SCIENTIFIC COMMITTEE
SEVENTH REGULAR SESSION

9-17 August 2011
Pohnpei, Federated States of Micronesia

REPORT OF THE FIFTH PTTP STEERING COMMITTEE

WCPFC-SC7-2011/ST-WP-04
Revisión 1 (15 August 2011)

PTTP Steering Committee

Preliminaries

Background

The Pacific Tuna Tagging Programme (PTTP) is a joint research project being implemented by the Oceanic Fisheries Programme (OFP) of the Secretariat of the Pacific Community (SPC) and the PNG National Fisheries Authority (NFA) with assistance from the Western and Central Pacific Fisheries Commission. The goal of the Pacific Tuna Tagging Programme is to improve stock assessment and management of skipjack, yellowfin and bigeye tuna in the Pacific Ocean. The specific objectives are:

1. To obtain data that will contribute to, and reduce uncertainty in, WCPO tuna stock assessments.

2. To obtain information on the age-specific rates of movement and mixing of skipjack, yellowfin and bigeye tuna in the equatorial WCPO, between this region and other adjacent regions of the Pacific basin, and the impact of FADs on movement at all spatial scales.

3. To obtain information on species-specific vertical habitat utilisation by tunas in the tropical WCPO, and the impacts of FADs on vertical behaviour.

4. To obtain information on local exploitation rates and productivity of tuna in various parts of the WCPO.

The PTTP Steering Committee was established by SC2 to provide guidance and oversight in the development of firstly the project document (WCPFC-SC3-GN-WP-10) and subsequently of operational plans, implementation and analytical work. The fifth meeting of the PTTP Steering Committee was held at the 7th Regular Meeting of the WCPFC Scientific Committee Pohnpei, Federated States of Micronesia on 12 August 2011. The current donors to the project are European Union (through the SPC implemented projects SCIFISH and SCICOFISH), Korea, New Zealand, Papua New Guinea and the WCPFC. The support of all current and past donors is gratefully acknowledged.

Review and adoption of agenda

The provisional agenda was adopted.

PTTP Progress Report (SC7-ST-IP-05)

Since the last PTTP Steering Committee meeting, one Central Pacific handline tagging cruise (CP5) and one Papua New Guinea pole-and-line tagging cruise (PNGTP1) have been conducted in addition to continued implementation and refinement of tag recovery processes and tag seeding, and data preparation for use in the 2011 WCPO skipjack, yellowfin and bigeye tuna stock assessments.

CP5 was a cruise of 4 weeks duration conducted in November-December 2010 targeting bigeye tuna aggregations associated with the TAO oceanographic moorings straddling the Equator at 170°W and 180°. The Tonga-based multipurpose vessel Pacific Sunrise was chartered for the cruise. A total of 6,359 tuna (6,091 bigeye, 228 yellowfin and 40 skipjack) were tagged. All releases were made at the 170°W (2°N, Equator and 2°S

moorings) and 180°W (2°N). Within these releases, 58 archival tags were deployed on bigeye tuna.

The first cruise of the PNGTP (PNGTP1) was conducted over three months from April to July 2011, using the chartered pole-and-line vessel, Soltai 105. The cruise was designed to release mainly conventional tags across 4 areas within the PNG EEZ. A total of 40,628 tuna (28,707 skipjack, 11,568 yellowfin, 353 bigeye) were tagged during PNGTP1. Within these releases, 22 fish (19 yellowfin and 3 bigeye) received an archival tag. Archival tagging in Solomon Sea region for yellowfin was undertaken in collaboration with CSIRO.

PNGTP1 also provided an opportunity to collect an additional 474 stomach samples as part of a long-term project to characterize the trophic status of the western and central Pacific pelagic ecosystem. Since the beginning of the PTTP in 2006, 4,782 stomach samples have been collected, mainly from skipjack, yellowfin, bigeye and albacore tuna. The examination of the stomachs is an ongoing process and is conducted in the laboratory at SPC headquarters. A total of 3,191 stomach, representing 67% of the samples collected, have been examined and corresponding data entered in a dedicated database.

Discussion

The meeting discussed the PTTP in detail. Important discussion points are detailed as follows:

1. Tagging of South Pacific albacore with miniPSAT tags. The Committee discussed that tagging of South Pacific albacore is high risk and very difficult whether with conventional or electronic tags. The Committee noted the poor retention rate of miniPSATs on South Pacific albacore. The 12 month deployment of one tag was discussed and the apparent failure of the tag to collect reliable data. The Committee considered that data error was more likely to be the issue rather than mortality.
2. The Committee discussed the preliminary analyses of skipjack growth that was presented. It was noted that fish shrinkage can occur when the fish are measured due to fish being frozen and out of shape or often the measurement of the wrong fish (i.e., the tag was removed from the fish and measurement taken later but a mistake made in identifying the correct individual). It was explained that the Japanese data where fisheries officers accurately measure defrosted fish is very important for the analyses. There are some differences in the growth estimated from tagging data as opposed to that estimated from otoliths and length frequency. The correspondence with small fish is very good between the methods but differences can be noted in larger sized fish. This is thought to be related to a purse seine selectivity effect, whereby the longer periods of liberty tend to be the slower growers.
3. The issue of using steelhead tags was discussed as currently used in tag seeding. The Committee discussed the opportunity that these tag heads provide for food safety scanning in canneries and other processing facilities where it is possible that a tag head may have been left in the fish.
4. The Committee discussed the progress that has been made to improve tag recovery and noted that the absence of accurate recapture information for many tags was still an issue for a significant number of returns. In addition to the current efforts the Committee also encouraged more country visits by PTTP scientists and recovery officers to explain the importance of accurate recapture information to industry.

2011-2012 Work Plan (SC7-ST-IP-05)

The proposed PTTP work plan for the period 2010-2011 comprises:

- Central Pacific Cruises 6 and 7 and PNG tagging project 2;
- Continued deployment of tag seeding kits representatively across the purse-seine fishery in the WCPO;
- Tag recovery activities, including concentrated effort on transshipment;
- Tag return data quality checking with VMS and logbook records;
- Data management and reporting including improved web-based information;
- Data analyses including tag reporting rates, mortalities, movement and growth.

Other Regional or Sub-regional Tagging Projects

Hawaii Tuna Tagging Project

D. Itano provided an update of the HTTP2 project funded by the Pelagic Fisheries Research Program/University of Hawaii. The project differs from the HTTP1 which released approximately 17,000 bigeye and yellowfin tuna in the Hawaii EEZ (1995-2001) with the additional tagging of skipjack and lustrous pomphret (*Eumegistis illustris*) and the use of electronic tags and acoustic monitoring stations. The use of acoustic tags and monitors mounted on anchored FADs, near-shore banks and a productive offshore seamount was described that can be used to determine scales of residency, fine scale movement and diving behavior of tuna and pomphrets that are harvested in the Hawaiian zone. Double tagging of tuna with acoustic + data archiving tags and recent use of satellite uploading PAT tags was described that are will be analyzed to determine meso-scale movement patterns of yellowfin and bigeye occupying an isolated oceanic archipelago. Larger-scale conventional tagging of tropical tunas is a key component of the HTTP2. Tag releases have been hampered by the contraction of the Hawaii-based pole-and-line fleet to a single vessel and reduced local abundance of skipjack in the recent years. However, the project should benefit from a recently formalized relationship with the SPC-OFP for analysis of HTTP2 data to assure compatibility with PTTP analyses and the identification of funding to support these activities.

Eastern Pacific

IATTC scientists have been working in collaboration with SPC scientists, within the framework of the PTTP, since the inception of the project. In particular, collaborative tagging cruises, focused on bigeye tuna in the equatorial CPO between about 140 and 155W, were undertaken in 2009. Another similar tagging cruise to that area is scheduled for November-December of 2011.

Analyses of bigeye tuna archival tag (AT) data sets resulting from deployments during the CPO tagging experiments, beginning in 2008, and through those planned for 2011, are of great interest and value for estimating horizontal movement patterns and parameters, as well as behavior, including residence times at FADs, and habitat utilization. Objectives of such studies include the use of those estimates within bigeye spatially structured stock assessment models, incorporating movements, in the future.

Bigeye tuna AT data sets obtained from tag deployments in equatorial waters near the 140 W (n= 9, 90-385 d) and 155 W (n= 8, 93-287 d), were processed using the unscented Kalman Filter (UKFsst). This methodology provided improved position estimates, most probable tracks (MPTs), and movement parameters. The MPTs from those deployments were presented and compared with the MPTs from bigeye AT deployments during 2000-

2005, in the equatorial EPO, in the area of 95 W (n= 64, 91-1181 d). Those MPTs illustrated that most bigeye exhibited confined movements, with fidelity to areas of release. Greater longitudinal than latitudinal movements are observed, and MPTs are primarily confined to between about 5N and 5S. The MPTs illustrate some mixing of bigeye between the areas of releases in the EPO and those in the CPO. The parameter estimates from the UKFsst model were presented for daily position errors in longitude and latitude, directed movements, and dispersive movements, by area of release, and for the combined data sets.

Northwestern Pacific

Japan reported on recent tagging activities in the North Western Pacific since SC6. A new skipjack tagging program in the sub-tropical waters for skipjack started. Skipjack opportunistic tagging by training vessel continues this year also. Tropical tuna tagging program around Japan was terminated at 2010 which continuing 5 years.

In the new tagging program, 192 skipjack including 83 archival tagged fish were released in the sub-tropical area in February 2011 to study migratory and swimming behavior and habitat preference during the early period of northward migration. Two of these tagged skipjack were recovered eight days after release. These two fish were released from same school at same time with other fishes and were recovered in the same instance after eight days liberty. Although data analysis is still preliminary, behavior of swimming depth and water temperature of these two fishes were synchronized during the first 5 days but after that they were a little different.

Japan plans a second tagging cruise in the sub-tropical area during early next year chartering a commercial pole and line vessel to increase the research efficiency. For training in archival tagging methodology, a small scale coastal tagging cruise will be conducted in the coming autumn.

South Pacific Albacore (SC7-ST-IP-05)

A description of albacore tagging activities was outlined previously in SC6 GN IP-06 and SC5 GN IP-16. There have been 3 conventional tag returns, all of which were recaptured within the New Zealand EEZ. One of these recaptures was at liberty for 2 years, with the other 2 recaptures at liberty for approximately 12 months. The latter two recaptures were OTC-marked albacore, so the whole fish were recovered and the otoliths and spines removed to be analysed as part of an age validation experiment.

A further 19 albacore were tagged with miniPATs in New Caledonia, New Zealand and Tonga in 2010. All but one of these tags (from New Caledonia) has since reported, with time attached to fish varying from 1 day to 12 months, but most reported within the first 3 weeks

In addition to albacore, 2 oceanic whitetip sharks were tagged with PSATs in the Tonga EEZ. One of these sharks was recaptured by a longliner in Fiji three months after release. The PSAT was recovered and the full data set downloaded.

Analyses and write-up of the reported tagging data for albacore is scheduled to be completed later in 2011.

Korea

Korea is not implementing a formal tagging project however Korean observers are opportunistically tagging tunas.

Administrative Matters

No administrative matters were raised.

SCIENTIFIC COMMITTEE
SEVENTH REGULAR SESSION

9-17 August 2011
Pohnpei, Federated States of Micronesia

DRAFT AGENDA

Pacific Tuna Tagging Programme (PTTP) Steering Committee
5.30 pm Friday 12 August, 2011

1 Preliminaries

1.1 Review and adoption of agenda

2 PTTP Progress Report

2.1 Tagging Activities
2.2 Tag Recoveries & Seeding
2.3 Analyses

3 Work Plan 2011-2012

4 Other regional or sub-regional tagging

4.1 Hawaii (PFRP)
4.2 Eastern Pacific (IATTC)
4.3 North-western Pacific (Japan)
4.4 South Pacific albacore

5 Administrative Matters

6 Adoption of Report