DEVELOPMENT OF A NEW WCPFC TROPICAL TUNA MEASURE WORKSHOP 3 (TTMW3)

Electronic Meeting
28-29 June 2023

Report of the Second workshop on Western and Central Pacific Tropical Tuna Longline Fishery Management

WCPFC-TTMW3-2023-IP02

WPRFMC[1] and MIMRA[2]

[1] Western Pacific Regional Fishery Management Council
[2] Marshall Islands Marine Resources Authority

REPORT OF THE 2ND WORKSHOP
ON
WESTERN AND CENTRAL PACIFIC
TROPICAL TUNA LONGLINE FISHERY MANAGEMENT

Honolulu, Hawaii, U.S.A.
April 29 - 30, 2023

A. Introductions and Welcome

1. The workshop was opened with a prayer. The co-conveners, the Executive Director for the Western Pacific Regional Fishery Management Council (WPRFMC, the Council), Ms. Kitty Simonds, and the Director for the Marshall Islands Marine Resources Authority (MIMRA), Mr. Glen Joseph welcomed participants and thanked them for joining them at the 2nd workshop they have hosted. The informal workshops provided an invaluable early opportunity to discuss matters relevant to amending the Western and Central Pacific Fisheries Commission (WCPFC) tropical tuna measure (CMM 2021-01) this year.

2. In her opening remarks, Ms. Simonds emphasized the need to find common ground on areas of the tropical tuna measure including longline management and bigeye catch limits. She noted that bigeye not believed to be subject to overfishing or overfished, but that the Hawaii longline fishery that is subject to a bigeye catch limit that is not sufficient for its capacity or local market. Hawaii Mr. Joseph further stated, that while he understood that there would be differing positions when it came to revising the tropical tuna measure there is a need to appreciate how we might all engage to arrive at a fair outcome. He indicated, that he hoped that this workshop would provide a conducive platform for those vital early conversations with respect to longline management.

3. Ms. Barbara Hanchard (the Facilitator), an independent consultant with extensive experience with Pacific regional fisheries management was invited to facilitate the 2nd Workshop. She outlined the way in which the workshop would be conducted and how the meeting record would be kept, and for what purpose. Participants indicated their agreement and endorsed the workshop agenda which is appended at **ATTACHMENT A**.

4. A list of the participants is appended at **ATTACHMENT B**.

5. The Facilitator reiterated that all resource documents for the workshop were available on the Google Drive shared directory established by the Council and that everyone had access. A list of those documents is appended at **ATTACHMENT C**.

B. Overview of Key Considerations at the First Workshop

6. The Facilitator invited Mark Fitchett, Council staff, to provide an overview of the key outcomes of the 1st Workshop held virtually from 1- 2 November, 2022. The Participants acknowledged the presentation which is appended at **ATTACHMENT D.**

.

C. WCPFC Tropical Tuna Road Map

7. The WCPFC Tropical Tuna Road Map was adopted at WCPFC19, Da Nang Vietnam and provides the process and progress that needs to take place before the expiration of the tropical tuna measure, CMM 2021-01, February 15, 2024. In concert with the roadmap, WCPFC19 endorsed the Chair's work plan which sets out a series of events for the negotiation of revisions to CMM 2021-01. The status of the roadmap and work plan were presented to the workshop by the Facilitator who indicated that the process was on track, with the exception of a preliminary virtual workshop, which the Chair has since removed from the plan determining that it was of little value without updated scientific advice on the stocks.

8. Participants agreed that the process and status of the WCPFC Chair's work plan for the amendment of the tropical tuna measure which is to be tabled at the annual session of the Commission to be held at Rarotonga Cook Islands in December this year, as set out by the Facilitator was accurate, and made a number of observations. These include:

- there was no disagreement with the Chair's proposal to use the existing tropical tuna measure as the basis of the revised measure and the areas which she identified as requiring amendment, and the Participants considered that the Chair's draft was a good start to the process;
- the challenge for early discussions such as this workshop, and the planned Commission workshop in June, would be to identify and prioritize issues that could be relatively easy to reach agreement on, through to matters that could be a 'hardline' or contentious for others;
- this informal setting, while not part the WCPFC tropical tuna roadmap, allowed participants to understand the positions on the relevant issues at play,
- this workshop would focus on the aspects of CMM2021-01 that are applicable to longline management, including Table 3 of the measure; and that

- this occasion also provided an opportunity to be more focused on common issues in anticipation of the first Commission virtual workshop on the tropical tuna measure scheduled for June 28 and 29, 2023.

9. It was again expressed that BET stocks appears to be relatively good condition, and this should allow for an increase in allocations set out in Table 3 of the measure, however clarification was sought for what, and how much scientific analyses would be required to support any amendments to Table 3. In response, the representative from the Pacific Community (SPC) noted that a new BET assessment was to be presented to SC19 in August, and that while the question on scientific analyses would be addressed in the presentation to come they noted that there were a very large number of requests for scientific analyses when the measure was last negotiated. The difference in this case was that only some parts of the measure would be amended but that there are also now time constraints due to the BET re-assessment; requests should be prioritized.

10. The matter of adopting a contingency plan in the event that no agreement is reached for amending the measure was raised, but noting that there needs to be a robust measure in place to be effective. It was pointed out that those present were here to cooperate in good faith and share collective goals and share information on the importance of the longline fisheries to each.

i. Discussion on longline management allocations

11. A presentation was made by Mark Fitchett on the tropical tuna longline management objectives from first at fleet, and then a stock wide level. The presentation slides are appended at **ATTACHMENT E**.

12. It was suggested that management objectives to achieve candidate stock wide biomass targets and associated catch or effort scalars for fisheries needed to reach those stock biomass targets vary depending on assumptions on recruitment and other factors. The commonly cited biomass target for BET is a relative stock depletion (proportion of unfished biomass) associated with 2012-2015, or 37% unfished biomass. Based on current scientific advice assuming recent stock recruitment levels, a 38% increase in longline and purse seine scalars would achieve that target over a 30-year horizon. Participants wondered if this was the opportunity to look further into this management objective.

1. SPC Analyses

13. The Facilitator invited a staff member of the Pacific Community (SPC) to make a presentation of SPC's analyses for a discussion of longline management options. A copy of this presentation is appended at **ATTACHMENT F**.

14. The representative for SPC indicated that his presentation was based on the key CMM 2021-01 discussion areas, allocations on the high seas for both the purse seine (PS) and longline (LL) fishery, and on what he saw coming in the next few months. He noted that the projection work presented assumed specific future conditions in the PS and LL fisheries as a whole (not just on the high seas) to make predictions of what stock levels might be under those different fishing conditions. Based on recent stock assessments, he depicted how the stocks could evolve over time for the next 30 years, displaying where at any given time you would expect the stock to be on average, and the associated ranges of uncertainty.

15. The presentation also reviewed BET and yellowfin tuna (YFT) stock projection outputs and their associated tables (the 'nuclear grid'). This showed how changes in relative fishing intensity ('scalars') for PS and LL fisheries as a whole influence the stocks in relation to candidate stock depletion objectives of the tropical tuna measure. He provided an example of an increase in these scalars by 10% to show component influence of overall PS and LL impacts, i.e. fishing levels vs, biomass depletion targets. These could be used to evaluate how specific changes in fishery components from baseline levels may influenced stock status. Indications of risk relative to the LRP could also be provided. However, he cautioned that results relative to BET and YFT stock status would be subject to change after August when the new stock assessments would be agreed. He also noted that the Science Committee in August would take into account the output from the skipjack (SKJ) management procedure and associated purse seine effort (and current FAD closures). SPC analyses to support discussion of target reference point levels were also shown:

- It was noted that these represented the stock-wide biomass levels where the fishery scalar was changed equally in the LL and PS fisheries – using the old assessment results

- This would allow fishing up to 38% higher than recent levels in order to achieve 2012-2015 stock biomass levels over a 30-year projection time period.

- It was pointed out that one of the things that the "nuclear grid" shows is that you can get to the same depletion level with different conditions, for example higher in LL and lower in PS effort/FAD closures, or vice versa; i.e. that one depletion level can have different trade-offs between gears.

16. The SPC representative stated that the SPC can provide data to support allocation options.

17. With regard to the process for scientific analyses, SPC stated that between now and August, the SPC would continue to do analyses required by the Commission for the measure but that they would expect the June Commission workshop to identify and prioritize analyses to be conducted following agreement of the BET and YFT stock assessments in August, to be

performed before the planned tropical tuna meeting in October and the annual meeting in December.

18. Participants sought clarification of the evaluation of trade-offs between future PS and LL effort/catch levels. SPC further explained that each cell in the 'nuclear grid' gives a level of BET tuna stock depletion under the specified levels in each fishery, and this can be used to assess the impacts on the BET stock relative to management objective levels.

19. Participants also asked about the curved red line dividing the cells shown on one plot and whether the area above the line to the left represented SSB greater than the 2012-2015 stock depletion average, or whether it was the limit reference point for tropical tunas (spawning stock biomass (SSB) at 20% of unfished levels).

20. SPC explained that the red line indicated the level equivalent to the 2012-2015 stock depletion average. However, he noted that it was based on the previous stock assessment, and caution was urged on using this example, as the basis for upcoming discussions on the measure will be the new stock assessment agreed in August. In response to the suggestion that the red line could quite conceivable be placed higher and to the left, i.e allowing higher levels of exploitation, SPC noted that if that occurred there would be room to increase the fishery consistent with the tropical tuna measure objective. However, there were a number of things that aren't available yet. These include the objectives for the tropical tuna measure, what the results of the table are likely to be after taking into account the new stock assessment, and what levels of fishing in the future will be consistent with those two outcomes.

21. Participants agreed that while there was a need to wait for the results of the BET stock assessment, the advice was that the current presentation, while positive, should not be used as the basis for discussion on revising CMM 2021-01. Participants asked how the presented analyses can inform what relevant analyses would be needed to inform potential tropical tuna discussions toward a revision.

22. In response, the representative from SPC noted there would be some changes to the upcoming assessment based on last year's peer review recommendations, which did provide for a number of improvements. There were also a number of further recommendations that arose in the SPC pre-assessment workshop that had convened the previous week, all of which will contribute to the best possible stock assessment delivered in August 2023.

23. Participants noting the recent pre-assessment workshop, the incorporation of changes from peer review, and the Chair's schedule, asked what kind of time frame will be needed in order for the measure to be negotiated in December?

24. The deadline for papers to the Science Committee is the last week in July and all effort is being made so that stock assessment papers meet that target. No assessment-based analysis could commence until the Science Committee had endorsed the stock assessment in August. This would leave the window between the Science Committee and the 2nd Commission tropical tuna measure workshop in October, to provide specific analyses that members might request in the June workshop. The second opportunity would probably be between the October workshop and the WCPFC Regular Session in December.

25. SPC confirmed the terminal year for this year's BET and YFT assessments is 2021. It was noted that this coincided with the period in which there was limited observer coverage, and therefore limited catch sampling from PS. It was asked whether or not there were noticeable gaps in data due to COVID impacts, data reporting, or observer coverage that could impact the stock assessment. SPC stated that part of the pre-assessment discussion focused on what to do in light of this uncertainty, and what the impact was on the stock assessment. It is not yet known whether the impacts are likely to be significant, but would now be part of the assessment process.

27. The impact of other fisheries besides LL and PS, whether or not the information for those fisheries was better, and whether the impacts of those fisheries have changed over time was raised.

28. In response, SPC said the catches taken in the waters of Indonesia, the Philippines and Vietnam were important, in particular for YFT, but noted that the Commission's West Pacific East Asia (WPEA) projects have long supported data collection improvements in this region. While the data was considered not to be as good as that for the PS and LL fishery, it was also noted that a fair proportion of catches would be in sovereign waters outside of the Commission measures.

29. SPC stated in response to a suggestion of a more expeditious analysis of impacts, that the challenge would be that the deadline for data submission being the end of April, including updates for data in 2021 and 2020, and noted the timeliness of their availability impacted the commencement of work on analyses. SPC suggested that in the longer-term, having electronic reporting and electronic monitoring more globally applied is likely to assist in this regard.

30. SPC estimated that the percentage of YFT taken in WPEA countries was roughly 15 - 20% of the region's catch, but that for BET was lower.

31. When asked what the level of requests for analyses to inform the tropical tuna measure was expected to be, SPC replied that they are expecting it to be large, noting that the previous renegotiation generated many tables of results, and potentially an overload of information. There is expected to be the need to respond to various scenarios including those in relation to LL catch

and the length of FAD closures in the PS fishery. SPC also noted that there might also be requests related to footnotes in the measure from CCMs that needed to be addressed.

32. The Facilitator suggested that it would be useful to combine the Chair's work plan with information provided by SPC on process as it relates to scientific analyses.

2. Catch

33. Mark Fitchett provided a presentation on catch as a management currency and catch reporting. He highlighted the BET catch levels between 2019 to 2021 against the LL allocations in Table 3 of the measure, estimating the LL catch to be between 54 and 65 thousand metric tons mostly taken by 4 Asian flag states, Hawaii longline, and a few Pacific Island countries. It was noted that SPC regularly updates the catch versus effort charts annually. Presentation slides are appended at **ATTACHMENT G**

35. Participants noted that the presented BET catch for LL gear possibly excludes Archipelagic waters, and that there was a need to understand exactly where these catches take place, whether in the high seas or in zones. It is fairly well known that 80% of the PS catch is taken in the waters of the Parties to the Nauru Agreement (PNA) but the same is not well known for LL in which BET is believed to be harvested mostly on the high seas. The Participants agreed that this breakdown between high seas and within zones would be useful to know.

36. Participants noted that reporting of figures and data for the tropical tuna measure are for a 'core area' between 20 degrees north and 10 degrees south. A significant proportion is caught outside of this core area as shown in flag State data reporting. This suggests that analysis trends tend to focus on the core tropical area but does not capture the range of the catch. The Participants thought it would be good to display how much of the catch was in the core tropical area, and how much of the BET LL catch was taken outside the core tropical area, and by what fleets.

37. In terms of the split between the high seas and in-zone, the SPC noted this would be an appropriate request for information/analysis from the first workshop in June.

38. Responding to a question of whether or not there was similar information available outside the core area, SPC indicated that that type of information is captured in papers to the Science Committee but it is not always summarized in this fashion. Further, with regards to the question of why the tropical core zone only goes to 10 degrees south, the SPC indicated that this is deliberate to distinguish it from the southern longline fishery that targets albacore.

3. Effort (sets or days)

39. Two presentations were made to the Workshop in relation to discussing fishing effort and how it is monitored. The first presentation was on the PNA LL Vessel Day Scheme, and the second presentation characterizing the Hawaii Longline fishery, both deep and shallow-set sectors operating in the WCPFC and IATTC convention areas.

40. Brian Kumasi, on behalf of the CEO of the Office of the PNA (PNAO), thanked the co-conveners for the opportunity to participate in the Workshop and stated that his presentation (**ATTACHMENT H**) was on behalf of the PNAO and were not necessarily the views of the Parties. He also acknowledged with appreciation, the opportunity to share knowledge of the LL Vessel Day Scheme (VDS) and noted that while there may be differing views on how zone-based management (ZBM) might work, sharing information would allow a better appreciation of each others' views.

41. The key remarks in the PNAO presentation included that:

- The Fisheries Information Management System (FIMS) is the information system used for managing the PNA LL VDS;
- days are monitored using vessel monitoring systems (VMS) or Automatic Identification System (AIS) and attributed to PS and LL vessels by size moving from the territorial seas into the EEZ of a Party counting against allocations, with the ability to claim pre-advised non-fishing days;
- vessels transiting in a straight line at constant speed through an EEZ is assumed to be transiting and unless transiting, entry into the high seas commences as fishing days against allocation;
- VMS tracking continues at trip end, segregates days in the territorial waters which are no longer counted as fishing effort;
- the calculation of fishing days has had a capacity minimizing effect with the restructuring of the PS fleet away from the larger sized vessels to maximize the utility of a fishing day;
- VDS is making progress towards real time day;
- landing data is sporadic and is not a requirement of the regulatory regime presently;
- advocates the need to increase MCS provisions for the LL fishery on the high seas including the wider use of eLogs, and the implementation of electronic monitoring;
- the development of FIMS modules and data pathways recognize that Parties need to have links to the Commission Science provider for data quality control and other operational issues, and with the FFA for vessel licensing information.

42. In response to the query on transit exemptions and whether a vessel needs to notify authorities, Kumasi explained that transit qualifies as a non-fishing day which is verified by a VMS officer against VMS vessel tracking and speed data. On the matter of notifying authorities when transiting, Kumasi further explained, that there is some flexibility and transit non-fishing days needed to be claimed before February of the following year.

43. A follow-on question with regards to transit, fishing, and non-fishing days asked whether transit within an EEZ to another fishing location within the same EEZ, constituted a transit day or a fishing day? Kumasi responded that a transit day is defined by criteria and that a vessel must notify and be verified as transiting by VMS before the next set takes place, regardless if it is within a zone or leaving the EEZ.

44. With regards to vessel size and attributed fishing days, it was suggested that using the example of a vessel of 40 meters (m) being able to set more gear than vessels larger than 40m, that essentially the length of the mainline and how many hooks deployed and time spent setting and hauling gear that determined the effort. Further, it was asked if 'effort creep' was an issue in an effort-based scheme based on vessel size, and if that could be counterproductive to conservation?

45. In response, Kumasi noted that there are similarity between the effect of the PS VDS and that of the LL VDS. He said that the LL VDS was not strictly a day specific mechanism but an amalgam of capacity constraints that encompass requirements of access, domestic fleet requirements, and mobility of fleet by the Parties. It does provide the constraints on capacity for capital investment in larger vessels and confining the LL fleet to operate within the construct of the VDS. The idea of length adjustment is so that capacity constraints are also embedded.

46. Participants noted that LL fishing can be highly variable among fleets and targets, and that the issue of subsidies can be contentious. The example in the Hawaii LL fishery was raised in which a comprehensive set of regulations are in place for protected species, deep sets are not allowed to use squid or light sticks, while other fisheries are. The requirement in the deep-set to only fish at deeper depths, while other fisheries can target the whole water column. It was noted that the same degree of variability does not exist in the PS fisheries.

47. Participants acknowledged the efforts of the PNA to address LL management issues particularly given the various fleets operating in the western and central Pacific Ocean (WCPO) that operate at different scales with different gear configurations. They recognized the variability contributes to the complexity and looked forward to seeing future progress by the PNA.

48. The issue of high seas transshipment was raised, noting that the Hawaii LL fishery is a fresh fish fishery operating within a range of 1000 miles from Honolulu, does not transship at

sea. Kumasi concurred with this and said that there is a need to address transshipment issues noting that there are Participants present that are involved with the Chair of the Commission's Intersessional Working Group on Transshipment.

49. Referring to earlier comments on the emerging similarities relating to effort creep in the PS and LL fisheries, it was noted that nobody expected that there would be no effort creep in the PS fishery, and that while there has been a creep in regulations, the CPUE series for the LL fisheries indicates the same lack of consideration for effort creep. It was suggested that there needs to be a trade-off in addressing effort creep and how to measure it, as there are a number of factors to consider, including vessel size versus average catches due to fishing power. The broad range of vessel sizes presents some degree of unfairness when vessels are categorized. The possibility of effort limits for the high seas may well be different for different classes of vessels and might also have different size adjustment factors than those used by the PNA it was stated.

50. The second presentation on effort and the Hawaii LL fishery was delivered by Keith Bigelow of the National Oceanic and Atmospheric Administration (NOAA). A copy of the presentation is appended at **ATTACHMENT I**. The presentation generated questions and discussion by participants as follows:

- Clarification was provided to the query raised as to whether days were measured as actual fishing days and were specific to the Hawaii LL deep-set sector and it does not include shallow sets (targeting swordfish) which would only account for a fraction of a deep-set day.

- On the matter of limits and whether they had been exceeded, it was stated that the USA limit is 3,554 mt but it allows for attribution to the territories, including American Samoa, the Commonwealth of the Northern Mariana Islands, and Guam.

- Noting that the Hawaii LL fleet fishes a combination of in-zone and on the high seas, the questions arose as to what the mean value of sets was for the WCPFC convention area, and what was the average CPUE for both the Hawaii LL fleet and others fleets? Bigelow confirmed that the Hawaii LL in-zone effort has been fairly stable over the last 10 years. He pondered what would happen if ZBM was applied to days allocated and where CPUE is abnormally low and the vessel wants to fish on the high seas, or if the CPUE is high but the vessel wants to fish more in-zone. SPC suggested that this was the type of information request that could be made at the Commission workshop in June, speculating that currently there may be gaps in the information available, or the information may not be in the datasets.

- The Hawaii LL information presented included COVID years, the impacts of which only saw a 4 - 6 week decline in effort in 2020, but was otherwise reasonably consistent with the fleet being fairly active during the pandemic.

- A feature of the Hawaii LL fishery is that restrictions are triggered in-zone when there are interactions with species of special interest such as a sub-population of false killer whales. In 2018 and half of 2019, the fleet was excluded from most of the EEZ. It was suggested that these types of restriction might in the future be applied in other countries' domestic management regimes. On the matter of the split between in-zone and high seas (roughly 40% in zone and 60% high seas) it was stated that it allowed the LL fishery to be more dynamic with El Nino and La Nina conditions making things difficult.

- Bigelow confirmed that the Hawaii LL fleet was exclusively fresh catch with vessel length capped at 101 feet, and that there were no freezer vessels in the fleet.

- A series of questions were raised on the number of hooks per day on Hawaii LL vessels, and whether there was a difference in number between in-zone and the high seas. It was also suggested that the number of hooks may be similar to that of large-scale freezer boats of between 2500 - 3000 hooks. In response, it was stated that the Hawaii LL CPUE was higher in the high seas with an average of 2800 hooks per day with an operational capacity of 3000 hooks.

- Lastly, a view expressed that all operational characteristics are important in understanding effort and between fleets if you are trying to apply LL measures across fleets. Comparisons of hooks per set would be useful. High sea zone limits would be restrictive for the Hawaii LL fleet due to in-zone regulations and oceanographic conditions making the issue of transferability relevant.

4. Zone-based longline characteristics

51. The Facilitator invited participants to discuss the issues related to the use of fishing effort in zone based management for LL.

52. In relation to a question raised early, the Participants asked to revisit presentation slides and asked for further clarification between BET and annual catch estimates between EEZ and the high seas.

53. SPC presented graphs of longline catches divided in zone and high seas, noting that the spatial aggregation of data varied between sources. For BET, total high seas percentages were from a low of 44% in 2015, compared to 72% taken in the high seas in 2002. For YFT, there is a higher proportion taken in EEZs compared to the high seas, a minimum of 20% being taken on the high seas in 2014 up to 45% in 2002.

54. In response to a question on what the drivers were for BET being caught mainly on the high seas rather than YFT, SPC stated that with a focus on LL, BET tended to be more abundant towards the eastern side of the Convention area which for the most part tended to be high seas

rather than EEZ. In the more western side of the Convention Area toward the waters of the Philippines and Indonesia, more YFT is caught and this weights the YFT catch towards a greater catch proportion being within EEZs.

55. Participants also thought it would be useful to understand spatially where the catches occur, whether these are representative, and how much is caught in the 'core' tropical area.

56. SPC referred to science advice provided to the Commission, also contained in the reference Document C4, that summarizes the patterns for each of the key tuna stocks. It shows BET taken by PS in the west and by LL in the eastern part of the WCPO, but with reasonable amounts of catch occurring close to Japan, Indonesia and the Philippines. In terms of YFT, distribution tends to be closer to the west side of the region but also similarly stretching further east.

57. The Workshop co-conveners suggested that it would be useful to hear about the experiences across participants relating to different fleet characteristics, national priorities and dynamics of managing the LL fisheries in respective EEZs, including taking into consideration albacore (ALB) and PS which remains more important by catch volume and valued fishery for some. They noted that LL is important for others with the need to balance management measures applied in-zone and on the high seas, and between differing management currencies such as catch or effort.

58. The characterization of catch compositions and fleets descriptions in EEZs was shared with Participants and a number of questions and responses were made. These are summarized below:

- Since the mid 1990s the LL fleet Papua New Guinea (PNG) was domestic vessels only which declined over time due to economic conditions. In 2016, trials with bilateral LL vessels led to the opening up of the LL fishery in PNG waters. Most vessels are now frozen with fresh vessels on the decline. Catch in the PNG EEZ is predominantly YFT, with some BET, typically less than 5%. Further south in the zone there tends to be more ALB. The catching of billfish is now also starting to be regulated. Very few fresh tuna LL vessels are landing their catch on shore.
    - Question (Q) - Are the ultra-low temperature (ULT) vessels fishing in PNG, foreign flagged vessels or PNG flagged? Are they new vessels that have entered the fishery and constructed within the last 10 years or older chilled vessels that are no longer operating as such? Are they new entrants in the last 10 years or are they foreign vessels operating under bilateral agreements that have been in the LL fishery for some time?

- Response (R) - Most of the ULT vessels are foreign vessels and some also fish in the waters of other PNA countries, e.g. Japanese vessels. Others, we are still trying to verify their operations and storage temperatures during licensing and inspections processes, as the frozen ULT vessels will declare storage temperatures ranging from – 60 to 40 or other. As PNG was closed to foreign vessels for 10 - 12 years, some of the vessels entering had not completely changed from fresh to frozen. So there remains some uncertainty as to whether they have really switched from fresh to frozen operations.

- Q - Is the catch required to be landed in PNG for the LL fleet? Or are they permitted to fish in the PNG and transit to other waters?

- R - For bilateral vessels there is no requirement to land the fish in PNG. The domestic fleet must have shore facilities. Some small domestic PNG flagged vessels operating out of Alatau land their fish and had previously exported by air but this is now cost prohibitive and switches have been made to containerization much the same as what occurs in the Solomon Islands.

- The Republic of Marshall Islands (RMI) similarly operates domestic and offshore fleets. This includes bilateral arrangements with Japanese and domestic based companies with various flagged LL vessels. These are classed as fresh chilled boats with 60 boats offloading in Majuro. The fleet has achieved 100% observer coverage and RMI has also trialed electronic monitoring (EM). As presented by Kumasi, RMI are implementing management of the LL fishery through FIMS, and this includes shark measures i.e. circle hooks and other measures for species of special interest. These conditions are applied for reasons of both economic benefits and the collection of data for management within the EEZ. RMI's efforts are contrasted by the absence of similar requirements for fishing in the neighboring eastern high seas pockets. RMI is part of the PNA PS VDS, essentially the first ever effort-based ZBM scheme that has operated successfully over the last 10 years meeting economic and scientific management needs and strives to move the LL towards the same ZBM arrangements. The commonality is that both fleets target the same tuna stocks and the pending revision of the measure for the tropical tuna provides a means to understand differences and find balance.

    - Q - How does PNA look at differences between the fresh fisheries and the frozen with significant differences between the two types of operation, and is the management regime likely to be a disincentive? Does the PNA look at the fresh fish and frozen differently?

    - R - The fresh LL contributes more economically and has a wider impact. They are required to offload 100% in Micronesian countries. ULT vessels are a bigger challenge and much more needs to be done in the interest of transparency and on-

the-water reporting. Fresh boats operating out of Majuro have catch monitored each time they return to port, participating in the chain of custody.

- Similarities with the US domestic LL fishery were noted.

- There is no domestic LL fleet in Tuvalu. Tuvalu does license LL vessels, mainly Chinese and Taiwanese flagged vessels based in Suva, Fiji. These vessels are mainly frozen but some are fresh chilled but they do not unload in Tuvalu. This is a small fishery but an important one to Tuvalu. Tuvalu had previously licensed Korean vessels, but they left once Tuvalu implemented the VDS.

- There is not a significant amount of LL in the Nauru zone but there are aspirations to develop it and Nauru had started discussing this in earnest before COVID disruptions. In the past, Japanese LL vessels operated in Nauru's waters and there was a small and short-lived domestic fresh fishery sending fish to Japan via Australia. Nauru is implementing LL VDS.

- Kiribati licenses LL and all are chartered Chinese vessels with one company having 6 LL vessels. Most are ULT vessels. Currently, around 50 LL vessels are licensed by Kiribati.

- The Federated States of Micronesia (FSM) licenses LL vessels that target BET and YFT. The vessels are both ULT and fresh and are subject to the LL VDS. Unlike the PS fishery, the LL vessels are licensed at minimal cost to attract onshore investment in line with development aspirations. The FSM endorsed a Development Policy that seeks to develop the LL fishery for economic benefits through transshipment and offloading operations. Some Japanese vessels are licensed to fish in FSM's EEZ.

59. Participants thanked those for sharing the description of fleets operating in zones and congratulated RMI for achieving 20% observer coverage.

60. It was asked if the FFA Minimum Terms and Conditions provided for countries to achieve a certain level of observer coverage, or whether this is that left to individual member countries?

61. In response, it was stated that RMI had an MOU with FSM which involved cross-endorsement which provided for observers to cover each other's locally based vessels in reciprocal EEZs, and there are hopes of extending this to all vessels that are licensed and are not based in-country. Otherwise, the agreed observer coverage for FFA countries is 5% and the implementation of EM is thought to be a tool that will increase the coverage of LL fishing fleets.

ii. Key Issues Previously Discussed

62. The Facilitator introduced the next section of the agenda indicating that the first workshop had discussed at length and that tabling them for brief discussion at this point was to be exclusive in the context of application management schemes.

1. Consideration of fleet differences

63. Presentation slides were provided by Mark Fitchett reflecting fleet differences were displayed and these are appended to this report at **ATTACHMENT J**.

64. A view was expressed that crew size did make a difference to the way in which LL vessels operated. A crew of 17 for distant water LL vessels versus a crew of 6 for Hawaii LL vessels can represent differences in fishing power. Larger crews allowed for continuous fishing with no break, so the number of crew, the size of the vessel, and the number of hooks on haul, do determine how much fishing effort can be exerted.

65. It was also suggested that there are other differences between distant water fishing fleets, the ULT vessels, and fresh LL vessels, including length of trip and transshipment activity.

66. The description of fleet differences as presented earlier held concerns for some Participants. The Organization for the Promotion of Responsible Tuna Fisheries (OPRT) represents major stakeholders in large-scale tuna long line fisheries and one of their objectives is to restrict and stabilize the total capacity of large scale longliners. The OPRT currently has concerns about the increasing number of small-scale distant water LLs, noting that these vessels are very efficient, using ULT freezers and are not a party to the OPRT. It was suggested that some of those identified as large scale were in fact not so, and that clearly there is a need to distinguish large scale LLs whose capacity is controlled well, versus increasing small-scale LLs, who are not.

67. Participants noted that more clarity was needed for a better understanding of the types of LL vessels fishing in the region. Further clarification was asked relating to catch in the context of the PNA VDS, and the characterization between domestic fleets and distant water fleets in Pacific Island countries (PIC) and the Convention area. SPC replied, saying that one of the challenges of going into the past, is that the data is more restricted in terms of both catch information and in particular vessel characteristics. It is considered that vessel length is one of the easier characteristics to get a handle on but that when it comes to freezer types and vessel construction, it becomes harder to get that type of information.

68. An observation was made that tonnage and RFV scales are not consistently reported but length is a consistently reported value.

69. In response to the suggestion that the Hawaii LL fleet capped at 101 feet , it was stated that as a fresh fish fishery they are restricted by the length of time they can stay out at sea, roughly a 20-25 days. It was also noted that larger vessels are more expensive to operate and that Council regulations restricting length to 101 feet, is not for efficiency but so other boats displaced from other fisheries couldn't come and fish. It was noted that most of the effort is in the high seas due to domestic spatial management areas and whole supply chains are built around fresh fish in Hawaii, with zero ULT product or capacity. There are no subsidies for vessel construction and no new vessels have been constructed in the last 20 years among the Hawaii fleet.

70. SPC indicated that they receive operational data across the region now as part of WCPFC data submissions, but for data further back in time there is a different process to get the information from colleagues in distant water fishing nations for stock assessment purposes. In terms of the overall coverage, verification from observers and electronic monitoring is at a much lower level for LL than the PS fleet which has 100% observer coverage.

2. MCS

71. The levels of monitoring control and surveillance (MCS) on LL fleets fishing in the WCPO remain low and the Participants were invited to discuss relevant issues.

72. Participants considered that there are reports of strong MCS controls now being placed on vessels and that this should be highlighted as something everyone is aligned with, - greater MCS measures on LL fisheries.

73. The possibility of using quota or fishing privileges as an incentive to improve measures and create momentum had been suggested in the past given the low observer coverage requirements for longline fisheries operating within the WCPFC. It was further suggested, that if there are high rates of observer coverage in domestic fleets, this may provide the momentum and make the ones who lack MCS stand out.

74. The Facilitator suggested that even with the increased accountability in-zone, there appears to be little impact on what is happening on the high seas and asked Participants, what are the opportunities to enshrine provisions in the revision of the tropical tuna measure that might move the needle a little?

75. The point was raised that based on comments provided to the WCPFC Chair by the FFA, PNA, the US and others, that any discussion on revisions to the LL provisions in the measure would need to include adequate MCS measures, but that it was not clear what that meant exactly. Was it observer coverage or transshipment monitoring, or anything else? If observer coverage,

then what is the adequate level? It was suggested that this might be the opportunity to explore these questions.

76. A view expressed, was that MCS applied across the overall fishery including for PS, in-zone and on the high seas, needs to be discussed by the broader membership of the Commission. MCS in relation to PS tends to dominate because there is a lot of data. The focus here is MCS for LL fleets, and it would be good to find common ground.

77. Participants were informed that the FFA members had a longstanding and clear position that adequate controls on the high seas are needed and that this needs to be addressed when the LL provisions of the measure are considered. While not all countries have been able to reach 5% of observer coverage, others have. Other issues of concern to members, include observer safety on LL vessels where 5% coverage is difficult. It was stated that, whether or not revisions to the LL provision is a pathway to increasing observer coverage, the FFA members across the board were invested in MCS controls such as electronic reporting (ER), electronic monitoring (EM), port state controls, and are committed to working with the US on transshipment.

78. Discussing EM and cameras onboard, Participants noted that the efficiency of the MCS tool is well known and that while it is relatively easy to put cameras on boats, EM programs and subsequent observer data will have to be verified as legitimate. It is anticipated that cameras on boats are going to be common within 5 years, but a cautionary note is that the data that it generates will have to go through quality control just as it does when human observer collected data is verified.

79. The representative of the OPRT informed that its Members recognize that the percentage of observer coverage is low and should be increased. He stressed the difference between the Hawaii LL and distant water fishing fleets (DWF), noting that whereas the Hawaii fleet operate at sea for 2 - 3 weeks, the DFW are at sea for up to several months. This makes finding and placing observers onboard challenging. The electronic monitoring trials by members of the OPRT were not without problems and there is a difference between introducing EM in the Hawaii LL and the DFW fleets in several aspects. The introduction of EM could help address this issue, but that the sentiment previously expressed that cameras could replace observers is incorrect. It was suggested that they would complement observers, but as yet there are no standards on various issues such as the number of cameras and installation locations for EM onboard vessels. How data is to be analyzed and for what purpose (science or compliance), needs to be considered, noting that discussions are happening in other regional fisheries management organizations (RFMO) with different approaches. The establishment of standards and implementation was urged as soon as possible, noting that practical issues could always be addressed afterwards, but the critical issue was the extent to which we can rely on the data collected.

80. The Facilitator noted that IATTC was also in the process of establishing EM standards and that the different sizes of LL vessels presented challenges for designing minimum standards, for example, the number of cameras required. It was expected that the progress made by the Commission IWG on EM would be on the agenda in December.

81. A view was expressed that emphasized the importance of improved monitoring on the high seas, contrasted and supported by the data SPC displayed in the waters of RMI, Tuvalu, and Kiribati where 50% of the BET catch was in-zone. The failure of the Commission to properly monitor the high seas was highlighted – such as when MCS provisions were placed in certain EEZs, some fleets moved exclusively into the high seas. It was pointed out that the value of LL fisheries to some of the PNA countries is almost worthless, perhaps because MCS requirements for domestic waters which resulted in vessels fishing on the high seas instead. It was stated that the purpose of the PNA LL VDS was not to extract revenue, but to ensure rights. There is acknowledgement of the increasing importance of domestic LL fisheries and the difference in how it is treated, i.e. there is no price per day but it is rigorously monitored. It was also suggested that while some would like a domestic LL fishery that looks like the Hawaii LL fishery, currently the equivalent revenue is not present largely because of Commission failure to regulate the high seas. FFA and PNA members had put forward a MCS package at the Commission, including the use of ER and the suggestion that they needed to collect entry and exit data for the high seas and the collection of BET catch documentation at the point of sale. Currently, the Commission is not able to determine how many vessels are fishing on the high seas at any given time. While there is VMS, it was considered that there are still gaps.

82. In response to the query as to what specifically were the MCS gaps in the high seas LL and how they should be addressed, it was stated that entry and exit data and the lack of knowledge of how many boats were in the Convention area were basic. Further, if there were going to be catch limits, then there needs to be improved monitoring of BET catches. EM may help address this but that this might be further away presently.

3. Climate change

83. Participants were invited to discuss climate change in relation to the tropical tuna measure and to comment on ways to improve the measure in respect of climate change and the LL fishery.

84. Participants noted that including climate change in WCPFC recognizes the importance of the critical issue and the likely impacts on fisheries. Subsequently, other RFMOs have included climate change as a standing agenda in the management of respective fisheries. Commission members such as the US have championed the inclusion of climate change through proposals for measures and other opportunities such as chairing joint expert groups at ICCAT to develop a

work plan that aims to operationalize how managers are accounting for climate change in fisheries decision making processes.

85. The SPC presented slides on the potential impacts of climate change on fisheries and these are appended at **ATTACHMENT K.** The presentation focused on the work that SPC has been carrying out to look at the potential impact of climate change on the distribution of key tuna stocks in WCPO and projections based on RCP8.5. SPC pointed out that their modeling predicts a relative decrease in biomass toward the western boundary of WCPO and an increase in the east, but the overall scenario was that key tropical stock productivity declines under these climate change conditions.

86. The predictions were based on unfished biomass and did not include the impacts of fishing. It is thought that a major impact on the ALB stock performance might be the amount of dissolved oxygen which is an uncertain component of future oceanographic model predictions. It was also pointed out that the future trends would depend on the degree to which the global emissions could be addressed and would theoretically be less than what is predicted in the models under the RCP8.5 scenario.

87. The participants' questions and comments included that:

- Given the long range 2050 predictions and uncertainty in the models, participants asked what WCPFC members should be planning and doing in the immediate time frame in the context of measure?
- This is the time to start thinking about how members account for climate change in the measure as it is being reported that elevated sea surface temperature (SST) and El Nino are predicted to start in early May, so not only are near time shifts occurring, but also longer-term climate changes;
- When does ALB sensitivity to dissolved oxygen also impact tropical species? and
- How can the WCPFC integrate with other multilateral processes going on?

88. SPC responded that while impacts on tropical tunas appeared more directly through changes in e.g. water temperature and ecosystem impacts such as the foraging fish affected by those changes, ALB biology seems to be particularly impacted by dissolved oxygen levels. However, because this is not well captured in the oceanographic models, there is more uncertainty where ALB is concerned.

89. SPC is working on updating information and using a finer scale model than was used for the initial work. However, there is some uncertainty about finer scale processes around regions such as PNG, noting that tuna are thought to behave differently in archipelagic waters. Understanding what happens in the region will help highlight if the preliminary results for PNG

and other nations with archipelagic waters are realistic, or if they can be improved at a finer scale. SPC is also working on developing climate and ecosystem indicators to monitor short term implications relevant to the WCPFC climate change resolution, while in general, a stock that is not being fished as hard as MSY (for example), should be more resilient to climate change impacts.

90. In response to a question about the frequency and intensity of events and what is the position in relation to RPC 4 or 8.5, SPC noted that there is expected to more El Nino events under climate change but we have just come out of 3 years of La Nina conditions which shows just how uncertain the future forecasting is. The pattern for tuna moving eastward is consistent with the El Nino effect but it remains to be seen if that will happen over the coming years. In terms of extreme weather events, the expectation is that there will be more, and more powerful typhoons impacting small island developing States (SIDS).

91. Participants also commented and noted that:

- It is not only about tracking frequency and severity of events, but it will also be about boats at sea and managing those outcomes;
- The ENSO cycle this year is quite peculiar, with a protracted La Nina phase that officially ended March 27, 2023, with a neutral phase that was only 1.5 months. Further, El Nino is expected to start in the middle of May;
- The interpretation of the model using RMI as an example in which a score of -31 means that there is a 31 percent decrease in unfished biomass expected to be in their EEZ under that climate change scenario; and
- Looking at what the change in fleet dynamics in response to change in biomass using robust estimates to understand economic impacts, has been considered and funding to develop a methodology and determine what data is needed has been secured.

92. Participants considered that it was clear that any conversation has to include climate change and this is why it is a standing issue at the Commission, and is proactively addressed by the FFA, US and Pacific leaders. In the Pacific, climate change officials have met with fisheries officials for the first time in Honiara to develop a FFA climate change strategy. It was pointed out that while building climate change into the measure and the management of LL, the work of the Commission is important, but it is also a challenge to as where impacts have to be tackled on many levels. It was noted that nationally, regionally, and internationally through processes such as United Nations Framework Convention on Climate Change are where Pacific fisheries voices need to be amplified.

4. Balancing management objectives

93. The discussion on balancing management objectives opened with comments from the perspective of the Hawaii LL fleet, though small compared to other fleets, it has a management objective to have a long term viable fishery with continued opportunity to land high-value, large BET. In terms of LL limits, the Hawaii LL fleet seeks to better understand the FFA and PNA countries' position on rebalancing high seas and in-zone LL management with the view to achieving compatibility between interests. Some apprehension was held if the balance would be shifted towards ZBM and the Hawaii based fleet, which predominately fishes on the high seas due to domestic area closures, would be severely impacted. Compatibility is a key principle, and does mean one size fits all, but cooperation is necessary among CCMs. It was further noted, that 80% of the catch from the tropical tuna measure comes from purse seining in PNA waters, thus it will take a bit of finessing to balance purse seine and longline management.

94. The sentiments expressed from the Hawaii LL perspective were acknowledged by FFA representatives including the willingness to have conversations in this workshop on positions concerning effective management objectives for LL, as well as the recognition of the US as an important partner, having just concluded US Treaty discussions. Discussions on additional MCS elements that FFA countries have already tabled at the Commission such as observer coverage, ensuring the safety of observers, and the commitment to EM are topics for common ground.

95. Participants agreed that the topic of balancing management objectives provides the opportunity to start conversations and identify possible points of overlap, or areas to work on. It was proposed that more time should be allowed to hear more details about those things.

96. A useful summary was provided to the workshop that pointed out that responses from the US, PNA, and others to the Chair's draft of CMM 2021-01 indicated positions and were useful for these discussions, as are the discussions from the first virtual workshop in 2021. Collective positions lead to acknowledgment of a need to revisit Table 3 of CMM 2021-01. There was also recognition that the Commission has yet to focus on the implementation of the LL limits through effort or catch. The PNA have adopted the LL VDS and set agreed limits in their waters which are not debatable but could be a feature in the revisions to the measure. There is no dispute that a robust management scheme for the tropical tuna LL fishery is required, and that MCS provisions need to be included in the LL elements of the measure.

97. An affirmative response was provided to the query as to whether or not there was a total allowable effort for the PNA LL VDS, and if there is transferability among PNA of those limits.

98. It was expressed that it would be good to see other fleets adopt improved LL monitoring as presented by others here and the Hawaii LL fleet because it would provide better certainty of the fisheries' impacts on the stock and the ecosystem, including incidental catch and bycatch. The point was made that sustainability is a key driver in the long-term continuity of fisheries, but

that a better picture of fishing efficiency and impacts on increased effort for broader fisheries management is needed.

99. The inclusion of EM was seen as a way to address the issue of difficulties in finding human observers by OPRT members, who also recognize the need for increased coverage. It was suggested the easiest way for the Commission would be to establish standards for electronic monitoring and then see if there are any problems. Labor issues are highlighted as a critical issue for DWF as markets are demanding more sustainable and ethically sourced products from LL. The representative of the OPRT informed that Members of the OPRT are reminded of this, and committed themselves to address labour issues by adopting an OPRT Resolution. He also informed that a common policy on bycatch is expected to be established at a meeting in June which will emphasize the importance of implementing binding measures on bycatch in each RFMOs, while noting there are some .

D. Responses to the Chair's Roadmap and Proposed Revisions to the WCPFC Tropical Tuna Measure

100. A brief summary of the responses to the Chair's proposed revisions to CMM 2021-01 lead discussions by Participants on related issues.

E. Consideration of issues related for revisions to longline components of CMM 2021-01

i. Fishing privileges or allocations

101. Recalling a 12,000 mt proposed collective change for longline catch limits (3,000 mt increases for four members in Table 3) 2021, the US proposal at the time was considered consistent with the BET objective. A question was raised as to whether a LL scaler would be an increase of around 20% if the 2016 - 2021 catches are between 54,000 - 64,000 mt per year. SPC responded that 20% sounds about right but it is not known yet if those sorts of changes will be consistent with the BET objective as it currently stands in the measure, keeping with 2012 - 2015 biomass depletion levels. It is expected that this is the kind of question that will be raised at the June Workshop, which will also depend on what the Scientific Committee suggests for scientific advice on stocks or whether at 2012 - 2015 levels or some other baseline is to be evaluated.

102. Additionally, it was asked that if the goal of 2012-2015 levels are the target for the future, will this leave biomass depletion level at 37% unfished biomass for 30 years and would this mean in order to achieve that, an increase in scalars for LL and PS could go up to 38%?

103. SPC confirmed that this was correct assuming that PS and LL were each increased by the same percentage of 38% based on the old stock assessment, but that it would have to wait for the new stock assessment in August 2023 to see if this outcome changes.

104. Participants asked that if the Scientific Committee management advice recommends the 2012 - 2015 level, is it mostly associated with levels of risk of breaching reference points, or are socioeconomic considerations included? SPC replied that the 2012 - 2015 level was the recent period when the stock assessment was done in 2017, and the advice that the Scientific Committee gave was related to depletion levels in the most recent 4-year period at the time. In response to a specific question, SPC confirmed that if those old calculations were correct, the 2021 proposal to add 3000 mt for 4 nations under Table 3, a total of 12,000 mt was well within a 20% increase.

105. The issue of limits for all Commission members arose asking what steps would need to happen, acknowledging that this was a critical step going forward.

106. A view was expressed that there were two 'tracks' to revise the tropical tuna measure: Table 3 and paragraph 41. Moderate adjustments to Table 3 could be considered, paired with the FAD closure - noting that this discussion had not been revisited this year and was also not a shared view amongst FFA members. Other FFA members had concerns about impacts of the increases in Table 3 limits on ALB.

107. Discussing paragraph 41 of the measure and all members' views, it was noted that Canada does not want to give up catch limits even though it is not catching BET. It was noted that doing allocation cuts at any time is difficult with stable numbers of fleets, but is particularly difficult when changing numbers in fleets due to growth in SIDs and it was suggested that a more simplified approach is needed. In summary, a moderate increase in Table 3 was acceptable and to start engaging on paragraph 41, as there is no reason for putting this aside as a preference was expressed.

108. SPC was asked to comment on what could realistically be achieved in advance of revisions to the measure in December. SPC noted that it regularly provided longline data summaries to WCPFC in Table 6 of an information paper (e.g. WCPFC19-2022-IP04), which shows general patterns of catch by flag in the last few years, including COVID effects. However, they noted that it is hard to see if limits in the table are restricting catch for those fleets.

109. It was clarified that reference previous comment on not accomplishing revisions this year was in relation to addressing paragraph 41 - and not Table 3, which could include moderate increases in longline catch limits with consideration to modifying FADs closures.

110. Regarding COVID, it was noted that the imports of tuna caught by OPRT Members into the Japanese market for the last 2 - 3 years were lower than previous years due to the lower demand for sashimi tuna in Japan than previous years and difficulties with crewing due to travel restrictions. Feedback from members also suggests that many have not recovered from the

impacts of COVID effects on their operations. So, caution was encouraged in using catch amounts in the past 2 years when suggesting unused catch limits should be given up.

ii. Transferability

111. Discussions on transferability commenced with a view expressed that politically speaking, giving up catch limits is difficult but noted that one-time transfers are more palatable for various reasons and transferability can help with negotiations.

112. Comments were invited from those with experience in other RFMOs with regards to transferability. It was noted that International Commission for the Conservation of Atlantic Tunas (ICCAT) agreed in 2019 to new catch limits tentatively but has not made progress since then on a new allocation scheme despite several meetings. One of the issues discussed was transferability but this was not supported by developing countries. Only a limited number of countries in ICCAT have catch limits and they are mainly developed countries. A suggestion was made that if countries with catch allocation have 'room' they could transfer those catch limits to developing countries, but there does not seem to be support for general rules on transferability. It was also noted that there is a lot of transferability of jack mackerel limits within the South Pacific Regional Fisheries Management Organization (SPRFMO) built into a measure which seems to move smoothly.

iii. Impacts on tropical tuna stocks

113. SPC acknowledged that there are mixed fisheries issues for BET and YFT, and recommended that requests for scientific advice at the June workshop be prioritized for preparation to the Scientific Committee.

114. With regards to seasonal fluctuation experiences and with El Nino likely occurring, questions were asked about whether EL Nino helped tropical tuna productivity and recruitment or improve catchability in the LL sector by reducing stratification of thermocline. In response, SPC stated that where SKJ was concerned El Nino conditions are thought to be positive. The conditions do impact catchability depending on where you are in the WCPO and efforts are made to take this into account in, for example, CPUE analyses.

Roundtable Discussion - Consideration of issues related for revisions to longline components of CMM 2021-01

115. The Facilitator invited participants to engage in a free-flowing discussion on issues related to revision to the longline components of the tropical tuna measure, including revisiting some of the issues already discussed over the course of the workshop. The Facilitator encouraged

open and frank exchanges on what participants thought needed to be done between now and the December 2023 annual meeting in the Cook Islands.

116. Discussions commenced with a question about entry and exit notification for MCS measure on the high seas and how it worked. It was said that VMS was the problem and that there had always been gaps in reporting that resulted in the Commission not knowing if vessels fished or did not fish on the high seas, only if they did so in zones. It was noted that FFA members require entry and exit reporting for their zones but requirements for other members such as the US were not known. It was suggested that it would be a simple process for the Commission to replicate but that reporting pathways would need to be determined when vessels crossed lines: i.e. whether reporting is to flag or coastal state, directly to the Commission or to flag with responsibility.

117 In response to the observation that VMS are supposed to be reliable and tamper proof, it was stated that systems do fail and they can be turned on and off illegally, although it is not known if this a systemic issue or not.

118. Discussing VMS data parameters, access, and timeliness of the information at the Commission was raised, as well as the observation that if logsheets are being received information could be cross checked. It was suggested that rather than reports going directly to the Commission or at the same time, they could first go to the responsible flag state to take responsibility for all vessels meeting reporting obligations. Further, it was suggested that one of the obvious things to do was to reframe 'the fish or not fish' report, so that it included the high seas.

119. The issue of reporting via electronic logbooks (or ER) transmitted via VMS, and whether this provides a pathway for operational data to the Commission was discussed. There was some uncertainty of what the FFA or Commission conditions were for electronic logsheet data reporting. Where the Commission is concerned, a suggestion was that the electronic logsheets should go to flag state because there needs to be quality control for catch limit monitoring.

120. It was noted that there were gaps in reporting but there needed to be a level playing field when deciding on provisions acknowledging those that had already developed ways to collect operational data like PNA's FIMS for operational PS data. Further noting that while there may be differences between LL and PS, the fundamental principle should be the same, that of reporting near real time operational data. Emerging technologies are expected to help fill some of the gaps in the future.

121. It was suggested that automated high seas entry/exit reporting using VMS if dependable, and meets standards would be less of a burden on fleets. It was also noted under the

Commission's rules, VMS alerts are triggered within 100 miles distance from EEZ boundaries allowing for a heightened awareness by coastal states.

122. It was asked if observer coverage rates were required to exceed 5%, should that be prioritized to high seas longline fishing. In response, it was stated that observer coverage is 100% for PS and LL has gone from 5% to 20% for FFA members in-zones and that service providers are experiencing blackouts for ER at sea, making it problematic.

123. The idea of an automated system for high seas entry/exit reporting was supported by another participant speaking from an industry standpoint, noting that while systems do fail, the Commission VMS was very good and should be utilized fully. However, concern was expressed about provisions for back up in the event of a systems failure.

124. Further to the discussion on observer programs, a question about the role of observers on PS and claims of 100% coverage was posed. It was stated, that frequently it is claimed that there is 100% coverage but Participants were asked to recall the discussion when IATTC adopted a creative scheme for managing BET catches by individual PS vessels. If BET catches of a PS vessel exceeds a certain threshold, the next year the vessel shall extend the FAD closure period. A weakness pointed out was that observers on PS cannot estimate how much BET is caught by each vessel exactly, and that if this scheme is introduced, they will need to strengthen port sampling and take into consideration cannery data records for total numbers by species because this is not possible by fishing vessel. In the case of LL observers, they are able to measure and weigh individual fish and photograph bycatch, so when percentage of coverage is discussed, there is a need to appreciate what observers actually do and not make comparisons about percentage levels between PS and LL. Concern for observer safety was also mentioned as an issue.

125. SPC noted that from a scientific point of view, the work on species composition sampling is sufficient to better estimate the overall species composition of PS catch. Sampling is less than 1% of total PS catch but it works well when looking at the whole fishery. There was agreement that this is not sufficient to look at specific catch, on specific vessels, which is why the Commission has a project to gain access to cannery information to get a more precise species composition at trip level, noting that not all catch may go to canneries. Currently, that information is available for the US and Philippines. It was also noted that ICCAT has started using echosounder data attached to FADs for stock assessment.

126. It was noted that discussions with licensing officers in PNG show a preference for automated entry and exit reporting and notifications of port. ER data going directly to the PNA FIMS can be programmed to go to SC or home flag state, though preference is for it to go directly to SPC. Officers are required to follow up and verify data, including latitude and

longitude information. Work is ongoing with FIMS to improve and standardize with other reporting mechanisms in the region.

127. In reference to the proposal for using catch documentation as independent monitoring of catch limits, it was noted that in 2018, WCPFC looked into reducing BET bycatch by a similar exercise as that used by IATTC, and Japan started port monitoring where catch was offloaded but this became unworkable and was dropped. There are observers for independent verification of a fishery with catch limits and there is no alternative form. Where BET is concerned, catch documentation to the first point of sale is where the effort to get independent monitoring of a catch limit for LL should be focused.

128. It was pointed out that catch documentation tracing catch all the way back to where it was caught through to the buyer, is part of the standards for MSC, so MSC certified fisheries should have that by default. This was acknowledged, but it was also noted that while there is the capacity to do so, it was not a requirement to report to the Commission. PNA have access to all the traceability data through to canneries in FIMS but anything outside of that is commercial data developed under certification. They are only now bringing all that data together making the convergence of that data being interstate traceability for commercial and management purposes. For LL, PNA are monitoring limits, while in PS it is to improve accuracy for stock assessment purposes for SPC.

129. It was noted that the Commission Transshipment IWG are currently discussing transshipment measures regarding destination markets, point of catch and point of landing.

130. It was noted that the Hawaii LL fishery has catch documentation as part of normal regulatory process called ‘dealer data’ where when a dealer purchases fish, they report the fish and weight. In other parts of the supply chain, various players would add another reporting requirement.

131. A suggestion was made that there might be an interest in similar catch documentation requirements for cannery purchased BET.

132 It was suggested that if a LL catches and transfers species to a carrier vessel, the transfer should be validated since there are 100% observers on carrier vessels. In response, it was pointed out that there needed to be independent verification where there are catch limits through to the point of sale. Carriers do not have log sheets where they report to WCPFC tonnages offloaded, from who to who, and this is thought to be a gap in the process. Having carrier log sheets would be getting very close to having first point of sale documentation, independent monitoring and verification of catch to the first point of receipt of buyer. PNA is expecting to apply requirements for this in both PS and LL, although perhaps with different levels of verification.

133. There were discussions at the December 2022 WCPFC meeting in Da Nang on transshipment, noting different fields for inclusion for catch documentation, carrier log sheets, and the monitoring of transshipment. An interest was expressed in hearing views on carrier log sheets to fill gaps, whether this would be difficult in the scope of the tropical tuna measure or elsewhere. Other participants held the view that transshipment would be a separate measure, but that to improve MCS, the gaps of in-port transshipment should be looked given that at-sea transshipment has 100% observer coverage at sea but this is not true in ports.

134. Participants agreed that the MCS elements had been well discussed with some common ground established, including the need to see all fleets and members increase monitoring. This point should be captured in the report for the workshop to be shared with others.

135. Discussions shifted focus to other aspects of the proposed amendments to the measure and asked if a 20% increase in LL limits is the equivalent of a 2-month FAD closure, whether there is variability, i.e. does it change given stock conditions or other considerations?

136. SPC displayed a table that provided an evaluation of the equivalent change in FAD sets to a 20% increase in LL limits, based on the old assessments (Table 13 of WCPFC18-2021-15). It was noted that this did vary according to the assumptions made and that results would depend on the outcomes of the new assessment in August. SPC pointed out that if this was the type of information desired, that again this is the type of request that should be made at the June workshop, and the table could then be updated based on the new stock assessment. SPC further confirmed that there is no direct relationship between a % increase in longline bigeye catch and a change in the FAD closure period, it just happened that 20% reduction is equivalent to around 2 months main FAD closure.

137. Further discussion on the issue of FAD closures sought clarification of length of closures and whether the limit reference point of 2012 - 2015 was a quasi-target, noting that earlier it was said that each sector could increase effort/catch by 38%.

138. SPC reiterated that it would depend on what will come out of the new stock assessment but acknowledged again that this is the sorts of discussion and information requests that should be made in a coordinated way to the June workshop where members could rank their priorities for scientific information requests, and then an assessment could be made as to what was achievable in the time available.

139. Participants indicated that for the purposes of this discussion, there would be a willingness to discuss this issue further on the basis of the updated assessment to determine how much buffer there is, and where the red line sits for which we want to manage above. It was noted that in the last assessment there was only a 15% buffer delineated with stock depletion associated with the limit reference point.

140. Participants suggested that it was important to include 2018 data and it was noted that the difference between this time and the last time FAD closures were considered, was that there was more uncertainty around BET associated with uncertainty around YFT, so there were additional precautionary elements in 2021.

141. SPC indicated that the timeline between August and the annual meeting for analyses to be undertaken was that the prioritized work would need to be agreed to in June, and performed based upon the outcomes of the Scientific Committee meeting in August for the October workshop, and anything else feasible performed before the Commission meeting at the end of the year.

142. It was proposed that this information be merged with the work plan for the measure.

F. Agreed workshop outcomes and next steps

143. The Facilitator suggested that a draft of the workshop report in the agreed format would be available for comment and correction before being finalized. Participants agreed that the report of discussions at this workshop could be submitted to WCPFC annual session as a delegate paper.

144. The workshop co-conveners indicated that they would hold a third informal workshop before between now and the end of the year when a time could be identified. This would have a more focused agenda given the time available before the measure is negotiated and would again include invitations to those who were not able to attend this workshop due to other scheduled fisheries meetings, including representatives from other DWF.

145. Participants indicated that they were appreciative of this opportunity, as some felt they were on the outside looking in during Commission meetings. They agreed that it had been useful to understand what others were thinking and finding common objectives.

146. The Facilitator closed the workshop, thanking everyone for participating, SPC for their contributions and the virtual participants for joining in.

147. Summary of Outcomes

SUMMARY OF OUTCOMES

The workshop operated on the basis of an informal exchange between interested participants. The aim of discussions was to find common ground and support on longline management matters relevant for the revision of the WCPFC tropical tuna measure. The following outcomes reflect a summary of key discussions and matters on which participants agreed.

1. Participants noted with appreciation the updates on longline management arrangements in zones and the information presented on the implementation of zone-based management through the PNA longline vessel day scheme, information shared by others on in zone LL management and the scientific information provided by SPC.

2. On the basis of current information, the workshop acknowledged that the BET stock is considered to be in good condition. Participants expressed optimism that this is not likely to change with a new stock assessment provided to SC19 in August 2023 by the WCPFC Service Provider, if changes to the stock assessment are minor. It was noted that BET stock status should allow for consideration for increases in bigeye tuna catch limits reflected in Table 3 of CMM 2021-01, at WCPFC20 in December 2023.

3. In agreeing that there is likely room for increase in the BET catch limits in Table 3, it was acknowledged that paragraph 41 of CMM 2021-01 identifies the need for hard limits (effort or catch) for all CCMs but that this would involve a process that may take some time.

4. Participants agreed that compatibility between zone based and high seas longline management does not require the same management currency (effort or catch), with improving longline MCS as a key factor for management effectiveness.

5. It was agreed that the balance when separating catch or effort limits between high seas and in-zone consideration should be given to a fishery's domestic EEZ measures including existing closed areas.

6. Participants noted that it is likely that any increases in longline BET limits would also involve proposals to equivalently increase the purse seine BET scalar (e.g. 1-month less of FAD closure duration).

Monitoring, control and surveillance and other considerations

7. Participants acknowledged low levels of observer coverage in longline fleets of some CCMs and sought to clarify what would constitute adequate MCS on the high seas and in-zone. The provisions discussed by the workshop included: increased observer coverage, assurance of observer/crew safety, high seas entry/exit reporting, transshipment reform, electronic reporting, bigeye tuna catch verification, electronic video monitoring (EM), and outcomes from the annual CMS.

8. Participants agreed that the responsibilities for monitoring and ensuring observer coverage are a shared responsibility across all longline fisheries, including those fisheries where vessels are chartered. The workshop also noted that some fleets with larger vessels have capacity limits and that there is an increase of smaller vessels fishing on the high seas. The workshop also noted the accomplishment of the RMI in maintaining 20% observer coverage in their zone as exemplary and further that the US longline tuna fisheries have been achieving around 20% observer coverage for decades.

9. Participants noted that the standards for high seas entry/exit notification mechanisms need to be reconciled and consideration given to existing technologies such as VMS and ER that could provide automated notifications. They also considered that there needed to be contingencies for reporting when there are technological failures.

10. It was agreed that EM could complement human observer coverage, but that it could not replace human observer coverage and further that WCPFC minimum standards for EM on longline fisheries needs to be progressed taking into account variations in longline vessel sizes and operational characteristics.

11. Participants acknowledged a catch documentation scheme for bigeye tuna could improve monitoring including transshipped bigeye catch, noting that there are a variety of mechanisms to track bigeye tuna from capture to first point of sale. This may include monitoring of carrier vessels through a standardized logsheet, for those vessels that transship. The workshop noted that in-port transshipment may not have 100% observer coverage.

Science Analyses

12. Participants agreed that there is a critical need to prioritize requests made by CCMs to the Scientific Services Provider for the purposes of amending CMM 2021-01. It is anticipated that this would be a task for the first WCPFC workshop on the tropical tuna measure in June.

13. It was considered that analyses are needed for catch, effort, and catch-per-unit-effort (in weight per day) by zone and high seas, for longline fisheries and fleets. It was suggested that analyses could be similar to that provided for the Hawaii longline fishery.

Climate change

13. It was acknowledged that inclusion of climate change in fisheries considerations should feature in the revision to CMM 2021-01, and that all WCPFC CMMs would need to reflect adaptability in the face of uncertainty due to climate change impacts on fisheries.

Next steps

14. The co-conveners of the workshop indicated that they would seek to hold a third workshop with a narrowed focus, taking into account the Commission process for the revision of the TT measure, a wider participation in the informal discussions, and the time available before the annual WCPFC meeting in December.

LIST OF ATTACHMENTS

Attachment A

2nd Workshop on Western and Central Pacific Tropical Tuna Longline Fishery Management

April 29 and 30, 2023

Honolulu, Hawaii, U.S.A.

AGENDA

A. Introduction/Welcome
B. Overview of the key considerations at the first workshop (WCPFC19-2022-DP-17)
C. WCPFC Tropical Tuna Road Map
    i. Longline Management Allocations
        1. SPC Analyses
        2. Catch
        3. Effort (sets or days)
        4. Zone-based longline characteristics
    ii. Further Discussion on Key Issues
        1. Consideration of fleet differences
        2. MCS
        3. Climate change
        4. Balancing management objectives
D. Responses to the Chair's Roadmap and Proposed Revisions to the WCPFC Tropical Tuna Measure
E. Consideration of issues related for revisions to longline components of CMM 2021-01
    i. Fishing privileges or allocations
    ii. Transferability
    iii. Impacts on tropical tuna stocks
F. Agreed workshop outcomes and next steps

Attachment B

2nd Workshop on Western and Central Pacific Tropical Tuna Longline Fishery

Name	Affiliation
Shingo Ota	Organization for the Promotion of Responsible Tuna Fisheries
Graham Pilling	Pacific Community, Ocean Fisheries Programme
Angie Tretnoff	National Oceanic Resource Management Authority, Federated States of Micronesia
Brian Kumasi	Parties of the Nauru Agreement
Charleston Deiye	Nauru Fisheries and Marine Resources Authority, Nauru
Chris Reid	Pacific Islands Forum Fisheries Agency
Glen Joseph	Marshall Islands Marine Resources Authority, Republic of the Marshall Islands
Kaon Tiamwere	Ministry of Fisheries & Marine Resources Development, Kiribati
Leka Pitoi	Papua New Guinea National Fisheries Authority, Papua New Guinea
Liman Helgenberger	National Oceanic Resource Management Authority, Federated States of Micronesia
Uati Tirikai	Ministry of Fisheries & Marine Resources Development, Kiribati
Manu Tupou-Roosen	Pacific Islands Forum Fisheries Agency
Manu Tupou-Roosen	Pacific Islands Forum Fisheries Agency
Sam Finikaso	Ministry of Fisheries and Trade, Tuvalu
Sangaa Clark	Parties of the Nauru Agreement
Thomas Usu	Papua New Guinea National Fisheries Authority, Papua New Guinea
Alexa Cole	National Oceanic and Atmospheric Administration, United States of America
Kelly Kryc	National Oceanic and Atmospheric Administration, United States of America
Jason Philibotte	National Oceanic and Atmospheric Administration, United States of America
Siri Hakala	National Oceanic and Atmospheric Administration, United States of America
Eric Kingma	Hawaii Longline Association
Sean Martin	Hawaii Longline Association
Keith Bigelow	National Oceanic and Atmospheric Administration, United States of America
Les Clark	Parties of the Nauru Agreement
Kitty Simonds	Western Pacific Regional Fishery Management Council
Mark Fitchett	Western Pacific Regional Fishery Management Council
Barbara Hanchard	Meeting Facilitator

ATTACHMENT C

LIST OF DOCUMENTS

(A1) *Agenda for 2nd WCPO Tropical Tuna Longline Management Workshop*
(B1) *WCPFC19-2022-DP17 Report on WCPO Tropical Tuna Longline Management Workshop with Appendices*
(C1) *WCPFC Circular 2023-13 issued 27 Feb 2023*
(C2) *WCPFC19-2022 Work Plan to Negotiate a Revised Tropical Tuna Measure in 2023*
(C3) *WCPFC-TTMW2-2021-01: Results of analyses requested by 2021 tropical tuna measure workshop*
(C4) *WCPFC19-2022-12 WCPO bigeye and yellowfin TRP evaluations (with updated 2022 skipjack assessment results)*
(C5) *WCPFC19-2022-IP03 Summary of the reports received under Tropical Tuna CMMs from 2019 to 2022*
(C6) *WCPFC19-2022-IP04 Catch and effort data summaries to support discussions on the tropical tuna CMMS*
(C7) *Documentation provided by PNA on converting catch to effort*
(C8) *Documentation provided by the US-PIFSC converting Hawaii longline effort from catch*
(C9) SC14-EB-WP-01 Impact of climate change on tropical Pacific tuna and their fisheries in Pacific Islands waters and high seas areas
(D1) *Comments received and summarized by Chair on Members' Views on Revising CMM 2021-01*

B. Key Considerations Emerging from First Workshop

- Operational differences among the fleets need to be considered
- Impacts associated with climate change on fisheries/fleets and SIDS and Territories' development aspirations need to be considered.
- Provisions on MCS need to be included in developing any future management measure.

B. Key Considerations Emerging from First Workshop

- Options on transferability of fishing limits need further discussion.
- Acknowledgement that the principle of compatibility is a key consideration in developing zone-based and high seas longline measures.
- Recognizing the need for adjustments to current tropical tuna longline limits while continued considerations of WCPFC limits are underway.
- Discussions for the next tropical tuna measure need further consideration of mixed fishery issues.
- Roadmap to revise CMM 2021-01

Management Objectives – Fleet Level

Management Objectives for tropical tuna longline fisheries to be evaluated with consideration of the associated trade-offs and requiring further refinement:

- Promote optimal yield ("pretty good yield") - maintain yellowfin and bigeye tuna biomass at levels that can optimize yield and support island-based food security.
- Enhance fishery performance, including high CPUE and considerations of efficiencies for fresh fish operations.
- Maximize market value through prevalence of large and/or high value fish
- Ensure human rights and safety at sea for fishing crew.
- Ensure collection and provision of accurate and timely catch/effort information
- Minimize/Reduce impacts from longline fisheries on associated and dependent species

Management Objects – Stockwide Level

Results: BET, 'recent' recruitment

Pacific Community / Communauté du Pacifique

target

Impact on YFT/SKJ/ALB

	Scenario (TRP goal)	% change in fishing (scalar)	BET 2048 Depl. ($SB/SB_{F=0}$)	2048 % Risk ($SB/SB_{F=0}$<LRP)	% change from 2012-2015 depletion	% change from 2015-2018 depletion	YFT Equiv. 2048 Depletion	SKJ Equiv. 2048 Depletion	ALB Equiv. 2048 Depletion
⓪	Baseline	0%	48%	0%	+30%	+17%	59%	43%	43%
①	-10%	+54%	33%	10%	-10%	-20%	43%	35%	39%
②	2012-15 Dep.	+38%	37%	3%	0%	-10%	46%	37%	40%
③	+10%	+24%	41%	0%	+10%	0%	48%	39%	41%
④	2000-04 Dep.	-4%	49%	0%	+34%	+21%	54%	44%	43%
⑤	10% LRP risk	+55%	32%	10%	-12%	-21%	43%	35%	39%
⑥	20% LRP risk	+70%	29%	20%	-23%	-30%	41%	34%	38%

Historic Dep. levels	BET	YFT	SKJ	ALB
2000-2004	49%	54%	66%	69%
2012-2015	37%	55%	49%	58%
2015-2018	41%	59%	44%	52%

Pacific Community
Communauté du Pacifique

DISCUSSION ON LONGLINE MANAGEMENT OPTIONS: SPC ANALYSES

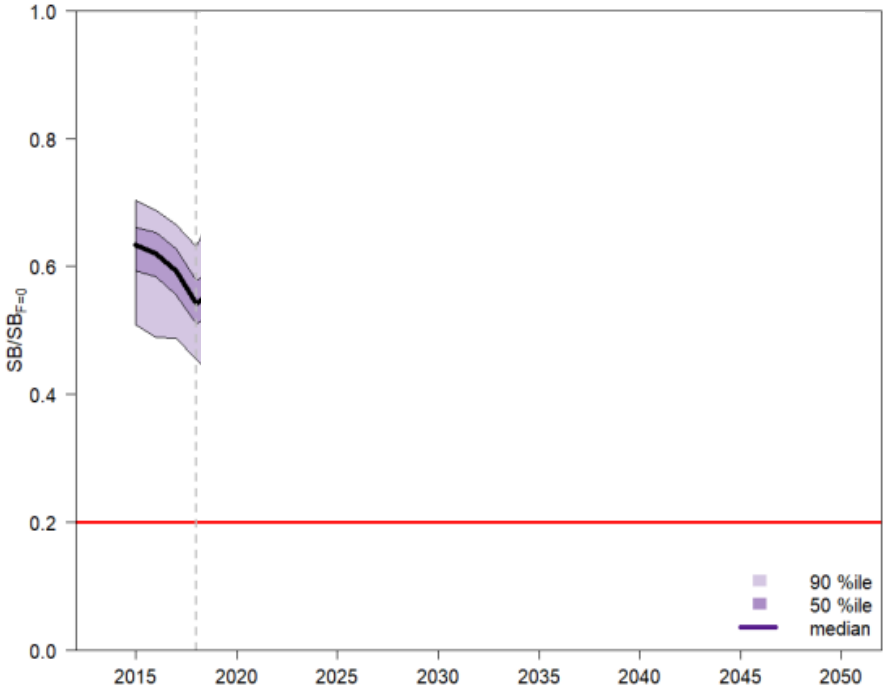
2ND WORKSHOP ON WESTERN AND CENTRAL PACIFIC TROPICAL TUNA LONGLINE FISHERY MANAGEMENT

ONLINE, APRIL 2023

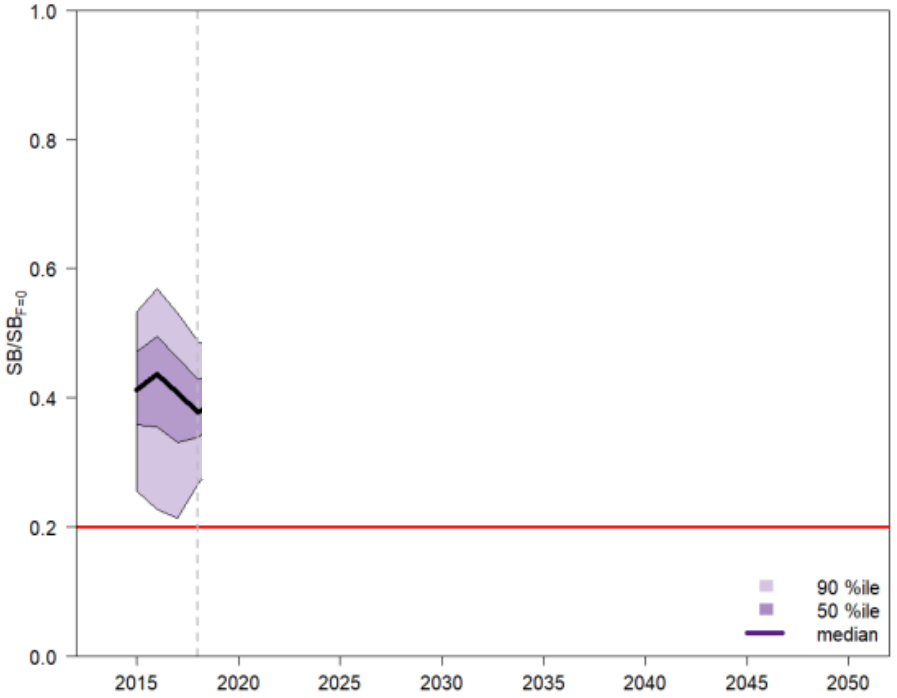
INTRODUCTION

- Key TT CMM area – high seas PS and LL allocation (Tables 2 and 3)
- SPC analyses focus on:
  - The PS/LL fishery as a whole > impacts on stocks
  - Examine how changes in high seas PS/LL levels influence BET/YFT/SKJ v objectives of the TT CMM
  - E.g. if high seas levels increase by 10% relative to recent levels, how does an increase in this component influence overall PS/LL impacts and hence stock status v objectives?
  - Specific allocation between CCMs
    - Can provide data to support allocation options

PROJECTIONS – SPECIFIC FUTURE CONDITIONS

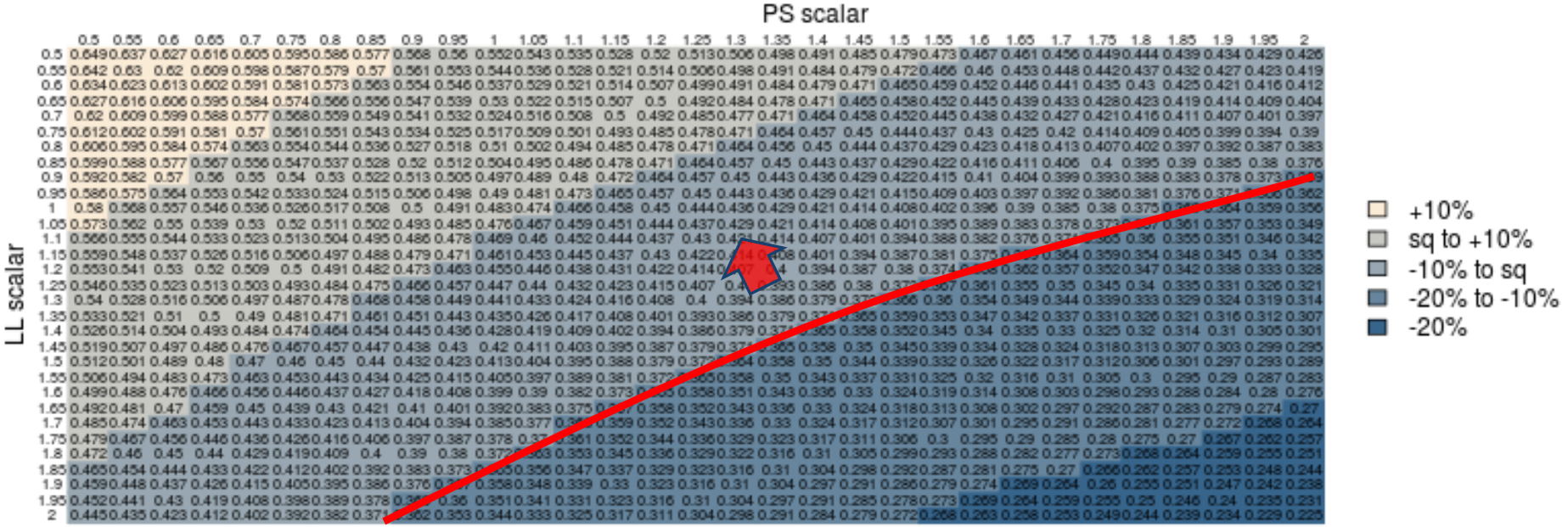


Yellowf
in



Bigeye [recent recruitment assumption]

EVALUATE THE TRADE OFF BETWEEN FUTURE PS AND LL EFFORT/CATCH LEVELS



NOTE: likely AVERAGE stock status
Risk stock < LRP also provided

Where 'sq'=2012-15 avg

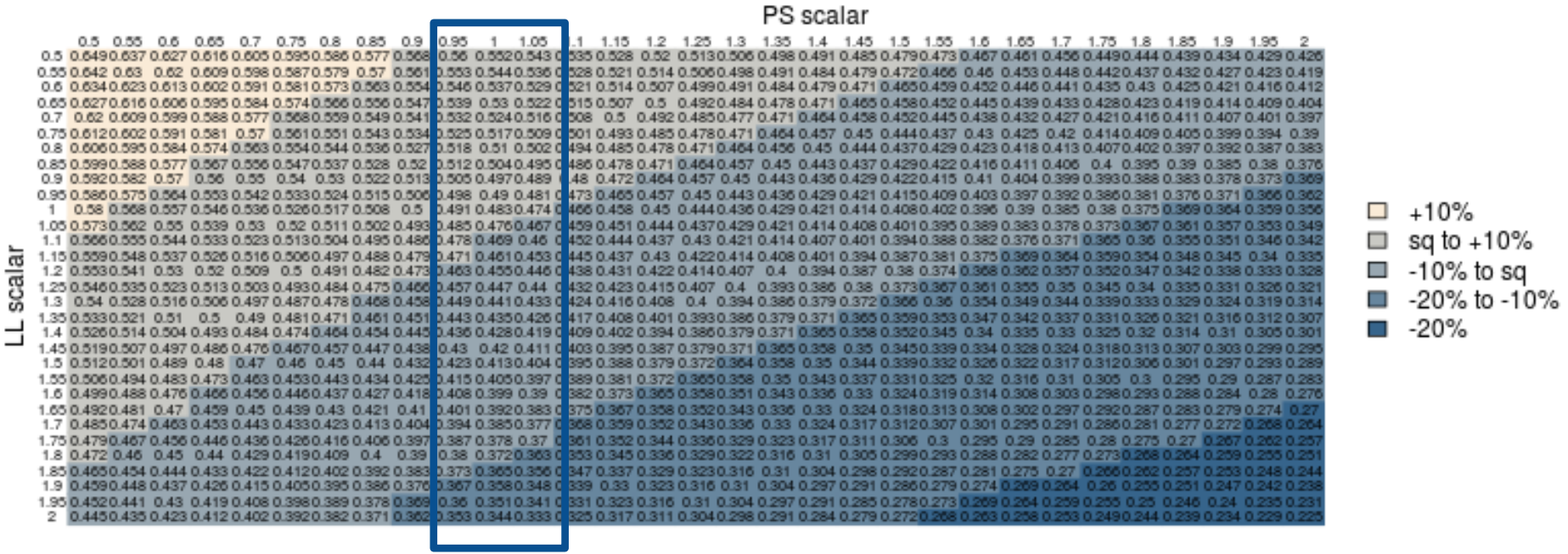
PROCESS?

- June meeting – prioritised CMM options to be evaluated by SPC
- August SC – new BET and YFT assessments agreed & mgmt. advice
  - Basis for CMM option evaluations
  - Will advice be 2012-2015 avg depletion levels? Unknown…
- August SC – SKJ management procedure run
  - Defines overall level of purse seine effort in the WCPO
  - MP assumes a 3mth FAD closure

PROCESS?

- Assuming SC advice = TT CMM objectives…
- October meeting – presentation of evaluation results
- December Commission – negotiate and agree

IMPLICATIONS



Other PS 'lever' – FAD closure period – replacement axis

Where 'sq' = **SC advice**

Appendix 1. Summary table of SSP requests from TTMW1

Pacific Community
Communauté du Pacifique

Approved Requests to SSP

Considering the capacity of the SSP it is not possible to complete all the 'Short' requests by the next meeting. With this is mind, the remaining 'Short' requests have been scored by the SSP in relation to their difficulty/time requirements, i.e., the 'Points' column. The meeting selected a priority list of requests that total no more than 20 points. The SSP would expect to complete these requests in the available time before the next meeting.

Category	Request	CCM making request	Technical feasibility	Time scale[2]	Points
TRPs	**BET** TRP as **average depletion 2000-2004**, determine, MSY, F, as a proportion of recent levels (2014-2017), projected to achieve this TRP. Overall, region, fish size (juv/ad)	Japan	**Technically feasible**	Short	2
TRPs	**BET** TRP as **median depletion 2000-2004**, determine, MSY, F, as a proportion of recent levels (2014-2017), projected to achieve this TRP. Overall, region, fish size (juv/ad)	Japan	**Technically feasible**	Short	
TRPs	**SKJ** Evaluate applying purse seine effort 2007-2009 ave., equlib yield v MSY, LRP risks 50%, 48%, 46%, 44% and 42%SBF=0, plus 36, 38 and 40% (Tokelau)	Korea	**Technically feasible**	Short	1
TRPs	**BET** Evaluate 2007-2009 fishing level in terms of median depletion level and the corresponding change in spawning biomass from 2012-2015 average, recent and long-term recruitment conditions	Korea	**Technically feasible**	Short	1
FAD closure	Adding months, projected change in **future depletion** for **SKJ, BET, YFT** **HS x 6 months, EEZ x 3 months**	Japan	**Technically feasible**	Short	~~2~~
FAD closure	Adding months, projected change in **future depletion** for **SKJ, BET, YFT** **HS x 5 months, EEZ x 4 months**	Japan	**Technically feasible**	Short	
FAD closure	Adding months, projected change in **future depletion** for SKJ, BET, YFT **HS x 6 months, EEZ x 4 months**	Japan	**Technically feasible**	Short	

[2] **Short** – next meeting; **Medium** – commission; **Long**- 2022?

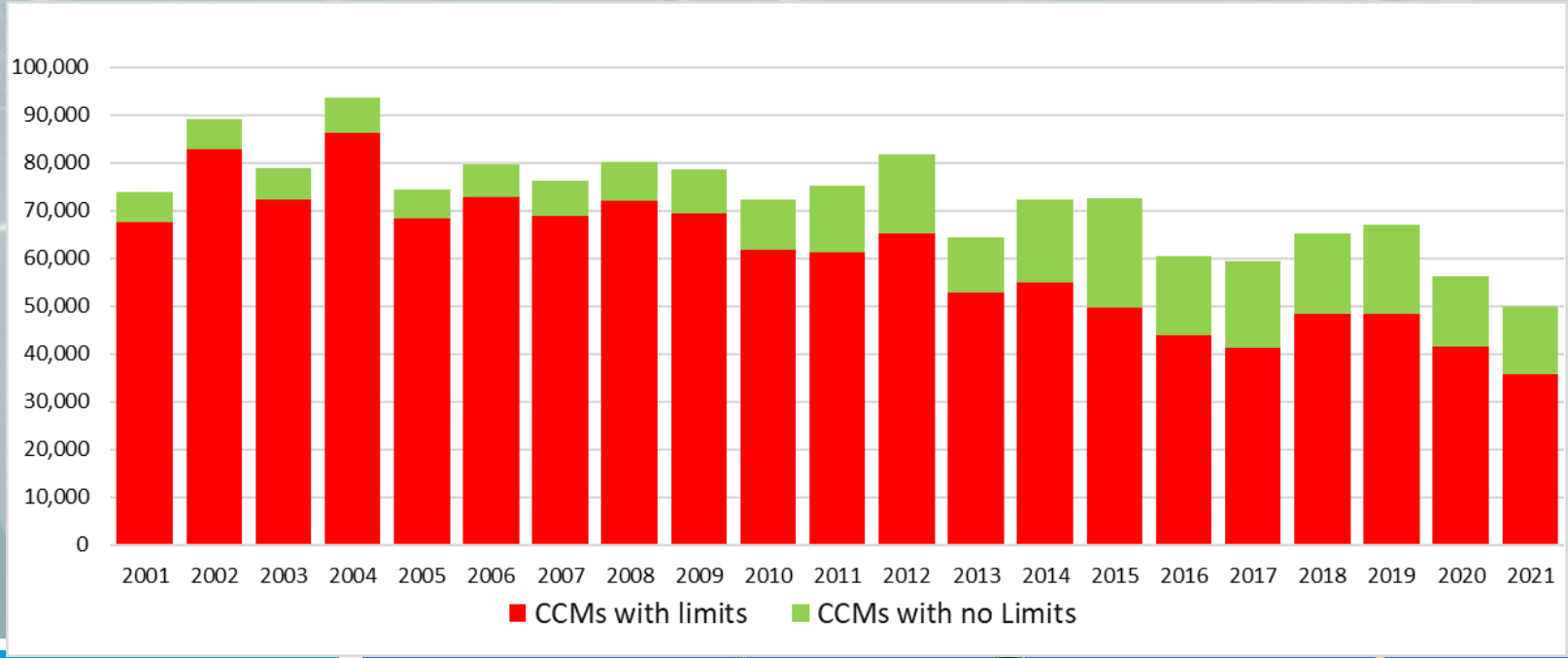
Attachment G

Catch – Bigeye Tuna Reporting

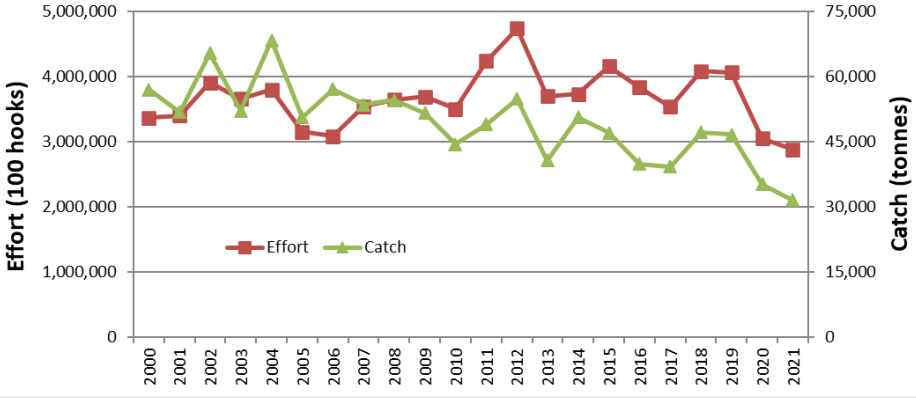
Table 5: Summary of CCM reporting of bigeye longline catch by WCPFC in accordance with CMM 2018-01 and CMM 2020-01 paragraph 41 - as at 17 November 2022 (Note: some CCMs replies to dCMR or most recent reporting to WCPFC may not be reflected below)

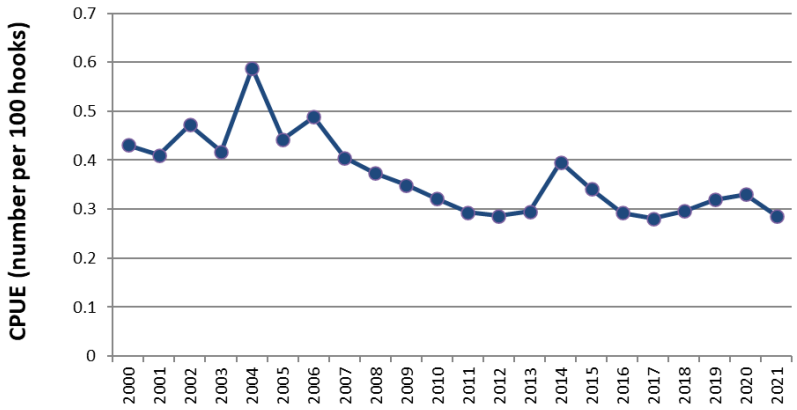
FLAG CCMs	2019		2020		2021	
	Catch / Limit (Mt)[14]	% of limit	Catch / Limit (Mt)[14]	% of limit	Catch / Limit (Mt) [14]	% of limit
China	8631 / 8724	**98.9%**	8631 / 8724	**98.9%**	5492 / 8724	64%
Indonesia	43 / 5,889	< 1 %	43 / 5,889	< 1 %	118 / 5889	< 1 %
Japan	11916 / 17765	67.1%	12,791 / 17765	72.0%	9465 / 17765	53%
Republic of Korea	13712 / 13942	**98.3%**	13011 / 13942	**98.3%**	13708 / 13942	**98.3%**
Chinese Taipei	9198 / 10481	87.8%	9198 / 10481	87.8%	7486 / 10481	71.7%
United States of America	3537 / 3554	**99.5%**	3557 / 3554	**100.1%**	3533 / 3554	**99%**

Catch – Bigeye Tuna



Catch – Bigeye Tuna Catch vs Effort





Doc (C6) WCPFC19-2022-IP04 Catch and effort data summaries to support discussions on the tropical tuna CMMS

Figure 13. Estimates of effort, bigeye catch and nominal CPUE for the CORE tropical WCPFC longline fishery CORE Area is (130°E - 150°W, 20°N - 10°S).

Attachment H

PNA VDS - FIMS Overview

PNAO

OUTLINE

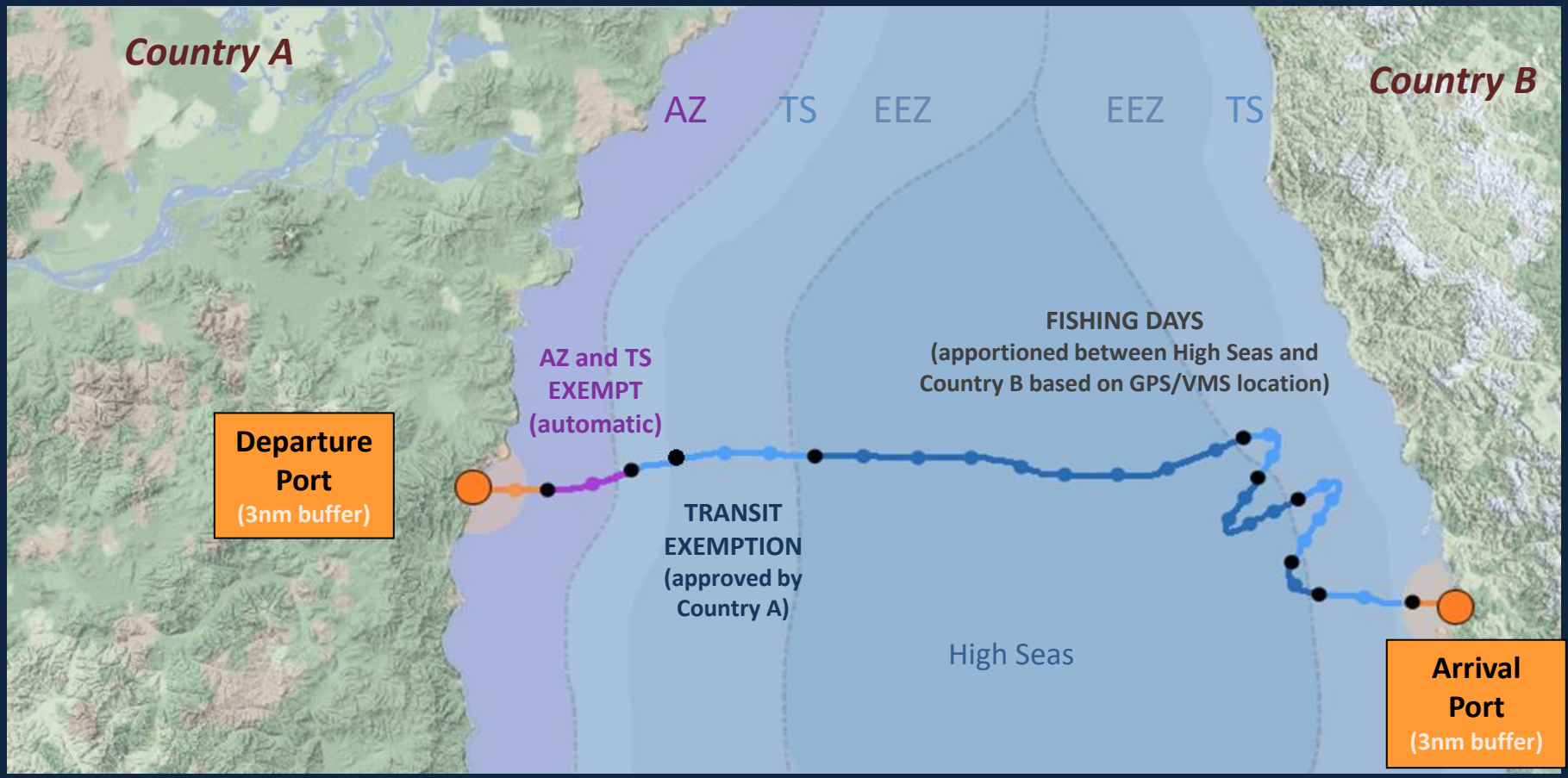
- Background
- Calculating Fishing Days
- PNA FIMS
  - Source of Information
  - Supports implementation of VDS
  - Modules
  - Compatibility

Background

- PNA - FIMS (Fisheries Information Management System), the tool that has been specifically assigned for the purpose of monitoring of **VDS** initially but has evolved over the years to be fully “fit for purpose” and unique.

Calculating Fishing Days

Please Note: Black circles indicate the timing of each Trip Segment



Calculation/Counting of Fishing Days

PSVDS (Article 5)

Part or whole day if there is fishing and NFD claim that meets the NFD def.

A vessel with LOA less than 50m counts as 0.5 VDS day;

A vessel with LOA between 50m-80m counts 1 VDS day;

A vessel with LOA greater than 80m counts as 1.5 VDS day

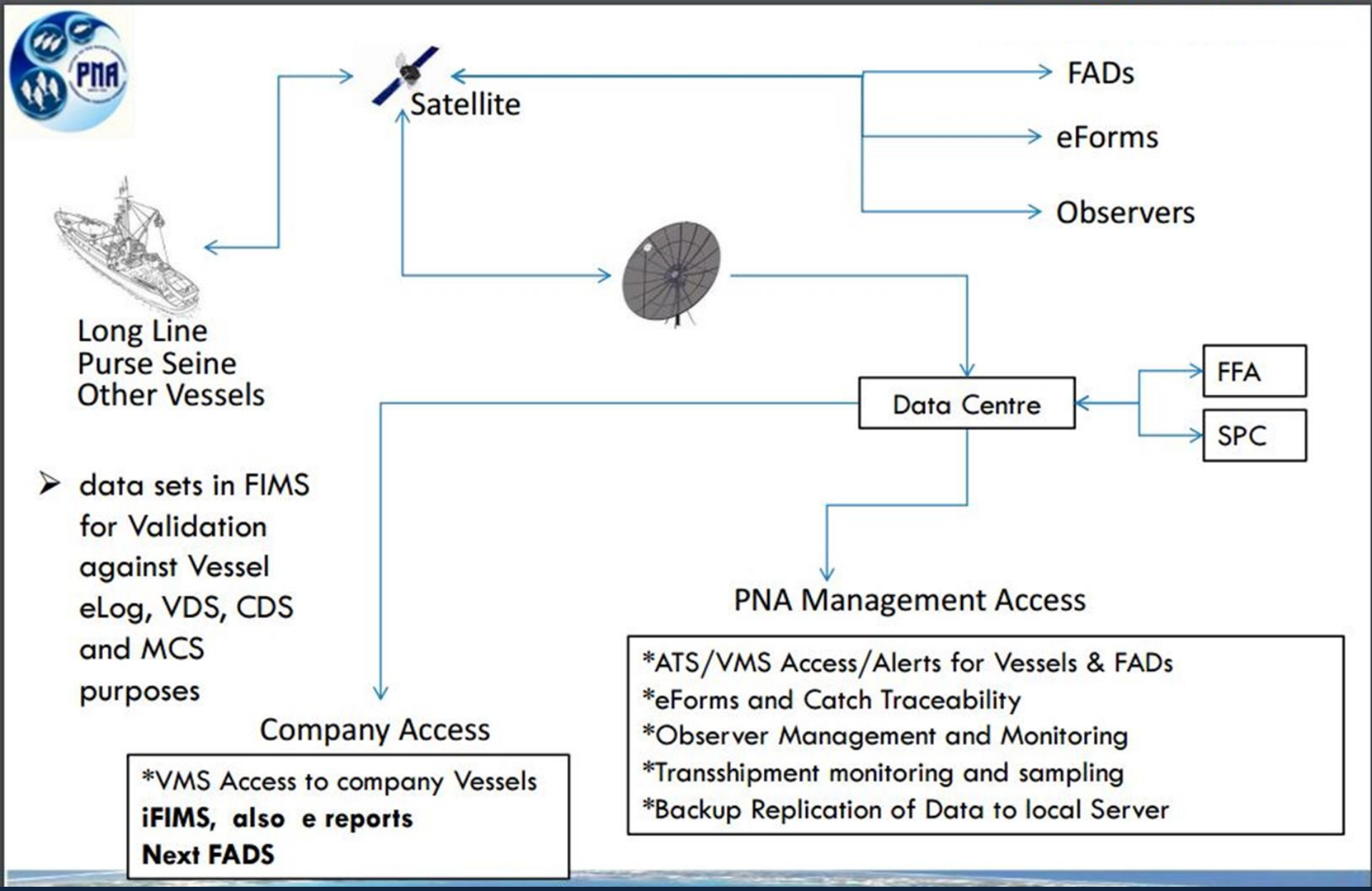
LLVDS (Article 5)

Any vessel with LOA up to 40m counts as 0.8 VDS day;

Any vessel with LOA greater than 40m counts as 1.3 VDS day;

NFD claims introduced to LLVDS

PNA FIMS


Satellite
FADs
eForms
Observers
Long Line
Purse Seine
Other Vessels
Data Centre
FFA
SPC
data sets in FIMS for Validation against Vessel eLog, VDS, CDS and MCS purposes
PNA Management Access
*ATS/VMS Access/Alerts for Vessels & FADs
*eForms and Catch Traceability
*Observer Management and Monitoring
*Transshipment monitoring and sampling
*Backup Replication of Data to local Server
Company Access
*VMS Access to company Vessels
iFIMS, also e reports
Next FADS

Supports Implementation of VDS (Real time)

Effort Based System

- VMS*
- AIS*
- NFDs*
- Logsheet (e-logs)
- EM
- Landings
- Observer reports
- No incentive to discard
- No incentive to high grade
- No incentive to misreport
- Multi-jurisdiction
- Multi-port

Catch Based System

- Logsheet (e-logs)*
- EM*
- Landings*
- Observer
- Multi-jurisdiction (+comp)
- Multi-port (export)
- Transshipment enabled
- Incentive to high grade
- Incentive to discard
- Incentive to misreport
- VMS
- AIS

PNA FIMS

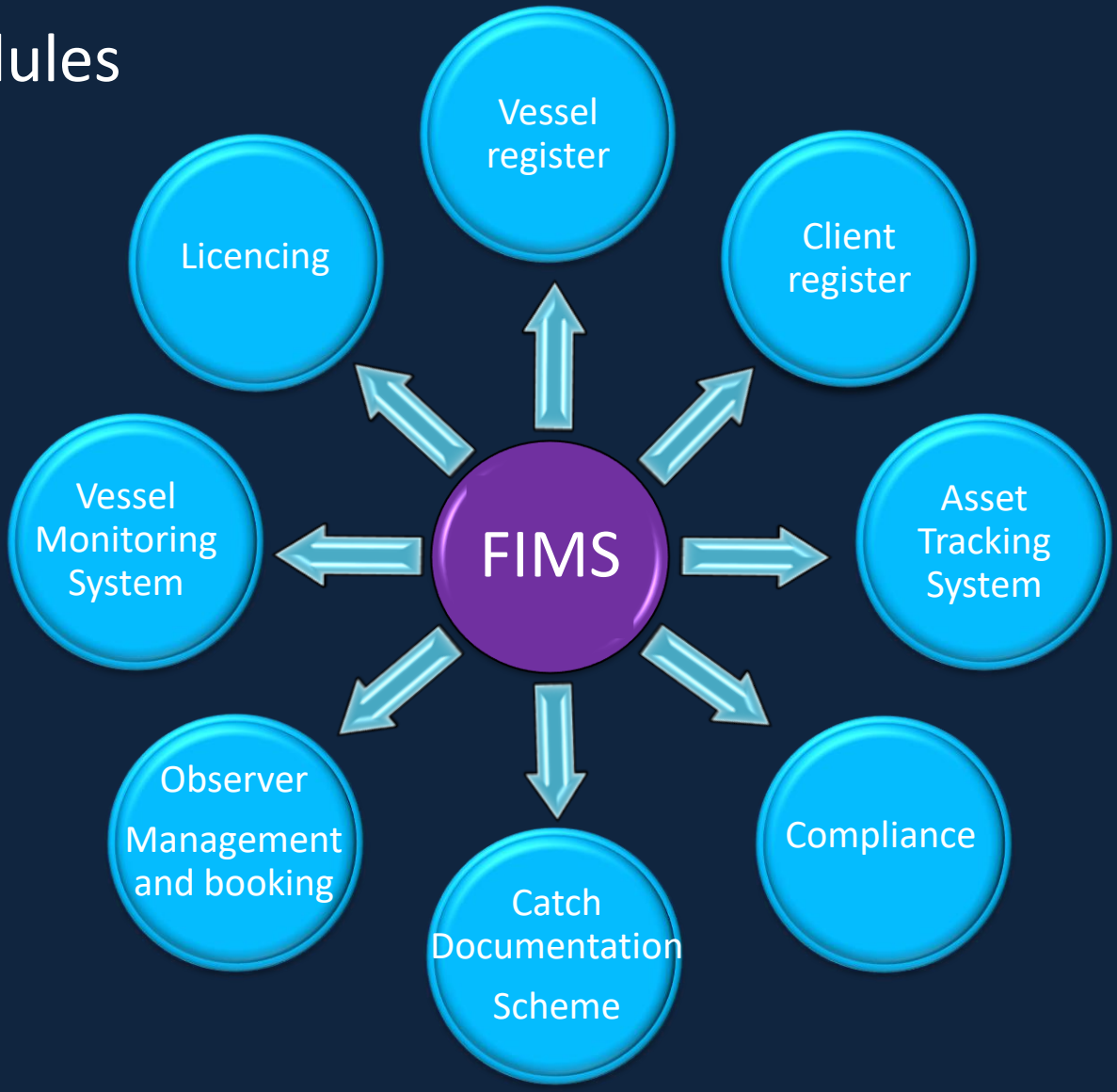
- **The main source of data feeding into PNA FIMS**;
  1. Positional data from the vessels MTU.
  2. FAD Positional Data*
  3. The electronic logsheet (e-log) which captures the activities and catch onboard the vessels.
  4. The electronic reports from observers using e-reporting (e-obs) and two-way communications (PCD)
  5. Vessel application for registration (OVR) and licensing (ELR) and (RAL)
  6. Non-Fishing claims applications
  7. Manual positional reports
  8. *FAD register*, Compliance, EM (new)

PNA FIMS

- **The main source of data feeding into PNA FIMS**;

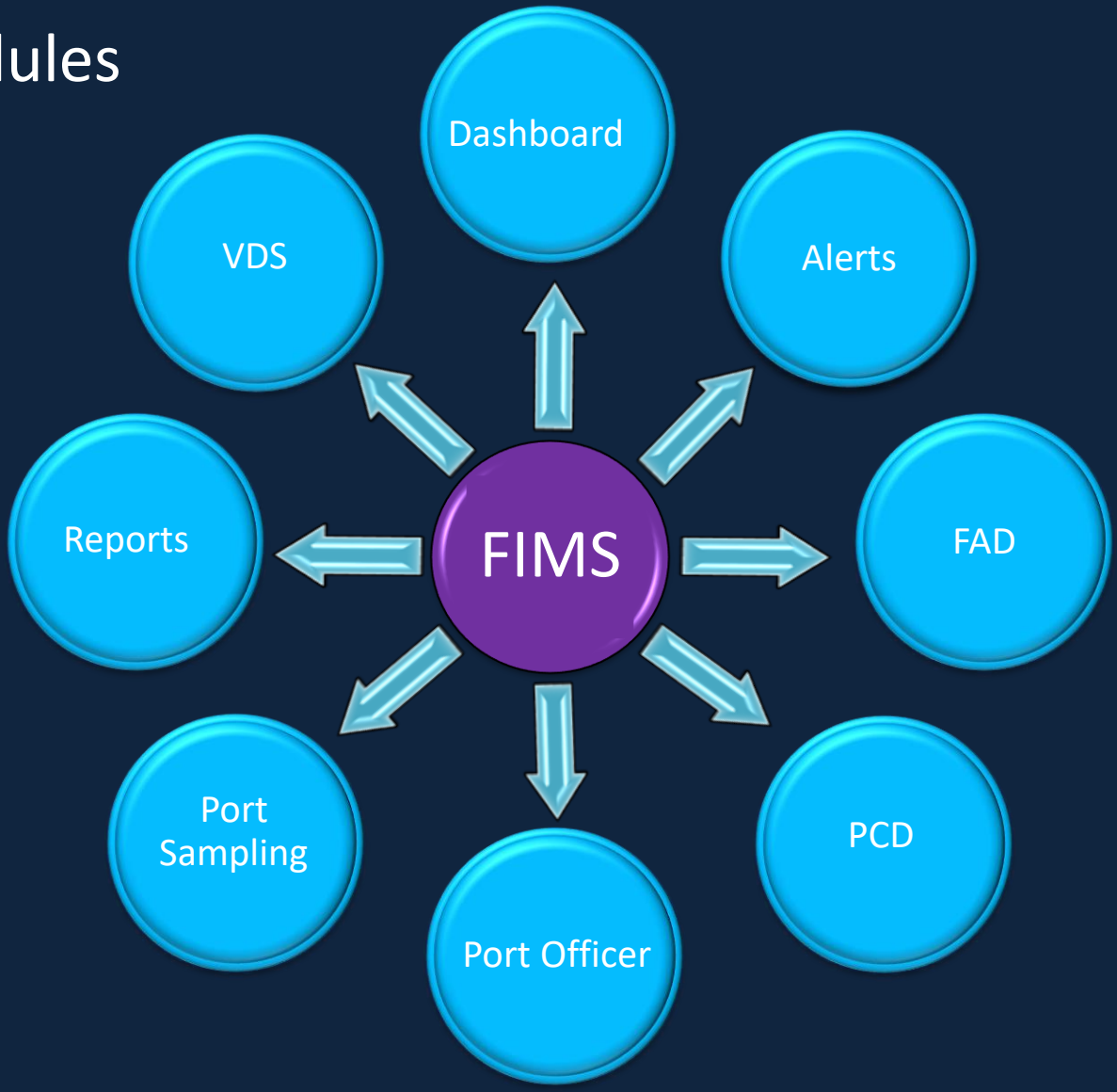
9. Data entered by Officers to web
    a) Registration (Vessel and Client Details)
    b) VDS
        i. NFD processing
        ii. Company and Vessel Assignments
        iii. Trades and Transfers
    c) (License Information) ELR processing and licensing information from those not using ELR
    d) Observer details, PCD communication, debriefing
    e) e-CDS and e-Tender*

FIMS modules



FISHERIES INFORMATION MANAGEMENT SYSTEM

FIMS modules



FISHERIES INFORMATION MANAGEMENT SYSTEM

Compatibility

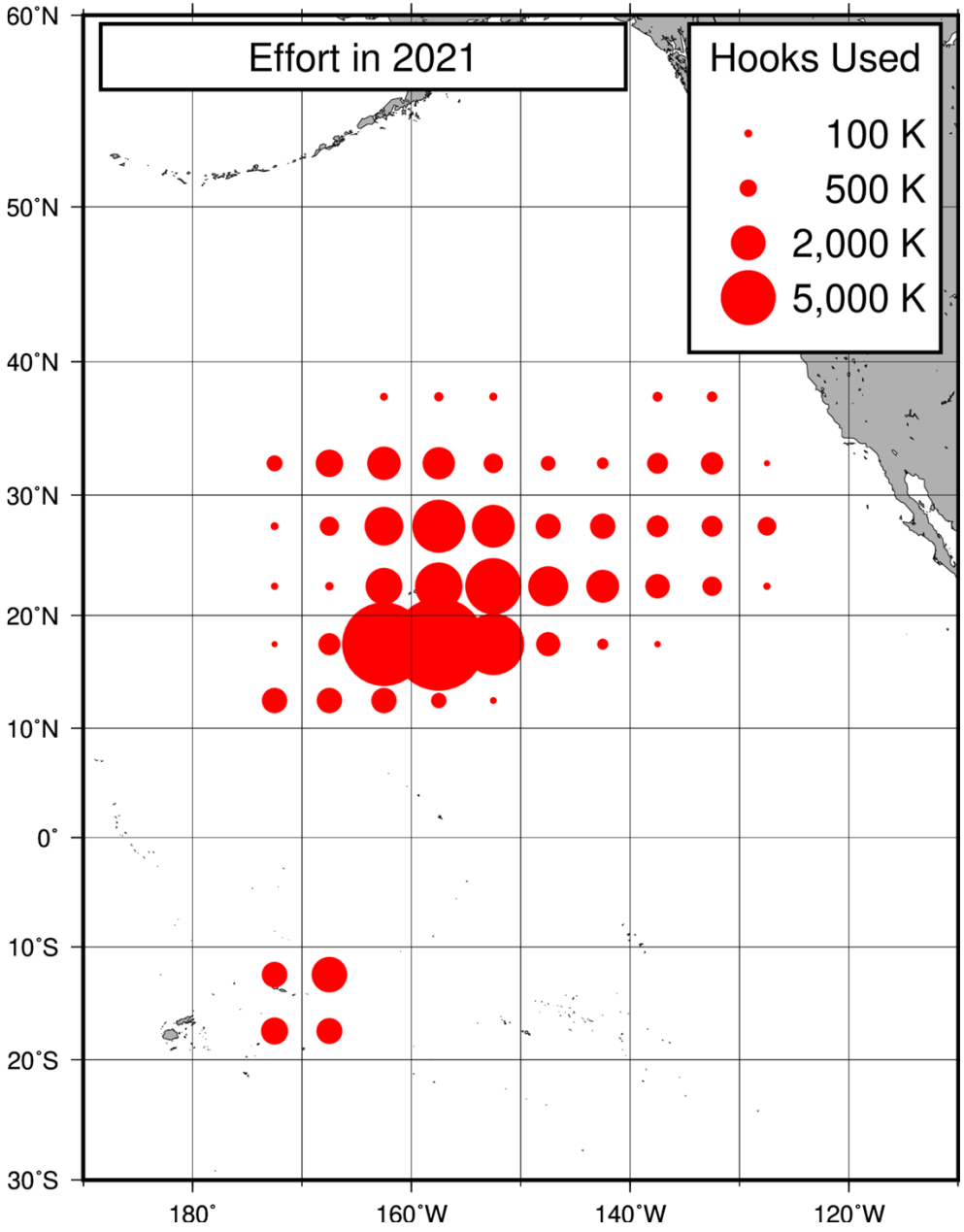
- **PNA FIMS sending and receiving data from other databases**;
  1. SPC TuFMan
  2. *FFA
  3. *PNA Website
  4. *Party License Information


QUESTIONS

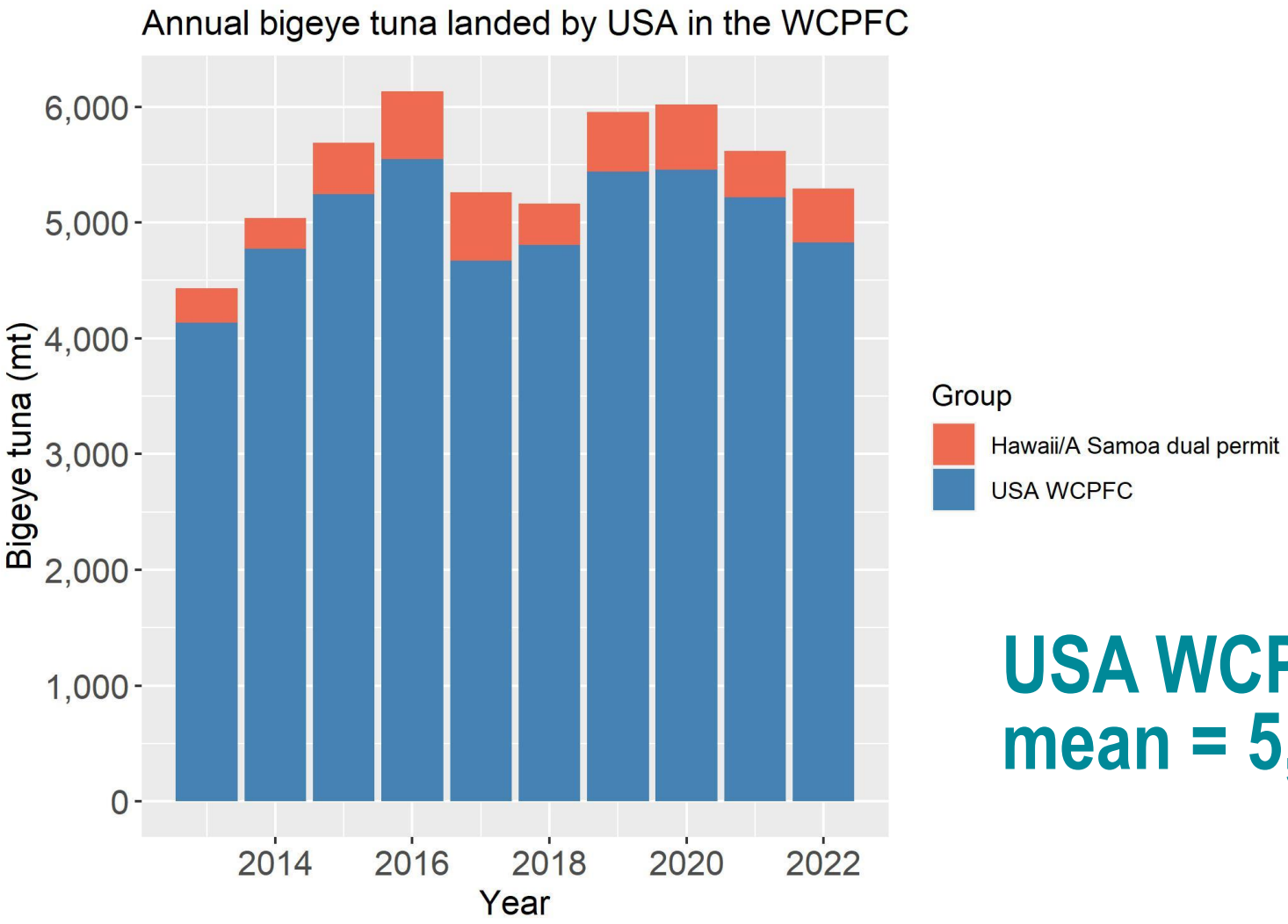
Attachment I

Hawaii deep and shallow set Operates in WCPFC & IATTC

American Samoa deep set

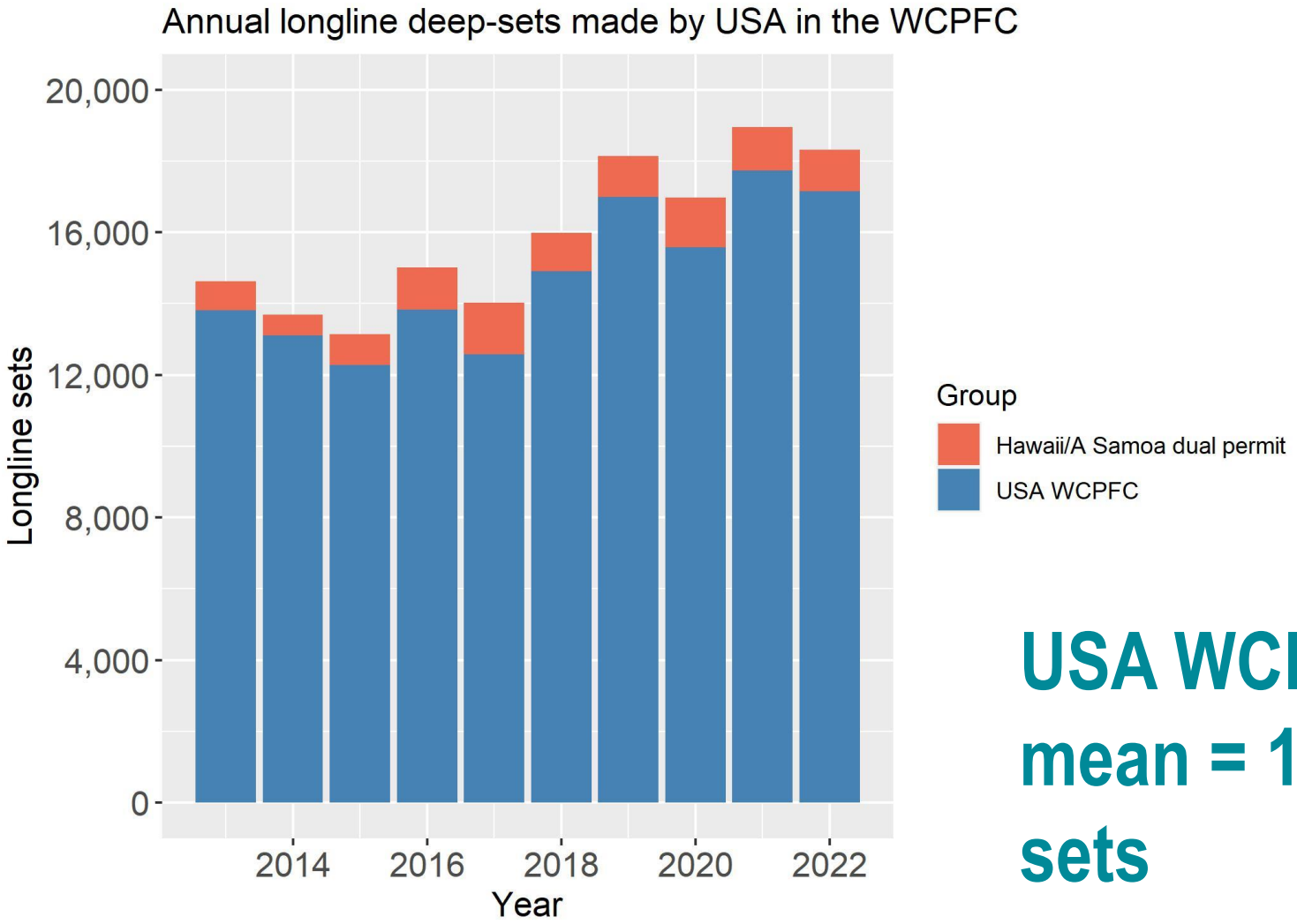


Hawaii deep set catch in WCPFC



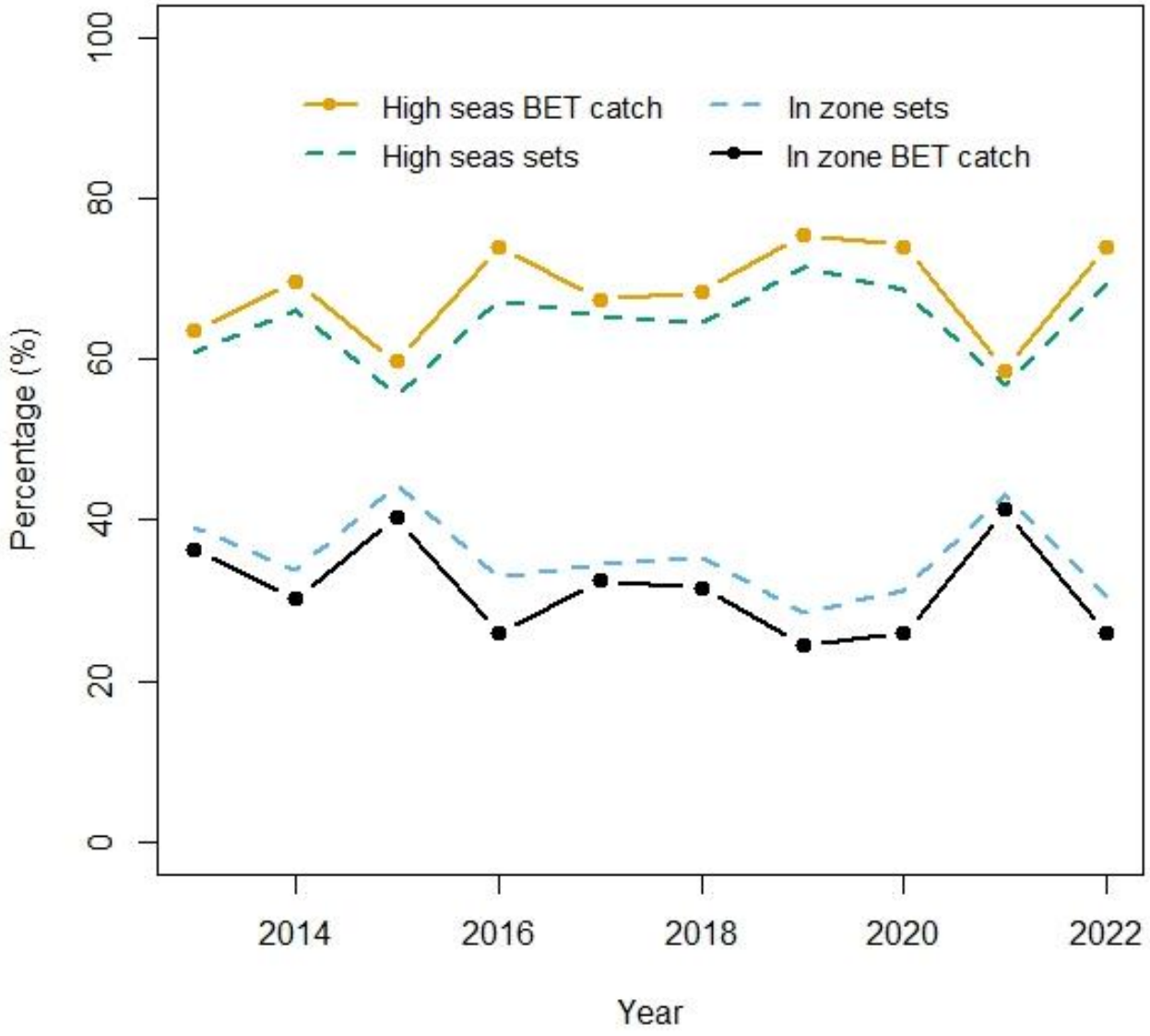
USA WCPFC mean = 5,012 mt

Hawaii deep sets in WCPFC

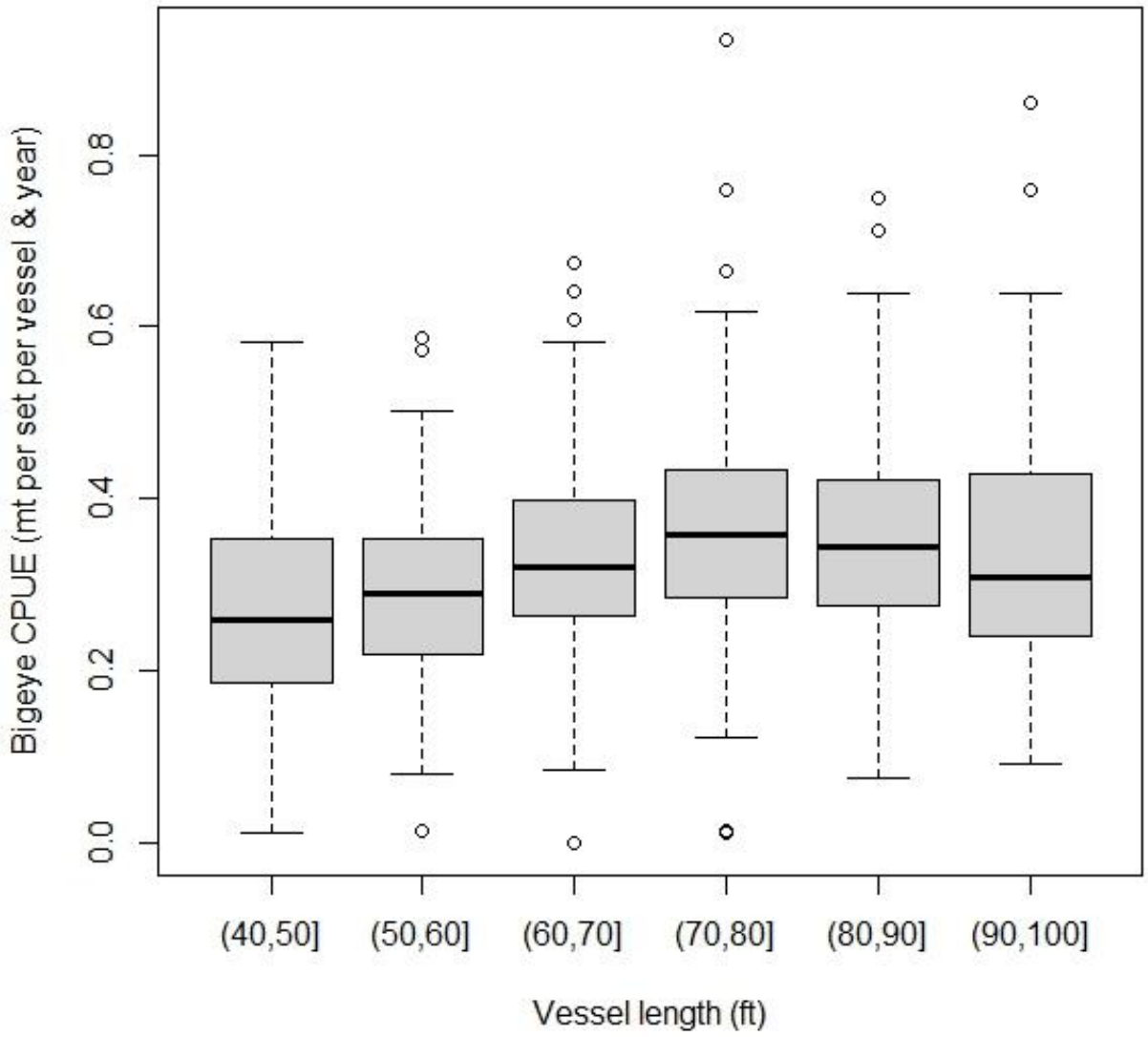


USA WCPFC mean = 14,797 sets

In zone vs High seas for bigeye tuna catch and sets



Bigeye mt per day by vessel size



Bigeye CPUE and sets

CPUE method	CPUE (mt per set)	Sets required for 6,500 mt as an example
Sum of USA WCPFC catch/Sum of effort	0.338	19,191
Mean of annual CPUE (2013-2022)	0.343	18,941
Mean of annual vessel CPUE (2013-2022)	0.344	18,870

Bigeye sets – In zone vs High Seas

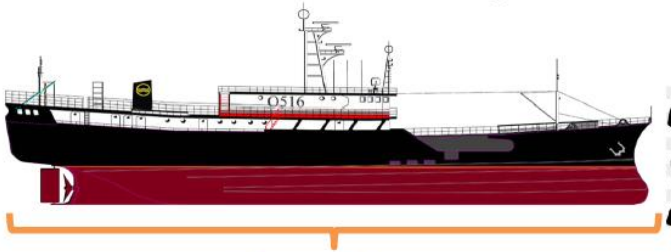
	Mean Catch %	Catch (mt)	CPUE (mt per set)	Sets
Total		6,500		18,732
In-zone	31.47	2,045	0.307	6,659
High seas	68.53	4,455	0.369	12,073

Future work – shallow set - fraction of deep set day

What is a day – fishing – fishing & transit

Consideration of Fleet Differences

"Distant Water Fleets"
China, Chinese Taipei, Japan,



Avg size ~34 m

Avg crew of 17

Pacific Island Fleets
FSM, Cook Islands, Fiji, etc.

Avg size ~25 m

Avg crew of 8

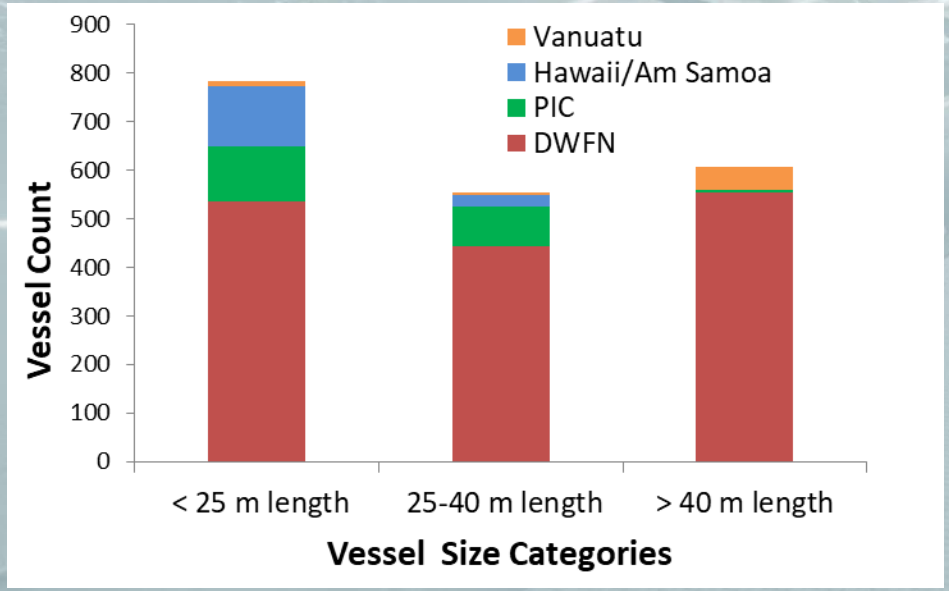
Hawaii and American Samoa

Avg size ~22 m
(max size 34 m)

Avg crew of 6

- Operational characteristics of Hawaii, PICT, and distant water fisheries
- Some fleets (Hawaii and American Samoa) do not have sizes or ranges for widespread operations
- Fresh fish vs ULT large scale vessels
- Monitoring levels
- Transshipment

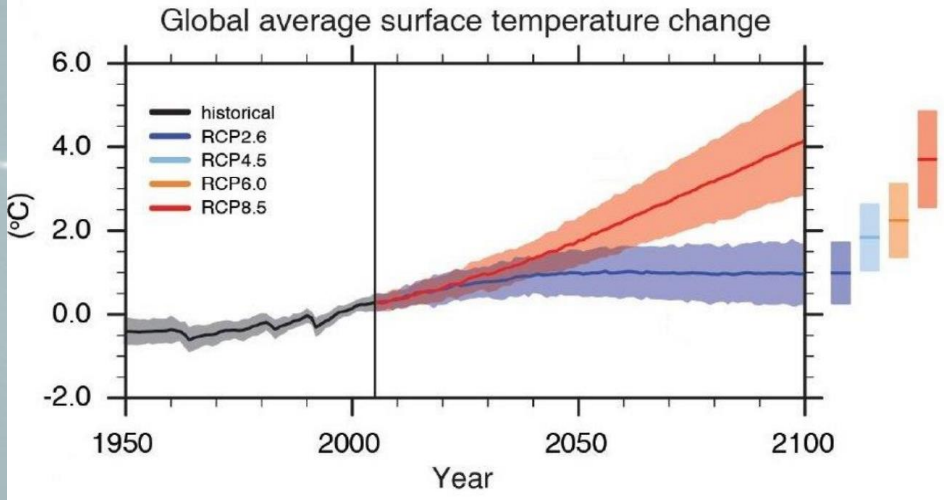
Consideration of Fleet Differences

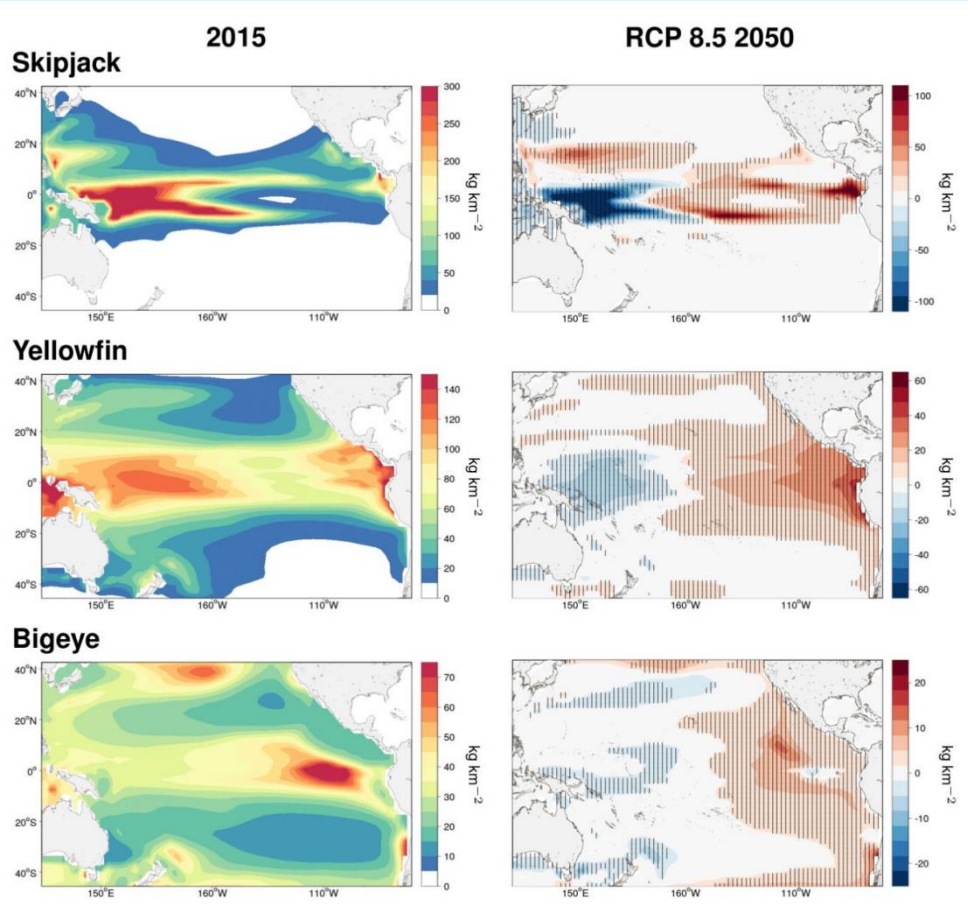


- Operational characteristics of Hawaii, PICT, and distant water fisheries
- Some fleets (Hawaii and American Samoa) do not have sizes or ranges for widespread operations
- Fresh fish vs ULT large scale vessels
- Monitoring levels
- Transshipment

Attachment K

Climate Change





Climate Change

Document (C9) SC14-EB-WP-01
Impact of climate change on tropical Pacific tuna and their fisheries in Pacific Islands waters and high seas areas

Senina et al., 2018 – presented to SC14

Climate change projected distributional changes

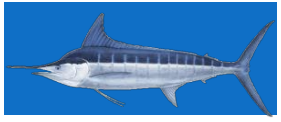


Table 1: Mean biomass change (%) by EEZ for the decades 2046-2055 (2050) and 2091-2100 (2100) relative to 2001-2010 average. CNMI = Commonwealth of Northern Mariana Islands; FSM = Federated States of Micronesia.

Area	Virgin biomass							
	SKJ		*YFT*		*BET*		*ALB*	
	2050	2100	2050	2100	2050	2100	2050 (-SO)	2100 (-SO)
West of 170°E								
CNMI	48	8	-1	-14	4	-5	-	-
FSM	-29	-55	-19	-37	3	-6	196 (32)	188 (22)
Guam	-5	-30	-16	-30	2	-3	-	-
Marshall Islands	-17	-31	-12	-31	-3	-12	216 (20)	211 (6)
Nauru	-8	-51	-16	-44	-4	-23	170 (31)	143 (6)
New Caledonia	8	49	-9	-25	-5	-18	14 (0)	-3 (-16)
Palau	-28	-54	-12	-29	4	-6	226 (58)	209 (48)
Papua New Guinea	-43	-72	-21	-42	-4	-16	72 (35)	64 (28)
Solomon Islands	-17	-37	-9	-30	-2	-14	62 (24)	46 (8)
East of 170°E								
Vanuatu	21	82	-2	-20	-1	-13	20 (4)	2 (-14)
American Samoa	42	61	23	9	4	-7	41 (9)	36 (-2)
Cook Islands	16	29	28	18	3	-7	47 (5)	39 (-7)
Fiji	14	14	6	-14	-1	-16	21 (1)	3 (-16)
French Polynesia	97	99	43	45	7	0	60 (4)	59 (-6)
Kiribati	18	-21	7	-17	1	-15	200 (14)	181 (-7)
Niue	24	15	20	6	3	-9	31 (6)	20 (-6)
Pitcairn Islands	60	41	55	72	10	7	68 (11)	85 (11)
Samoa	39	46	20	4	3	-8	36 (7)	29 (-4)
Tokelau	-14	-24	14	-7	-1	-17	92 (11)	69 (-10)
Tonga	15	3	13	-5	1	-14	25 (4)	14 (-9)
Tuvalu	-12	-45	3	-23	-2	-21	93 (13)	66 (-10)
Wallis and Futuna	26	21	14	-5	2	-11	39 (9)	28 (-6)