PACIFIC TUNA TAGGING PROJECT
STEERING COMMITTEE

ELECTRONIC MEETING
15 July 2020 (from 14:00-15:30 hours Pohnpei time (UTC+11 hours))

PROJECT 42: REPORT OF THE PACIFIC TUNA TAGGING PROGRAMME STEERING COMMITTEE

WCPFC-SC16-2020/RP-PTTP-02

PTTP Steering Committee

1. Preliminaries

The 14th meeting of the PTTP Steering Committee was held via video conference on 15 July 2020 in preparation for the online 16th Regular Meeting of the WCPFC Scientific Committee.

A list of participants is provided in Annex 2 of this report.

Background

The goal of the Pacific Tuna Tagging Programme is to provide data and knowledge for stock assessment and management of skipjack, yellowfin and bigeye tuna in the Pacific Ocean. The objectives of the PTTP, originally specified in WCPFC-SC6-2010/GN-IP-04, and revised in 2016 (PTTP Steering Committee, 2016), are:

1. To obtain data that will contribute to, and reduce uncertainty in, WCPO tuna stock assessments including estimation of overall and local exploitation rates, extent of mixing and appropriate spatial strata for use in assessments.

2. To obtain information to better understand the interactions between tropical tuna species and major fishing gears to support development of mitigation measures (where appropriate) and better interpret fisheries data (e.g., CPUE).

Under these objectives, information collected includes age-specific rates of movement and mixing, movement between assessment regions and other adjacent regions of the Pacific basin, species-specific vertical habitat utilisation by tunas, and the impacts of FADs on their behaviour.

The PTTP Steering Committee was established by SC2 to provide guidance and oversight in the development of firstly the project document (WCPFC Regional Tagging Project Steering Committee, 2006) and subsequently of operational plans, implementation and analytical work. The current donors to the project are the WCPFC, the Republic of Korea, the Pacific Community (SPC) and the European Union.

Review and adoption of agenda

The provisional agenda was adopted and is provided in Annex 1

2. PTTP Progress Report

SPC provided a presentation of PTTP Activities as described in SC16-RP-PTTP-02 in advance of the Steering Committee meeting to avoid technical difficulties with video presentation during the meeting. The presentation followed the draft agenda sub-headers. A summary of their presentation is as follows.

Since SC15, PTTP activities have included one Western Pacific voyage, WP5, in the waters of Papua New Guinea, Palau and the Federated States of Micronesia and the nearby International Waters, continued implementation and refinement of tag recovery processes and tag seeding, data preparation for use in the 2020 stock assessment for bigeye and yellowfin tuna and associated analyses (SC16-SA-IP-03, SC16-SA-IP-04, SC16-SA-IP-05, SC16-SA-IP-10). Research voyage CP14 preparations began in late 2019 with the vessel due to depart Honolulu, Hawaii, 15th August 2020.

2019 WP5 Cruise

WP5 was designed to focus on releasing tagged skipjack and yellowfin tuna to provide data in support of their stock assessment. In addition to conventional tag releases, effort was made to deploy archival tags in skipjack tuna, to obtain more detailed information on their horizontal movements, vertical behaviour and associative behaviour with respect to FADs. WP5 replicated the cruise plan of WP1 which was undertaken in 2008.

WP5 was completed using the Soltai 105 Pole and Line vessel chartered from the National Fisheries Developments (NFD)/Tri Marine (TMI) fishing fleet based in Noro, Western Province, Solomon Islands. The research cruise departed from Noro on the 22nd of July for a total duration of 59 days and comprised 9 fishing days in PNG, 2 fishing days in the High Sea Pocket 1, 11 fishing days in Palau, 26 fishing days in

FSM, and 2 fishing days in High Sea Pocket 2. The remaining days were spent in transit between fishing areas.

A total of 16,716 fish were tagged and released during the cruise at an average of 348 fish per fishing day. Table 1 summarizes the number of fish tagged per species and tag type. In addition to being tagged, 492 skipjack and 9 yellowfin tuna were injected with Strontium Chloride, depositing a mark in their otolith to aid age validation, thereby supporting improved growth rate estimations. These fish were tagged with a white conventional tag. Electronic, archival tags were implanted in 79 skipjack tuna (also tagged with an orange colour conventional tag). PTTP conventional tag releases currently tally 288,133 skipjack, 111,366 yellowfin, and 49,580 bigeye for a total number of releases for all tuna of 449,079.

In contrast to the WP1 cruise there were less small sized (<40 cm FL) fish tagged and a larger percentage of skipjack tagged (93% instead of 64%). The majority of fish (70%) were tagged in free schools during WP5 whereas free schools constituted only about 45% of tagged fish in WP1. WP5 provided a significant number of biological samples (Table 2).

Table 1: Numbers of fish tagged during WP5, by tag type and species (including multiple tagged fish)

Tag type	BET	SKJ	YFT	TOTAL
ArcGeo-9TS archival(Lotek)		79		**79**
MK9 archival tag (Wildlife Computers)	3		4	**7**
T-Bar tag - (experiment trial)		40	6	**46**
White conventional - 11cm		1	4	**5**
White conventional - 13cm		491	5	**496**
Yellow conventional - 11cm	5	57	74	**136**
Yellow conventional - 13cm	138	14,825	984	**15,947**
Total	**146**	**15,493**	**1,077**	**16,716**

Table 2: Number of biological samples taken during WP5, per species and sample type

Species	Fish sampled	Fin	Gonad	Liver	Muscle	Otolith	Spine	Stomach	Fatmeter	Weight
BET	8	1	8	8	8	9	8	8	3	8
BUM	5	0	2	4	5	0	0	5	0	0
DOL	1	0	0	1	1	1	0	1	0	1
KAW	11	0	0	0	0	0	0	0	0	11
RRU	29	0	19	29	29	0	0	29	0	28
SKJ	355	160	218	229	230	215	220	229	68	229
YFT	76	34	42	44	44	44	43	44	16	42
Total	**485**	**195**	**289**	**315**	**317**	**269**	**271**	**316**	**87**	**319**

Tag recovery

As at 10 June 2020, a total of 81,318 tagged tuna had been recaptured and the data reported to SPC. Tag attrition (the number of tags recovered over time following release) follows the expected declining pattern with the rate of decline in skipjack tag returns indicating their shorter expected lifespan and higher natural mortality compared to yellowfin and bigeye tuna. The recovery rates of yellowfin and bigeye tagged with archival tags and conventional tags vary depending on voyage, with some suggestion of increased tag rejection/fish mortality for archival-tagged fish on some voyages.

The reduction in bigeye conventional tag recovery rate from CP9 onwards continues. Recovery rate changes from ~30+% up to voyage CP8, fall to 14% for CP9, between 3 to 16% for CP10 to CP12, and currently rests at 4.6% for the CP13 cruise carried out two years ago.

The current spatial distribution of recaptures from WP5, as well as the generally reduced probability of recapture, mirrors that predicted under Ikamoana simulations undertaken prior to this cruise (SC15-RP-PTTP-02), highlighting the utility in continued strategic interrogation of movement models for indicating those regions in which the tag recovery network should be best maintained following releases.

Twelve 'white tag' skipjack tuna injected with strontium chloride have been recaptured and reported since WP5. Otoliths were extracted from seven fish, one pair of otoliths was lost and four fish are still in country and waiting to be sampled.

A description of albacore tagging activities was outlined previously in WCPFC-SC5-2009/GN IP-16 and WCPFC-SC6-2010/GN IP-06. Since SC14, two tags have been reported after being washed ashore in New Zealand. This increases the total reported tags, but not the number of informative recoveries, which remain at 31 (1%) for the project. Following a recovery in New Caledonia during 2017, the reward for white tags from albacore tuna tagged with oxytetracycline was increased to US$250, and conventional tags to $US20. These new rewards apply to all fish, and the change was particularly promoted in the key expected areas of recovery, i.e. New Caledonia, French Polynesia and Fiji.

New Tag Recovery Officers (TROs) have now been appointed under contract in Philippines, and are employees of the SOCSKSARGEN Federation of Fishing and Allied Industries. From July 2019 to July 2020, 188 tags were recovered by SFFAI and rewards were paid. Five contracts for other TROs were renewed, while negotiations with Kiribati MFMRD to re-establish a full time TRO position in Tarawa, and negotiations with Solomon Islands MFMR to sign a new Grant agreement for the Noro office, Solomon Islands are still in progress. Tag recovery effort remains challenging within Indonesia, with highly decentralised landings and the subsequent difficulties in maintaining publicity and reward delivery across the fishery.

Regular emails, visits in countries, as well as meetings held at SPC allow maintenance of constant contact with the existing network. Emails to raise awareness on the tagging program prior to, and at the end of research voyages are still part of the ongoing awareness program. The PIRFO website is also used as a portal for awareness raising among observers. The messaging application "Slack" is actively used to enhance the TRO network, allowing rapid exchanges of information between the officers, feedback on tag recovery information, and any issues encountered with the TROtag Database.

SPC receives recovery information from TROs on a semester basis. The establishment of new TRO positions has provided greater opportunity for collection of tags during unloading, transhipments and processing in canneries, with more complete and reliable capture information. Major unloading and processing facilities, as well as transhipping vessels in port, have been visited by TROs over the last 12 months, except for Tarawa and Solomon Islands, where TRO positions have not yet been re-established. SPC staff continue to enter tag recovery information into TagDager and undertake the necessary validation processes.

In order to retrieve whole tagged fish released with strontium chloride or with an archival tag, a new reward system is now in place. On board purse seine vessels, observers are rewarded US$ 50 to place the fish aside, to keep the fish frozen at all times, to coordinate the collection of biological samples onshore and to collect associated data. On-board longline vessels, recaptured tagged fish are now purchased whole at a rate of US$ 10 /kg. New Posters were translated into eight languages and were circulated across the tag recovery network.

Tag Data analyses

The following data analyses have been completed in preparation for SC16:

P. Eveson, M. Vincent, J. Farley, K. Krusic-Golub, N. Ducharme Barth, J. Hampton. Integrated growth models from otolith and tagging data for yellowfin and bigeye tuna in the western and central Pacific Ocean. SC16-SA-IP-03.

> Integrated growth models were fitted to the most recent otolith age and length and tag-recapture data for both species. The results showed discrepancies between the two data sets for both species, with the tag-recapture data suggesting slower initial growth followed by a faster

"second phase", and a larger asymptotic length. The reason for these discrepancies is not yet understood and needs to be further investigated.

T. Peatman. Analysis of tag seeding data and reporting rates. SC16-SA-IP-04

Models were fitted to data from tag seeding experiments on purse seine vessels and used to estimate flag-specific reporting rates. Model runs with year as a categorical variable suggested an apparent step change in reporting rates, with lower levels of reporting from 2015 onwards. Region-specific reporting rate distributions for the 2014 regional structure were estimated.

J. Scutt Phillips, T. Peatman, M. Vincent, S. Nicol. Analysis of tagging data for the 2020 tropical tuna assessments: tagger and condition effects. SC16-SA-IP-05

The analyses of tagging data to estimate the effects of tagger experience, imprecise tag placement, and fish injury prior to tagging was modified for 2020. The pooling of all tagging data for estimation of models, including those from the SSAP, RTTP and PTTP. A suite of models were estimated using combinations of covariates at the tag release level, before a model selection process based on information-criteria was carried out to select the most parsimonious model, given the data. Tag correction factors were estimated, controlling for optimum fish condition, tagging quality and tagger experience group for both bigeye and yellowfin tuna.

J. Scutt Phillips, I Senina, E van Sebille, A. sen Gupta, T. Peatman, S. Nicol. Preliminary analysis and simulation of tag mixing and it's implication on the assessment of WCPO skipjack tuna. SC16-SA-IP-10

Ikamoana was applied to understand the impact that spatial scale, location and differing oceanographic conditions may have on mixing assumptions for skipjack tuna tagged in the WCPO. El Nino, La Nina and Neutral ENSO phases were examined for two archipelagic tag release locations in PNG and a single oceanic tag release location in FSM. The results of this exploratory analyses indicate that Ikamoana can be used to identify mixing periods for each tag release event. Such an approach is likely to result in more tags being used in future stock assessments as a "lowest common dominator approach to tag mixing periods" would no longer be required.

Additionally analyses of electronic tagging has been completed.

J. Scutt Phillips , B. Leroy, T. Peatman, L. Escalle, J. Macdonald, S. Nicol. Mitigating bycatch of bigeye tuna and yellowfin tuna juveniles by purse seine fisheries. Final Report to WCPFC (November 2019) for EU Grant #S12.768479/S12.768551

This analyses performed on the behavioural data obtained from 179 acoustic tags (97 bigeye, 45 yellowfin and 13 skipjack tuna) to explore the potential for interventions that might minimise fishing mortalities on small bigeye and yellowfin tuna identified that depth distributions overlapped between all species while associated with FADs in all time periods. The results suggest that interventions to minimise catches of small bigeye and yellowfin tuna on FADs maybe more effectively developed by considering the impact of FAD density rather than focussing on the depth distribution of species at the time of setting. There was no clear demarcation of depth by species at a resolution that would allow purse-seine operators to effectively avoid small bigeye or yellowfin tuna when setting. There was a consistent negative influence of local FAD density on night-time presence at the FAD for both species, with an inverse relationship for pre-dawn presence of bigeye. Examination of catch composition data from purse-seine sets during the pre-dawn period at differing FAD density is warranted to ascertain if management of local FAD density may be an effective way to minimise catch of small bigeye without impacting catches of skipjack tuna.

Tag Seeding analyses

From February 2007 to July 2020, a total of 575 tag seeding kits (consisting of seeding tags, applicators, guide books and data forms) for a total of 14,635 tags have been given to observer coordinators and TROs in Tonga, Ecuador, PNG, Solomon Islands, Fiji, FSM, Marshall Islands, Kiribati, New Zealand and American Samoa for deployment on purse seine vessels by senior observers. As at 10th June 2020, there have been 7,498 reported tags that have been seeded and 4,151 (55%) of these have been returned to SPC. In

addition to allowing estimation of tag reporting rates, the tag seeding data also allow the error rate in tag return information to be determined. Vessel name was reported incorrectly for 810 tags, was absent from the recovery information for 172 tags, and was correct for 3150 tags.

To aid in the implementation of tag seeding experiments, training is provided as part of the PIRFO observer upgrade training courses. Trials with both steel head and plastic barb tags to test the effect of tag type showed no significant effect of tag type in seeding experiments. The use of steel head tags for tag seeding has now been discontinued. Deployment instruction and training material have been updated to include only conventional tag deployment, following the discontinuation of steel-head tag seeding last year. Tag Recovery Officers in the ports of, Honiara, Rabaul, Madang, Lae, Pago Pago, Port Moresby and Majuro continue to liaise closely with observer coordinators, observer debriefers and observers to implement tag seeding experiments and to recover the tag seeding logs for deployed kits. Tag seeding debriefing materials are used by both TROs and local debriefers. Of the 575 kits distributed to observer coordinators, 431 have been given to observers for deployment, of which 364 tag seeding datasheets have been received for observer trips.

An insufficient number of tag seeding kits were deployed in the 12 months since SC15. Tag seeding kits were only deployed and distributed by PNG observers; six kits, using a total of 180 tags deployed over this period. SC15 recommended that across the region, 32 tag seeding experiments per year were needed to capture any temporal changes in reporting rate. This highlights the need to further increase the focus on regional tag seeding experiments in 2020/2021.

Reporting rate models were constructed based on the approach recommended at SC16. Models were fitted to data from tag seeding experiments on purse seine vessels and used to estimate flag-specific reporting rates. Model runs with year as a categorical variable suggested an apparent step change in reporting rates, with lower levels of reporting from 2015 onwards. The models detected strong between-flag variation in reporting rates. There were relatively few seeding experiments in the modelled dataset for vessels flagged to China (CN), Ecuador (EC), FSM (FM), New Zealand (NZ), the Solomon Islands (SB), El Salvador (SV) and Vanuatu (VU), resulting in lower precision in effects for these flags. Region-specific reporting rate distributions for the 2014 regional structure were estimated.

Specific recommendations for the tag seeding experiments and analysis are:

- Tag seeding should be continued as long as regular tag recoveries are being received, targeted to fleets and regions where these regular recoveries are most likely;
- The current low levels of tag seeding experiments have compromised the ability to explore in detail what might be driving apparent recent reductions in tag reporting, or to obtain precise estimates of temporal changes. This impact of temporal changes in reporting is exacerbated by imbalance of tag seeding data with respect to fleet-specific coverage through time;
- More consistent coverage through time is suggested, with a particular emphasis on key fleets. Achieving the minimum target of 32 seeding experiments per annum recommended at SC15 is reiterated.

Steering Committee Comments

The 14th PTTP Steering Committee noted:

- The successful implementation of WP5, associated tag recovery and recent analyses.
- That SC16 should reiterate the importance and need for a minimum deployment of 32 tag seeding kits in 2020/21.
- That Japan also has a tagging programme in the region, and that estimating reporting rates is important for the analysis of these data.
- Japan and SPC will endeavour to coordinate their support to ensure increased and ongoing tag seeding across fleets and observer programmes.

3. WORK PLAN 2020-2023

The proposed 2020-23 workplan for the PTTP is provided in Annex 3 of this Steering Committee report. SPC spoke to this workplan which is summarized as follows according to the draft agenda sub-headers. The Steering Committee was reminded that the work-plan recognises the decisions of SC in 2016 to normalise the tagging programme (WCPFC SC, 2017), and the decisions of SC in 2017 where this rolling medium-term research work-plan was endorsed (WCPFC-SC 2017).

2020 CP14 Cruise

The current main goals of the Central Pacific tuna tagging experiments are to augment data collection for studies on tuna movements, exploitation rates and FAD association dynamics. Due to COVID-19 and associated travel restrictions, the CP14 will be crewed with a scientific team lead by a SPC-contracted, experienced Hawaii-based scientist Jeff Muir using a Hawaiian based scientific crew. The planned acoustic experiments around drifting FADs will be postponed to future cruises to facilitate the work of the restricted team (3-4 scientists) of CP14.

The cruise will target the TAO buoys anchored on the 170W and 155W longitude lines (see cruise track below). Tagging of tuna in other tuna aggregations, e.g. associated with drifting FADs that tuna industry will provide access to, will also be conducted opportunistically. This research voyage is scheduled to run on or shortly after 15 August (depending upon vessel clearance date from Hawaii) and be completed on or before 05 October 2020, using a chartered vessel, *F.V. Gutsy Lady 4.* The cruise was originally scheduled for a departure of 15 July 2020 but delayed until 15 August when J. Muir was available.

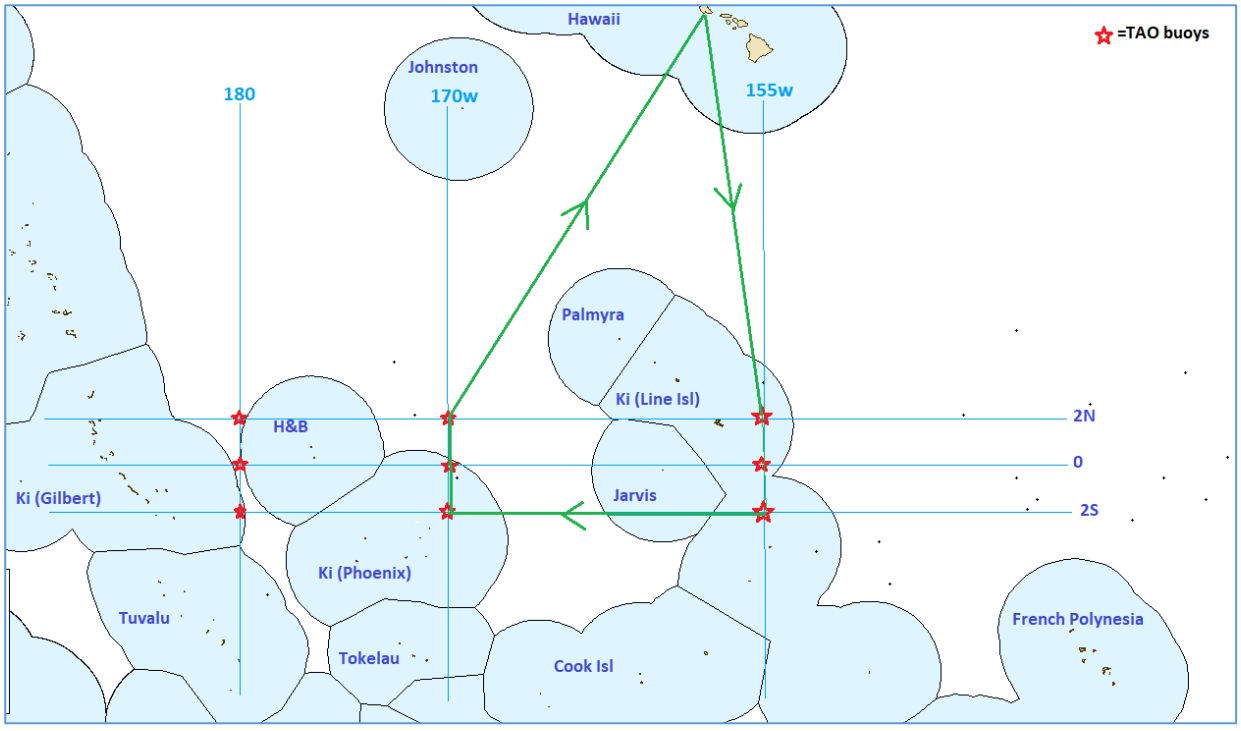

Figure 5. CP14 cruise plan

Tag Recovery network

The existing tag recovery network will be continued in 2020-2021. Noting that tagging activities for 2021 are scheduled for the western Pacific region (WP6) the tag recovery network will be strengthen with Industry particularly in light of the highly successful arrangements in place in the Philippines with the SOCSKSARGEN Federation of Fishing and Allied Industries and in Thailand with Thai Union. Discussion are currently underway to better utilise Industry bodies in Papua New Guinea and the Solomon Islands.

The consistent low recovery rate from longline fishing fleets emphasizes the need for enhanced efforts to improve recovery from these fleets. Modifications are being designed to e-reporting tools to better

facilitate recording of tagged fish on LL vessels. Electronic tag reporting software and a tablet/phone based application will be scoped in 2020/21 to facilitate the collection of information and transfer of rewards to tag finders.

2021 WP6 and opportunities for CP15

Preliminary planning for WP6 has selected a cruise track that could include one or more of the EEZs of the Solomon Islands, Papua New Guinea, Palau, the Federated States of Micronesia and the Marshall Islands. Early endorsement of the cruise is desirable to allow for appropriate permitting and local custom arrangements for collection of bait to be organized. The National Fisheries Developments (NFD)/Tri Marine (TMI) fishing fleet based in Noro/Western Province/Solomon Islands has been contacted to ascertain options to charter Soltai 105 Pole and Line vessel for WP6. The objectives of the WP6 are set as:

1. Maximise conventional tagging of skipjack in core areas of exploitation, primarily the EEZs of FSM, Solomon Islands and adjacent high seas pockets
2. The conventional tagging of yellowfin tuna
3. Collection of biological samples
4. Archival tagging of bigeye, yellowfin and skipjack tuna.

SPC advised that it is currently exploring options to leverage resources to implement a "mini" CP15 in the first half of 2021 to implement the postponed acoustic experiments around drifting FADs originally proposed for CP14. This would be contingent on lifting of COVID travel restriction and the availability of a suitable tagging platform.

Other elements of the work-plan

The Steering Committee was advised that SPC has appointed a replacement for the PTTP Data and Systems Manager who is scheduled to start in September 2020. The filling of this position will prioritise:

- PTTP data verification with VMS and Logbook, and cannery data.
- Consolidation of the web-tagging database, recapture information and tagging database frameworks.
- Consolidation of TRO data with a Tuna Tagging App.

Data analyses proposed for 2020-21 include:

- Tag reporting and seeding analyses for direct inclusion in MFCL stock assessments to estimate natural mortality, fishing mortality, and movement rates.
- Fishing and natural mortality to provide validation to estimates from within MFCL and identify fishing mortality changes in response to expansion of the WCPO fisheries.
- Develop more robust tagging effect analyses prior to next SKJ assessment.
- Movement analyses to provide validation to estimates from within MFCL and SEAPODYM.
- Develop quantified changes in catchability by age/length and oceanography using bigeye and yellowfin tuna archival tagging data.
- Tag-simulation analyses.Tag mixing simulations undertaken to inform use of skipjack tags in MFCL.
- Explore inclusion of simulated tag data within WCPFC's MSE framework.

Steering Committee Comments

The 14th PTTP Steering Committee noted:

- The proposed workplan for 2021 and the indicative plans for 2022 and 2023
- The proposed budget for 2021
- Exploration of completing the proposed CP14 acoustic tag experiments in 2021
- The cruise plan for WP6 to focus on skipjack tagging in the EEZs of Solomon Islands and FSM and the nearby high seas areas

4. RELATED TAG ACTVITIES

EEZ permits and country requirements

The WP5 voyage was undertaken across multiple regions and EEZs, requiring multiple research and fishing permits to be obtained. Unfortunately, receipt of some permits was delayed. This affected the planning of the cruise and led to several days fishing being lost during WP5; an inefficient use of tagging programme funds.

For future cruises, developing an approach that allows the earlier granting of permits and permissions is needed, to ensure sufficient time for arrangements with local authorities to ensure traditional custom and cultural rules are respected, particularly for bait fish collection. Earlier authorisation also means voyage planning can consider permission to conduct activities within conservation areas that may require additional approvals. Recognizing that the administrative environment for permitting is complex and involves multiple agencies within a country, SPC proposed to work with members to identify ways to streamline administration and ensure the benefits of the research are attained as efficiently as possible.

Steering Committee Comments

The 14th PTTP Steering Committee noted:

- The intention of SPC to investigate the processes and current limitations to cruise permitting in each relevant EEZ and encourage CCMs to assist SPC in developing a process to improve the efficiency of the permitting process.

5. OTHER REGIONAL OR SUB-REGIONAL TAGGING

Japanese FRA equatorial tagging

The NRIFSF has been conducting skipjack tagging research to investigate migration patterns to the fishing grounds off Japan. A short presentation was made to participants online by Aoki Yoshinori from NRIFSF to provide an overview of these activities.

In 2019, there were research cruises in tropical and temperate areas using two, full chartered pole-and-line vessels for tagging. In the tropical areas, which included the EEZ of the Federated States of Micronesia, 5,102 conventional and 315 archival tags were released in the period from 23 December 2019 to 10 February 2020. In the temperate areas around the northern part of Japan, 1,302 conventional and 218 archival tags were released in October 2019.

IATTC Eastern Equatorial Pacific Ocean tagging

The Inter-American Tropical Tuna Commission (IATTC – www.iattc.org), with financial support from the European Commission (DGMAF EMFF), conducted an 89 day skipjack tuna tagging cruise during the period of 1 February to 30 April, 2020 to the equatorial eastern Pacific Ocean (EEPO) aboard the chartered live-bait pole-and-line tuna fishing vessel *FV Her Grace*, homeport San Diego, California. This cruise was summarised by Kurt Schaefer during the meeting of the steering committee

During the tagging cruise a total of 6,328 tunas were tagged and released, of which 6,039 were skipjack, including 185 with archival tags (ATs). 59.3% of the total skipjack tagged and released were captured in association with the Tropical Atmosphere Ocean moored buoys. A total of 274 yellowfin tuna were tagged and released, including 9 with ATs, but only 8 bigeye tuna were tagged and released. Of the total skipjack tagged, only 203 skipjack (3.5%) were tagged and released with plastic dart tags (PDTs) inside the south-western boundary of the Galapagos National Park (GNP), and 2,021 skipjack (34.2%) were tagged and released with PDTs and 25 skipjack (13.5%) with ATs from 3 to 10 nm outside the south-western boundary of GNP. Whereas 3,650 skipjack (62.4%) were tagged and released with PDTs and 160 skipjack (86.5% of total) with ATs in four discrete areas of the EEPO: 1) 1°N 86°W, 2) 5°S 95°W, 3) 0° 95°W, and 4) 5°N 110°W.

Steering Committee Comments

The 14th PTTP Steering Committee noted:

- The benefits of the additional tagging and collaboration that these other regional and sub-regional programmes provide to WCPFC.
- The encouraging recovery rate of skipjack tagged with LAT2910 archival tags by the IATTC, whom have provided videos of the tagging techniques as part of their summary presentation.
- That IATTC began tag seeding in 2019, though no data analyses yet undertaken.
- An IATTC skipjack tagging cruise in the EPO was initially scheduled for 2021, but has been rescheduled for 2022 given the COVID-19 pandemic.
- An upcoming Japanese tagging cruise in the equatorial Pacific, and the potential for SPC and Japan to collaborate on tagging efforts.

6. ADMINISTRATIVE MATTERS

Public Domain Data

SPC noted that PTTP tagging data was defined as public domain by WCPFC yet there are no current guidelines on how to clarify what PTTP data may also constitute confidential data (e.g. fishing fleet information for recapture data). SPC proposed that if requests are received for data between SC16 and SC17 that they only release information on species, length, date and place of release and length, date and place of recapture. No information on who recaptured the tag or tag number would be provided until WCPFC developed a policy for PTTP public domain data. SPC proposed to provide a background paper for consideration at the 15th Steering Committee meeting of the PTTP.

Other administrative matters

A strong case for identifying a long-term multi-purpose tagging platform in the WCPO remains. The safety and functionality of the few available pole and line vessels in the region, combined with a need to capture more data over increasingly limited cruise schedules further exacerbates the problems of using commercial fishing boat charters for scientific purposes. Increased collaboration between in-country scientists, observers and industry provide new opportunities for applied research, but the logistics of housing such scientific teams and their required equipment is severely limited on such vessels. Examining the feasibility of a multi-purpose scientific vessel to undertake a variety of research in the region should be continued.

SPC noted progress on a study to develop vessel designs for a regional multi-purpose tagging and research vessel to address future Commission needs. SPC's discussion with potential suppliers or builders of vessels for charter has identified the need for WCPFC to develop a statement of intent that tagging remains a priority activity for monitoring its tuna fisheries and is expected to be a core activity for the next 5-10 years.

Steering Committee Comments

The 14th PTTP Steering Committee noted:

- The proposal for a background paper on defining Public Domain Tagging data for consideration at SC17.
- The utility of a statement of intent from the SC that tagging is currently required for monitoring its tuna fisheries and expected to be a core/normative activity over the next 10 years
- The importance of continued investigation of procuring a dedicated, multi-purpose tagging platform for the Pacific Region

- That the IATTC had previously offered it's support going forward regarding the investigation of a new tagging platform
- The importance of coordinating tagging across the Pacific basin, ideally ensuring good coverage of releases longitudinally

7. Recommendations for SC15

The Steering Committee therefore recommend that:

- SC16 note the successful implementation of WP5, associated tag recovery and recent analyses.
- SC16 reiterate the importance and need for a minimum deployment of 32 tag seeding kits in 2020/21.
- SC16 endorse the proposed workplan for 2021 and the indicative plans for 2022 and 2023.
- SC16 endorse the proposed budget for 2021.
- SC16 encourage the exploration of completing the proposed CP14 acoustic tag experiments in 2021.
- SC16 endorse the cruise plan for WP6 to focus on skipjack tagging in the EEZs of Solomon Islands and FSM and the nearby high seas areas.
- SC16 note the intention of SPC to investigate the processes and current limitations to cruise permitting in each relevant EEZ and encourage CCMs to assist SPC in developing a process to improve the efficiency of the permitting process.
- SC16 acknowledge the benefits of the additional tagging and collaboration that other regional and sub-regional programmes such as the IATTC and NRIFSF provide to WCPFC.
- SC16 endorse the proposal for a background paper on defining Public Domain Tagging data for consideration at SC17.
- SC16 is encouraged to include in its report a statement of intent that tagging is currently required for monitoring its tuna fisheries and expected to be a core/normative activity over the next 10 years.
- The SC16 reiterate its support for the design and procurement of a dedicated, multi-purpose tagging platform.
- The 14th Steering Committee of the PTTP acknowledges the extensive support by donors and CCMs in its implementation.

8. ACKNOWLEDGEMENTS

Since its commencement in 2006, funding support for the PTTP has been provided by the

- PNG National Fisheries Authority;
- New Zealand Aid Agency;
- the Government of the Republic of Korea;
- Australian Centre for International Agricultural Research;
- European Community 8th European Development Fund;
- European Community 9th European Development Fund;
- European Community 10th European Development Fund;
- the French Pacific Fund;
- the Republic of China;
- Heinz Australia;

- the Global Environment Facility;
- the International Seafood Sustainability Foundation;
- the European Union (through voluntary contributions to WCPFC);
- and the WCPFC itself.

We acknowledge the support of national fisheries administrations, observer programmes and the tuna fishing industry in assisting with the project, in particular the recovery of recaptured tags. The contribution of both vessel and scientific crew to the successful implementation of the PTTP is gratefully acknowledged. Particular thanks to Jeff Muir for logistics and implementation of the upcoming CP14 tagging voyage operating out of Hawaii.

9. ADOPTION OF REPORT

A draft report of the 14th Steering Committee of the PTTP was provided to members on 17th July 2020 by posting on the WCPFC website. SC members were invited to make comment until, and provide endorsement by, the 22nd July 2020. These comments were collated into the final report, which was posted to the 16th Scientific Committee website in the 23rd July 2020.

Annex 1. Adopted Agenda of the 14th Steering Committee Meeting of the PTTP

PACIFIC TUNA TAGGING PROJECT
STEERING COMMITTEE

Electronic Meeting
15 July 2020 (from 14:00-15:30 hours Pohnpei time (UTC+11 hours))

ADOPTED AGENDA

WCPFC-SC16-2020/10

1. **PRELIMINARIES**
   - **1.1 Review and adoption of agenda**

2. **PTTP PROGRESS REPORT**
   - **2.1 PTTP Activities (WCPFC-SC16-2020/RP-PTTP-01)**
     - 2.1.1 2019 WP5 Cruise
     - 2.1.2 Tag recovery
     - 2.1.3 Tag data analyses
     - 2.1.4 Tag seeding analyses (SC16-SA-IP-04)

3. **WORK PLAN 2020-2023**
   - **3.1 2020 CP14 Cruise**
   - **3.2 Tag recovery network**
   - **3.3 2021 WP6 and opportunities for CP15**
   - **3.4 Other elements of the work-plan**

4. **RELATED TAG ACTVITIES**
   - **4.1 EEZ permits and country requirements**

5. **OTHER REGIONAL OR SUB-REGIONAL TAGGING**
   - **5.1 Japanese FRA equatorial tagging**
   - **5.2 Other regional and sub-regional tagging**

6. **ADMINISTRATIVE MATTERS**
   - **6.1 Public Domain Data**
   - **6.2 Other administrative matters**

7. **ADOPTION OF REPORT**

Annex 2. Registered participation list of the 2020 PTTP Steering Committee

Name	Delegation
Beau Bigler	Marshall Islands
Bruno Leroy	SPC
Chloe-Ane Wragg	MMR
Cyril Villanueva	Philippines
Dan Fuller	IATTC
David Itano	Independent
Elain Garvilles	WCPFC
Farley, Jessica (O&A, Hobart)	CSIRO
Graham Pilling	SPC
Ilkang Na	Korea
Jamel James	NORMA
Jed Macdonald	SPC
Joana Mae Padua	Philippines
John Annala	New Zealand
John Hampton	SPC
Keisuke Satoh	JAPAN FRA
Kiyofuji Hidetada	JAPAN FRA
Kurt Schaefer	IATTC
Lara Manarangi-Trott	WCPFC
Leyla Knittweis	New Zealand
Marino-O-Te-Au Wichman	SPC
Naiten Bradley Phillip Jr.	SPC
Naoto Matsubara	JAPAN FRA
Neil Crusis	Philippines
Paul Hamer	SPC
Ren-Fen, Wu	Taiwan
Rosanna Bernadette Contreras	Philippines
Simon Nicol	SPC
SungKwon Soh	WCPFC
Yoshinori Aoki	JAPAN FRA
Yuichi Tsuda	JAPAN FRA

Annex 3: Proposed PTTP work-plan for the period 2020-2023.

ACTIVITIES		2020	2021	2022	2023
TAGGING					
1.	**Pole and line tagging research voyage** Target is skipjack, with secondary target of yellowfin. Skipjack-focused, pole and line tagging research voyage scheduled for 2021 and biennially thereafter. Note also critical component of biological sampling in support of Project 35b.		Plans to be refined after assessing viable available options		Plans to be refined after assessing viable available options
2.	**Dangler/troll tagging research voyage** Target is bigeye, with secondary target of yellowfin. Bigeye-focused, dangler/troll tagging research voyage scheduled for 2020 and biennially thereafter. Note also critical component of biological sampling in support of Project 35b.	Contingency CP14 cruise will depart Hawaii mid-august, in light of COVID travel restrictions	Given contingency CP14 2020 tagging, it may be appropriate to undertake a 2nd consecutive year of CP research, conducting the acoustic tagging delayed from CP14	Focus in the Central Pacific to continue view of bigeye across the WCPO	
TAG RECOVERY					
3.	Establish new TRO positions where required.				
4.	Ongoing support of TROs in PNG, Philippines, Thailand and key Pacific Island locations.				
5.	Review and revise tag rewards scheme.	New rewards for white or orange tags			
DATA MANAGEMENT					
6.	PTTP data verification with VMS and Logbook, and cannery data.				
7.	Consolidation of the web-tagging database, recapture information and tagging database frameworks.	Consolidation of TRO data with a Tuna Tagging App			
DATA ANALYSES					
8.	Tag reporting and seeding.	Purpose: Maintained tagging and tag-seeding for direct inclusion in MF-CL stock assessments to estimate natural mortality, fishing mortality, and movement rates Tasks: Routine update of analyses, reporting to SC.			
11.	Fishing and natural mortality.	Purpose: Provide validation to estimates from within MFCL and identify fishing mortality changes in response to expansion of the WCPO fisheries. Tasks: Routine update of analyses, reporting to SC.			
12.	Tagging mortality	Tagging effect analyses undertaken for YFT and BET assessment	Develop more robust tagging effect analyses prior to next SKJ assessment		
12.	Movement.	Purpose: Provide validation to estimates from within MFCL and SEAPODYM. Tasks: Routine update of analyses, reporting to SC.			
13.	Tag-simulation analyses.	Tag simulations undertaken, informing use of skipjack tags in MF-CL	Optimal design for 2021 skipjack-focused research voyage	Explore inclusion of simulated tag data within MSE framework	
PLANNING					
14.	Review and update research plan	Ongoing annual task for rolling plan.			