



**156th Meeting of the Scientific and Statistical Committee  
June 4-6, 2025  
Council Office  
Honolulu, HI**

**FINAL REPORT**

**4. Pacific Islands Fisheries Science Center Director Report**

T. Todd Jones presented the Pacific Islands Fisheries Science Center (PIFSC) Director's report. He highlighted the 2025 CNMI bottomfish complex update assessment, the Marine Resource Education Program (MREP) Western Pacific Fisheries Science & Management Workshop, the annual pre-assessment workshop for WCPFC stock assessments, and fisher engagements in main Hawaiian Islands (MHI) Deep-7 bottomfish science.

SSC members inquired further details about the SHINY app<sup>1</sup> used as part of the MHI fisher engagements. Felipe Carvalho, PIFSC, explained that the app was developed as a tool to improve communication with fishermen, in response to past experience of fishermen asking questions about potential scenarios during meetings but not having the ability to provide real-time responses using data.

---

<sup>1</sup> <https://connect.fisheries.noaa.gov/content/093fc1b8-928f-4ee0-8c3d-bae82dc78295/>

## **5. Program Planning and Research**

### **A. Status of Executive Orders, Presidential Proclamations and Legislative Issues of SSC Interest**

Council staff provided an overview of Executive Orders (EOs), Presidential Proclamations and legislative issues of SSC interest, including the EOs on deregulation (EO 14192) and restoring American seafood competitiveness (EO 14276), Proclamation 10918 allowing commercial fishing within 50-200 nm of the Pacific Islands Heritage Marine National Monument, and a recent EO on restoring gold standard science (EO 14303). Associated guidance for EO 14192 exempts “routine fishing regulatory actions” e.g., annual catch limit (ACL) specifications, and several other ongoing Council actions including electronic monitoring (EM) have been classified as deregulatory. Implementation of EO 14276 will be a priority for NMFS, and the Fishery Management Councils have been directed to provide updated recommendations from a previous EO on seafood (EO 13921). EO 14303 is expected to result in new guidance on scientific work for federal agencies including NMFS, which may also influence activities of the SSC. Following the reopening of the Pacific Islands Remote Islands Marine National Monument waters between 50-200 nm under Proclamation 10918, some fishing effort has occurred in those waters. Several House subcommittee hearings have been held related to the Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA), but the bills have not yet advanced through the committees.

SSC members inquired about the potential impacts of recent EOs on Council and PIFSC operations. PIFSC staff clarified that EOs have not changed their priorities, as they await direction from NOAA and the US Department of Commerce. However, current impacts are driven by staffing and funding constraints with the PIFSC reporting a 20% staff reduction. Council staff noted that while the EOs do not directly affect current operations, they are exploring opportunities aligned with the focus on seafood competitiveness and encouraged SSC members to consider what can be accomplished in light of these broader priorities.

### **B. 2024 Annual SAFE Report and Recommendations**

#### **1. Archipelagic and Pelagic SAFE Report Highlights**

Thomas Remington, Annual Stock Assessment and Fishery Evaluation (SAFE) Report Coordinator, provided the highlights of the archipelagic and pelagic reports, including a summary of the notable catch and effort from the fisheries in 2024, as well as highlights from the ecosystem chapters of the report. Remington presented statistical trends and patterns in Hawaii, American Samoa, CNMI, Guam, and Pelagic fisheries.

SSC members asked about similar issues facing the various archipelagos, vessel monitoring system (VMS) for CNMI bottomfish fleet, factors influencing fish prices, and the status of mandatory fisher reporting in the CNMI. Council staff replied that there are now annual joint Plan Team meetings to better share issues and identify solutions between archipelagic areas. Council staff noted that bottomfish vessels in the CNMI are smaller than the length required for VMS and fish prices are set by various external factors such as the American Samoa cannery price for albacore which is influenced by the global market and fish imports for prices in Hawaii. CNMI mandatory reporting from fishers is not implemented in Saipan yet but is still in an education and outreach stage.

**The SSC requests that future Annual SAFE reports include a digital dashboard of fishery indicators relative to thresholds that allow the rapid identification of anomalous or negative conditions or trends.**

The SSC thanked Remington for an informative presentation.

## **2. Archipelagic Plan Team Report Highlights**

Marlowe Sabater, Archipelagic Plan Team Chair, provided the highlights of the Plan Team's review of the draft Annual SAFE Report from their meeting in May. Sabater presented on the APT's progress on ecosystem component species management and the need to consider NS1 in managing ECS. He also presented on data integration with ecosystem indicators, the SAFE report revamp, standardized CPUE, and data waivers.

SSC members noted the number of declining surveys and recommended adjustments to survey methods. PIFSC noted low fishery participation in the territories and how creel survey protocols were not designed to do this. Some potential solutions were offered that include mandatory reporting, fish mats at landing sites to expedite data collection, and more length frequency data collection. SSC members also suggested model-based approaches with post-stratification methods to improve the quality of the data inputs to stock assessments.

The SSC thanked Sabater for an informative presentation.

## **3. American Samoa Annual Longline Logbook Reports**

### **4. Hawaii Annual Longline Logbook Reports**

*[agenda items 5.B.3 and 5.B.4 were taken up together]*

Jenny Suter, PIFSC, provided the 2024 American Samoa and Hawaii longline fishery logbook reports, which are included as part of the Pelagic Annual SAFE Report. The report included fishery statistics including participation, effort, and catch. Suter outlined the changes in staff with planned retirements, reporting timeline changes, open science principles, and an updated presentation structure focusing on fishery performance instead of solely trends in logbook data. American Samoa has had a declining trend over the past 10 years in vessels, trips, and hooks but an increase of hooks per set in the past two years. Albacore and yellowfin catches declined over 10 years but quarterly catch per unit effort (CPUE) trends were consistent. In Hawaii, there have been declining catch and CPUE of bigeye tuna (BET), increasing catch in yellowfin, and a small recent increase in catch of albacore. Spatial distribution of 2024 BET catch similar to 10 year average but an increase in catch south of Hawaiian Islands. BET size distribution and yellowfin size distribution was similar across 2020-2024. Blue marlin, spearfish, and striped marlin catches have been relatively consistent over the past decade but quarterly CPUE generally declined over the past decade but experienced recent increases in the last 1-2 years. Swordfish catch and quarterly CPUE declined over the past decade but size structure was similar. Hawaii shallow-set longline fishing areas contracted in 2024. Striped marlin catch and quarterly CPUE were consistent over the past decade with an increase in the past 1-2 years and a similar spatial distribution of fishing effort. Other pelagics (mahi, pomfret, opah, oilfish) showed varying levels of declining catch and CPUE over the past 10 years. Ono was relatively stable over the past 10 years.

SSC members asked what the break even point for profitability was in the American Samoa tuna fishery, explanations for an increase in recent marlin catch, whether model fits would better represent missing data, if future presentations could be more focused on trigger points and signals rather than a review of all datasets, and if modeling methods could be used to incorporate confidential data in visualizations. Council staff responded that albacore catch for the American Samoa longline fishery was at 13 fish per 1,000 hooks which is slightly over the break-even point of 12 per 1,000 hooks. Marlin catch has been increasing in Hawaii (striped marlin) and American Samoa (blue marlin). There are small striped marlin fisheries present across the Pacific that often smoke marlin to handle excess product.

SSC members noted missing data in several of the figures and suggested adding notes to the report clarifying whether missing data was due to a zero value or no data collected. An SSC member reiterated a suggestion from prior SSCs to incorporate anomaly-based reporting and statistical process control charts as tools for executive summary level evaluation of trigger points that require attention. An SSC member suggested an exploration of models using spatio-temporal approaches to aggregate data to fill data gaps that aren't shared due to confidentiality.

**The SSC recommends future reports include notations when data are missing from figures or tables to indicate if there is no datum or a zero value.**

**The SSC requests that logbook presentations focus on highlights and anomalies relative to thresholds and trends rather than a comprehensive review of all data.**

The SSC thanked Suter for an informative presentation.

## **5. Update of the Plan Team Working Group on Bigeye Tuna CPUE**

Council staff and Rob Ahrens, PIFSC FRMD, presented on the progress of a Plan Team working group investigating the decline in bigeye tuna CPUE over the last decade. The decline in CPUE was noted by the SSC at its 153rd meeting in September 2024 where it recommended the Council request prioritization of further CPUE analyses of bigeye tuna accounting for variable effort (such per-hook or per set basis) to help diagnose possible causes for the apparent declining trend in nominal catch rates. The Plan Team took on this task and formed the working group to do so. Preliminary work found that bait type shifts, possibly auto-correlated with the transition of wire leader to monofilament, is likely to have caused a CPUE downturn. Further, the fishery footprint has been moving geographically slightly to the south and west. The number of hooks per set has also increased significantly during the declining trend in CPUE estimated in terms of hooks per set. The working group recommended it should develop a standardized CPUE index that could be updated periodically to show trends relative to nominal CPUE, and to progress in identifying explanatory variables. There were inconsistencies in patterns on BET CPUE with Hawaii DSL CPUE decreasing and Korean and Japanese longline fleets increasing. In contrast, yellowfin tuna (YFT) CPUE was increasing. A bait type change to milkfish in 2021 seems to be a factor in decreasing CPUE but the increase in the number of hooks, bait type and wire leader transition predate decline in CPUE. Finally, the SPC will provide regional abundance indices and these data can be used with regional climate and productivity for additional analyses.

SSC members asked if there was any spatial confounding of the variables in the analysis, what the fishermen say about the decline in BET CPUE, what is known about stock structure, and if

YFT had been analyzed to evaluate the bait effect. Ahrens responded that there wasn't really a spatial confounding of the variables and that a spatial analysis was run with "vessel" as a spatial effect. The transition to new bait and leaders led to a decrease in about 1.5 BET per set and was so rapid that testing for spatial effects was challenging. Ahrens said that fishermen suggest milkfish is not as good a bait as saury, which is difficult to get and more expensive. Council staff added that a prior study showed milkfish as an inferior bait but lower costs had led to its adoption by fishers.

An SSC member suggested further analysis including a structural equation modelling based approach, exploring spatial confounding effects, and examining the effect of bait and leaders on yellowfin tuna.

The SSC thanked Ahrens for an informative presentation.

## **6. Pelagic Plan Team Report Highlights**

Emily Crigler, Pelagic Plan Team Chair, provided the highlights of the Plan Team's review of the draft Annual SAFE Report from their meeting in May. Purpose of the meeting was to review fishery performance data modules, protected species interactions, pelagic action items, and oceanographic, ecosystem, and socioeconomic data.

The SSC thanked Crigler for an informative presentation.

## **C. SSC Special Projects**

### **1. Integration of biological, economic, social, and cultural considerations**

The SSC integration working group (Hunt, Waples, Carothers, and Leon Guerrero) provided a presentation on the integration of biological, economic, social, and cultural considerations. Following up on the special projects discussion from the March 2025 meeting, the working group is exploring the question of how the SSC may form a recommendation that seeks to achieve multiple objectives. The working group reviewed MSA objectives and National Standards (NS) 1, 4 and 8, and explored the optimality concept in detail. The working group concluded that there is much guidance on how to incorporate social and economic impacts into an FMP or FMP amendment, but ecological impacts consistently take precedence over social and economic impacts in MSA and NS. Within MSY, OY focuses on alternatives that maximize the total benefit. However, outside of establishing harvest limits, there is broader scope for integrating social and economic factors.

SSC members discussed that there is a concern that despite highly uncertain data and science, MSA still emphasizes optimal catch limits. Management to a certain extent eliminates the fishers who know more about the fishery. MSA is inappropriate for mixed-stock fishery. MMPA and ESA considerations also need to be considered in the optimality standpoint. Although there are available methodologies on trade-offs, the analyses and considerations are murky. There is an inherent issue with optimality and fisheries management. In the MSA, food security, food production employment, recreation are paramount, yet other countries that are much less precautionary seem to be better off in fisheries management.

For the next step, the working group plans to consider case studies from past Council actions and

from other Councils that are not focused on establishing harvest limits.

Marlowe Sabater, PIFSC, provided follow-up information that NS1 has a provision that provides an exemption to allow overfishing in a multispecies fishery with three conditions to allow overfishing. An SSC member said that this might not necessarily help in a true mixed-stock fishery since the metric is still based on  $F_{MSY}$ .

## **2. Integration of climate information into decision making**

The SSC climate working group (Suca, Pilling, Roberts and Cabrera) provided an update on the progress made to date. The working group is synthesizing climate information for informing two of the Council's IRA projects on scenario planning: 1) focusing on Hawaii and American Samoa longline fisheries and 2) focusing on archipelagic small boat fisheries in each island area. The working group is synthesizing knowledge from existing climate projection scenarios for pelagic species and how much uncertainty those projections have.

SSC members noted that climate projection scenarios at this point do not have a management utility and should be more stakeholder-centric. Given the uncertainties, projection scenarios are more or less a warning system but this might lead to more regulations. It is unclear how these scenarios affect recruitment. Economic scenarios might be different.

An SSC member stated that it is critical to determine the mechanisms and the changes in the scenarios to narrow down the uncertainties. In an example from Australia, there was a failure to test whether projections in prior stock assessments realized accurate recruitment but they found they were overly optimistic every single time, and thus there needs to be an evaluation of how accurate projections are. PIFSC staff responded that it may not be possible to incorporate mechanisms into stock assessment immediately.

An SSC member asked if there are dynamic management capabilities in projections for setting catch limits. PIFSC staff responded that we do not have the capability to adjust internationally managed fisheries since they are managed by RFMOs but need to identify when we should be more conservative for domestic fisheries with non-target pelagic species or uku as a possible example.

An SSC member also noted the focus on pelagic species but there is a need for similar information for coral reef and nearshore fisheries in the region. Climate change affects coral reef habitat and there may be an opportunity to evaluate bottomfish recruitment but the mechanism is hard to understand.

## **3. BMUS multispecies complex**

The SSC BMUS/multi-species complex working group (Hilborn, Chaloupka, Itano, Dichmont, Harley, Franklin, Ochavillo, Helyer and Jones) provided an update on the progress made to date. The working group is exploring different approaches to assess bottomfish complexes in the Western Pacific. To date, the working group has discussed different models that PIFSC has used for past stock assessments and different approaches to apply to the Western Pacific. The working group is currently developing a framework for PIFSC to use for stock assessments, dependent on data availability.

The SSC discussed how much best scientific information available (BSIA) is required from the group as this will direct what kind of products need to be produced. This will dictate the range of possibilities from a generalized framework to more laid out products. Implementation purposes need to be considered as well.

An SSC member stated that some species may not warrant setting ACLs based upon their level of catch or their economic contribution to the fishery. Members discussed the possibility of assessments on the basis of sensible biological groups with a possible move toward the development of a decision tree framework to determine which species require ACLs given data limitations and uncertainties.

SSC member Chaloupka will lead a joint SSC-PIFSC presentation on machine learning based modelling approaches at the next SSC meeting.

#### **4. Special Projects List Updates**

The SSC reviewed the updated special projects list. For each working group, the SSC addressed three questions: (1) Should the Workgroup continue or merge with another group?; (2) Should the deliverable change?; and (3) What specific work products can the workgroup provide to guide SSC actions?

SSC agreed that the three working groups that provided updates at this meeting will continue their work through the September meeting. Two additional working groups (protected species and marine protected areas) that were slated for September will be postponed.

#### **D. Final 2024 National SSC Workshop Report and Next Workshop Topics**

Erik Franklin, SSC member, presented the final report of the Eighth Scientific Coordination Subcommittee national workshop (SCS8) held in Boston, August 2024, and hosted by the New England Fishery Management Council. SCS8 was convened under the theme “Applying ABC Control Rules in a Changing Environment”. The presentation also provided updates on the status of implementing regional action items identified by each delegation. A key takeaway was that SSCs nationwide face common challenges, such as limited data, scientific uncertainty, and systemic constraints that hinder adaptability and decision-making. Participants emphasized the value of cross-council engagement to share solutions and strengthen networks.

Council staff provided an update on the planning of the next SCS workshop, which will be hosted by the Gulf Fishery Management Council. The original schedule was to host it in 2026, but due to budget uncertainties, the current plan is to hold it in 2027. The proposed theme is “Strategies for Robust and Efficient Fisheries Science and Management”.

An SSC member highlighted concerns about the future availability of critical environmental data streams used in fisheries projections, especially in the context of shifting political and funding landscapes.

#### **E. Public Comment**

There was no public comment.

## **6. Island Fisheries**

### **A. CNMI Bottomfish Stock Assessment**

#### **1. CNMI Bottomfish Update Stock Assessment**

Erin Bohaboy, PIFSC, presented on the new stock assessments of the bottomfish management unit species (BMUS) in the Commonwealth of the Northern Mariana Islands (CNMI). This stock assessment was conducted as an update stock assessment; therefore, all components of the assessment analyses (selection of data sets, data filtering, CPUE standardization, stock assessment model, and model fitting) were identical to the most recent 2019 benchmark stock assessment, with additional data from 2018-2023. The 2019 benchmark assessment responded to previous review recommendations, and were carried into the update stock assessment. The update stock assessment provides estimates of annual exploitable stock biomass and harvest rate, both in absolute values and relative to the maximum sustainable yield-based management reference points specified for the BMUS of CNMI. The Bayesian 95% posterior density of 2023 stock status suggests BMUS in CNMI were likely not overfished and were not experiencing overfishing in 2023. Limited boat-based creel survey bottomfish fishing interviews between 2014 and 2019 caused large uncertainty in the terminal year 2017 stock status in the previous benchmark assessment. More interviews were available for the terminal year 2023 in this update assessment, allowing for less uncertainty in the stock status estimates. The addition of greater numbers of bottomfish fishing interviews, particularly from 2020–2022, also influenced the underlying stock dynamics parameters in the update assessment, including a 11.9% reduction in MSY due to lower estimated stock productivity and equilibrium biomass, although the 95% posterior confidence intervals of all assessment model parameters overlapped between the benchmark and the update assessments.

Stock projections were conducted for 2026–2030 for a range of hypothetical 5-year catches and incorporated uncertainty in surplus model production parameters and the 2023 stock status. Since the terminal year of the assessment was 2023, catch values for 2024 and 2025 had to be added before the projection period. Catch in 2024 and 2025 was estimated to be 80% of the average catch from 2021-2023. Assumed catch for these years was based on CNMI fisher input that recent bottom fishing effort has declined relative to increased effort during the pandemic. These update stock assessment catch projections indicate annual catches of 71–76 thousand lbs. per year over the next 5 years would be associated with an approximately 40% probability of overfishing.

The SSC discussed how many charter trips were excluded from the creel surveys and what other factors contributed to the filtering of the data. A total of 349 interviews from charter fishing were excluded because of different characteristics of charter fishing compared to CNMI bottomfish fishers. Additional data filtering criteria removed interviews by vessels that do not catch bottomfish (106 interviews) and removed interviews with missing data on hours fished and/or fishing gear (28 interviews).

The SSC thanked Bohaboy for the informative presentation.

#### **2. Chair's Report on CNMI Bottomfish Update Stock Assessment WPSAR**

Milani Chaloupka, WPSAR Panel Chair, presented the final panel report on the review of the CNMI BMUS update stock assessment. SSC members David Itano and Keena Leon Guerrero



were panelists. Chaloupka provided a brief overview of the bottomfish fishery in CNMI emphasizing the cultural and socio-economic importance of bottomfishing in CNMI despite the fishing practice not being the main focus of CNMI fishers. The WPSAR Panel Chair highlighted the lower catch projections in the update assessment relative to the 2019 benchmark assessment. A decline in the estimate of MSY related to smaller estimates for  $r$  and  $k$  parameters suggests a decline in the productivity of the CNMI bottomfish stock over the past six years (2018 - 2023). As a result of the decline in stock productivity, catch projections for the next 5 years associated with a 40% risk of overfishing declined from 84,000–92,000 lb per year (benchmark stock assessment) to 71,000–76,000 lb per year.

The WPSAR panel reviewed each of the Terms of Reference (TORs). The panel found that the new stock assessment update satisfies all the TORs. The panel also made a series of recommendations - high, medium, and low priority for consideration with the next benchmark stock assessment.

The highest priority recommendations for the next benchmark assessment were to:

- Use a single model likelihood for the data standardization component
- Use posterior predictive check tests to evaluate data standardization model performance
- Explore latent structure and common trends in the catch/CPUE time series
- Strengthen locally supported bottomfish fishery data collection efforts in the CNMI to support future benchmark stock assessments

The panel found the new assessment to be a marked improvement and to be deemed best scientific information available (BSIA) for the 13 species CNMI BMUS complex.

SSC panel members acknowledged the complementary skills of panel members, commended the assessment team, and commented on the strong collaboration between the SSC and the assessment team during the review process. A panel review member emphasized the influence of changes in model-estimated productivity because of implications for future catch limits.

An SSC member asked about variability in the harvest rate over the last six years and whether this variability reflects changes in fishing effort as opposed to data collection issues. Staffing turnover by data collectors contributed to inconsistent collection of fishing effort and catch data. The SSC further discussed consistent data challenges for CNMI BMUS which are likely to continue in the future. An SSC member reiterated previous recommendations that model-based methods are more capable of dealing with missing data challenges than current design-based methods. In that regard, it would be valuable for the assessment team to investigate datasets from across the region to identify large-scale changes and determine the best approach to analyzing them well before the next assessment is due. An SSC member noted that, along with the WPSAR recommendations (High, Medium, Low), PIFSC scientists should consider alternative methods (e.g., model-based inferences) as there will be many data gaps due to sampling issues and post-Covid changes in fishing effort.

There was a question as to how the assessors estimated the median probability of overfishing. It was explained that the assessors used standard Council procedures for risk-based projections. The median probability of overfishing was based on calculating the 50th percentile from the 40,000 MCMC projections for all BMUS species.

**The SSC concurs with the WPSAR review and deems the 2025 Stock Assessment Update of the Bottomfish Management Unit Species of the Commonwealth of the Northern Mariana Islands as Best Scientific Information Available for management use by the Council.**

**B. Public Comment**

There was no public comment.

## **7. Pelagic and International Fisheries**

### **A. Implementation of Electronic Monitoring in Hawaii and American Samoa Longline Fisheries (Action Item)**

#### **1. Summary of NMFS Technical Memos on EM Operations**

Jenny Suter, PIFSC Fisheries Monitoring and Research Division, presented a series of technical memo documents on the application of electronic monitoring (EM). The SSC at its March 2025 meeting requested an overview of these reports to better understand the utility of EM based on studies conducted on the Hawaii longline fishery. The reports pertain to review rates, efficacy of detection of species in longline fisheries, condition of catch including protected species, and a comparison of EM detections with human observer estimates.

Research on this topic has been ongoing since 2015, with four published technical memos. Suter reviewed research and development highlights over multiple phases, including: refinement of EM data collection and usability, creation and curation of AI/ML image library and annotations, and cloud training. This research and development demonstrated EM to be effective in detecting retained fish and protected species interaction and efficient in reducing time needed for monitoring compared to human observers.

An SSC member queried the procedures for ensuring reliable EM camera setup and configuration on the various vessel deck layouts for the longline fisheries. This is a challenging issue that requires individual vessel management plans to ensure reliable equipment setup and ongoing maintenance. An SSC member asked whether there was EM camera equipment that could function at night. There are but it is untested technology at this stage for the fisheries in this region. An SSC member noted that there are species that are difficult to differentiate such as juvenile yellowfin and bigeye and striped and blue marlin and the importance of this issue considering management of striped marlin could occur in the future.

The SSC thanked Suter for the informative presentation.

#### **2. Council Action and Decisions**

Council staff provided an overview of Council decisions at the Council's June 2025 meeting and the action to implement EM in American Samoa and Hawaii longline fisheries. At its March 2025 meeting, the SSC recommended that the Council provide analyses on how proposed alternatives to implement EM can minimize regulatory and financial burden to the longline fisheries, and how these compare to the current observer program.

Council staff presented on two decision points: (1) implementation and authorization and (2) cost allocation. The first decision point was whether to implement EM and how to implement EM. Staff reviewed what is required for vessels, exceptions from EM requirements, and NMFS (or NMFS contractor) roles. The second decision point was on how the Council may decide that EM will be financially supported into the future. The SSC's requested analysis was presented as part of the analysis of the second decision point. The Council's preliminarily preferred alternative is to implement EM with public (NMFS) funding. Staff presented a table comparing cost allocation and impacts to the fisheries for alternatives, with substantial impacts to fleet profitability with alternatives that require industry cost coverage.

An SSC member raised the point that these two questions cannot be separated. The decision to proceed with EM or not, needs to also be based on an understanding of how it will be funded, now and in the future. NMFS staff clarified that the agency has agreed to fully fund (\$4.4M) EM implementation over the next three years. Another SSC member suggested that the SSC should simply provide the Council with its analysis of the pros and cons of each alternative (as illustrated in Table 2). That member is of the opinion that the SSC should not make a formal recommendation as doing the latter would require the SSC to make normative decisions best left to the Council.

The SSC discussed whether the fishery might be shut down if EM was not adopted when coverage falls below 5% annual observer coverage. An SSC member noted that the decline of human coverage is not an exogenous factor. It is a direct result of static funding for observer coverage that pays for less coverage as costs have risen. NMFS has borne the full cost of past observers. A table outlining the past, current, and future costs and benefits of observers and EM would be helpful.

The SSC discussed the environmental, economic, and social studies that have relevance to these decision points. EM is being adopted elsewhere as effective and efficient monitoring of harvest, bycatch, species interactions, etc. There is a large literature in economics and game theory that suggests if vessel selection is voluntary, early adopters will differ in their behaviors than those who are last to adopt. Social science studies suggest voluntary adoption may help social acceptability of EM. This is a complex topic with many considerations with possible environmental, economic, and social implications.

Randomly selected vessels would be representative of the way in which human observed trips were randomly selected thus maintaining a similar data collection framework. Conversely, voluntary inclusion or opting out of observation by EM may introduce bias in data collection. An SSC member has prepared simple tables outlining the pros and cons of each alternative for information (Tables 1 and 2).

Further SSC discussion included: a desire to include more social and economic science should be included before a recommendation advanced; a request for a table of past, present, and future observer costs and benefits and who has and will cover costs; a concern that an opt-out option for EM may result in data not representative of the fleet; and a suggestion that in addition to random assignment, those who want to volunteer for EM should be given the opportunity as they are likely to be supportive and help sell EM to others.

Most SSC members supported Sub-Alternative 2A. This option most closely mirrors the current practice for the selection of human observed trips. One member noted that 2A does have a possibility to be perceived as top-down, so outreach and education with the fleet may help with adoption of the new technology. Several SSC members spoke in favor of continued federal funding for EM without additional costs to industry.

SSC members suggested the EM SSC Special Projects Working Group could provide guidance on developing a process to regularly evaluate the effectiveness, operational reliability, data review strategy, and cost-effectiveness of the proposed EM program when implemented.

**The SSC recommends that the Council:**

- **Implement EM as a mandatory monitoring mechanism (Alternative 2) for estimating protected species bycatch and all statutory monitoring requirements. The SSC showed a general preference to implement the proposed mandatory EM scheme with random assignment of EM placement on the Hawaii-based and American Samoa longline fleets (Sub-Alternative 2A).**
- **Ensure that affected fishery participants receive appropriate outreach well in advance of implementation. While the SSC generally acknowledges random assignment of EM to selected vessels would generate more representative data, there are concerns that such an approach might nonetheless foster a negative ‘top-down’ perception among fishery participants.**
- **Request NMFS implement the proposed EM program using public federal funding and not impose EM costs on the fishing industry.**

The SSC thanked Council staff for the informative presentation.

#### **B. Status of Implementing Hawaii and American Samoa Longline Fisheries Crew Training Requirement**

Council staff provided a status update on implementing a crew training requirement for the Hawaii and American Samoa longline fisheries. Recent ESA Biological Opinions for these fisheries (2023 Biological Opinion for the Hawaii deep-set longline and American Samoa longline fisheries, and 2024 supplemental Biological Opinion for the Hawaii shallow-set longline fishery) included a requirement for crew training to reduce post-release mortality of protected species. Over the past two years, the Council in coordination with PIRO SFD and HLA have been working to implement this RPM, including development of a pilot training program and a draft regulatory amendment. The Council is scheduled to take final action at the upcoming June 2025 meeting.

The presentation to the SSC focused on the analysis developed for the regulatory amendment on the potential reduction in post-release mortality, which addressed some of the ESA and MMPA topics of interest that the SSC identified at the previous meeting in March 2025. These included oceanic whitetip interactions following changes in gear configuration and the efficacy of the weak circle hook approach and fighting line device being trialed in the Hawaii longline fishery.

A key component of the pilot training program was protected species handling and release (using a 6-step pattern curriculum). All crew were encouraged to attend; interpreters and translation was key to success. During the one year pilot training, 129 vessels with 671 crew in Hawaii and 9 vessels with 51 crew in American Samoa participated. The program is transitioning to video-based training with video script translated into Indonesian, Vietnamese, Tagalog, Ilocano, and Samoan.

An SSC member suggested investigating the effect of soak-time on the post-release mortality outcome for shark species such as oceanic whitetips.

The SSC thanked Council staff for the informative presentation.

### **C. SPC Stock Assessment Workshop Outcomes**

Nicholas Ducharme-Barth, PIFSC Stock Assessment Program, presented on outcomes of the SPC Pre-Assessment Workshop (PAW) held April 7-11, 2025 in Noumea, New Caledonia. Topics at the most recent PAW include a revised 2024 Southwest Pacific Striped Marlin stock assessment, Southwest Pacific swordfish stock assessment, a Western and Central Pacific (WCPO) oceanic whitetip shark stock assessment, and a WCPO skipjack tuna stock assessment.

The main issues raised included: (1) estimation at a population scale for the SW striped marlin stock, (2) reliable estimation at a population scale of WCPO oceanic whitetip shark stock<sup>2</sup>, (3) accounting for tagging data, regional scaling, and the estimation of effort (catchability) creep for both the pole-and-line and purse seine fisheries for the WCPO skipjack tuna stock, and (4) undertaking MSEs for the skipjack, albacore and some mixed species associated with management of the WCPO bigeye tuna fishery.

An SSC member asked about oceanic whitetip noting their management under a non-retention policy from 2014 that may have improved stock condition if correct species identifications are observed and recorded prior to release. It was noted that observer data was being used which should have more accurate identification compared to logbook sources.

It was noted that the Hawaii fisheries have reported an increased local abundance of oceanic whitetip and a shift from wire to monofilament leaders may have improved post-release survival rates. It was uncertain if these sub-regional differences in spatial abundance would be reflected in the model output but it is possible as data is incorporated at a fleet and national flag level.

The SSC thanked Ducharme-Barth for the informative presentation.

### **D. Development of Harvest Strategy for South Pacific Albacore**

Alex Kahl, PIRO International Fisheries Division, reported on progress of harvest strategy for South Pacific albacore. The outcomes were presented from the Joint WCPFC-IATTC meeting held May 17, 2025 to discuss progress on a management procedure for the stock. The presentation also covered candidate target reference points (TRPs) for the stock and candidate harvest control rules, evaluated by the SPC with respect to performance metrics like CPUE.

The SSC thanked Kahl for the informative presentation.

### **E. Public Comment**

There was no public comment.

---

<sup>2</sup> See the 2024 WCPO silky shark assessment for further modelling related information that might also be relevant to the OWT assessment.

**Table 1. SSC Member Suggestion Summarizing EM Implementation Methods (Alternatives and Sub-Alternatives)**

		Method of Selecting Vessels		
		Targeted	Randomized	Choice
		Select vessels in order of highest ecological benefit down to lowest ecological benefit	Select vessels in random order without regard to ecological benefit	Coordinate with vessel operators to collaboratively organize EM installation for minimum disruption
Mandatory		Prioritize shallow set vessels and also vessels with history of poor endangered species interactions. Enforce EM installs in priority order	2A Vessels must submit to EM install in the random order in which they are drawn from the fleet	A set number of EM installs must occur each month, but vessel operators can sign up for installs in accordance with their operating and maintenance schedule
	Voluntary	Offer EM installs in order of highest ecological benefit ... shallow set vessels and also vessels with history of poor endangered species interactions	Vessels are offered EM install by random draw from the fleet, but they can reschedule	Vessels are offered EM installs, with schedules reflecting the operating and maintenance schedules of each vessel

**Table 2. SSC Member Suggestion Summarizing Advantages & Disadvantages of EM Implementation Methods (Alternatives and Sub-Alternatives)**

		Method of Selecting Vessels		
		Targeted	Randomized	Choice
		Select vessels in order of highest ecological benefit down to lowest ecological benefit	Select vessels in random order without regard to ecological benefit	Coordinate with vessel operators to collaboratively organize EM installation for minimum disruption
Mandatory		<div>Max ecological benefit</div> Max protection for endangered species, but data series integrity is compromised	2A <div>Min data disruptions</div> Ensures data series integrity but does not maximize protection of endangered species	<div>Ecology goal &amp; fleet efficiency</div> Ensures timetable for EM adoption, but ensures collaboration with fleet for minimum disruption
	Voluntary	<div>Ecology &amp; fleet efficiency</div> Focuses on vessels with max benefit from EM, but low-quality operators can elect to defer install	<div>No advantages</div> Randomizing EM installs with voluntary uptake does not ensure data integrity	<div>Buy-in &amp; fleet efficiency</div> Regulators must get buy-in from operators and minimize disruption, but may require force at end

## **8. Protected Species**

### **A. Incorporation of Foreign Fleet Impacts Analysis into Pelagic False Killer Whale Stock Mortality and Serious Injury and Potential Biological Removal (PBR) Estimations**

Erin Oleson, PIFSC, provided a briefing on how the foreign fleet impacts analysis will be incorporated into the pelagic false killer whale (FKW) mortality and serious injury (MSI). Specifically, the presentation focused on how the estimates and assumptions of the foreign fleet impact analysis will be applied to the domestic MSI to calculate a total MSI for the pelagic stock. The application of the analysis to PBR and other elements that will be incorporated into the draft 2025 Stock Assessment Report is still undergoing internal review and will not be presented at this time. The briefing was provided in response to the SSC's request at its 154<sup>th</sup> meeting in December 2024.

An SSC member asked whether the issue for FKWs arises because it is a marine mammal and therefore triggers MMPA considerations, or whether it also involves an ESA listing. The pelagic stock that has interactions with the longline fishery is not ESA listed, but the FKW population resident around the MHI is listed as endangered.

SSC thanked Oleson for the informative presentation.

### **B. Overview of ESA and MMPA Processes and Status of Ongoing Actions**

Chelsey Young, PIRO Protected Resources Division (PRD), provided an overview of ESA and MMPA processes with a focus on how scientific information is utilized in actions such as species listing and critical habitat determinations. The presentation outlined statutory requirements, definitions, and explained how stock assessment reports (SARs) had informed management decisions under the MMPA, which classifies marine mammal stocks and required evaluations of human impact and population status. The ESA section covers listing determinations, status reviews, and critical habitat designations, emphasizing a flexible, science-based approach. A case study of the oceanic whitetip shark illustrates how extinction risk analyses and conservation efforts led to a "threatened" designation, despite challenges in identifying critical habitats. The presentation concluded by comparing the prescriptive nature of the MMPA to the more interpretive ESA and emphasized the use of the best scientific information available, along with the importance of public and expert input in regulatory decisions.

An SSC member noted a major concern in the Hawaii small-boat fishery regarding shark depredation, particularly involving oceanic whitetip sharks, and asked whether the species may be more abundant than believed. Young indicated that there is an awareness of this issue, and now there is a focus on obtaining funding for shark depredation studies.

SSC thanked Young for the informative presentation.

### **C. Public Comment**

There was no public comment.