WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL

Fishery Ecosystem Plan Team Meeting

April 18-19, 2017
8:30 a.m. – 5:00 p.m.
Council Office Conference Room
Honolulu, Hawaii

Draft Report

1.0. Welcome and introductions
Stefanie Dukes, Chair, welcomed the participants. Participants, staff, and members of the public introduced themselves. The members of the public present were mostly Pacific Island Fisheries Science Center (PIFSC) staff.

2.0. Approval of draft agenda, 2016 report & assignment of rapporteurs
The agenda was adopted with no changes. There were no questions on the 2016 report. Rebecca Walker, Council staff, was assigned rapporteur.

3.0. Report on previous Plan Team recommendations and Council actions
Marlowe Sabater, Council staff, reported status of the 2016 Plan Team's six recommendations and how the Council took action on the recommendations. Last year, the Plan Team provided rationale for overages and recommended not to take overage adjustments; the SSC and Council adopted this rationale. The Pacific Islands Regional Office (PIRO), however, applied the overage and reduced the current year annual catch limits by the amount of overage that exceeded the ACL.

For the second action, the Council directed staff to revisit the ACL specification mechanism. This is on hold until the ecosystem component amendment is completed, which was the third action. The Council directed staff to use the Plan Team's recommendation in the science analysis for the ecosystem component amendment, for which a preliminary analysis has been conducted using Guam's management unit species list.

The fourth action directed staff to develop an options paper on specifying optimum yield. Council staff developed a scope of work for a contractor to analyze information and draft the option paper. Again, we're putting this action on hold until the ecosystem component species amendment is complete.

The fifth action was to update the 5 year research priorities with support for a biosampling program in Hawaii. The Council developed a proposal through the Coral Reef Conservation Program (CRCP) to initiate this program, which received preliminary approval.

The final action was a recommendation to hold a workshop to develop the data integration chapter of the Stock Assessment and Fishery evaluation (SAFE) report. This workshop was held November 30-December 1, and is the subject of a report in a later agenda item.

4.0. 2016 Annual/Stock Assessment and Fishery Evaluation (SAFE) Report
4.A. Fishery Performance
4.A.1. Archipelagic fisheries modules
4.A.1.a. American Samoa

Domingo Ochavillo presented on the coral reef, crustacean, and bottomfish fishery, as inferred from the creel survey. Most of the CREMUS catch are landed by the boat-based creel. There is a downward trend of landings. The early 1990s, the shore based catch appeared to be higher than the boat based creel, and this is curious.

The two major groups for bottomfishing are snappers and emperors. The variability through the years is expected. Surgeonfish and parrotfish are the major groups for shore-based CREMUS creels. There is a downward trend for groupers, jacks, and squirrelfish.

There is variable catch of boat-based creel for crustaceans.

It is unclear if the trends are driven by fluctuations in catch-per-unit-effort (CPUE) trends in effort. Bottomfishing landings appeared to be on a downward trend.

Crustaceans catch in the shore-based survey are again variable. Mollusks catches are mostly attributed to octopus landings from the gleaning method. Atulai is mostly harvested from the handline and rod and reel. Mullets are taken by throw net.

Crustaceans landing are similar from the boat-based and shore-based creel surveys, though it was expected that boat-based catch was higher. The gear type for both is spear.

Ochavillo presented on landings by gear type. Bottomfishing, bottom-troll mix, and spear are the top gear types for the boat based fishery. Trolling has declined through the years; there are only one or two boats trolling now. Spearfishing on the shore-based creel has increased since the 1990s.

It is hard to determine trends from spotty data, as shown in the shore-based creel CPUEs.

Boat-based fishing effort was shown. Spearfishing seems to be increasing while bottomfishing and trolling are decreasing. For shore-based methods, rod and reel seems to be increasing; hook and line is anomalous; and gill net seems to be increasing.

Sampling effort showed a very high increase in participation surveys in the last decade, without a corresponding increase in interviews. This could be a subject for further exploration. DMWR needs guidance on how to balance the sampling effort that would provide the optimal number of samples needed to get a statistically valid estimate. It appears that the survey effort is skewed more on the participation run and not enough catch interviews. For boat based, there is a decrease in participation runs. The number of commercial invoices collection declined in the early 200s, but the number has climbed again in recent year partially due to the territorial science initiative funding.

There is no precious coral fishery in American Samoa.

In conclusion:

- For gleaning, downward trend in landing was not due to increasing CPUE but decreasing fishing effort (hrs)
- For R&R downward trend was due to decreasing CPUE inspite of increasing fishing effort.
- For shore-based spearfishing, upward trend in landings was due to increasing fishing effort.
- For bottomfishing, downward trend in landing was due to decreasing CPUE.
- For trolling, downward trend in landings were due to decreasing fishing effort (boats and hrs.)
- For spearfishing, downward trend in landings was due to decreasing CPUE for jacks, squirrelfish and groupers.
- We have improved recently the collection of invoices with the increase of number of participating commercial vendors.

Discussions

Brent Tibbats asked if Napoleon Wrasse was included in the wrasse category, to which Ochavillo replied that American Samoa has a fishing ban on this species.

4.A.1.b. Guam

Brent Tibbatts presented on the Guam fishery performance module. The deep water bottomfishing generally takes place in federal waters, while the shallow water bottomfishing fishery takes place in both federal and local waters. There is an increase in fishing on the outer banks in the calmer summer month between May and August. The shallow water bottomfishing is more consistent year around. For the coral reef fishery, about 65% of the effort is hook and line. Thrownet, rod and reel, and gillnet are the other major components of the shore-based fishery.

There are four data streams, including the boat-based and shore-based creel surveys, with 8 interview days per month, 2 aerial surveys per month, and 4 participation runs per month. Commercial receipts are another source of data; with the assistance of the Council, there are now nine vendors participating, so commercial sales will be presented later on.

In 2016, there was about 60,000 pounds of bottomfish landings, with 40,000 coming from boat-based and 20,000 from shore-based. The landings are below both the ten year and twenty year average for the BMUS species. CREMUS is well below the ten and twenty year average catch on both of those.

Tibbatts said he is curious to see what the new ACL is for jacks but catch seems to be low for this family compared to historical numbers.

Guam had 111 small craft advisory days, a decrease from 122 in 2015. The month of August was highly impacted. For W-517, in 2016 there were 64 Notice to Mariners covering 123 days when fishing is effectively prohibited in the southern bank areas. It's about 115 to 120 days a year closed to fisheries due to military activity. The MPA arrest summary was not presented.

Discussions

Kirsten Leong asked if any social or economic information available in the creel surveys available through WPacFIN. Tibbatts replied that they do not have any demographic information available at this time.

Kimberly Lowe said there is partial economic data collection for all boat-based creel surveys, such as fuel cost and ice cost that is in WPacFIN.

Yvonne Mika asked if the aerial survey is an effective way of collecting data. Tibbatts replied that the aerial survey days correspond with one of each of the participation runs. They are useful for covering areas not accessible from shore, such as through private lands or on a military base. We are able to collect incidental information on large animals in the water or schools of atulai.

Minling Pan asked American Samoa and Guam if any of the fishery species are managed under an ACL. Sabater replied that all of them are, and Tibbatts said the comparison between catch and ACL will be provided in the report.

Hal Koike asked if the aerial survey can be compared. Tibbatts replied that one of the main benefits is to catch the activities that aren't observed from land-based participation runs. It is a snapshot at that moment, and so is the participation run, which does not have species or time spent fishing.

Crustacean information will be provided in later reports.

There is no precious corals fishery in Guam.

4.A.1.c. CNMI

Trey Dunn presented on CNMI's fisheries in place for Mike Tenorio. CNMI's fisheries are similar to Guam's fisheries. The coral reef fisheries have been consistent with previous years, with a possible increase in nearshore fishing participants from foreign workers. DFW will monitor the status of this foreign influx to the fisheries. Most fishermen are subsistence fishermen who sell a portion of their catch to cover expenses. The majority of fishing happens in the lagoon or the pockets on the side. Vessels are used but often used only during calm weather. Very little fish is exported and this is usually to family members on the mainland. Fishing methods haven't changed in the CREMUS fishery.

The shore-based estimate is considerably higher than in the last few years, and DFW is not sure what's causing it. It could be the increase in participation. The bottomfish fishery is a bit of a pulse fishery, with only a few vessels large enough to venture north. Many of the bottomfishing vessels are owned by the fish vendors. Shallow water bottomfishing is much more likely to have the subsistence and recreational types of fishing. The deep water bottomfishing usually utilize hydraulic reels and requires an initial investment. Boat-based catches for bottomfish estimates were up a little in 2016. There was no catch in 2015 and 73 pounds in 2016. This is symptomatic of bad sampling and DFW is making efforts to improve sampling.

Catch interviews are down in 2016, which DFW is trying to on. The creel survey program are getting more opportunistic surveys from the effort to look for spearfishers and cast netters who

participate in the fishery outside of usual participation runs times. DFW also had a lot of staff turnover which should stabilize in the future.

Hook and line has been consistent in the past few years. It is odd that atulai was estimated at zero; it wasn't a boom year for atulai but we're not sure why it is zero. Council staff requested for DFW to check on this data issue. Jacks were very low in 2016 as well. Jacks and atulai are generally targeted by the same fishermen during runs, so perhaps there were fewer runs. It makes sense that groupers and surgeonfish are low, given the low number of interviews for boat-based fishing, but DFW will further investigate why parrotfish were not correspondingly low.

CPUE for hook and line has been a little bit higher for the last several years. Shore-based spearfishing has been higher than historically, but is consistent through years that have good sampling. For number of fishermen, the dataset is incomplete in that it reflects zero fishermen for atulai, hook and line, and shore-based spearfishing, which is not realistic.

Discussions

Tibbatts asked if the juveniles and adults are considered together for rabbitfish and jacks. Dunn responded that they are considered together.

Alton Miyasaka asked what the gear type is for shore-based atulai. Dunn responded hook and line. Miyasaka said the landings are high for a hook and line gear type.

Mika asked if subsistence fishing is counted as commercial or non-commercial fishing. Dunn responded that is a tricky question. The fishermen would consider themselves as subsistence fishermen because they fish to put food on the table. But, they sell a portion of their catch to pay for gas to drive their car to the beach or for a new piece for their spear. Their motivation is subsistence.

The issue of data quality was brought up since these data are used for stock assessment purposes. Do you have a sense of what's happening when the surveys are not consistent? Dunn has a theory that it is personnel based. You can associate the quality and quantity of survey data with the years when certain people were in the office. The most motivated creel technician left the office in 2014. We have many workers who get an opportunity and leave, and the data takes a hit. The years can be matched pretty well.

Melanie Brown asked about when spearing was zero. Dunn said many times boat-based fishermen land later or will not come back to the port, where the boat-based survey takes place. Shore-based surveys take place along the lagoon. There are times when spear fishermen do not come back, and just drop the fish off on the beach somewhere. It wouldn't be caught on the boat-based survey unless they land at pot.

Tibbatts commented that boat-based spearfishers have actively avoided surveyors for several years. In January of this year, a pilot study will update the expansion algorithm based on 24 hour survey days. The spearfishermen are surprised to see surveyors in the early morning hours. Dunn said he believes this also happens on Saipan, but not to the same extent.

Crustaceans fisheries are minimal and mostly lumped into the CREMUS. There is no precious coral fishery in the CNMI.

4.A.1.d. Hawaii

Reginald Kokubun presented on Hawaii's fisheries. Kokubun started with the commercial marine license data. The times series begins in 1948, but data are presented from 1966. Plots will be provided in August. Changes from last year's reports were to combine halalu and akule into one species; another change was moving the kāhala from the BMUS to CREMUS. Taape was moved to the CREMUS snappers. Kokubun confirmed that selection of species groupings were done in coordination with the Council.

The Deep 7 BMUS time series shows 1966 to 1993 state Fiscal year which is June. The Council wanted to see the bottomfish fishing year. Just prior to issuing permanent licenses DAR had to pull two report months aside – July and August – which is in the blue row. The federal fishing year is in green font (September through August). All others are in fiscal year format.

Since 2007, when the total allowable catch was established, the fishery closed every year for five years. In the last few years the fishery has remained open. The top gear is the deep sea handline, with 98% of landings. There is a recent increase in Deep-7 landings by the inshore handline and palu ahi. Back in October 2002, Hawaii DAR revised their commercial catch reports and conducted outreach to improve gear reporting.

The non-deep 7 includes three jacks and two snappers. The dominant gear is deep sea handline. Uku is caught by both trolling and handline. This particular species dominates the deepsea handline for catch of non-deep 7 BMUS. In years that the Deep 7 fishery closed, the fishery shifts to target uku. Declines in kalekale commercial catch are attributed to market concerns about ciguatera.

Twelve species families make up the tracked CREMUS groups. The fisheries are gear driven so only the top species categories appear in the tables. Kokubun pointed out regulatory changes that may impact landings trends. In 2002, the State put in regulations for minimum sizes for many species. An additional bag limit of 20 moi per day was instituted for fisher with a dealer exemption. In 2014, Maui bag limits and minimum sizes were put in for the important goatfishes and parrotfishes, and there is no take of the terminal male for parrotfish.

In the CREMUS finfish catch time series, there was a sudden decrease in akule catch in the mid to late 80's from the purse seine gear. A recently retired long time akule net fishermen said that no one fished akule from mid to late 80's using the purse seine gear. For whatever reason, the catch information during this part of the time series was not picked up by the state. Hopefully this is not interpreted as a lack of abundance in the resource. The life span of akule is about three years, and the success of the recruitment year is tied to rainfall. Miyasaka said there's a natural fluctuation of a seven year cycle in akule abundance, according to a long time fisherman. Oliver said that there were some major swings in the PDO in the lower years in the 1980s. Kokubun said this is a purse seine fishery, and they catch large numbers. Taape became the fourth driver species, and taape is purse seine. Taape is the fourth landed species, but it was not shown because there were fewer than three fishers.

Oliver said the short version of Kevin Weng's thesis is that it is tied to rainfall, which is indicative of larger climatological factors. Pan asked if the akule fishery is in state or federal waters. Kokubun said that this is one set of tables that should be mapped. Annie Yau said that based on recent years of data, approximately 90% of akule catch is within 2 nautical miles (nm) from shore within state waters, and approximately 70 to 80% of opelu is caught within 2 nm from shore.

Lay gillnet regulations were put in March 2007, which may be the cause of declines in miscellaneous weke landings in since then. The kala was added as the fourth driver species in this gear. The taape species code wasn't introduced until the late 1970s.

DOH put in a ban on sale of speared fish between June 1971 and 1983. The state put in a minimum size on uhu in December 1998. There was a dramatic decline in seine net since 1993 because of the gear code standardization.

The commercial coral reef fishery was presented on in an earlier agenda item. Koike compared the commercial and recreational catches. The general trend is similar. The recreational catch is about 11 times more than the commercial catch. Some species were targeted equally, like surgeonfish, goatfish, and squirrelfish; some families, like jacks and parrotfish are much more heavily caught through the recreational catch. Williams said the numbers are within the ballpark, but are not to be trusted at face value.

Lowe asked if there are variance estimates for the numbers, and Williams said variance is available at total reef fish per year per island, but not at the family level. The annual statewide recreational reef catch is somewhere within 10% of the reported value.

Koike presented on the biological survey data. Maps were presented showing the species catch pattern by season for each island. The biological survey data were shown; the survey methods were changed in 2012. Surveys are concentrated in reef areas.

Koike said it was not a statistical fitting. She is getting the Maui and Kauai data as well.

Oliver asked why scoop net has the highest CPUE, and Koike clarified that it is catch by number, not weight.

The annual average of trips per crustacean fishermen early in the time series, from 1966 to 1975, was between 10 and 15. This dropped to the single digits from 1976 to 2005. The top gear is shrimp trap for crustaceans for the deep water shrimp. This is a pulse fishery dominated by visiting Northwest vessels that fish for six to twelve months of the year, and export their catch to Asia and then they exit the fishery. The next gear is the loop net for Kona crab. White crab is a bycatch. This is heavily regulated by the State.

The trap minimum mesh size in June of 1989 may have affected landings since that time. Kona crab is not caught with the crab trap too often. Lobster traps were probably coded as crab trap before the revision in gear type codes.

Lobster cannot be speared by law, so there is a dive code that doesn't involve a spear apparatus. Reporting is usually handpicked or dive code. That adds to effort. Sabater asked if there was a way to separate green from red spiny lobster. Kokubun said the green and red spiny lobster codes were established in October 2002. The hand grab of spiny lobster is market driven in Maui Nui area.

The full time Kona crab fisherman had retired therefore bulk of the fishing effort recently decreased. Kona crab fishers were discouraged to fish when the no take of females rule was put in place. The release of so many animals made it not worth their time.

Kahng asked if there is nominal CPUE for Kona crabs in recent years? The Lennon Thomas et al assessment includes standardized and nominal catch series. The stock assessment only goes to 2006, when the no retain female law went into effect. Sam Kahng said it looks like the catch has really fallen off since Thomas completed the work. The catch has gone down dramatically. Kokubun said it was a Penguin Banks and Oahu north shore fishery. Kokubun said he knows a lot of recreational fishermen who use this gear type.

Miyasaka said the 4 inch minimum size and no take of female rules made it uneconomical to target the gear. He mentioned that there is interest in changing the size to a smaller minimum size (3.5") based on biological information (at the same time this minimum size will not affect the fishery) and potentially removing the female-take prohibition for biological reasons. If the female-take prohibition is removed, a minimum size limit will also be established. Kokubun said that many of the Kona crab fishermen ask for an extension of the closed season beyond the summer months, because they pick up too many eggs during the open season. The reproductive season of Kona crab can be affected by changing ocean conditions. The seasonal closure regulation is static and cannot capture the dynamics of the ecosystem. DAR does not have the flexibility to conduct annual changes in the length of the season. Rather than changing the length of the seasonal closure, it may be more practical to establish regulations that will prohibit take of berried female so that it is not tied with the length of the closure. Another idea was to modify the gear to minimize the injury of Kona crabs and enhance individual survival .

Yau said according to the stock assessment schedule, currently Kona crab is scheduled to be assessed and reviewed in 2018 with delivery to the Council in 2019. A more updated stock assessment will give a better sense of what's happening. Kahng said maybe the drop is effort or abundance, unknown. Kokubun said he is concerned because the data are only commercial catch, and this is a recreational fishery.

The last fishery presented was the invertebrate fishery comprised of opihi, octopus, and two species of limu. Except for the harvest on Hawaii Island, the fishery is recreational. There is about one trip a month for opihi. Most commercially caught tako is bought by tackle shops to resell as bait. Inshore handline can be picked up by trolling with a handline, but it is more often caught by spearing of course.

Kahng said he could not help notice that some of the fish species have dropped out in recent years, like uhu. Kokubun said the uhu spearing trends are up. Total landings may show a decline. Miyasaka said there have been recent management measures to control harvest of uhu. Kokubun

said uhu is usually a Hawaii Island and Oahu fishery. The SCUBA spearing prohibition in West Hawaii could be a reason for the decline.

Kahng said kala, palani, and manini seems to have dropped off in recent years, wondering if it's a fisher trend. Kokubun said he needs someone to talk with the fishermen. Sabater said there is a 20 to 30 thousand pounds difference for uhu, and the nets account for this difference. Kokubun said the commercial netters are likely more efficient than the trappers, with active netting from a vessel.

No data were presented on the precious corals fishery.

HAWAII SAFE REPORT WORK RECOMMENDATION: Include summary of regulations that may affect the catch and effort trends in the different fisheries

4.A.2. Team discussion on the species groupings for the SAFE report

Kimberly Lowe said any changes to the Management Unit Species would have to undergo a very formal process. ACLs are sometimes by families or species. In the SAFE report, some species groupings are actually new. There are groups of species that relate to fishing gears, for example, or the Deep-7 that are part of the BMUS. Another aspect is coastal pelagic species. WPacFIN summarizes the data in any way the Plan Team wants it. The question was posed about what will be the groupings that this Plan Team wishes to summarize? Lowe showed a subset of the data. Previously, the Plan Teams were structured by fishery (e.g. bottomfish, crustacean, precious corals and coral reef ecosystem). Now they are in one plan team.

Within the CREMUS, there are three MUS in the non-deep 7 bottomfish management group. Lowe showed the species table that they use for summarizing data and demonstrated that some of the groups are not mutually exclusive. Some fishes may belong to multiple groups. There will be some discussion of designating ecosystem component species; many times we discuss catch of family groups. Commercial data may not have species discrimination that we would like to have, so we have catch-all categories like miscellaneous bottomfish. You must include the catch all groups, or you won't be able to determine the full landings. We can rerun the time series with the new groups that we have, but we need agreement. The big question, as far as the FEP groups, was to list all the species that are included with the group. This could be approached by taxon, as opposed to trying to list every species. Then, you find fishes that aren't getting classified and you can account for future species codes.

WPacFIN would like to get clarity on which types of summaries the Plan Team would like to see so that there is consistency in the time series. There are new fishes that haven't been included in any group before. Some summaries are produced by gear type – so within the harvest of MUS by different gear types you see different amounts of catch. There are eco-groups and gear groups in the report and the landings will not be reported in the same way. It is difficult to control for this in the summaries. The WPacFIN programmers would appreciate some agreement on what the groups should be. Should the programmers include everything or remove species – WPacFIN had set up the system to manage according to those groupings, and needs to learn what the criteria will be. The Plan Team should decide what they will call species associated with different ecogroups then WPacFIN can classify these species into family groups if necessary.

4.A.3. Discussions

The Chair stated that WPacFIN is currently working off different species tables depending on the use of the summaries. These species tables were combined this winter. The taxonomic family level grouping was decided to be the most optimal for various reasons. The biggest question is how to resolve this. The species codes for each agency are part of a unified species table. WPacFIN uses that table to generate summaries for the Council. WPacFIN would like to make the updated table transparently available. WPacFIN would manage the Council's species list. WPacFIN would like to have the table done by the end of April and be able to classify all the species into some group.

Sabater said the MUS category is fixed. Brown said the data are used for federal and territorial management, so it's not an easy answer. Duke said that these were taken into account.

There was a question about the scope, if WPacFIN is asking for a species list for how the species should be grouped in the SAFE report. Lowe responded, yes. For example, do you want to include all groupers that are not classified in the MUS list? The primary concern is species codes that are not listed in the FEPs. Lowe said if we want to include every possible species we have, do we include them all? If you will regroup the FEPs, and take them out, we need to know which ones there are.

Sabater said the CREMUS described in the FEP are currently categorized as harvested and potentially harvested coral reef taxa. To address the question of new species, those must be added to the CREMUS family which is the way we are monitoring the species. Sabater said the ACL categories are taken from the MUS. CREMUS are grouped into families for ACL purposes. It is still within the realm of the MUS. This is the same for all jurisdictions. For the Territory bottomfish there are 17 species of BMUS are used for the stock assessment. The species composition varies depending on its use. The overlaps need to be resolved.

The MUS Group and FEP Groups are slightly different. Brown said usually the FEP drives what species you will manage. One should go back to the FEPs and define the MUS based on the document the Council use to manage the fisheries.

Quach commented that the consolidated species table is a merge of the old data system (VFP) and the new one (MySQL) that generated the 24 subgroups that feeds the SAFE and the FEP. The work would revolve around defining the species that would comprise the subgroup. The Plan Team needs a subcommittee on the side to go through the list and make the decision.

Sabater suggested that for the coral reef MUS that may have been missed or added, those should be added to their respective taxonomic families because of the way the FEPs are structured where there is currently harvested and potentially harvested categories. There was a question about whether the MUS and the species in the FEP is the same thing; and should we be using ACL categories only? Sabater confirmed that the MUS and the species in the FEPs should be the same but the species that comprise the MUS for ACLs are slightly different (e.g. taape and kahala are part of the non-deep 7 bottomfish complex in Hawaii but are removed from the complex and was placed under CREMUS for ACL purposes).

There was a question about timing. The SAFE report is updated once a year. Does it make sense to wait to do the species table refinement exercise until after the ecosystem components are designated? Lowe said WPacFIN is also waiting on this. Sabater said we can finalize the FEP list soon (October 2017 at the latest). Quach said the territories are using the new database and WPacFIN and Council staff should spend some time after the meeting to make sure the species are defined it correctly. Quach will quality control the territory species list with the agency heads and Sabater in the meeting margins.

RECOMMENDATION: Regarding the species table, the Archipelagic Fishery Ecosystem Plan Team recommends the Council direct staff, in coordination with NMFS staff, to convene a working group to finalize the species table used to generate fishery statistics

4.A.4. Public Comment – There were no public comments

4.B. Ecosystem Considerations
4.B.1. Protected species section
Asuka Ishizaki presented an overview of the Protected Species section and introduced Katherine Pham. Pham said FEP measures are in place to protected listed species. There is Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA) coverage for each of the four fisheries included in the four archipelagic FEPs. There are no known interactions with protected species within most of the fisheries; there are exceptions for the NWHI bottomfish fishery from years with observer coverage.

The Protected Species Advisory Committee (PSAC) brought up an increase in SCUBA gear use, but this is not anticipated to be a protected species issue. PSAC recognized the need for information on protected species interactions in insular fisheries, and supported the development of data collection mechanisms.

Williams said there are people fishing on Wake. Ishizaki said we have not been able to receive that data. Ishizaki said each of the reports now have a section to identify emerging issues. The archipelagic plan reports include potential ESA species listings.

4.B.2. Climate, ecosystems and biological section
4.B.2.a. Environmental & climate variables
Tom Oliver presented a summary of the environmental variables included in the SAFE report. Oliver said the goal of choosing indicators was to identify potential environmental drivers of fisheries. To include them in the chapter is to begin building intuition about the drivers and place them in a historical context. The Plan Team is moving forward to develop correlative relationships with the fisheries later on. The archipelagic reports include basin-wide atmospheric CO2, oceanic pH, Oceanic Niño Index, and Pacific Decadal Oscillation. The indicators with regional focus include sea surface temperature, sea surface temperature anomaly, tropical cyclones, sea level anomaly, wave energy, and in later years may include gridded chlorophyll-A (ocean color) and rainfall. Degree heating weeks were added as a regional indicator this year.

Degree heating weeks show how long the sea surface temperature in a gridded area has exceeded a certain threshold. The marine planning and climate change committee (MPCCC) brought up specific items. The first one is exploring threshold values. Committee members wanted to know

if there is a certain level at which they should worry. There was also discussion about storm, with the result that the section authors will be clearer about what storms are reported on. The third is important to translate from an exercise in building intuition to a decision-making framework, and was supporting the development of the data integration chapter and the research necessary to make those links.

Sabater stated that the bottomfish fishermen always identify wind as a major factor that affects bottomfishing CPUE. There are multiple factors that compounds with wind. Will there be a time where the wind parameter can be narrowed down to a single index? Would that be part of a threshold value discussion? Oliver responded that was exactly that the discussion that MPCCC is having. There is a threshold value of 34 sustained knots, and the discussion around that was that that is too high. If it is blowing 25 knots, it might prevent people from fishing. The wind index can be expressed as number of days over a certain threshold. That's similar to degree heating weeks, and there was a lot of science supporting what the threshold value was for degree heating weeks. Picking the value arbitrarily is problematic but picking the right one develops a better product.

Tibbatts stated that wave energy was included last year. This is helpful for Guam because the wind might not be bad but the seas are high from a far off event. Oliver responded that wave energy is still there, and whether or not the WaveWatch3 is the best measure it is yet to be determined.

Ochavillo inquired about anomalies. Oliver replied they do report on anomalies, but if there is no context for a number it's difficult to know when there is a cause for worry. The goal is to try to make the chapter as relevant to fisheries as possible, so when the science develops we can include it more and more. Kahng stated a cause and effect threshold is a high bar. The deviation from the long term mean is very meaningful and removes the need to define a cause and effect threshold. The other thing is that some of these indicators vary by season so having a long term mean by season is probably appropriate.

Koike stated that she was going to look at the fishing effort correlated with all of these factors and inquired if there is a short list of factors that she can look at. Oliver responded that it would be great if you could determine which of these things have an effect on effort.

Oliver said the threshold is a bar we won't met for most of the datasets. Many of the indicators are reported in multiple levels of context.

Defining thresholds in the report is difficult because it will vary with gear type within a fishery. For example, smaller bottomfish boats have a different wind threshold. It's a rabbithole that maybe isn't worth pursuing because these are complicated systems.

Ochavillo said he was curious about PDO, which may have more impact on Northern Pacific than South Pacific. Oliver said American Samoa is still likely to be impacted by the PDO. It's less dramatic but still relevant. Ochavillo said the major challenge to local agencies is access to and use of these data to analyze our fisheries. Oliver said that's the hope, the recognition that there's a lot of intuition built into local management anyhow. Just getting it into the chapter will help seed the understanding with these kinds of trends. More concrete correlations can arise from

it. Brown said thresholds do not seem important at this point, while looking at indicators by fishery could be important.

4.B.2.b. Life history and length-derived variables

Joseph O'Malley gave an update on the life history program. The Life History Section of the SAFE report was updated with new species that was worked on in the previous year. The program collects data in three primary ways. The commercial fisheries biosampling program in American Samoa, Guam, and the CNMI collects samples. Selective market sampling provides life history information, and data are collected on research cruises as well. Prior to 2010, no information was known about the species in the Marianas, and now they have all of the life history information for a few species and ongoing work for the remaining species. Soon they will have information on *Naso unicornis* from across the region. They compare fished to lightly fished areas, to compare size and age structure between the two different areas and develop age-based mortality estimates.

The MOUS cruise focused on juvenile deep-7. They had the opportunity to look for nursery areas. They found some other paka nurseries on the north side of Molokai and Hamakua coast. They confirmed that ehu settle with adults. They think they found juvenile gindai on the last day, which is extremely steep rocky habitat, which fishermen agree with. It's more habitat than depth driven, except for possibly the paka. There are flat, featureless areas around this island and we fished a lot of them and didn't catch anything. People may think it's hydrology, proximity to offshore canons, etc. We caught them in mud outside of Kalaupapa.

The life history program held a life history workshop in Perth. The program also has several publications.

Parrish inquired how small the bottomfish juveniles were, and O'Malley responded they were all smaller than 20 cm. Mika asked if they fished at the Rose Atoll National Marine Monument. O'Malley replied they did not have to get a permit to fish within Rose because NMFS is one of the managing agencies.

4.B.3. Habitat section

Rebecca Walker provided an update on the Habitat section of the SAFE report. The SAFE report includes information on habitat mapping and benthic cover (required to track habitat condition). Walker also reported on the Council actions related to habitat, including the new EFH agreement that established the EFH review process and the direction to develop options for excluding habitats of low value from EFH definitions. Walker provided a summary of the EFH review process and the steps involved in the review of precious corals biological EFH components.

There were no questions.

4.B.4. Socioeconomics section

Kirsten Leong presented on the Hawaii socioeconomic report section. The communities section summarizes content in narrative form. Demographics on each fishery are prevented, except for crustaceans and precious corals. The Social Science Planning Committee (SSPC) recommended general demographics be included in the communities section.

Oliver said the past and historical data are the most useful for hashing out trends. He asked if historical data exist. Leong said we look at the comparisons, but the questions change a little bit between each survey. In the narrative, differences are discussed, but there is no existing time series.

There was a question about how small boat is defined. Pan said they get a sample CML from the state and it is everything except the longliners, kayakers, and the seamount fishery. The survey was sent to non-longline CML holders, and based on responses to the survey, respondents could self-identify as small-boat fishers or not.

Oliver said our ability to concretely plan to maintain time series is limited when there's nothing to tie to. Demographics can be tied to the past. Sabater said the annual statistical yearbooks are available for Guam and American Samoa.

Minling Pan covered the economics section. The main purpose in the first year is showing the content. Landings, revenues, prices, participation, and trip costs are included for relevant fisheries. Pan asked if the Plan Team preferred the graph or tables in the text.

Oliver said he values the tables. The tables more impede than facilitate understanding of the document. If there's a choice being made about how to present the information, then having text, a figure, and then tables in an appendix in spreadsheet form. Sabater says we'll find ways to incorporate the graphs in the report. Once there is an automated system, prior to the meeting, the graphs can be on the website and the document is the repository of the numbers. Oliver added there are a number of different platforms that will automate the reports.

Brown asked what fish for sale and percentage of fish for sale. The economic information was removed from the CML catch reports in the State of Hawaii when the forms were revised.

Sabater said the Deep 7 data are grouped by fishing year from 1993 forward. The remaining species are grouped by state fiscal year, which is clarified before each table.

4.B.5. Marine Planning section

Pautzke presented on the marine planning section of the annual report. The marine planning activities that may impact fisheries include DoD and BOEM activities. The Regional Planning Body will finalize the American Samoa Ocean Plan by the end of the year; and Guam is ready to begin planning later this year. The RPB is scheduled to meet in October in Saipan. The data team is working to develop a mapping interface and is actively seeking funding.

Parrish asked what the definition is for federal waters, as the wave energy at MCBH is in state waters. Walker said that was an oversight, and Parrish said he thinks it's important to include.

Pautzke clarified that the RPB is a product of the National Ocean Policy, and does not know what will happen to it given the change in administration. There was a comment that a national ocean data portal and there may be resources associated with it.

Mika asked who Pautzke's point of contact is from Manua. Pautzke said the CONCUR contractors have been holding meetings in American Samoa. Mika clarified that it would be nice

to have someone in the local department to assist the contractors. Ochavillo said the people in American Samoa are waiting to determine the level of commitment, which was slowed by the transition.

4.B.6. Discussions – There were no additional discussions

4.B.7. Public Comment – There was no public comment

4.C. Administrative Reports
4.C.1. Number of federal permits
Melanie Brown reported on the number of permits and the information is available on the Sustainable Fisheries Division website. There have been no changes for American Samoa, Marianaa, or Pacific Remote Islands as far as numbers of permits. Hawaii has two changes; the aquaculture permit has been issued as a special coral reef permit. There are two lobster and five shrimp permits.

4.C.2. Regulatory actions in 2016
The Hawaii ACLs for MHI bottomfish fishery was put in place in April, as was amendment 4 that revised EFH and HAPC for fourteen species of bottomfish and 4 species of seamount groundfish. In January of 2017, the final ACLs and accountability measures for the MHI bottomfish were published. The lobster harvest guideline level of zero lobsters was published. The Marianas amendment removing the bottomfish prohibited area for large vessels was put in place in September of 2016. One big package of the ACLs for the Western Pacific was proposed in January of 2017. The final rule package is in Washington and is sitting at the Office of Management and Budget.

For 2015 ACL overages, they adjusted the ACLs downward by instituting the accountability measures. They did not specify an ACL for kona crab for 2016 because they will be working with the Council to consider what the best data sets to use in setting the ACL.

4.C.3. Discussions – There was no additional discussion

4.C.4. Public Comment – There was no public comment

4.D. Data Integration Chapter
4.D.1. Report on the Data Integration Workshop
Marlowe Sabater reported on the outcomes of the data integration workshop. The workshop outcomes for the insular fisheries resulted in a list of fishery dependent variables combined with fishery independent and environmental variables. Ochavillo said that fish price would be an important consideration, and the subsidy programs are also important. The role of these market forces would be important to determine. Also, import affects the amount of local catch. There are fish imports on the dealer data. There are different forms of subsidies, like disaster relief, and fuel subsidies for alia vessels.

The Chair asked if WPacFIN will be receiving a data request. Sabater said he has submitted his requests.

Pan asked Ochavillo if there is fish price for the input price on the dealer data. Quach said it is mainly the purchase price on the imports.

RECOMMENDATION: Regarding the data integration chapter of the SAFE report, the Archipelagic Fishery Ecosystem Plan Team recommends the Council include the following variables in the exploratory data analysis being conducted by the Council's contractor:

- Effect of subsidy program
- Market forcing
- Effects of fish import-export

4.D.2. Report on the Bayesian approach to catch estimation

Sunny Bak Hospital reported on an alternative approach for catch estimation in the Western Pacific. This project was funded by the Council's Pacific Islands Fisheries Research Program. The project explores what can be done to address sample size and pooling issues. Instead of using a design-based expansion algorithm, this project uses a model-based estimator. The design-based estimation relies on sampling according to the design. A model-based approach tries to understand the fishing behavior.

Koike asked what the variable is in the process model. Bak Hospital said the strata are the factors in the initial stage. We would like to incorporate environmental factors as potential covariates.

O'Malley clarified what the effort definition was. Bak Hospital said it was fishing effort.

There was a question about the background behind the project. Was there evidence that sample based estimation was insufficient? If you move to model-based estimation the zero is still zero. Bak Hospital said it is difficult to compute the error in total catch in the sample-based system for certain situations (that only make up a small fraction of the data). There was a comment that the model-based estimates can result in an artificial reduction in the error bar. It glosses over the fact that moving to the model-based assumption will result in smaller error bars in general. It doesn't mean the actual error is smaller.

Two scientists commented that the error can be computed from the design-based model. Bak Hospital said design-based is simple and it is good to have that, but in this way you can incorporate other covariates that could affect the catch estimation; and expert information.

The Chair asked what the end goal would be. Bak Hospital said the expansion algorithm currently isn't a mathematical expression. It is good to explore the model-based approach to see if it can be helpful. There's no reason to have only one model. In this way, there can be probability statements for the error.

Kahng asked what the existing uncertainty levels are for the annual projections we received today. If we don't have an uncertainty associated with an annual projection, what is the utility if they vary wildly year to year? Would this approach improve on that?

Toby Matthews said they can compute a variance for a total annual catch for a single year. It is a complicated formula, and if you pool for a specific stratum you cannot make an estimate. If you have sufficient interviews, you can compute the variance.

Lowe said we are going into a little more detail than we want to in this group. There is a data collection improvement analysis – the question of what's the best way is a complicated question. There needs to be a discussion about creel survey analysis for the territories; there also needs to be a discussion on Hawaii and it's a very complex discussion. It's a very interesting conversation to have. We are in the process of divorcing the data analysis from the data discussion. This is one of the other possible designs.

Ochavillo said the problem for the territories comes from having very few interviews. Lowe said the biggest problem with pooling is you need a better sample size. They made an application for the agencies to target getting interviews of that type, to avoid issues with pooling. There's an app for each area. We don't want to publish; just put it in the hands of the managers.

There was a question about whether you need a zero-inflated model if you're only looking at the trolling data. Bak Hospital said the example was exploratory data analysis. Michael Parke said you're still not distinguishing between a lack of response to fishing or lack of response to a survey. Bak Hospital said if you just use design-based, you cannot always estimate error. If you do a model, you could at least speak to different questions.

Quach asked if the model is based on a fixed species composition per gear type. Bak Hospital said if it's zero, then we explain why it was zero and we can model the zeros. We are trying to model an event of zero using covariates. She reminded people this is a preliminary model, and models will never be perfect.

The Chair commented that it sounds like a recommendation would be to have this discussion a little further along in the analysis. It's a good idea to explore other methods. Koike said it is a very good idea to do but she recommended that sometimes the process model – you have to be very careful of the variables and factors. Some factors are so strong it may pull all output, so just be very careful in fitting. The Hawaii recreational fishery is quite spatial and seasonally driven. If you don't have the spatial information then look at weather pattern and seasonality.

Sabater asked if the pooling algorithm can be tracked through time. Lowe said the new system does show the pooling. Kahng asked what percent of the annual projection is affected by pooling. Mathews guessed that less than 10% of the annual catch is affected by pooling. Bak Hospital said that you don't need the model based estimation for those methods.

Lowe said we feel like we have good forecasting for the boast-based methods. Kahng asked what percentage of the inshore species are affected by pooling. Mathews did not have an answer. Quach said there is no such thing as target species in the territories.

Sabater concluded that exploring additional methods will not hurt.

4.D.3. Public Comment – There was no public comment

5.0. Action agenda items
5.A. Evaluating 2016 catches to its respective 2016 Annual Catch Limits (ACLs)

Marlowe Sabater presented the catch relative to catch limits. Quach said that in 2015 and 2014 there are not many nighttime surveys. Another stratum was added to the expansion with recent nighttime surveys, and that is why the number is so huge. Sabater explained that the nighttime shore-based survey increased the fishing effort estimates, so the amount of catch interview was expanded to another level.

Koike asked if there was a similar jump with all the species. Sabater said there was a sudden increase in mollusk but aside from that everything seems to be behaving. This was the only species complex that exceeded the ACL. Quach expected other species to increase as well. The proration is based on species composition for that gear type and would depend on what species is picked up during those interviews in 2016 nighttime interviews. This will be looked into.

Mika said two new shifts were added to the schedule because it was identified as a data collection improvement priority in 2016.

Sabater asked the regional office, given that this is an artifact of data collection improvement efforts, what is the Plan Team's decision? Brown said it is important to put the information together. Present the number, how it's calculated, how the survey has changed for 2014-2015 numbers and 2016 changes to explain what the ACL should be set at. The recommendation would be for further investigation, and rationalize why the overage adjustment wouldn't be applied. In addition, NMFS has a responsibility to report how the information is collected and if there's dramatic changes in the catch values, explain what we think may cause that change in the values. In future years, if having this new way of collecting it will lead to adjustments, it may show up in the ACLs. Provide that information with the recommendations.

There was a comment that it's possible the ACL itself is not correct, because it is based on survey catch data which itself may not be correct. If we are catching more than 200 pounds of rabbitfish now, it's difficult to know if previous catches were also similarly high but the survey wasn't capturing all that information. Now that there's more coverage, more catch is being recorded. If there's a long term shift in the data then it will be captured in the future ACL calculation. It's not necessarily that the 2016 catch is less accurate; it's more likely that the previous ACL is set used on numbers that are probably underestimating the catch.

O'Malley asked if rabbitfish are important. Mika said it is a subsistence fishery; indigenous folks make sue of everything they catch. They don't target the species, but if fishers come across the species then they will fish it.

Sabater moved to Guam. The ACL was exceeded in Guam for jacks in the second year in a row. The ACL specification must be revisited since the ACL was exceeded for two consecutive years. Oliver asked if the take in troll gear comprise the majority of the fishery and Sabater confirmed it's from the troll fishery and the shore-based rod and reel method.

Sabater moved to CNMI. This was a worry of specifying ACLs in the beginning. There is no catch record; the average catch in Hawaii was divided by the EFH area in Hawaii and this ratio was applied to CNMI's EFH area to determine the catch-based ACL. No dealers ever reported selling slipper lobsters, and then in 2016, 304 pounds of slipper lobsters were reported in commercial receipt books due to the implementation of the Territory Science Initiative.

Sabater moved to Hawaii. The CREMUS estimates are off, so staff will investigate the accuracy of the numbers; we suspect a programming error. WPacFIN switched their system from one database to a different database, and there is concern that there was a modification in this process.

There was a comment that since the past stock assessments were done by an external contractor, it is unlikely they did a direct data pull and thus were provided nonconfidential level data and the data may have been aggregated or filtered in some form via a data request. It is important to figure out how those catch values were calculated when comparing current ACLs to catch records.

Sabater said he requested the data form PIFSC which was given to the contractor, and he uses the same data stream to generate the numbers shown here. It's the same data stream to calculate the ACLs and the catch. We just add the 2016 numbers. The fundamental question is who pulled that data request and what was the code they used to extract the numbers.

Sabater said the old annual reports came from the WPacFIN CREMUS time series. The stock assessment contractor was provided with the same table as in the annual reports.

The Chair said no one knew there was an algorithm being applied, so that being said, we should rerun the numbers from the past and compare. Quach asked Marlowe to determine the date of the data pull so it can be traced. Quach said year to year, the data should not change much, unless fishermen submit their reports or we determine that there were issues at the HDAR level. If we want to produce the exact number, we need to stop updating the database at one time and update the data. To what extent do we update the data so we have the best available data? There won't be an exact match between years. We can reproduce the exact numbers in the current quarter.

The Chair said that historic data should not change much; if it does, that's symptomatic of a programming error.

Sabater said he expects that there's some underestimation happening in the Hawaii data pull. Kahng asked if there's a minimum absolute commonsense overage that should be put in place. Sabater said the mechanism is any overage. Pautzke said that issue never came up in the first ACL mechanism amendment.

Oliver said two of the examples are based on a change in survey methods. The jacks in Guam looks as if it's the accountability measure acting as designed in a system with accurate numbers. The ACL will spiral to zero unless there is substantial change in the fishery. Sabater said that's the ratchet down effect, so we will have to reconsider the ACL. Pautzke said that the Council was under the gun to amend the FEPs.

Brown said the Plan Team could look at the accountability measure and make some suggestions to improve the mechanism. Should there be a recommendation for a research need and let's investigate? Oliver asked how this ACL was set for jacks. Sabater said the Guam jacks ACL was calculated using the biomass-augmented catch MSY method. There was a comment that the method in question tried to use biomass estimates from the CREP surveys to constrain the

universe of possible pathways in the model in terms of biomass trajectories. It's likely that biomass for this species is underestimated because the CREP surveys do not sample jacks very well, they are too mobile for the design of the survey.

Sabater said the method is limited by how well the CREP surveys detect species. O'Malley asked how far over the fishery went in each year, and asked if other management measures were put in place. Ochavillo supported Sam's suggestion that it should be a trigger to see what's happening. Oliver asked if there were a few large fish – was that real landings? Tibbatts said that the high landing was an expansion artifact. This is a problem of catch expansion and ratchet down.

Sabater said we would document rationale for each overage and consider justifying not taking the overage adjustment. Kahng said, what's the point of the overage adjustment? If there's an issue that needs to be addressed, make a recommendation. Quach asked how we would enforce an action in the local territory area; everything is voluntary data submission at this point. There's no way to enforce. He also pointed out that the timeframe to which the evaluation of catch to ACL is too soon and the numbers being generated are still preliminary. The island agencies finish processing the data in January or February; Saipan is not up to par yet. It would be good if the agency could look at this with the number and look at why there's an overage and determine the reason why before it comes to the Plan Team's table for consideration. O'Malley said the data aren't complete. There likely won't be any additional overages.

One way to push the redesign would be to have absurd consequences occur. Avoiding the flaw will return us to the 2009 and 2011 situation, where we said we would deal with this in a few years. Letting the system work as designed is one strategy. Pautzke cautioned pushing this down the road. Oliver asked if demonstrating the imperfect system is more likely to result in change or not. Kahng said this is an initial screening as to where to focus our attention. Koike said setting a new ACL is less of a problem; the real issue that we don't have management measures to address this problem.

Oliver said to some extent the ACL exists as a recommendation to local agencies. It's the Council's responsibility to report on the difference between ACL and catch. If the local agencies are not doing the management, then ACLs will be a continuing reminder that they're not doing it. There's no formal agreement with the territories to jointly manage those species with the Council, one only exists for state of Hawaii Deep 7 bottomfish. The Council chose to put these species in their FEPs as part of the Ecosystem-based Fishery Management Framework.

Philosophically, what effect are these ACLs having? That's a different argument. Sabater clarified that it's moot to weigh in on whether adjustments are needed or not because majority of the species are within the state and Territorial waters anyway.

WORK RECOMMENDATION: Document and explain the changes in the data collection in 2016 and rationalize whether an overage adjustment is needed or not.

RECOMMENDATION: Apply the accountability measure and the Council revisits the accountability measures for data limited stocks

5.B. Options for Ecosystem Component designation based on the EC analysis

Marlowe Sabater presented the analysis for ecosystem component designation for the management unit species in the FEPs. There was a comment that the target species might not make up a majority of the catch. Sabater commented that the expert working group recommended by the SSC will catch species that do not meet the assumptions. There was a comment that the fourth assumption doesn't work, as highly exploited species with a low biomass are still targeted. Brown said the first four assumptions are from the National Standard Guidelines. The expert working group would address the next six considerations.

Oliver asked about the depth distribution filter. The way that that works is the deeper you find a species, the more important it is, or the larger the range of depth distribution, the more important it is. Sabater said, the deeper the species is, the more likely it is in federal waters. Quach asked if that applies to American Samoa. The proportion would be recalculated for each FEP management area.

There was a comment asking that the expert working group consider whether retained species should be grouped or not, and as part of that decision-making should consider whether the resolution of the data used for monitoring is compatible with the level of management the Council wants to apply. For example, there's only one species code for parrotfish in Hawaii in the FRS database whereas the stock assessment and the corresponding ACLs would be on a species level if only one or two parrotfish are retained. There question about why the same cutoff is used at each of the three steps, and whether there is also an argument to have a different cutoff. Sabater said that is worth exploring.

WORK RECOMMENDATION: Council staff explores the effect of using different level of cut-offs for each filtering steps. Consider putting different weights to the each factors used to filter species

5.C. Monument expansion area regulations

Joshua DeMello presented a background, summary of public scoping meetings, and options that the Council may consider for the Monument Expansion Area (MEA). DeMello showed the State of Hawaii commercial landings from the reporting grids overlapping the MEA. Bottomfish were the primary components of the catch.

Pan asked how commercial fishing is defined. DeMello said it's defined as fish that enter the market through commerce, sale, or trade. Leong asked if there was a definition of subsistence more broadly. DeMello said the Young bill in the House has a subsistence definition, but the MSA does not currently have a definition. We use the definitions that the Council had used in previous amendments.

Parke asked if there was a volume associated with the fishing activity in the MEA. Kokubun said he excluded the longline catch. For the bottomfishers, they troll but not too far from the bottomfish grounds. Pelagics would be off of the NOAA weather buoys.

Brown asked for clarification on how much landings come from the MEA. Kokubun pooled the data for 30 years. There was a comment that it would be helpful to see a minimum and maximum for estimated fishing activity, and to perhaps shorten the timeframe to five to ten years since that's more representative of current fishery activity. DeMello said the longer timeframe is

necessary, but he would add the pelagic landings in to the analysis. Parrish said defining those regions that are wholly within the MEA would achieve the goal better than an overlap. The pie chart may just be accumulated error over time. Kirsten said it would be helpful to see if the original monument maybe displaced people and give an indication of how people react to the regulations.

Parke said the grid dimensions in the NWHI are 35 km across, and this could be an artifact of the way the data were reported. Leong said the human dimensions program is conducting some interviews

5.D. Aquaculture management alternatives
DeMello presented on the programmatic environmental impact statements (PEIS). The need for the amendment and PEIS is that NMFS and the Council do not have the ability to permit and control aquaculture regulations under its current FEPs. The alternatives are structured by level of restrictions for each component of an aquaculture program, such as managed species, zoning, program capacity, etc. The PEIS is in the analysis of alternatives phase. The goal is to develop an options paper around the same time period as release of the draft PEIS for comment.

Brown said that while SFD is putting the alternatives together, there are some things that we cannot flesh out in the EIS because it will take stakeholder engagement, for instance, a monitoring program. These are items for the Council's consideration. Pautzke reminded the Council and PIRO that she can get together a multi-agency group for marine planning purposes.

5.E. Non-Fishing impacts to EFH review and options for omnibus EFH refinement
Parke presented on the review of non-fishing activities, which included the activities which may adversely affect EFH, cumulative impacts, and the conservation and enhancement recommendations associated with the non-fishing activities. The report summarized information about the ecosystems in which EFH occurs in the Western Pacific Region; identified and described activities that may adversely affect EFH and identified the stressors associated with each activity; described what effects particular stressors may have on EFH; and provided associated best management practices and conservation and enhancement recommendations for stressors.

Brown asked if there is information developed to determine what a significant effect is. The information will be very important during NEPA analysis. Parke said the answer is no. Significant impact was not addressed specifically. Substantial instead of significant should be used in the document.

When to apply one type versus another? Parke said there were parties that wanted to prioritize what types of stressors are more important.

Walker gave a presentation on the options paper the Council asked for in March of 2017, including options for excluding habitats of low value form EFH. Walker described the current situation of the Council's EFH definition. The definitions are broad and the current definition does not even meet the Tier 1 definition. Walker provided the rationale why the EFH definition needs to be updated. The issue revolves around how to treat already degraded habitats and non-

natural habitat. Provided examples on how other Council treats this situation (from New England and Mid Atlantic).

Walker delved into the details of the options: 1) No action; 2) habitat characteristics; 3) geographic extent. Habitat of low value – FEP must define what low value habitat is; another option is to define natural and man-made; third is to define habitat classification terms and add them to the existing definitions. Regarding refining the geographic extent was to add technical boundaries to the geographical extent: need to define and identify areas that are low value.

Koike asked whether maps will be developed for each species and life stage and will this be incorporated in the options. Walker responded that the Council request is a high ask because a lot of details need to be incorporated within the options.

Will the Council be revising amendment 4 for bottomfish that just got finished? Yes it will also be revisited because the EFH definition includes bottomfish as a priority.

Parke cautioned that some corals are found in naturally occurring harbors (embayments) with artificial structures. It has to be evaluated on a case by case basis

Parrish how much low value habitats are there in the Pacific Islands and how much of these are EFH? This needs to be investigated more.

Oliver stated that there is information available that can be consolidated in order to refine the EFH. He suggested changing the approach using a positive designation rather than the low value tactic.

Parke also pointed out that the available data covers only tier 1 since that information is readily available. However, going into level 2 and beyond is harder to get because productivity on finer scale is harder to estimate.

Miyasaka said it is an improvement over the information that currently exists in the FEPs. The document defines the universe. How does this affect the FEP and our management of the fisheries? It narrows things down from the universe to our world. It is a good step, but more needs to be done in terms of prioritization and identifying not only the important habitats and looking at what are the unimportant habitats. Because we have to deal with NEPA consultations, it is very involved. Alton said, specifically, in harbors. If there are corals in the harbor, it needs to be mitigated. If it's not the same, how do we treat it differently? This can be done by identifying the essential habitats, versus just habitats. Whether we include this in the FEP now or later, it's the first in the series of steps.

There was a comment that the plan team is not responsible for the timing. Pan is hearing that the Plan Team do recognize the current document is an improvement over the other, so it can be endorsed. There is another layer of suggestion in that we want to have more prioritized activities that are substantial to fishery habitat.

Oliver said that the EFH information exists to define high value habitats. If efforts are going on exerted on looking at low value habitats, may as well identify high value habitats. The

information exists to show distribution – FishBase – habitat characteristics and distribution for each life stage.

The Plan Team noted that additional EFH information exists that could be used to update the habitat characteristics and geographic extent of EFH designations, and cautioned that areas of high abundance and ecosystem value may occur within particular harbor areas.

5.F. Precious Corals EFH review and options for refinement
Parke presented on his update of the precious corals species descriptions, research and information needs, level of information table, and options for the refinement of precious corals EFH. The options for deepwater precious corals include no action, defining EFH based on the preferred depth range and hard substrates for precious corals, and creating envelopes around defined beds and defined and new observed beds.

Parke said we have to deal with a lack of data as far as observations go, and we have good data for potential habitat. He presented on the potential management needs associated with more recent precious corals science.

Miyasaka asked if slope is important. Parke said he wasn't sure. O'Malley said that it is more than just where you are in the current. Pan asked if Parke has a preferred option. He said the preferred one is the easiest one, because we know that is the absolute minimum thing they need to grow. The other requirements probably have to do with water flow, and particulate matter. We don't have that information everywhere and we don't know the characteristics are. If you want to put the least area into an EFH that's definitely protected, that's the 5 km boundary.

Kahng said whether we have geophysical parameters that correlate, that's a different matter. The hard substrate can be in a range shadow; there's also an argument on whether they are recruitment limited. Old colonies appear to grow out of the sand, because the substrate has changed.

Oliver asked if there is an option to automatically add new beds. Parrish said he fully supports moving forward. When he looked at the polygons, there were established beds and add on polygons. What counts as multiple observations? Is there a criteria for a number of dives? You must have at least two coral colonies for a bed. To what degree did that come into play? Parke said the HURL database distinguishes between observations. Those were multiple observations of different corals.

5.G. Discussions – There was no additional discussion

5.H. Public Comment – There was no public comment

6.0. Community snap-shot tool
Justin Hospital, PIFSC, provided an overview of the community snap-shot tool. Fishing communities in Hawaii defined as each island, while in American Samoa, Guam, and CNMI it is the territory as a whole. NMFS guidance on social impact assessments is a tool to gauge social and economic consequences of management alternatives. There is a mock up available for the

community snapshot tool. The geography is by island or by the census county divisions. The next steps are to complete compilation of the census data at the island level.

O'Malley asked if recreational fishing will be included in the snapshot tool. Hospital said the HMRFS data could be presented by zip code, but there are some consistency considerations with other regions. Oliver asked about commercial fishing reliance and engagement. Hospital responded that it is an indicator generated from the CML data. All US coastal communities have indicators in various stages of development.

7.0 Monitoring and updating priorities

7.A. Council's 5-year research priorities – work item (process of monitoring the status of the research priorities)

This agenda item was taken up with the succeeding Cooperative Research priorities.

7.B. Cooperative Research priorities

Sabater asked the plan team for major red flags in the research priorities. There were no comments. The Council will review progress by PIFSC and its contractors toward meeting the established priorities at its June meeting.

8.0 General Discussions

There were several work items that needs to be completed post-Plan Team meeting:
The plan team delegated the Chair to finalize the draft recommendation for the WPacFIN species list, to ensure that data requests produce similar results for species groups. The system, currently, is inconsistent across different territories.

There was discussion on the accountability mechanism for those species which exceeded their ACLs. Work items: the agencies need to sort out what the overages can be attributed to. They recognized that the expanded data cause some issues with several species, then maybe something needs to be adjusted in the expansion algorithm.

In investigating the data during anomalous years, given the nature of the surveys and expansion algorithm, variations are to be expected. The angst comes more from how to use data generated from these surveys more management (e.g. ACLs), which does not have flexibility in the accountability measures.

9.0 Fishery Ecosystem Plan Team Recommendations

Regarding the data integration chapter of the SAFE report, the Archipelagic Fishery Ecosystem Plan Team recommends the Council include the following variables in the exploratory data analysis being conducted by the Council's contractor:

- Effect of subsidy program
- Market forcing
- Effects of fish import-export

Regarding the species table, the Archipelagic Fishery Ecosystem Plan Team recommends the Council direct staff, in coordination with NMFS staff, to convene a working group to finalize the species table used to generate fishery statistics

Regarding Essential Fish Habitat, the Plan Team recommends that the Council:

- Consider amending the non-fishing impacts, cumulative impacts, and conservation and enhancement recommendations in the Western Pacific FEPs based on the options provided by the Plan Team, and
- Consider amending the EFH designations and species descriptions for precious corals based on the options provided by the Plan Team.

Regarding the Hawaiian archipelago precious corals fishery, the Plan Team recommends the Council:

- Review how the updated information in the precious corals species descriptions may affect the scientific justification of precious corals conservation and management measures, noting that the gold coral moratorium expires in June of 2018.

Regarding the evaluation of 2016 catch to the 2016 ACL, the Archipelagic Fishery Ecosystem Plan Team provides the Council with the following rationale for the overages in American Samoa rabbitfish, CNMI slipper lobsters, and Guam jacks:

- The American Samoa rabbitfish recent three-year average of catch amounting to 435 lbs exceeded its ACL of 163 lbs. This catch was attributed mostly with the night time spear fishery. The increase in catch can be attributed to the data collection improvements where DMWR implemented the evening shift that captures the night time shore-based spear fishery.
- The CNMI slipper lobsters recent three-year average of catch amounting to 101 lbs exceeded its ACL of 60 lbs. The slipper lobster fishery is tracked through the Commercial Receipt Books. The increase in catch can be attributed to the implementation of the Territory Science Initiative designed to improve the data submitted to the commercial receipt books. In 2016, 59 invoices and 19 fishermen reporting reported sale of slipper lobsters which was zeroes in the previous years;
- The Guam jacks recent three-year average of catch amounting to 26,607 lbs exceeded its ACL of 21,201 lbs. The ACL was reduced to this level due to the overage in the previous year. This is the second year the ACL for jacks was exceeded. **The Plan Team recommends the Council to revisit its accountability measure**. The Plan Team further recommends considering applying the second year overage to the original ACL.
- Regarding the Hawaii catches, the Plan Team appoints the Archipelagic Plan Team Chair work with the agency and Council staff in conducting the evaluation and provide the rationale if there are any overage in ACLs for the Hawaii coral reef fisheries;

When the Council accountability measures are applied, this will result in the following ACLs for 2018:

- American Samoa rabbitfish = 0 lbs
- CNMI slipper lobsters = 19 lbs
- Guam jacks = 15,795 lbs

The Archipelagic Fishery Ecosystem Plan Team recognizes the importance of the ecosystem component amendment to address the operational issues associated with the data limited stocks managed under Annual Catch Limits.

10.0 Other Business

The Chair made everyone aware that there will a poll about the WPacFIN website so that when the website is transitioned they make sure they continue to provide products that people use. Walker asked all SAFE report authors to send their SAFE reports to her by May 23. Sabater thanked the participants for their engagement