



**Report of the 123rd Meeting of the Scientific and Statistical Committee
1164 Bishop Street, Suite 1400, Honolulu, HI 96813
May 31 to June 2, 2016**

4. NMFS PIFSC Directors Report

Michael Seki, PIFSC Director, reported on the relevant activities conducted by the Pacific Island Fisheries Science Center between the March and June SSC meetings. PIFSC conducted the third bottomfish data workshop. The next workshop will be conducted between July or August 2016 and will focus on the computational aspect of CPUE. A program review of the Ecosystem and Climate Science was conducted on April 4-8, 2016. The report is available on the PIFSC website. PIFSC is developing a response to the review report. Regarding Cooperative Research, the Science Center received 10 proposals and 5 were funded. The process has been regionalized and a working group was formed to review the proposals and provide recommendations to the Science Center Director. Hutchingson, Bigelow and Holland are conducting a study on the effects of handling on post-release mortality rates of sharks taken as bycatch in longline fisheries. This project is meant to identifying "best practices" and improving shark survival rates.

The Hawaiian monk seal population is trending upwards. Monitoring of the population is still ongoing. The 2016 field season is underway. NOAA ship Oscar Elton Sette conducted the fishery fieldwork in American Samoa (life history and RAMP surveys). The team conducted a survey of Jarvis coral reef. The recent bleaching event there devastated the benthic assemblages while the reef fish population was estimated to be the same as the previous fieldwork. NOAA ship Hi'ialakai conducted fieldwork in the NWHI for Hawaiian monk seal and sea turtles. The ship also collected 10,000 lbs of debris. NOAA ship Okeanos Explorer conducted mapping fieldwork in Wake Island and Santa Rosa. The ship also did ROV surveys in deep water habitats in the Marianas. A crack in the hull caused delays in the completion of the fieldwork.

The SSC thanked the Science Center Director for an informative presentation.

It was clarified in subsequent discussion that the increase in the Hawaii monk seal population had occurred in both the main Hawaiian Islands and the Northwestern Hawaiian Islands.

The SSC noted that the DOBOR boat registration database has been changed to require registrants to state primary use, recreational or commercial. This has implications for assessing ratio of commercial to non-commercial fishing. The SSC has expressed previous concerns about the Hawaii Marine Recreational Fisheries Survey (HMRFS) extrapolations.

It was clarified that almost all of the non-commercial data is from the MHI.

The SSC requests that HDAR provide a presentation to the 124th SSC on how Hawaii non-commercial catch and effort data is currently being estimated, including an update on the use of the revised DBOR vessel registration system and revisions to MRIP survey protocols.



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5. Insular Fisheries

A. Evaluation of the existing Biological Reference Points Project

Thomas Remington, a Hawaii Pacific University graduate student, presented to the SSC on the evaluation of the existing Biological Reference Points including a pilot project on new methods utilizing creel survey data from Guam. Management strategy evaluations were conducted on a range of new techniques for assessing data limited stocks. The SSC thanked him for his presentation and provided comments and suggestions for improving the project, including incorporating oceanographic and environmental conditions.

B. Jungle Histology and size-specific sex ratios in coral reef fishes

The SSC heard with interest a presentation by Ken Longenecker on a new, inexpensive and easily transferable histological technique for determining sexual maturity in coral reef species. Preliminary results indicate that sex ratio changes may confound estimates of reproductive rates. With some species, the larger individuals may be males and smaller sized female fish may have the most reproductive benefit to the stock. The SSC encourages further extension of this research and notes that these results have important implications for stock assessments and the setting of ABCs.

The SSC thanked Dr. Longenecker for his presentation and recommends that the rapid histological assessment of fish reproductive state be evaluated by the PIFSC, state, and territorial fisheries agencies for its utility in providing data on reproductive biology of data-limited stocks in the Council region. Further, the SSC recommends that the Council request NMFS PIFSC to examine the feasibility of using fish stock assessment models that take into account the reproductive output of insular fish populations.

A. Public Comment

There was no public comment.

Guest Speaker: “Scraping Social Media for Unreported Catch”

The SSC heard with interest, a report from Justin Hospital on a pilot project to use web scraping software to explore the rapidly expanding use of social media for cash sales of fish. The results suggest that cash sales through social media may continue to expand. It was noted that there were some confidentiality issues, and once a fisherman had links to specific customers the likelihood of catches appearing on open websites decreased. There was some SSC support for Hospital’s suggestion that social media could be more effectively used by the Council for outreach activities. It was also suggested that giving social recognition to fishermen who share catches through social media could be done positively through prizes and could be a useful form of sharing information about the Council and its programs.



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6. Program Planning

B. Report on the 2015 Annual/SAFE Report

1. Archipelagic Annual/SAFE Report

Council staff updated the SSC on the status of the development of the Stock Assessment Fishery Evaluation Reports. The Fishery Ecosystem Plan Team developed 4 of the 5 SAFE Reports covering the archipelagic fisheries of American Samoa, Marianas, Hawaii and Northwest Hawaiian Islands, and Pacific Remote Island Area. These reports were developed in response to the recent revision of the Fishery Ecosystem Plans and the 2013 publication of the revised National Standard 2 guidelines. These reports, when they are completed, meet the requirements of the Magnuson-Stevens Act, FEPs, and NS2. The draft modules were vetted through the different Council Committees.

Council staff reported on the information and data available for use in the various sections of the report namely: 1) fishery performance data; 2) coral reef ecosystem indicators; 3) life history and length derived variables; 4) protected species data; 5) habitat data; 6) environmental and climate variables; 7) marine planning information; and 8) human dimensions information.

The SSC noted that the draft 2015 Annual/SAFE report is a vast improvement over past annual reports in organization and the breadth of information provided. However, it was also noted that the report has become even more overpowering and in need of summary sections. Regarding this, Council staff asked SSC for guidance on the framework of data integration and additionally will seek further guidance during a planned workshop in August.

The SSC supports the plan to conduct a Data Integration Workshop.

In addition, the SSC supports adding an executive summary as well as a management oriented summary section that contains the basic facts.

Further, the SSC advised that the human perspective, the importance of the community, and the extended cultural and social values of fishing should be considered in pursuing the dashboard summary format.

2. Pelagic Annual/SAFE Report

Council staff presented on the status of the draft pelagic annual/SAFE report. Members of the Pelagics Plan Team drafted the four principle modules for the Pelagics Fishery Ecosystem Annual/SAFE Report. Also included in the presentations for the Annual/SAFE report was an international module on the wider Pacific-wide catches of pelagic fish, and a recreational module presentation summarizing the Hawaii recreational fisheries. Ecosystem considerations included presentations on climate change variables, habitat conditions, human dimensions and protected species, which will be additional modules in the Pelagics Annual/SAFE report.

Council staff mentioned that the development Pelagic Safe Report is currently being contracted out.

C. Evaluation of 2015 catch relative to 2015 ACLs

Council staff presented on the results of the Plan Team's evaluation of the 2015 catch relative to the 2015 ACLs. Guam Carangidae (jacks), Hawaii crustacean (primarily white crab) and mollusk (primarily octopus) had exceeded their ACLs by 28%, 20.5% and 12.7%, respectively. Based on the fishery dependent information, the Plan Team recommended no overage adjustment based on the following:

Guam jacks

- Fishing mortality rate (percentage of the stock) did not seem to increase based on examination of fishing effort;
- The stock appears to be stable and the fishery dependent indicators showed that the shore and boat-based fisheries continue to be productive;
- Fishing effort is stable;

Hawaii crustaceans

- No indication that there has been any expansion in the trap fishery in recent years; the CPUE for traps had increased over the past years indicating increased productivity that could have contributed to the high catch
- number of participants in the crab trap fishery had decreased and the number of trips remained stable

Hawaii mollusk

- Octopus has a short life span and the recent year catch may follow the abundance of the stock;
- CPUE for spearing of mollusk increased in recent years and the inshore handline fishery appeared stable showing increased abundance of the stock;
- fishing effort and participation is relatively stable or decreasing in the past 10 years suggesting stable or decreased fishing mortality.

The SSC concurs with the Plan Teams regarding the explanations of the ACL overages. However, the SSC notes that these current catch limits do not account for windfall years. There are years where catches will be above normal reflecting the condition of the environment favorable to increased productivity. It was also noted that a recent publication¹ showed that a number of fisheries were independent of stock production. It was also noted that there was heightened recruitment of reef fish in Hawaii in recent years. A similar recruitment success for invertebrates may have occurred that could account for the overage attributed to invertebrates. The SSC believes that this emphasizes the need for data integration to account for the environmental variables that may drive some fisheries.

D. Options for revising the risk determination and uncertainty characterization process (Action Item)

Council staff presented the options for revising the risk determination and uncertainty characterization process to enhance the ACL specification. The existing ACL specification

¹ Vert-pre, K., et al. 2013. Frequency and intensity of productivity regime shifts in marine fish stocks. PNAS, 110 (5), 1779-1784

process outlines the steps to quantify uncertainties associated with the different species groups and the fisheries. These steps are described in the 'Control Rules' but there is no clear guidance on when to implement the Control Rules. The default trigger is when new data becomes available which would require the recalculation of the MSY. In practice, this default has proven to be logistically impractical.

The Council will consider establishing a decision process on when to trigger the recalculation and trigger the P* (risk of overfishing) and SEEM (Social, Ecological, Economic and Management uncertainty) analysis and changes to the quantification of the uncertainties. The Council will also consider action to amend the Control Rules:

ACTION 1: Establishing a process for the Plan Team and SSC to evaluate whether there is significant change in the data and the fishery characteristics to trigger revisiting the risk of overfishing level;

ACTION 2: Changing the Control Rules. This action would entail the following options –

Option 1: Status quo – maintain the existing control rules with no change

Option 2: Modify the existing Tier system of control rule

Option 3: Use a formulaic approach to risk determination

Option 4: Use a data and model workshop approach to quantify the uncertainties.

The SSC supports Action 1 because it will establish a process that allows the review of new information and an assessment of whether further action is needed.

Regarding Action 2, the SSC had considerable discussion of the four options and noted the following:

- 1) While there was an implied decrease in the level of scientific confidence (or increase in risk) from Tier 1 through Tier 4, default risk levels by tier have not been specified;
- 2) The same criteria being included in Tiers 1-3 is confusing and difficult to apply in practice;
- 3) The conduct of independent P* analyses with different fisheries and changing team members over time leads to inconsistencies that reduces confidence in the results;
- 4) The amount of work that goes into the process of setting the P* levels seems far too excessive given that P* generally ranges between 0.5 and 0.3;
- 5) The complexity of the existing Tier system leads to the perception that the process is not transparent.

Thus, the SSC recommended Option 2, with the goal to make the process more transparent and simple. The SSC expects that workshops would probably be employed in accomplishing this. The SSC requests staff to provide more details on the implementation of Option 2 for further review by the SSC.

E. Five-year Research Priorities

Council staff presented on the changes to the 5 year research priorities. This is part of the annual vetting process to determine if there are emerging new priorities that needs to be considered and old priorities that needs to be removed. Establishment of BioSampling Program in Hawaii for coral reef fish life history sample collection was added under the stock theme.

SSC supports the changes to the Council's five-year research priorities.

F. Climate Change

1. Pacific Islands Region Climate Action Plan

Jeff Polovina, NMFS PIFSC, presented the outcome of the regional effort to develop a “Pacific Island Region Climate Action Plan”. A working group comprised of representatives from PIFSC, PIRO, and Council held series of meetings to develop this regional plan.

SSC thanked Dr. Polovina for the presentation. The SSC noted that seabirds were not addressed in the climate action plan. Dr. Polovina agreed to incorporate seabirds in the plan.

The SSC formed a working group comprised of David Itano, Molly Lutcavage, Don Kobayashi, Milani Chaloupka, and Erik Franklin, to provide comments on the Pacific Island Region Climate Action Plan.

2. PI Region Fish Stock Climate Vulnerability Assessment

Donald Kobayashi, NMFS PIFSC, presented on the regional effort to developing a fish stock climate vulnerability assessment. The Pacific Island version of this climate vulnerability assessment uses existing information on climate and ocean conditions, species distributions, and species life history characteristics to estimate the relative vulnerability of fish stocks to potential changes in climate.

The SSC thanked Don Kobayashi for an informative presentation.

G. Cooperative Research Program

1. Cooperative Research Priorities

Council staff presented on the changes to the Cooperative Research Priorities as vetted through the different Council committees. The priorities for American Samoa, Guam, CNMI and Protected Species were revised to better align with the MSA priorities and to include new emerging needs. The NMFS Cooperative Research Program had been regionalized reverting back to the process prior to 2012. Council staff also presented on the projects that will be funded in 2016.

The SSC supports the changes to the Council’s Cooperative Research priorities.

2. Cooperative Research Implementation Framework

Council staff presented on the Cooperative Research Implementation Framework in anticipation of the regionalization of the NMFS Cooperative Research Program funds. The goal of this framework is to enhance the Cooperative Research work in the Western Pacific by increasing awareness and involvement of the fishing industry. Council staff will go over the elements of the implementation framework.

The SSC recommends that agencies promote the benefits of conducting collaborative research in the fishing industry within the Cooperative Research Implementation Framework.

H. Public Comment

There was no public comment



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7. Pelagic Fisheries

A. Impact of ELAPS on America Samoa Economy

NMFS is completing a study to analyze the financial and economic impacts of the 2015 Effort Limit Area for Purse Seine (ELAPS) closure in order to look at impacts to the American Samoa economy as well as to identify and evaluate the connectivity between fishing activity and the broader American Samoa economy.

Tom Graham (PIRO) presented preliminary results from a study by Dale Squires (SWFSC) and Valeries Chan (PIRO) that suggest that there were detectable effects of the 2015 closure on the American Samoa economy and a connection between U.S. purse seine vessels and the broader American Samoa economy. The net effect of the ELAPS closure was exacerbated by lack of access by US vessels to the Kiribati EEZ and the ENSO eastward movement of the fishery.

The SSC requests a full presentation on the impact of ELAPS on the America Samoa Economy at a future SSC meeting, as soon as reasonably possible by one of the authors.

B. Hawaii Shallow-set Observer Coverage

PIFSC scientist Chris Boggs reported on planned work on the development of a risk curve for setting the level of observer coverage in the Hawaii shallow set longline fishery

The SSC noted that available information suggests that 100% observer coverage in the shallow-set long line fishery was possibly not needed in view of declining fishing effort. The SSC inquired about the cost of this level of observer coverage to further assess this matter.

NMFS indicated it had started developing this information, but would need further direction to complete this analysis, and that it would be helpful if completing this analysis were identified as a priority. **The SSC supports NMFS elevating this as a priority to enable further analysis of observer coverage levels in this fishery.**

C. Results from Hawaii Small Boat Survey 2014

Dr. Hing Ling Chan will present summary results of the PIFSC Socioeconomics Program 2014 Hawaii Small Boat Survey. The survey was conducted by Drs. Chan and Minling Pan, in collaboration with the State of Hawaii Division of Aquatic Resources. The study examined the economic and social characteristics of the Hawaii small boat fishery. The report presents a wide range of information that furthers our understanding of the fishery (e.g., motivations, levels of fishing activity, costs, and catch distribution).

The SSC thanked Dr. Chan for an interesting presentation of an important social analysis.

D. International Fisheries

1. EPO bigeye tuna quota

Council staff reported that catches in the WCPO and EPO, including US longline catches, have been subject to conservation and management measures (CMMs) or resolutions promulgated by the Western and Central Pacific Fishery Commission (WCPFC) and Inter-American Tropical Tuna Commission (IATTC). The current resolution for EPO tunas, C-13-01, expires in 2016. Under this resolution, total allowable longline catches (TACs) of bigeye are established for certain fleets (Japan, Taiwan, Korea and China), while other longline fleets have a TAC of 500 mt for vessels greater than 24 m. The Hawaii longline fleet, by virtue of its location, is able to fish in both the Eastern Pacific Ocean (EPO) and the Western and Central Pacific Ocean (WCPO).

Catches by the Hawaii fleet remained lower than 500 mt until 2005. However, between 2004 and 2006, the Hawaii longline fleet was subject to a catch limit of 150 mt stemming from a 2004 IATTC Resolution. From 2007 onwards the Hawaii-based longline fleet has been subject to a 500 mt bigeye catch limit. This initially applied to all longline vessels but in 2009 the catch limit was set for longline vessels > 24 m which comprise 23% of the US longline fleet based out of Hawaii. From 2005 onwards, the Hawaii longline fleet has caught increasing amounts of bigeye tuna in the EPO, with catches exceeding 1,000 t in 2008 and 2000 mt in 2013, and 3,000 mt in 2015.

The SSC reiterates its previous position that the US should request an increase in its IATTC longline catch limit and do so in the context of a plan that does not increase total exploitation pressure on EPO bigeye.

2. WCPFC Issues

Council staff reported on issues likely to be deliberated at the December WCPFC 13th meeting. This included harvest strategies work plan for key stocks and fisheries, which among other things involves the establishment of limit and target reference points, acceptable levels of risk of breaching established reference points, and the identification of management objectives. It was communicated by staff that the Commission will need to agree on the acceptable risk levels in order to identify how long stocks may take to rebuild to levels above reference points. A major challenge before the Commission in 2016 with respect to furthering harvest strategies is how to reach agreement on acceptable risk given the wide range of interests by members.

Staff presented that the next bigeye stock assessment will be conducted in 2017 and noted that the PISC letter stated that there might be an opportunity to request the change to the spatial regions used in the assessment, essentially moving the boundary between Region 2 and 4 to 10 deg N from the present 20 deg N. It was noted that the SSC supported the boundary realignment in the past. SSC discussion identified that there may be winners and losers in the Pacific Islands from such a realignment, and thus the politics of the situation are as important as the modeling effort. However, it was also noted that the area in question was mostly high seas so impacts may

be less than expected. The realignment would also mean that the Hawaii longline fishing effort is not split between two regions as it is presently.

Staff described the failure by the US delegation to advance the evaluation of spatial management options at the WCPFC12 meeting held in December 2015. Staff has worked with PIFSC on the issue and the plan is now to have the US delegation to the WCPFC Scientific Committee meeting in August 2016 advocate that the SPC conduct spatial management analysis that: 1) compare regional exploitation rates, and 2) evaluate exploitation rates proportional to the exploitable biomass in each stock assessment subregion. The SSC supported this work as it related to a longstanding position of the SSC on the need for spatial management evaluation within the WCPFC area, but noted that the SPC may not be able to achieve a finer resolution spatial analysis until the stock assessment regions are realigned.

The SSC formed a harvest strategy working group to advise the Council staff regarding WCPFC harvest strategies and associated issues. The group consists of John Sibert, Pierre Kleiber, Dave Itano, Don Kobayashi, Paul Callaghan and Bob Skillman.

E. International Fishery Meetings

1. IATTC Science Committee

Council staff presented on the IATTC Science Committee meetings, its major findings and the IATTC staff recommendations. This included maintaining the status quo for the current tropical tuna measure (C-13-01), which would maintain the 500 mt annual longline bigeye limit for longline vessels > 24 m. Council staff also pointed out that the US was the only IATTC member country that reported its longline catches to IATTC split by large vessels (>24 m) and smaller vessels (< 24 m). IATTC resolutions call for countries to submit only yearly summarized EPO industrial longline catch and effort data grouped by year/month/flag and 5 x 5 deg. cell. Countries do not separate this summarized data by longline vessel size, so the IATTC is not able to separate catches by vessel length. Other IATTC staff recommendations that could potentially affect US longline fisheries in the EPO include conservation measures for silky sharks and for seabirds. Council staff reported that seabird mitigation has been successfully accomplished in the Hawaii longline fishery and silky sharks are not retained by the fishery.

2. IATTC GAC/SAS Meeting

Council staff presented on the meeting of the General Advisory Committee and its Scientific Sub-committee, along with recommendations to the US Delegation to IATTC. The GAC meeting resulted in some support for the U.S. to promote or propose an increase in the catch limit for bigeye in the longline fishery, but this was not supported by all.

Other matters discussed included conservation of bluefin tuna and protection for sea turtles, sharks, and seabirds.

3. IATTC Plenary

Council staff reviewed the agenda for the 90th Meeting of the IATTC in late June and early July. Council staff drew the SSC's attention to IATTC staff recommendations and the discussion of

conservation resolutions, noting the Council's request for the US to advance a draft resolution with options for increasing the US bigeye catch for large (> 24 m) vessels.

4. Quota tracking for WCPO and EPO bigeye quotas

Chris Boggs of PIFSC presented on the tracking for WCPO and EPO bigeye quotas and the most up to date cumulative estimates for bigeye in the WCPO and the EPO relative to the bigeye limits in both oceans.

The SSC commends PIFSC for conducting quota tracking analyses as reported here and points out that none of the other members of the Commission report similar quota tracks.



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8. Protected Species

I. Report of the Protected Species Advisory Committee Meeting

Council staff provided a report of the Protected Species Advisory Committee (PSAC) meeting held April 7-8, 2016. Staff reported on a summary of PSAC discussions and recommendations, which included a review of the draft FEP Annual Reports, research priorities, and updates on fishery management and protected species actions. Staff highlighted notable findings from the draft protected species section of the revised Annual Report.

The SSC noted a recent analysis showing that both side setting and blue dyed bait significantly reduced seabird interaction rates in the Hawaii deep-set longline fishery. Of the two, side setting had lower interaction rates compared to the blue-dyed bait. Seabird interactions remain rare events in the longline fishery.

The SSC supports the recommendations contained in the PSAC report.

J. Update on PIFSC Marianas Cetacean Surveys

Erin Oleson, PIFSC, provided an update on the Marianas cetacean surveys. PIFSC conducts visual surveys and long-term acoustic monitoring for cetaceans in the waters surrounding Guam and CNMI. In 2015, PIFSC conducted visual surveys for humpback whales in the winter and for cetaceans in the summer. Additional surveys in the Marianas are ongoing. Data collected during the surveys include species identification, group size estimates, photo-identification, biopsy samples and satellite tagging.

The SSC discussed potential impacts of Navy activities on cetaceans, as well as an interesting discovery of hybridized dolphins in the Marianas.

The SSC thanked Oleson for an informative presentation.

K. Updates on ESA and Marine Mammal Protection Act Actions

Dawn Golden, PIRO staff, provided updates on ESA and MMPA actions of relevance to fishery management actions, including coral post-listing activities, green turtle final rule, humpback whale proposed rule, scalloped hammerhead shark critical habitat, shark petitions to list (common and bigeye thresher sharks, smooth hammerhead shark, and oceanic whitetip shark), manta ray petitions to list, and MMPA List of Fisheries (LOF). The green turtle final rule was published in April, with 11 distinct population segments (DPSs) identified. The Central North Pacific DPS (including Hawaii) was listed as threatened, and the Central West Pacific DSP

(including the Mariana Archipelago) and Central South Pacific DPS (including American Samoa) were listed as endangered. In April, NMFS also issued a 12-month finding in response to petitions to list the common thresher shark and bigeye thresher shark under the ESA and concluded that ESA listing is not warranted at this time because neither species is currently in danger of extinction nor likely to become so within the foreseeable future. No major changes are anticipated for the proposed 2017 LOF, which is anticipated later this summer.

The SSC thanked Golden for the updates.