSC, provided the 2018 semi-annual report for the American Samoa longline fishery. The report covered fishery statistics including participation, effort, and catch. It was noted that the number of vessels declined from 15 in 2017 to 12 in 2018, continuing the longer term decline in participation within the fishery. The SSC thanked Bigelow for his report.

B. Hawaii Longline Fishery Report

Russell Ito, PIFSC, provided the 2018 semi-annual report for the Hawaii longline fishery (deep-set and shallow-set components). The report covered fishery statistics including participation, effort, and catch. Highlights from the report included noted higher levels of fishing effort within the US EEZ as compared to 2017 (Jan.-June). Bigeye CPUE declined from recent years, but still is above the long-term average. Total fish landed in the first half of 2018 is lower than 2017 for the same semi-annual period. It was reported that an increased percentage of smaller bigeye (20-40 lb individuals) have been landed in 2018 as compared to recent years, which may be a signal of recruitment. Yellowfin catch and CPUE were noted to be higher in 2018 (Jan.-June) than in previous years.

The SSC asked whether there were specific factors leading to the increase in effort inside the US EEZ, compared to previous years. Ito noted that high false killer whale depredation had been highlighted by fishers, but he was unsure this was the reason for the shift in fishing location. Other anecdotal information suggested that the usual high seas fishing grounds were not as productive as usual, leading to the geographic shift in fishing. Information was not readily available to indicate whether the CPUE was higher inside the EEZ than outside. The impact of new laws on billfish exports on the Hawaiian fishery was discussed, with the negative impact on billfish prices noted.

The SSC requests the PIFSC provide fishing density maps for semi-annual and annual reports.

The SSC thanked Ito for his report.

C. Mandatory Electronic Reporting for the Hawaii Longline Fishery (Action Item)

Council staff presented the regulatory action item under consideration by the Council to require mandatory electronic reporting in the Hawaii longline fishery. In 2007, regulations were established under the Pelagics FEP to allow the optional use of electronic reporting (e-reporting) of fishing logbook information to NMFS (50 CFR §665.14(b)(1)). Since 2014, PIFSC and the Council have been working on increasing e-reporting by the Hawaii-based fleet, with the main objective of improving efficiency and timeliness of fisheries data collection and longline quota tracking and management. After several years of development, PIFSC now has 100 tablets equipped with approved logbook software available and will be using FY19 funds to acquire another 60 tablets. PIFSC will likely also have funding for annual subscription costs (~$600/year) and monthly data transmission (~$40/month) through mid-FY20.

The SSC recognized the benefits of electronic reporting as it can reduce time delays in logbook data availability, improve data accuracy, increase reporting efficiency for captains, and eliminate the need to keypunch logbook data. The SSC also recognizes implementation issues exist and need to be reconciled including data transmission failure, recurring software and operating system updates, specific training and support for non-English speaking captains, cost allocation including potential industry payments, and compliance monitoring.

The SSC supports the Council taking initial action to require mandatory electronic reporting in the Hawaii longline fishery. The SSC recommends that the Council support continued development of electronic reporting in the Hawaii longline fishery to address several implementation issues.

D. Hawaii Shallow-Set Longline Fishery

1. ESA Consultation for the Hawaii Shallow-set Longline Fishery

a. Status of the ESA Consultation and Overview of the Draft Biological Opinion

Ann Garrett, PIRO, presented the approach being used in the development of the Biological Opinion for the Hawaii shallow-set longline fishery Endangered Species Act (ESA) consultation, which was reinitiated on April 20, 2018. The approach is designed to explain how the parts of an opinion will work together to support the conclusion and includes an assessment model that takes into account exposure, response, and risk. The approach also identifies assumptions that may be necessary to make to overcome limitations in the evidence available as well as the uncertainties that remain. The final Biological Opinion will determine if the action agency can ensure that changes in the populations affected by the proposed action are not likely to reduce the long term population viability of the species of concern. The SSC thanked Garrett for her presentation.

b. Loggerhead and Leatherback Turtle Population Vulnerability Assessments

T. Todd Jones (PIFSC) and Summer Martin (PIFSC) presented on the population vulnerability assessments for loggerhead and leatherback turtles prepared for the Hawaii shallow-set longline fishery ESA Section 7 consultation. PIRO Protected Resources Division requested PIFSC to provide: a) estimates of population growth rate, b) population projections, c) estimates of mean time and probability of each population reaching thresholds of 50%, 25%, and 12.5% reduction of current abundance, and d) a report with model details and assumptions. PIFSC formed a cross-divisional and cross-science center team to review the PIRO request and provide direction on the modeling approach, and a subset of the team ran the model. PIFSC completed the initial model in early August, after which it was peer-reviewed by a panel of three independent reviewers (including SSC member Chaloupka).

PIFSC reviewed several models used in previous BiOps including: 1) Stage-based demographic models (Chaloupka) mentioned in the 2002 SSLL BiOp; 2) Climate-based models (Van Houtan) used in the 2012 SSLL BiOp, 3) Diffusion approximation models (Snover) used in the 2008 SSLL BiOp, and 4) Stochastic exponential growth models (Van Houtan) used in the 2012 SSLL BiOp. Of the four models, the team concluded that the first two would not fulfill

PIRO's request due to limitations in available demographic data and projection time frames. While the latter two were considered appropriate to fulfill PIRO's request, the team concluded that the best approach is count-based Bayesian state-space population viability assessment (PVA) with nest count time series as inputs. The model is used to: a) calculate 3-year running sums from the trends of Annual Female projections, b) compute proportion of runs falling (and remaining) below PIRO's thresholds (50%, 25%, and 12.5% of estimated abundance of adult females and by 100 years in the future), c) of the runs that fell below, estimate the number of years until the population fell below the threshold, and d) estimate probability of falling below thresholds at specified time points (5, 10, 25, 50, and 100 years). Model results indicate that the North Pacific loggerhead population growth rate is positive whereas the Western Pacific leatherback population growth rate is negative.

The SSC noted that the loggerhead and leatherback models do not evaluate the effect of management action on the populations, given that the PIRO request did not include such an evaluation, but that development of this functionality could further enhance the utility of the approach.

The SSC thanked Jones and Martin for their presentation.

c. SSC Working Group Input on the Biological Opinion Analysis Plan

At the 129th Meeting, the SSC formed a working group to review the analysis plan for the shallow-set longline ESA consultation. The analysis plan was initially expected to be made available for SSC review by the end of June; however, the plan was provided on October 16, 2018 during the course of the SSC's 130th meeting. The working group briefly reviewed the analysis plan and provided the following findings:

1) The SSC Working Group is concerned that the projections in the population model do not consider future management scenarios (e.g., comparing different limit scenarios or under industry effort to reduce interactions) or quantitatively evaluate the impacts of the take on the loggerhead or leatherback populations, but noted that such effort would not likely be possible within the timeframe available to complete the consultation.
2) The recently completed PIFSC population assessment of Western Pacific leatherback and North Pacific loggerhead turtles is recognized as an important product that could be easily leveraged to provide scientific advice on take levels in the context of future population impacts, so it remains unclear why this linkage was not firmly established in the analysis plan.

3) SSC Working Group found that reviewing the analysis plan as a stand-alone document without the resulting analysis was unproductive. The SSC Working Group is concerned that the overly general language in the document could prove to be problematic due to subjective interpretations. The SSC should be provided with an opportunity to review the draft BiOp when it becomes available.

Due to the limited time available to review the analysis plan, Working Group members will strive to provide any additional comments on the plan to Council staff prior to the 174th Council Meeting.

The SSC recommends that the Working Group reconvene when the draft BiOp is available to review the full analysis.

2. Managing Loggerhead and Leatherback Sea Turtle Interactions in the Hawaii-based Shallow-set Longline Fishery (Action Item)

Council staff presented on the action item regarding the FEP amendment framework to manage leatherback and loggerhead sea turtles in the Hawaii shallow-set longline fishery.The Council at its 173rd Meeting in June 2018 recommended amending the Pelagic FEP to establish a management framework for the Hawaii shallow-set longline fishery that consists of 1) annual limits on the number of North Pacific loggerhead and leatherback turtle interactions consistent with the anticipated level of annual interactions that is set forth in the current valid biological opinion; and 2) individual trip interaction limits for loggerhead and leatherback turtles. The Council also recommended specifications under the framework as follows: 1) Annual limit of 37 North Pacific loggerhead and 21 leatherback turtles; and 2) individual trip limit of 5 North Pacific loggerhead turtles. The Council's recommendation for specifying the loggerhead and leatherback turtle annual limits was based on the anticipated level of interactions analyzed in the Biological Evaluation (BE) initiating reconsultation of the Hawaii shallow-set longline fishery under the Endangered Species Act (ESA) Section 7 consultation process. As part of its 173rd meeting recommendation, the Council noted that it would review its recommendation if the new BiOp from the ongoing consultation results in a jeopardy decision or otherwise results in a different incidental take statement for North Pacific loggerheads or leatherbacks. Since no BiOp is available for review, the SSC deferred consideration of this action item.

E. International Fisheries Meetings

1. International Scientific Committee 2018

Council staff presented the outcomes of the 18th ISC meeting, which was held July 11-16, 2018 in Yeosu, Korea. Three new stock assessments were conducted by the ISC in 2018: Pacific Bluefin tuna, Western and Central North Pacific Swordfish, and North Pacific shortfin mako. Shortfin mako shark was determined to likely not be overfished and overfishing is likely not occurring. It was recommended that alternative assessment timelines be considered based on catch uncertainty in early years. Western and Central North Pacific swordfish was determined to not be overfished and overfishing is not occurring. Total annual catches have declined in recent decades while US catch has declined considerably from 2000 as the United States has been supplanted by Taiwan as having the second highest annual catch in that time period. Total catch is approximately 2/3 maximum sustainable yield while spawning stock biomass in 2016 (SSB_{2016}) was 1.89 times spawning stock biomass at MSY (SSB_{MSY}). Bluefin tuna is overfished and experiencing overfishing and is at 3.3% of the spawning stock biomass in absence of fishing ($SSB_{F=0}$), an increase from five years prior at 2.1% $SSB_{F=0.}$ The ISC Pacific Bluefin Working Group determined that bluefin recruitment increased in 2016 based on Japanese troll fishery CPUE and that there is a 85% chance of reaching initial and secondary target reference points, 6.7% and 20% $SSB_{F=0}$, respectively, within a recommended timeline if catches are increased by 15% in 2019. It was noted that there is considerable risk given uncertainty in recruitment

variability. The ISC also considered stock status and conservation information for North Pacific striped marlin, Pacific blue marlin, albacore, blue shark, and EPO swordfish. Management strategy evaluations (MSEs) are being conducted on North Pacific albacore and Bluefin tuna under the auspices of their respective working groups. Striped marlin is expected to be assessed in 2019 and the assessment should reflect notable improvements to spatial stock structure uncertainty and other biological information.

2. 93rd Inter-American Tropical Tuna Commission

Kurt Schaefer provided the outcomes of the 93rd meeting of the Inter-American Tropical Tuna Association, which was held August 24-30, 2018 in San Diego. The following outcomes were noted:

- Adoption of bluefin tuna management measures for 2019-2020 including to meet long term stock rebuilding goals
- Adoption of technical definitions of FAD designs
- Adoption of resolution C-18-05, updating C-16-01, implementing mandatory use of non-entangling FADs by January 1, 2019 including strong encouragement on the use of biodegradable materials to help reduce the accumulation of marine debris
- Adoption of resolution C-18-07 to increase protections for at-sea observers
- Approval of funding for a large-scale Regional Tuna Tagging Project (2019-2020) in the EPO; and
- Approval of funding for an external review of the bigeye tuna stock assessment

A number of recommendations were not adopted at the meeting, including those on limits on the number of associated purse seine sets, FAD marking requirements and sea turtle mitigation measures.

The SSC thanked Schaefer for his presentation.

3. Western Central Pacific Fisheries Commission

a. Electronic Monitoring Working Group

Council staff reported on the 3rd meeting of the WCPFC Electronic Monitoring Working Group, which met August 6-7, 2018 in Busan, Korea. One of the key tasks for the working group was to identify the objectives and scope of a Commission EM program. The working group did not achieve consensus on objectives, with sticking points being on whether or not EM could serve to supplement human observers or replace human observers. It was noted that development of a Commission EM program will be a slow process while national EM programs are rapidly advancing.

b. 14th Scientific Committee

Council staff presented outcomes of the 14th meeting of the WCPFC Scientific Committee (SC14), which was held August 8-16, 2018 in Busan, Korea. Key agenda items included the consideration two areas of investigation regarding the 2017 bigeye assessment conducted by the Secretariat for the Pacific Community (SPC): 1) an updated bigeye growth

curve incorporating additional information including that from otoliths of large fish, and 2) sensitivity to assessment model sub-regional structure definitions. With regards to bigeye growth, additional information since SC13 yielded minimal change in estimated growth parameters (particularly: expected asymptotic size) and SC14 found that the old bigeye growth (used in the 2014 assessment) was not representative of the best scientific information available for WCPO bigeye. By removing results using the old growth model, bigeye stock status became considerably more optimistic (on average the stock was assessed not to be overfished, nor subject to overfishing). However, SC14 noted that uncertainty remained regarding the "updated new growth" model and acknowledged that further study is warranted, with regards to the cause of the difference of growth between EPO and WCPO. An inter-laboratory ageing workshop is planned for January 2019 to review ageing approaches in the WCPO and EPO and to resolve differences, if they exist. Staff also noted increasingly disproportionate fishing mortality rates from the mid-1990's between juvenile and adult bigeye tuna, attributed to Indonesia-Philippines small scale fisheries, which capture smaller bigeye tuna (under 50 cm length) in large numbers, and the associated set purse seine fishery.

South Pacific albacore was assessed in 2018 by the SPC. The stock was determined to not be overfished or experiencing overfishing, as spawning biomass was estimated to be 52% $SSB_{F=0}$. This assessment used a simplified spatial structure (reduced from 8 to 5 regions) and incorporated a geostatistical CPUE series instead of traditional CPUE estimation. There was some conflict between the CPUE series and size composition data, with the former suggesting notable stock declines, while the latter showed little evidence consistent with depletion. The SPC albacore assessment also used a new growth model to better – but not fully – fit the growth of younger fish seen in length modes in troll data.

Skipjack tuna and yellowfin tuna, which were not assessed in 2018, maintain a status of not overfished and overfishing is not occurring. In 2017, provisional catches of bigeye tuna and skipjack tuna experienced a decline from a 5 year average, while yellowfin tuna experienced a record high catch and total south Pacific longline albacore catch experienced a record high (just shy of 90,000 mt) with 45% of albacore catch attributed to China. Total catch of tunas in the WCPFC convention area was just over 2,500,000 mt, the lowest since 2011. Staff also presented a summary of recommendations on bigeye tuna research from a Tuna Stock Structure meeting in October 2018 hosted by the SPC in Noumea, New Caledonia.

c. Northern Committee

Council staff reported on the outcomes of the WCPFC Northern Committee (NC), which occurred September 3-7, 2018 in Fukuoka, Japan. The main agenda items at the meeting were consideration of a new Pacific Bluefin tuna assessment, which infers increased recruitment in 2016, and a proposal by Japan to increase its large fish (>30kg) quota and apply overages and underages to the following year's quota. The United States and other WCPFC members opposed Japan's proposal and thus consensus on the proposal was not achieved. The United States submitted two proposals to Northern Committee: 1) rebuilding plan for striped marlin, and 2) harvest strategy for swordfish. It was noted that in developing the proposals, Council staff cautioned NMFS that a rebuilding plan for striped marlin is inappropriate given that a new stock assessment is scheduled for 2019 and that consideration of the plan could

detract from more pressing issues at the December 2018 Commission meeting. Similar concerns were provided for a swordfish harvest strategy, including the stock being in good condition. The NC agreed that members should submit proposals for a striped marlin rebuilding plan and recommended that the ISC complete several biomass rebuilding projections when developing the new stock assessment in 2019. There was agreement on the swordfish harvest strategy management objective, but no agreement on the target reference point.

d. Technical Compliance Committee

Council staff reported on the WCPFC Technical and Compliance Committee TCC held Sept. 26- October 2, 2018, in Majuro, Marshall Islands. The major agenda item of the TCC meeting is dedicated to the Compliance Monitoring Scheme process, which takes several days to complete. Nearly all obligations of members are assessed as either compliant, non-compliant, or priority non-compliant and compiled in a provisional CMS report, which goes to the Commission for consideration and adoption. TCC also considered several required reports on a range of topics including: a) Commission VMS, b) Regional Observer Program, c) transshipment, d) high seas boarding and inspection, e) Record of Fishing Vessels, f) Port States Measures, and g) E-reporting standards. Staff also briefly reported on the 3rd meeting of the FAD Working Group, which met in Majuro the day after TCC concluded. The FAD Working Group recommended that the WCPFC consider the following: minimum guidelines for lower entanglement risk FADs as detailed in the ISSF Guide; that the use non-plastic and biodegradable materials should be prioritized; FAD construction should consider eco-friendly or re-usable materials; and that research on biodegradable and non-entangling FAD designs be prioritized.

e. Permanent Advisory Committee

Staff provided an overview of the US WCPFC Permanent Advisory Committee (PAC), which met on October 11-12, in Honolulu, Hawaii. It was noted that the Council may consider endorsing PAC recommendations or adopting other recommendations to the US government in forming positions for the December WCPFC meeting. PAC recommendations with respect to the WCPFC tropical tuna measure and South Pacific albacore were presented. Several catch and effort provisions of the WCPFC tropical tuna measure (CMM 2017-01), including longline bigeye limits are up for renegotiation by the WCPFC at its December meeting. It was reported that the majority of the PAC recommended that the United States should obtain a U.S. longline bigeye limit of 6,000 metric tons (mt), which is slightly less than the amount of bigeye caught in the western and central Pacific Ocean (WCPO) in 2016 by Hawaii longline vessels, including those vessels operating under agreements with the U.S. Participating Territories. It was noted that basis for the recommended quota increase is that: 1) observer coverage levels in U.S. longline fisheries far exceed the 5% minimum and Hawaii longline vessels do not transship (paragraph 40 of CMM 2017-01); 2) members' allocations should be adjusted to be fair and equitable, considering the changes in the fisheries since the initial catch limit allocations, and 3) that the spatial operation of the Hawaii longline fishery is in an area of low depletion and the BET stock is healthy, so an increase in the U.S. catch limit would not result in BET overfishing or breaching the limit reference point.

The SSC notes the recommendation of the PAC regarding the United States obtaining a larger bigeye longline catch limit of 6,000 mt. The SSC recognizes that the Hawaii longline fishery is subject to observer coverage levels that exceed the minimum 5% level and that Hawaii longline vessels do not transship fish at sea, and thus the US should provide information to the Commission consistent with paragraph 40 of CMM 2017-01. The SSC acknowledges that CMM 2017-01 states that pending agreement on a target reference point, the bigeye spawning biomass depletion ratio ($SB/SB_{F=0}$) is to be maintained at or above the average $SB/SB_{F=0}$ for 2012-2015 (0.36). Based on an evaluation of CMM 2017-01 by the SPC, longline bigeye catch under the optimistic scenario corresponds to 2012-2015 average catch total of 64,706 mt. Under the pessimistic scenario, which includes full utilization of longline bigeye limits provided to all members (including the US Participating Territories under domestic regulations), total longline catch is 88,916 mt. Both scenarios under the recent recruitment trend are projected to not breach the $SB/SB_{F=0}$ ratio of 0.36. If using the long-term recruitment average, it was noted that neither CMM scenario will achieve the bigeye SB target. Concern was expressed by some SSC members regarding the new bigeye growth model that is primary driver for the more optimistic bigeye stock status as compared to previous stock assessments. The SSC further noted that an increase of the US longline bigeye catch limit would be consistent with the SC14 management advice to not increase fishing mortality above 2011-2014 levels only if the overall longline bigeye catch level remained within an overall total of just under 89,000 mt (pessimistic scenario), purse seine effort remained within expected levels under that scenario, and if recent recruitment levels continue, which are more positive than the long-term average.

F. Public Comment

There was no public comment provided.

8. Protected Species

A. Factors Influencing Olive Ridley Turtle Interaction Patterns in the Hawaii Deep-set Longline Fishery

Rob Ahrens, Zachary Siders, and Nicholas Ducharme-Barth, University of Florida, provided a presentation on the progress of a project analyzing olive ridley turtle interaction patterns in the Hawaii deep-set longline fishery. The project is jointly funded by the Council, PIFSC, and PIRO, and is intended to develop a framework for understanding factors influencing protected species interaction patterns using olive ridley turtles as a case study. The project was initiated in March 2018 and will be completed in March 2019.

The project was initiated due to the higher olive ridley turtle interactions in the Hawaii deep-set longline fishery observed since 2015. The group provided a presentation to the Council's Protected Species Advisory Committee in April 2018, and explained that recommendations from the PSAC meeting were considered and incorporated where appropriate (e.g., include currents, subsurface dissolved oxygen, remove American Samoa longline fishery data). Recent modeling improvements include using an ensemble of random forest models and then averaging model outputs. *Temperature* at mixing layer was the single best predictor of an

olive ridley turtle interaction with the Hawaii DSLL fishery. Ensemble model performance was adequate but out-of-bag predictive performance was low – possible reasons for this challenging issue were discussed.

Random forest modeling of loggerhead interactions in the Hawaii SSLL fishery were also presented. Sea surface temperature was identified as an important predictor for loggerhead interactions as was seasonality, showing consistency in results with what was known from TurtleWatch.

The SSC thanks Rob Ahrens, Zachary Siders and Nicholas Ducharme-Barth for an informative presentation.

B. Report of the Seabird Bycatch Mitigation Workshop

Council staff provided a report on the Workshop to Review Seabird Bycatch Mitigation Measures for the Hawaii Pelagic Longline Fisheries, convened on September 18-19, 2018. The workshop was convened in response to a Council directive from the 173rd Meeting in June 2018.

The goal of the workshop was to review current seabird mitigation measures, explore alternative approaches, and prioritize measures and areas of improvement for seabird mitigation. High priority measures identified by the workshop discussions included captain and crew training, side setting, bird curtain, tori/streamer lines, towed buoy, and branchline weighting design. Tori lines have never been a requirement in these fisheries due to safety and entanglement issues.

Night setting and offal management were recognized as useful in the Hawaii SSLL fishery but were not identified as high priorities. Use of blue-dyed bait was not considered to be an effective mitigation measure. Non-gear mitigation measures such as fleet communication, individual quotas, and time/area management were also discussed, but did not rise above low priority.

The SSC recognized that the workshop provided a comprehensive review of seabird mitigation measures. The SSC noted the importance of addressing cultural sensitivities in implementing seabird bycatch mitigation outreach and training for captains and crew.

C. Status of the False Killer Whale Take Reduction Team Recommendations

Ann Garrett, PIRO, provided an update of the status of False Killer Whale Take Reduction Team (FKWTRT) recommendations. Following the April 10-13, 2018, meeting, the full TRT convened by teleconference on June 15, July 11, and August 3, and a working group on Electronic Monitoring (EM) was convened on August 22. FKWTRT will next meet by teleconference on October 18, 2018. There have been 9 FKW interactions during 2018. The Southern Exclusion Zone (SEZ) was closed in July 2018 due to reaching the trigger of 2 mortalities or serious injuries inside the EEZ.

The SSC thanks Ann Garrett for an informative presentation.

D. Updates on Endangered Species Act and Marine Mammal Protection Act Actions

Ann Garrett, PIRO, presented updates on ESA and MMPA actions of relevance to fishery management actions, including the insular false killer whale critical habitat final rule and responses to ESA listing petitions on cauliflower coral and chambered nautilus.

A status review was found to be warranted for the cauliflower coral and is now underway. The chambered nautilus was listed as threatened throughout its range. A draft recovery plan is underway for the insular FKW. The Hawaiian monk seal population is now estimated at around 1400 seals.

The SSC thanks Ann Garrett for an informative presentation

E. Public Comment

There was no public comment.