APPENDIX 1

AOTTP recruitment

During the first six month phase of the project the AOTTP coordination team was recruited. Doug Beare joined ICCAT as AOTTP *Chief Coordinator* on 23 November 2015, Seynabou Kebe, as *Administrative and Financial Officer*, on 15 December 2015 and Ricardo Pastor, as *accountant* on 20 December 2015. This was followed by the *Publicity and Tag Recovery Coordinator*, Pedro Guemes, who arrived 8 March 2016. An advertisement for a *Database and Website Specialist* was published 11 January 2016 and Jesus Garcia began work on 24 April 2016 as a consultant on a six month contract. Potentially outstanding posts are the AOTTP *Assistant Coordinator* and two *Data Entry Assistants*.

AOTTP Steering Committee

An AOTTP Steering Committee was also inaugurated to guide decision-making, assess the results of the programme, and make recommendations. It meets regularly and consists of: Driss Meski (ICCAT Executive Secretary); David Die (SCRS Chair); Paul Bannerman (Tropical Tunas Coordinator); Hilario Murua (Bigeye Rapporteur); Shannon Cass-Calay (Yellowfin Rapporteur); Justin Monin Amande (Skipjack Rapporteur); Paulo Travassos; Antonio Cervantes (DG-MARE); and Isabelle Viallon (DG-DEVCO-EuropeAid). The AOTTP programme also receives substantial advice, input and help from the ICCAT Secretariat.

APPENDIX 2

Short report on the activities led by AZTI between April 13th and July 7th 2016 in the framework of the ICCAT/AOTTP Phase 1 Tagging Program – Objectives A B C and D

Nicolas Goñi, Iñigo Onandia, Igor Arregui, Pedro Afonso, Sylvia Ayivi, João Pereira, Fambaye Ngom, Pedro Pascual, N'Guessan Constance Diaha

1. Tagging coordinators and teams

As defined in the final offer, the general coordinator will be Nicolas Goñi (AZTI). The local coordinators will be Iñigo Onandia (AZTI) for zones A and B, Pedro Pascual (IEO) for zone C and João Pereira (IMAR) for zone D. In case of unavailability of Iñigo Onandia, he will provisionally be replaced by Nicolas Goñi, Igor Arregui or other qualified staff from AZTI. In case of unavailability of Pedro Pascual, he will provisionally be replaced by José Luis Cort, Lola Godoy or F. Javier Abascal (IEO). In case of unavailability of João Pereira, he will provisionally be replaced by Pedro Afonso (IMAR).

2. Tagging instructions

2.1. Tagging protocols

Procedures for tagging with conventional, internal archival, acoustic and pop-up tags were specified in order to standardize the operations on board for all regions. The resulting protocols (in English) is given in Annex 2. French and Spanish versions are also available.

2.2. Training sessions

In addition to providing the tagging protocols to all participants, training sessions were provided to the participating scientists with little experience in tagging surveys. These sessions comprise the following contents that were divided into 2 parts:

Part 1 General introduction to tuna tagging: why do we tag fish, what information do we hope to get, how to maximize the number and relevance of the recaptures? Work on board: safety, hygiene, tidiness and organization. This part focuses on all aspects not directly dealing with tagging but ensuring correct tagging protocols, such as safety measures regarding displacements on deck, handling tag applicators, organizing tags and applicators on the tag blocks, tag supplies near the tagging cradles, tag supplies in the storage area, daily follow-up of the tag series being used and asepsis (in particular for internal tag implantation). Identification of: *Thunnus albacares*, *Thunnus obesus*, *Katsuwonus pelamis*, *Euthynnus alleteratus* and *Acanthocybium solandri*, based on literature by Itano (2005) and Colette and Nauen (1983). Procedures for tagging tunas with conventional, internal archival, acoustic and pop-up tags, according to the protocols. On board data registration, presentation of the Android app developed by ICCAT and of the csv templates to be used on the bridge to register general events, tagging events and meteorological conditions.

Part 2 Training in tuna tagging: practicing the implantation of external (conventional and pop-up) and internal (acoustic and internal archival) tags safely and in the minimum amount of time. A particular focus will be made on sutures for internal tags, which are the most critical element for quick operations. The training is done on dead fish. Training for tagging data registration with the Android app, Training for general data registration on the csv template

Training sessions were organised at AZTI on April 20th 2016 and a second one is planned for July 26th. For zones A (Mauritania-Guinea) and B (Gulf of Guinea) training Sessions were given by Nicolas Goñi to the CRODT participants in Dakar on May 17th and 18th, and to the FSSD and CRO-CI participants in Abidjan on May 19th and 20th. For zone C (Canary Islands), a training session will be provided by Lola Godoy (IEO) in July to the IEO and UPV participants.

In zone D (Azores), a training session was organized by Pedro Afonso (IMAR) and David Itano (Univ. Hawaii) in late May to IMAR and associated participants. For participants unable to attend training sessions, a video tutorial was be prepared by Iñigo Onandia and Igor Arregui (AZTI) and is available here, https://www.dropbox.com/sh/29st3pv7za6mmvc/AADc5JRsbmonMq1Biz2j0_Fwa?dl=0

3. Preparation of materials

Priority has been given to the material to be specifically made for the tagging operations, i.e. tagging cradles and mattresses. Tagging cradles are d

Dear Driss,

I attach the latest version of the AOTTP (First) Interim Technical Report. Miguel, and other members of the Madrid AOTTP team, have reviewed it and are happy with it. Seynabou has also prepared all the necessary financial documents/reports which are also all ready to go.

I would like to send everything to Brussels as soon as possible. Isobel returned from leave today. I will need to send it by email and post a hard-copy.

Should I wait until you return to the office or can Miguel perhaps sign on your behalf?

Regards,

Doug.

esigned so as to fulfill several requirements: - reasonable weight allowing easy handling, - possibility to dismantle or fold - material allowing modification or adaptation on board, - inner depth and lateral slope of cradle must allow tunas to be restrained while for tagging and also easy release, - longitudinal inclination of cradle must allow tuna to slide to the bottom (making measurement quicker), restraining the tunas in during tagging, and water to drain away. For implanting internal tags, the same type of cradle will be used but with an increased lateral slope (and therefore depth), so as to keep the fish immobile during the tagging operations, and with larger holes on the head side to allow a hose for the tunas' oxygenation during tag insertion (Figure 2). Mattresses were designed according to the dimensions of the tagging cradles. Each will be composed of two parts made of foam covered with tarpaulin, and joined with a seam so as to fit the bottom of the cradle. In addition to the cradles, a stretcher was designed by the tagging team operating in zone D. This stretcher is made of steel tubes and a net, and is used to haul large tunas (Figures 3 and 4).

Equipment and materials purchased during May include:

- Tagging cradles
- Mattresses for tagging cradles

Hardware

- Smartphones for data recording during tagging
- Screen protectors, waterproof covers and additional batteries for smartphones
- Voice recorders Dear Driss,

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-
- Photo and action video cameras v-fin for action video camera underwater mounting

Chemical and electronic implantation material

- Automatic syringes, two sizes
- Needles for automatic syringes, two sizes
- One use syringes, two sizes
- Needles for one use syringes, two sizes
- Nitrile gloves: small, medium, large (surgical implantation)
- Surgical sutures (surgical l implantation)
- Scalpels and blades (surgical l implantation)

Safety and hygiene material

- Protection gloves (conventional implantation)
- Plastic tubes for applicators holding in tag blocks
- Plastic bottles 500 ml for disinfection (surgical implantation an pop-up material)
- Plastic bottles 2l for disinfection (conventional implantation applicators)
- Plastic bottles for mattresses disinfection.

- USB Flash memory for data back up Portable laptops

Figure 2. Cradle for internal tagging

Figure 4. Deploying the stretcher alongside.

Figure 1. Cradle for general tagging.

Figure 3. Testing the tagging stretcher

3. Tag distribution

52,980 conventional tags and the corresponding applicators were transferred from ICCAT to AZTI on May 4th and June 23rd. Among them: - 7350 yellow tags and 650 orange tags were distributed to IEO for tagging activities in the Canary Islands, - 5100 yellow tags and 450 orange red tags were sent to IMAR for tagging activities in the Azores Islands. - 12500 yellow tags and 1050 orange tags were sent to Dakar for tagging activities in zone A - 22240 yellow tags and 1210 orange tags were sent to Dakar, where they will be stored until the start of tagging

activities in zone B. When the F/V Aita Fraxku leaves Dakar to start activities in zone B, the tags to be used in this zone will be taken on board. - 1950 yellow tags and 230 orange tags received on June 23rd will provisionally remain in AZTI and will be sent to Dakar by October. They will also be used in zone B.

4. Vessel chartering agreements

For activities in zone A (tagging 11,000 tropical and neritic tunas), the hiring cost of the F/V Aita Fraxku will be 695 000 euros. In this zone the home port will be Dakar (usual operational port of the vessel). To reach tagging targets, 3 months at sea are considered necessary.

For activities in zone B (tagging 22,000 tropical and neritic tunas), chartering the F/V Aita Fraxku will cost 1,540,000 euros. To reach the targeted numbers of fish, 6 months at sea are considered necessary. For tagging activities in zone C (tagging 6500 tropical and neritic tunas), the payment will be done directly by numbers of fish tagged. According to the Artisanal Fishermen Association from Canary Islands (Asociación Profesional de Pescadores Artesanales de Islas Canarias), the price of the tagging will be as follows:

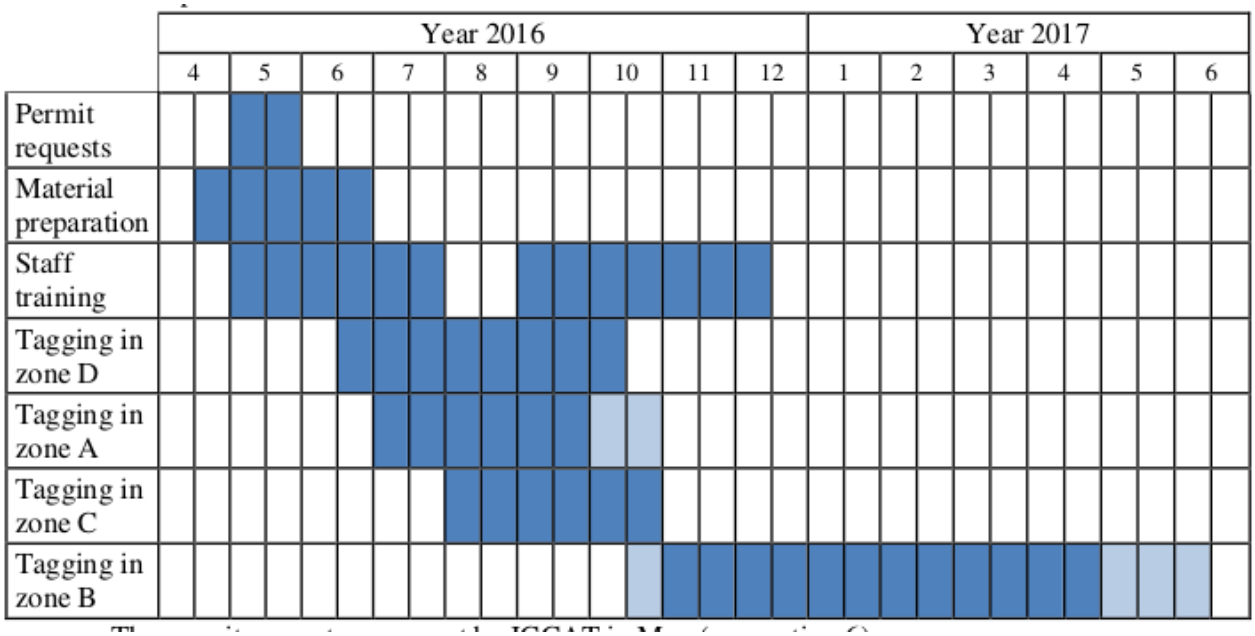
	Mean weight (kg)	Price (€/kg);
Yellowfin	12	8
Bigeye	10	8
Skipjack	4	4
Large yellowfin or bigeye	20	12
Other	10	4

For tagging activities in zone D (tagging 4500 tropical and neritic tunas), contract was established with the owner of the fishing vessel Açoriana. The cost of the vessel and crew is 304.000€ for four months.

If required, small dedicated trips will be conducted on board the R/V Águas Vivas – or a sport vessel of similar size – to top up the numbers of particular size classes of tuna until January 2017. The cost of 40 days use of the RV Águas Vivas is 40.000€. The total cost of the operation with the two vessels is 344.000 €.

5. Work plan

The updated timetable of activities will be as follows:



The permit requests were sent by ICCAT in May (see section 6). The material preparation started in April with the choice and purchase of electronic tags. During May the material for zones A, B, C and D was prepared. Staff training started in April for AZTI staff (involved in tagging activities for zones A and B), was going on in May for CRODT, CRO-CI and FSSD staff (involved in tagging activites for zones A and B) with training sessions in Dakar on May 17th and 18th and in Abidjan on May 19th and 20th. For zone D, a training session was given by Pedro Afonso (IMAR) and David Itano (Univ. Hawaii) on June 16th and 17th to IMAR and associated participants. For zone C, a training session is planned to be given by Lola Godoy (IEO) in July to the IEO and UPV participants. For participants unable to attend training sessions, a video tutorial has been made by Iñigo Onandia and Nicolas Goñi (AZTI). Activities at sea began on June 20th in zone D, and on July 8th in zone A. In August tagging will start in zone C and in November or possibly late October in zone B.

6. Permit requests

ICCAT, DG-MARE and DG-DEVCO have been contacted regarding the permit requests for the F/V Aita Fraxku to be able to tag in the territorial waters of zones A and B. According to DG-DEVCO, the first step is for ICCAT to formally ask the countries' for permission by writing to the relevant Ministers, which has been done. DG-MARE also checked the necessity of undertaking a procedure related to the switch of the F/V Aita Fraxku's activity from commercial fishing to scientific research and releasing. The countries for which permits are needed are the following ones:

From June 15th to October 20th 2016 (zone A) Morocco; Mauritania; Senegal; Gambia; Guinea Bissau; Cape Verde

From October 20th 2016 to June 15th 2017 (zone B) Guinea (i.e. Guinea Conakry); Sierra Leone; Liberia; Ivory Coast; Ghana; Togo; Benin; Equatorial Guinea; São Tomé and Principe (including the Nigeria - São Tomé and Principe Joint zone); Gabon; Republic of the Congo; Democratic Republic of the Congo; Angola.

7. Tagging data

To date, a total of 215 tunas were tagged with single conventional tags in zone D. Their distribution by species, size category and date is as follows: date SKJ ≤ 45 cm SKJ > 45cm BET < 60 cm BET 60 a 90 cm BET > 90 cm 26/06/2016 35 8 25 84 27/06/2016 32 28/06/2016 1 13 29/06/2016 13

Date	**SKJ<45cm**	**SKJ>45cm**	**BET<60cm**	**BET 60-90cm**	**BET >90cm**
26/06/2016	35	8		25	84
27/06/2016					32
28/06/2016			1		13
29/06/2016					13

In addition, 4 bigeye tunas were tagged on June 26th but not included in this table. They were single tagged but their FL data was lost due to problems in the voice recorder. A total of 17 tagged bigeye tunas were recovered by four other baitboat vessels, which corresponds to a recovery rate of 8%.

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Collette B. B: and Nauen C.E., 1983. FAO Species Catalogue. Vol. 2, Scombrids of the World. An Annotated and Illustrated Catalogue of Tunas, Mackerels, Bonitos and Related Species Known to Date. FAO Fisheries Synopsis No 125. Vol. 2-Mit 81 figs., 137 pp. Rome: FAO 1983. ISBN-Nr. 92-5-101381- 0

Itano D., 2005. A handbook for the identification of Yellowfin and Bigeye Tunas in Fresh Condition. Pelagic Fisheries Research Program, Honolulu, Hawaii, USA. Ver 2. 1–27. Available: http://www.spc.int/oceanfish/en/observer-forms/doc_details/735-a-handbook-for-the-identification-of- yellowfin-and-bigeye-tunas-in-fresh-but-less-than-ideal-condi

APPENDIX 3

CALL FOR TENDERS ICCAT/AOTTP 01/2016

Evidence based approach for sustainable management of tuna resources in the Atlantic - Atlantic Ocean Tropical Tuna Tagging Programme (AOTTP)

(ICCAT/AOTTP – TAGGING ACTIVITIES)

ICCAT/AOTTP General Background and Objectives

The overall objective of the Atlantic Ocean Tropical Tuna Tagging Programme (AOTTP) is to contribute to the food security and economic growth of the Atlantic coastal states by ensuring sustainable management of their tropical tuna resources. Specifically the AOTTP will use the information it collects on tuna stocks in the Atlantic to provide improved and updated scientific advice to developing coastal states, and other Contracting Parties, enabling them to adopt appropriate Conservation and Management Measures (CMMs) for tunas in the framework of the International Commission for the Conservation of Atlantic Tunas (ICCAT).

AOTTP will collect tag-recapture, and associated data, for the main tropical tuna species in the Atlantic Ocean. Neritic species will also be tagged in an *ad hoc* manner. The overall target is to tag **120 000** individual fish. The data will be used to calculate key population parameters in support of stock assessments (e.g. growth rates, natural mortality, exploitation rates and stock structure) and subsequent management. Scientists from relevant Contracting Parties of ICCAT will be trained in tagging, data-collection and the use of tagging data in stock assessment and management.

This Call for Tenders concerns one of the most important activities of the AOTTP, ie. **The First Tagging-Recovery Programme** (January 2016 to June 2017) outlined in the External Action of the European Union –DCI-FOOD/2015/ 361-161, and approved by the AOTTP Steering Committee. It will deliver Expected Result 1 (Tag-recapture and associated data for the three main tropical tuna and on neritic tuna species in the Atlantic are stored in a database at the ICCAT Secretariat) via the implementation of Activity 1 (Tagging of tunas).

Note that the tagging activities will be divided into 2 parts; this first lasting 18 months and the second lasting 12 months. This Call for Tenders relates to the first 18 month period. After the first 18 month tagging activities have been completed, the data (also recaptures) and experiences of the various tagging teams will be reviewed by the AOTTP Steering Committee and used to inform improvements and modifications for the second phase. **Boats and crews that have performed well during the first phase will be preferred for the second phase**.

AOTTP FIRST (18 MONTH) TAGGING PROGRAMME 2016 to 2017

In the first AOTTP 18 month tagging programme, tagging teams will be deployed on board commercial fishing vessels, especially hired for the purpose of the AOTTP, to conduct tagging operations with the objective of tagging a minimum of **72 000** tropical tunas, distributed as evenly as possible among the three main species, *i.e.* yellowfin (*Thunnus albacares*), bigeye (*Thunnus obesus*) and skipjack

(*Katsuwonus pelamis*), but also from neritic species, *e.g.* blackfin (*Thunnus atlanticus*), and Atlantic bonito (*Sarda sarda*), *etc.* on an opportunistic basis.

During the programme, several types of tag will be used to achieve different objectives. All tags will be procured by ICCAT/AOTTP and delivered to the Contractor(s) prior to the commencement of cruises.

Conventional dart tags will be the main type of tag used. These are simple plastic tags uniquely identified and implanted at the basis of the second dorsal fin of the tuna through the pterygiophores. **20%** of fish will be double tagged (*ca* **14 000)** which allows "tag shedding rates" to be estimated which can be used to correct the number of recaptures for tags that get somehow detached.

Samples of the tagged fish will also be marked chemically by injecting them with, either oxytetracycline or strontium chloride which leaves a white mark in the hard parts of the animal as it grows, in particular in the otoliths, the bones and the spines. When the hard parts are "read" in recaptured fish, its age can be estimated together with its growth rate. It is expected that **6 000** tuna from the three main tropical species will be chemically tagged.

Electronic pop-up tags will also be deployed, and a minimum of **100** individual yellowfin, **100** individual bigeye, and **100** individual skipjack will be tagged across all 7 regions (assuming that tags sufficiently small for skipjack can be procured). These tags will be used to collect important behavioural data, in particular on horizontal and vertical movements of tuna.

In areas near listening stations, sonic tags will also be used, most probably in the region of the Azores (see Ocean Tracking Network http://oceantrackingnetwork.org/ and PIRATA http://www.pmel.noaa.gov/). The exact details remain to be fully worked-out but, during this phase **600** sonic tags should be fitted to a representative sample of all 3 of the tropical tuna species.

Bait-boats are recognized as the best platform for tagging and releasing large numbers of tuna in good condition, and they have been used successfully during similar, large-scale tuna tagging programmes in both the Pacific and the Indian Oceans. In order to be eligible for use during the AOTTP project **all boats will have to be on the ICCAT List of Authorised Vessels and have all relevant safety certification.** A capability to tag large fish will need to be demonstrated.

In order to cover a broad area, bait-boat vessels from three main areas of the Atlantic Ocean (western, central, & eastern) will be hired for a total of around **1000** tagging days over an **18** month period. This will also make use of local expertise to capture both the bait fish and the tuna. It is expected that bait-boat vessels could be hired and based in Venezuela (or Trinidad & Tobago) and Brazil for the western part of the Atlantic Ocean, from Azores and/or Madeira for the Central Atlantic and from Senegal and/or Canary Islands for the eastern Atlantic Ocean. The geographical extent of the releases should be as broad as possible in order to best: estimate movements of tropical tuna in the Atlantic; estimate interactions between surface and longline fisheries; confirm the stock structure for the three species; and estimate area-specific parameters (e.g. growth, natural mortality, etc.).

The following 7 regions should be covered in total :

a) Mauritania-Guinea,

b) Gulf of Guinea,

c) Canary Islands,

d) Azores and Madeira,

e) Caribbean/Venezuela,

f) Brazil, and

g) South Africa, Namibia and St Helena.

The AOTTP is targeting similar numbers of each of the 3 species and will depend on the local availability of each species. The targets will easily be reached for skipjack (2000 tagged per day is known) but difficult for bigeye. Potential contractors should state how they would deal with such problems.

Tuna fishing is highly seasonal and the time periods (tasks A-G) below indicate "windows" within which the tagging cruises should (ideally) take place. Contractors should state the exact time periods (months) they will plan their tagging cruises to take place, and state their justifications. Overall the AOTTP will attempt to tag contemporaneously during (northern hemisphere) "summer" off Senegal and Cap Lopez.

Contractors should clarify how tagging will be distributed among "free schools", oil platforms, FADs, and FADS belonging to purse-seiners. The "Associated School" fishing technique was used very successfully in the Indian Ocean (Hallier & Fonteneau, 2015) for tagging activities and Tenderers are encouraged to consider this possibility. Two boats will be needed but one could be a "Buffer Boat", see Fonteneau & Diouf (1994). Ideally tagging should be distributed evenly but ICCAT/AOTTP accepts that this may not always be possible.

Tagging operations should not be planned to take place within the most active purse seine fishing areas. The moratorium area in January/February is potentially an ideal tagging zone. Note: It is relatively easy to tag tunas in the core fishing zones, but AOTTP does not want excessive numbers of short-term recoveries with limited scientific value.

Live bait availability is often a very serious limiting factor in tuna tagging by baitboat. Tenderers should describe their vessel capacity for live bait storage, and the equipment to be carried and used to catch live bait. They should consider where, when, and how live bait can be caught. If live bait are to be bought from artisanal fishermen, they should describe where, when and how, and include necessary budget.

Electronic tagging of skipjack is controversial and ICCAT/AOTTP reserves the right to alter this plan at short notice.

Tagging shall be distributed over as much of the age and size range of the three target species distributions as possible.

Contractor tasks

The successful Contractor(s), will work in close consultation with the ICCAT/AOTTP Coordination team and Steering Committee, and will tag fish in the various regions of the Atlantic.

ICCAT/AOTTP will work with the successful Contractor(s) to procure all necessary agreements with local authorities, local fishermen and industries when carrying out tagging within national jurisdictions. Note that ICCAT **Recommendation 11-06** should ensure cooperation with the relevant coastal states, all of which are ICCAT CPCs.

Tagging teams will be provided and trained by the Contractor(s) in close collaboration with the ICCAT/AOTTP Coordinator. It is anticipated that the crews of the bait-boats chartered for the work will comprise approximately half professional, commercial bait-boat fishers, and half the specialist tagging team.

The Contractor(s) shall be responsible for all basic data management and for uploading all data collected to the ICCAT database. ICCAT/AOTTP will manage the database, develop the "schema", and furnish the Contractor with the correct forms for recording the data and provide advice, hardware and software in all procedures relating to data collection and storage.

A vitally important component of any fish tagging programme is to maximize the recovery of: the tags; all relevant metadata; and in some cases the actual fish itself (e.g. the chemically tagged specimens, which will also be tagged with a differently colored conventional dart tag). The ICCAT/AOTTP Coordination team will set up shore based, specialized recovery teams in all the major Atlantic tuna ports. Tenderers, however, should provide some details/ideas as how best their chartered vessels and crews might best be used to help the ICCAT/AOTTP Coordination team raise awareness of the tagging programme and increase recovery rates.

The budget for the tagging activity during the first 18 month phase is considered sufficient to tag at least **72 000** individual fish in total, with 20% double tagging (ca **14 000** fish), for electronic tagging of **300** yellowfin, skipjack and bigeye tuna, and for sonic tagging of **600** fish.

The necessary tags (all types), and applicators will be provided by the ICCAT/AOTTP.

Tagging tables, tagging mattresses, tag blocks, mp3 recorders, measuring tapes, gloves, computer hardware and software, and cradles) will also be provided by ICCAT/AOTTP.

Manuals and other relevant training material will be provided by the ICCAT/AOTTP.

A) Conventional, electronic and chemical tagging of tropical tunas by bait-boats in the Mauritania-Guinea Region

Offers under AOTTP Tagging, item A, shall ensure the following:

At least **11 000** individual tropical tuna should be tagged, shared as evenly as is practical among bigeye, yellowfin and skipjack. **20%** should be double tagged, and the age range across all species should be as wide as possible.

Tunas tagged should be spread as sensibly as possible, given fishing and bait catching opportunities, among the Exclusive Economic Zones (EEZs) of Mauritania, Senegal, Guinea-Bissau and Guinea.

A minimum of **45** electronic tags should be shared between yellowfin, skipjack (assuming sufficiently small tags can be sourced) and bigeye, these electronic pop-up tags will be set for the longest possible time frame and will be implanted by the same team in charge of conventional tagging (Note: the conventional tags of various types, the applicators and the electronic tags will be provided by the ICCAT/AOTTP).

The time-frame for tagging shall **be the start of July 2016 to end of June 2017**.

Bait-boats shall be the type of vessel to be used for tagging in this area. For use in AOTTP they must be on the ICCAT List of Authorised Vessels available by emailing aottp@iccat.int. The total number of vessels used in the area shall be sufficient for reaching the final objective.

Carry out chemical tagging with either oxytetracycline or strontium chloride; a minimum of **900** fish spread among the three main species should be chemically tagged.

Each trip has a Cruise Leader (Annex I), hired under a short-term contract, who has experience in large-scale tagging of tunas. Cruise Leaders will work in close, constant contact with the ICCAT/AOTTP Coordinator and be responsible for managing all field activities. He/she will write and submit Cruise Reports and ensure data are submitted/uploaded to ICCAT. The management of the scientific teams on board, and their training and monitoring will also be the responsibility of the Cruise Leader.

The hiring of tagging teams for each bait-boat vessel with short-term contracts or using its own crew. Each team should include a tagging specialist.

The total time at sea should be an average of **5 months per person/vessel or when tagging targets have been met (a, c & f).**

All necessary permits for accessing and operating in the waters under the jurisdiction of each CPC concerned have been procured.

B) Conventional, electronic and chemical tagging of tropical tunas by bait-boats in the Gulf of Guinea Region including the Islands, and the fishing grounds of Gabon, and northern Angola.

Offers under AOTTP Tagging, item B, shall ensure the following:

At least **22 000** individual tropical tuna should be tagged, shared as evenly as is practical among bigeye, yellowfin and skipjack. **20%** should be double tagged and the age range across all species should be as wide as possible.

Tunas tagged should be spread as sensibly as possible, given fishing and bait catching opportunities, among the Exclusive Economic Zones (EEZs) of Ivory Coast, Ghana and the fishing grounds of Gabon and northern Angola.

A minimum of **90** electronic tags should be shared between yellowfin, skipjack (assuming sufficiently small tags can be sourced) and bigeye, these electronic pop-up tags will be set for the longest possible time frame and will be implanted by the same team in charge of conventional

tagging. (Note: the conventional tags of various types, the applicators and the electronic tags will be provided by the ICCAT/AOTTP).

The time-frame for tagging shall be **the start of May 2016 to the end of June 2017**.

Bait-boats shall be the type of vessel to be used for tagging in this area. For use in AOTTP they must be on the ICCAT List of Authorised Vessels available by emailing aottp@iccat.int. The total number of vessels used in the area shall be sufficient for reaching the final objective.

Carry out chemical tagging with either oxytetracycline or strontium chloride; a minimum of **1800** fish spread among the three main species should be chemically tagged.

Each trip has a Cruise Leader(Annex I), hired under a short-term contract, who has experience in large-scale tagging of tunas. Cruise Leaders will work in close, constant contact with the ICCAT/AOTTP Coordinator and be responsible for managing all field activities. He/she will write and submit Cruise Reports and ensure data are submitted/uploaded to ICCAT. The management of the scientific teams on board, and their training and monitoring will also be the responsibility of the Cruise Leader.

The hiring of tagging teams for each bait-boat vessel with short-term contracts or using its own crew. Each team should include a tagging specialist.

The total time at sea should be an average of **10 months per person/vessel or when tagging targets have been met (a, c & f).**

All necessary permits for accessing and operating in the waters under the jurisdiction of each CPC concerned have been procured.

C) Conventional, electronic and chemical tagging of tropical tunas by bait-boats in the Canary Islands Region

Offers under AOTTP Tagging, item C, shall ensure the following:

At least **6 500** individual tropical tuna should be tagged, shared as evenly as is practical among bigeye, yellowfin and skipjack. **20%** should be double tagged and the age range across all species should be as wide as possible.

Tunas tagged should be spread as sensibly as possible, given fishing and bait catching opportunities, within the Exclusive Economic Zone (EEZ) of the Canary Island Archipelago.

A minimum of **27** electronic tags should be shared between yellowfin, skipjack (assuming sufficiently small tags can be sourced), and bigeye, these electronic pop-up tags will be set for the longest possible time frame and will be implanted by the same team in charge of conventional tagging. (Note: the conventional tags of various types, the applicators and the electronic tags will be provided by the ICCAT/AOTTP).

The time-frame for tagging shall be **the start of June 2016 to the end of June 2017.**

Bait-boats shall be the type of vessel to be used for tagging in this area. For use in AOTTP they must be on the ICCAT List of Authorised Vessels available by emailing aottp@iccat.int. The total number of vessels used in the area shall be sufficient for reaching the final objective.

Carry out chemical tagging with either oxytetracycline or strontium chloride; a minimum of **550** fish spread among the three main species should be chemically tagged.

Each trip has a Cruise Leader (Annex I), hired under a short-term contract, who has experience in large-scale tagging of tunas. Cruise Leaders will work in close, constant contact with the ICCAT/AOTTP Coordinator and be responsible for managing all field activities. He/she will write and submit Cruise Reports and ensure data are submitted/uploaded to ICCAT. The management of the scientific teams on board, and their training and monitoring will also be the responsibility of the Cruise Leader.

The hiring of tagging teams for each bait-boat vessel with short-term contracts or using its own crew. Each team should include a tagging specialist.

The total time at sea should be an average of **3 months per person/vessel or when tagging targets have been met (a, c & f).**

All necessary permits for accessing and operating in the waters under the jurisdiction of each CPC concerned have been procured.

D) Conventional, electronic and chemical tagging of tropical tunas by bait-boats in the Azores Region

Offers under AOTTP Tagging, item D, shall ensure the following:

At least **4 500** individual tropical tuna should be tagged, shared as evenly as is practical among bigeye and skipjack. **20%** should be double tagged and the age range across all species should be as wide as possible.

Tunas tagged should be spread as sensibly as possible, given fishing and bait catching opportunities, within the Exclusive Economic Zone (EEZ) of the Azores Archipelago.

A minimum of **18** electronic tags should be shared between skipjack (assuming sufficiently small tags can be sourced) and bigeye, these electronic pop-up tags will be set for the longest possible time frame and will be implanted by the same team in charge of conventional tagging. (Note: the conventional tags of various types, the applicators and the electronic tags will be provided by the ICCAT/AOTTP. Yellowfin are unlikely to be caught in this area).

A minimum of 600 sonic tags should be shared between yellowfin, skipjack, and bigeye. (Note: details remain to be worked out and the ICCAT/AOTTP team is currently discussing potential avenues with representatives from both the Ocean Tracking Network http://oceantrackingnetwork.org/ and PIRATA http://www.pmel.noaa.gov/).

The tagging will take place between **the start of July 2016 and the end of January 2017**.

Bait-boats shall be the type of vessel to be used for tagging in this area. For use in AOTTP they must be on the ICCAT List of Authorised Vessels available by emailing aottp@iccat.int. The total number of vessels used in the area shall be sufficient for reaching the final objective.

Carry out chemical tagging with either oxytetracycline or strontium chloride; a minimum of **360** fish spread among the three main species should be chemically tagged.

Each trip has a Cruise Leader (Annex I), hired under a short-term contract, who has experience in large-scale tagging of tunas. Cruise Leaders will work in close, constant contact with the ICCAT/AOTTP Coordinator and be responsible for managing all field activities. He/she will write and submit Cruise Reports and ensure data are submitted/uploaded to ICCAT. The management of the scientific teams on board, and their training and monitoring will also be the responsibility of the Cruise Leader.

The hiring of tagging teams for each bait-boat vessel with short-term contracts or using its own crew. Each team should include a tagging specialist.

The total time at sea should be an average of **2 months per person/vessel or when tagging targets have been met (a, c & f).**

All necessary permits for accessing and operating in the waters under the jurisdiction of each CPC concerned have been procured.

E) Conventional, electronic and chemical tagging of tropical tunas by bait-boats in the Caribbean-Venezuela region

Offers under AOTTP Tagging, item E, shall ensure the following:

a) At least **9 000** individual tropical tuna should be tagged, shared as evenly as is practical among bigeye, yellowfin and skipjack. **20%** should be double tagged and the age range across all species should be as wide as possible.

b) Tunas tagged should be spread as sensibly as possible, given fishing and bait catching opportunities, among the Exclusive Economic Zones (EEZs) of Venezuela and Trinidad & Tobago.

c) A minimum of **36** electronic tags should be shared between yellowfin, skipjack (assuming sufficiently small tags can be sourced) and the bigeye, these electronic pop-up tags will be set for the longest possible time frame and will be implanted by the same team in charge of conventional tagging. (Note: the conventional tags of various types, the applicators and the electronic tags will be provided by the ICCAT/AOTTP).

d) The tagging will take place between **the start of October 2016 and the end of January 2017.**

e) Bait-boats shall be the type of vessel to be used for tagging in this area. For use in AOTTP they must be on the ICCAT List of Authorised Vessels available by emailing aottp@iccat.int. The total number of vessels used in the area shall be sufficient for reaching the final objective.

f) Carry out chemical tagging with either oxytetracycline or strontium chloride; a minimum of **730** fish spread among the three main species should be chemically tagged.

g) Each trip has a Cruise Leader (Annex I), hired under a short-term contract, who has experience in large-scale tagging of tunas. Cruise Leaders will work in close, constant contact with the ICCAT/AOTTP Coordinator and be responsible for managing all field activities. He/she will write and submit Cruise Reports and ensure data are submitted/uploaded to ICCAT. The management of the scientific teams on board, and their training and monitoring will also be the responsibility of the Cruise Leader.

h) The hiring of tagging teams for each bait-boat vessel with short-term contracts or using its own crew. Each team should include a tagging specialist.

i) The total time at sea should be an average of **4 months per person/vessel or when tagging targets have been met (a, c & f).**

j) All necessary permits for accessing and operating in the waters under the jurisdiction of each CPC concerned have been procured.

F) Conventional, electronic and chemical tagging of tropical tunas by bait-boats in Brazil

Offers under AOTTP Tagging, item F, shall ensure the following:

a) At least **13 000** individual tropical tuna should be tagged, shared as evenly as is practical among bigeye, yellowfin and skipjack. **20%** should be double tagged and the age range across all species should be as wide as possible.

b) Tunas tagged should be spread as sensibly as possible, given fishing and bait catching opportunities, within the Exclusive Economic Zones (EEZ) of Brazil.

c) A minimum of **55** electronic tags should be shared between yellowfin, skipjack (assuming sufficiently small tags can be sourced) and bigeye, these electronic pop-up tags will be set for the longest possible time frame and will be implanted by the same team in charge of conventional tagging. (Note: he conventional tags of various types, the applicators and the electronic tags will be provided by the ICCAT/AOTTP).

d) The tagging will take place between the **start of May 2016 and the end of January 2017**.

e) Bait-boats shall be the type of vessel to be used for tagging in this area. For use in AOTTP they must be on the ICCAT List of Authorised Vessels available by emailing aottp@iccat.int. The total number of vessels used in the area shall be sufficient for reaching the final objective.

f) Carry out chemical tagging with either oxytetracycline or strontium chloride; a minimum of **1100** fish spread among the three main species should be chemically tagged.

g) Each trip has a Cruise Leader (Annex I), hired under a short-term contract, who has experience in large-scale tagging of tunas. Cruise Leaders will work in close, constant contact with the ICCAT/AOTTP Coordinator and be responsible for managing all field activities. He/she will write and submit Cruise Reports and ensure data are submitted/uploaded to ICCAT. The

management of the scientific teams on board, and their training and monitoring will also be the responsibility of the Cruise Leader.

h) The hiring of tagging teams for each bait-boat vessel with short-term contracts or using its own crew. Each team should include a tagging specialist.

i) The total time at sea should be an average of **6 months per person/vessel or when tagging targets have been met (a, c & f).**

j) All necessary permits for accessing and operating in the waters under the jurisdiction of each CPC concerned have been procured.

G) Conventional, electronic and chemical tagging of tropical tunas by bait-boats in South Africa, Namibia and St Helena

Offers under AOTTP Tagging, item G, shall ensure the following:

a) At least **6 500** individual tropical tuna should be tagged, shared as evenly as is practical among bigeye and yellowfin. **20%** should be double tagged and the age range across all species should be as wide as possible.

b) Tunas tagged should be spread as sensibly as possible, given fishing and bait catching opportunities, among the Exclusive Economic Zones (EEZ) of South Africa (Atlantic), Namibia and St Helena.

c) A minimum of **27** electronic tags should be shared between yellowfin and bigeye, these electronic pop-up tags will be set for the longest possible time frame and will be implanted by the same team in charge of conventional tagging. (Note: he conventional tags of various types, the applicators and the electronic tags will be provided by the ICCAT/AOTTP).

d) The tagging will take place between the **start of May 2016 and the end of January 2017 although fishing should not be planned in this area between July and October.**

e) Bait-boats shall be the type of vessel to be used for tagging in this area. For use in AOTTP they must be on the ICCAT List of Authorised Vessels available by emailing aottp@iccat.int. The total number of vessels used in the area shall be sufficient for reaching the final objective.

f) Carry out chemical tagging with either oxytetracycline or strontium chloride; a minimum of **1100** fish spread among the three main species should be chemically tagged.

g) Each trip has a Cruise Leader (Annex I), hired under a short-term contract, who has experience in large-scale tagging of tunas. Cruise Leaders will work in close, constant contact with the ICCAT/AOTTP Coordinator and be responsible for managing all field activities. He/she will write and submit Cruise Reports and ensure data are submitted/uploaded to ICCAT. The management of the scientific teams on board, and their training and monitoring will also be the responsibility of the Cruise Leader.

h) The hiring of tagging teams for each bait-boat vessel with short-term contracts or using its own crew. Each team should include a tagging specialist.

i) The total time at sea should be an average of **3 months per person/vessel or when tagging targets have been met (a, c & f)**.

j) All necessary permits for accessing and operating in the waters under the jurisdiction of each CPC concerned have been procured.

Interested Contractor(s) or Tenderers shall provide one or any combination of proposals to achieve the ICCAT/AOTTP objectives for the Phase 1 tagging work. The prospective Contractor(s) should endeavor to ensure full coverage of all areas and tuna size groups as indicated above. Fishing is difficult to predict. For this reason accurate and timely Cruise Reports are essential, detailing the numbers and size ranges of the fish tagged. ICCAT/AOTTP Coordination team, therefore, reserves the right (where reasonable) to intervene in planned cruise programmes to alter activities so adequate coverage of regions, species and size-classes is attained.

As mentioned prospective Contractor(s) can apply for any of the individuals tasks (tasks A-G), and applications for larger sub-sets are encouraged. For instance one Contractor might decide to cover the western (tasks E & F) Atlantic and another the eastern (A, B & G) making it easier to standardize the activities of the tagging teams. Preference will be given to proposals that implement one of the components (A-G) listed, in full, or a combination of components. Proposals that include one type of tagging (eg electronic pop-up tagged fish, or sonic tagging) for all regions will, however, also be considered. Given that the AOTTP objective is to accomplish all components listed above, ICCAT/AOTTP reserves the right to negotiate with individual proponents the partial funding of sub-components of each proposal where relevant.

Detailed descriptions of the proposed activities and any modifications suggested should be supplied in proposals.

Contractor minimum qualifications

Documented multi-year experience in tuna or tuna-species studies; previous experience in large-scale tagging or local multi-year tagging.

Availability of sufficient qualified scientific and technical staff to carry out the duties.

Availability of the necessary vessel(s) to carry out the duties.

Availability of at least one specialist in "populating" tagging databases.

Excellent working knowledge of one of the three official languages of ICCAT (English, French, Spanish). A high level of knowledge of English is highly desirable.

Request for bids

Interested entities should submit an offer to the attention of Mr. Driss Meski, the Executive Secretary of ICCAT, at the following address: driss.meski@iccat.int and, in copy, to aottp@iccat.int by **17:00 GMT on Monday 01 February, 2016, including:**

a) Acknowledgment of this Call for Tenders **(ICCAT/AOTTP 01/2016)**

b) A detailed offer, based on the objectives of this Call for Tenders (A to G), clearly specifying the objective(s) for which the tender is submitted, describing the strata where the tagging will be conducted. Departures from the overall tagging design, described above, can be made with justification.

c) The curricula vitae of the scientific staff.

d) The curricula vitae of the institution(s) or entity(ies) applying for the ICCAT/AOTTP tagging activity 2016-2017, with any documented experience in these fields, to include recent and relevant contracts for the same or similar items and other references (including contract numbers, points of contact with telephone numbers and other relevant information).

e) A preliminary estimated budget for the tagging activity and for populating the ICCAT tagging databases, to be detailed by individual components (e.g., tagging staff, organization of staff including the time for data input, vessel rent, operational costs, travel, consumables, etc.) and any discount terms (overhead to cover administrative and general costs could be admitted within a maximum limit of 10% of the personnel costs).

f) The name, address, and telephone number of the tendering body.

g) The bank account of the tendering body, (bank name, account number, IBAN and SWIFT codes), and the IVA=VAT identification code.

h) The institutional and administrative background of the tendering body (e.g., statutes, type of institution, annual budget, budget control procedures, etc.).

i) A detailed list of any sub-contracting activities.

j) A declaration that the tendering institution will follow: the ICCAT/AOTTP tagging design, the ICCAT/AOTTP *Tagging Manual* provided by the ICCAT/AOTTP; all recommendations made by the ICCAT Steering Committee; and all details of the present Call for Tenders. The Contractor/Tenderer should also declare that any modifications will be first agreed upon with the AOTTP Coordination Team and that all administrative rules and procedures specified in the contract will be strictly adhered to.

k) A declaration that all the comments made on the Draft Final Report will be incorporated in the Final Report prior to submission to the ICCAT SCRS.

l) A declaration that the staff and all the subcontracted staff will be covered by full insurance for the tagging activities at sea, according to the Call for Tenders. These should exclude ICCAT from any responsibility concerning any activities undertaken by the tendering institution/organization.

m) A statement specifying the extent of agreement with all terms, conditions, and provisions included herein, confirming dates for the submission of the Draft Final Report and Final Report.

The ICCAT Secretariat will make a selection of the offers in consultation with the ICCAT/AOTTP Steering Committee. The ICCAT Secretariat will inform potential Contractors on the result of the selection process by **15 February 2016**.

Offers that fail to furnish the required documentation or information, or that reject the terms and conditions of the Call for Tenders will not be considered.

Contractors can be either research institutions, such as government or private laboratories, universities, or private consultancy firms, individual scientists or other entities having the qualifications required.

The Contractor should be available to report to any meeting requested by ICCAT/AOTTP.

Contractors should be aware that ICCAT/AOTTP will not pay for rises in the price of fuel.

Deliverables

#1 A **Short Report** (template will be provided by ICCAT/AOTTP) detailing preparations for the tagging activities, including the identification of the Cruise Leaders, all protocols for tagging, the vessel chartering agreements and a short description of the work carried out up to that date, to be submitted at the latest **30 days after the signature of the contract (for all objectives from A to G)**.

#2 Tagging activities will be divided up into individual cruises or "trips". Immediately after each trip the Cruise Leader on each trip will submit a **"Cruise Report"** to the ICCAT/AOTTP Coordinator summarising all activities on that trip. The Cruise Report will be short (template will be provided by ICCAT/AOTTP) and will outline: details of the crew on-board; where exactly the vessel went; where she fished; where bait was captured; the numbers, species and size-profile of the fish caught and released; and the data successfully uploaded. Recommendations and problems should also be described.

#3 Each successful Contractor will submit a **Draft Final Report** one calendar month after the tagging activities have ceased, ie. according to item d) in tasks A-G above at the latest (a reporting template will be provided by ICCAT/AOTTP) containing:

a) A full description of the work carried out during the tagging activities in the various areas, with the total number of tagged tunas and specifications of the double-tagged tuna.

b) Detailed descriptions of the methodology and protocols (particularly if tagging was carried out strictly according to the ICCAT/AOTTP *Tagging Manual*).

c) Maps of the areas in which the tagging was carried out.

d) Detailed tables with the definitive number of tagged specimens by area, size composition and type of tag.

e) Copies of the data input worksheets from the ICCAT tagging database.

f) Any possible recommendations for adjusting the tagging strategy for conventional tagging in the second 12 month ICCAT/AOTTP tagging phase.

g) An Executive Summary and

h) A PowerPoint presentation of the main results.

#4 Each successful Contractor will submit **Final Reports by 1 July 2017** taking into account any comments on the Draft Final Report which will be provided in a timely fashion by ICCAT/AOTTP, and also **A Full Administrative Report by 1 July 2017** including copies of all the administrative documents required by ICCAT/AOTTP.

(Note: To facilitate the reporting requirements, the ICCAT/AOTTP will provide a template for the reports).

Payment details

Disbursements will be made according to the following schedule:

1. 25% of the total amount of the contract upon **signing of the contract**.
2. 25% upon completion and acceptance of **Deliverable #1**.
3. 25% upon completion and acceptance of all cruise reports, successful transmission of data to ICCAT databases, and draft final report, i.e. **Deliverables #2 & #3.**
4. 25% after the approval of **Deliverable #4** upon incorporation of comments by the ICCAT/AOTTP Steering Committee and the approval of the administrative documents.

Logistics

All documents provided by the Contractor must be in MS Word or compatible software; tables must be in Excel format or compatible; figures and pictures must be in JPEG or TIFF format or compatible. Tagging data shall be input in the ICCAT tagging database. All documents submitted can be in either English, French or Spanish.

Copyright

All the material produced by the Contractor will remain the property of the ICCAT/AOTTP, will be kept confidential, and cannot, in any case, be circulated by the Contractor selected. The scientific use of the data by the Contractor shall always be notified to ICCAT in advance for clearance.

For further information concerning this Call for Tenders, please contact the ICCAT/AOTTP Coordinator at the following address: aottp@iccat.int.

Duties and Responsibilities of the Cruise Leader

The duties and responsibilities of the Cruise Leader shall be as follows:

- Be the liaison officer between the Contractor and the ICCAT/AOTTP for all practical issues concerning the tagging activities.
- Selection and training of the staff engaged in the tagging programme at sea, organising the necessary training course.

- Implement the logistical and operational components of the tag release activities (conventional and electronic tagging) including cruise planning, tagger training and supervision of all aspects of the operational releases.
- Lead tagging cruises, involving long periods at sea.
- Ensure that all data collected as part of the release activities of tags under the ICCAT/AOTTP are properly recorded, transcribed in electronic form, and uploaded to the ICCAT/AOTTP databases.
- Arrange, on behalf of the Contractor, for vessel chartering, contracting staff for tagging operations and purchasing any of the gear required to implement properly the tagging program.
- Prepare cruise reports, as required, summarizing all tag release and recovery activities, in strict co-operation with the ICCAT/AOTTP Coordinator.
- Provide information describing the AOTTP for promotional purposes.
- Work with the ICCAT/AOTTP Coordinator to prepare all necessary documents for requesting permission for accessing the national waters under the jurisdiction of each CPC concerned (to be formally requested by the Contractor).
- Work closely with the ICCAT/AOTTP Coordinator, maintaining effective and productive communication channels.

References

Hallier, J.P. and A. Fonteneau. 2014. Tuna aggregation and movement from tagging data: A tuna “hub” in the Indian Ocean. *Fisheries Research*, **163**, 24-43.

Fonteneau, A. and T. Diouf, 1994. An efficient way of bait-fishing for tunas recently developed in Senegal. *Aquat. Living Resour*. **7,** 139-151**.**

APPENDIX 4

CALL FOR TENDERS ICCAT/AOTTP 03/2016

Evidence based approach for sustainable management of tuna resources in the Atlantic - Atlantic Ocean Tropical Tuna Tagging Programme (AOTTP)

(ICCAT/AOTTP – SUPPLY OF ELECTRONIC TAGS)

ICCAT/AOTTP General Background and Objectives

The overall objective of the Atlantic Ocean Tropical Tuna Tagging Programme (AOTTP) is to contribute to the food security and economic growth of the Atlantic coastal states by ensuring sustainable management of their tropical tuna resources, ie. yellowfin (*Thunnus albacares*), bigeye (*Thunnus obesus*) and skipjack (*Katsuwonus pelamis*). Specifically the AOTTP will use the information it collects on tuna stocks in the Atlantic to provide improved and updated scientific advice to developing coastal states, and other Contracting Parties, enabling them to adopt appropriate Conservation and Management Measures (CMMs) for tunas in the framework of the International Commission for the Conservation of Atlantic Tunas (ICCAT).

AOTTP will collect tag-recapture, and associated data, for the main tropical tuna species in the Atlantic Ocean. The data will be used to calculate key population parameters in support of stock assessments (e.g. growth rates, natural mortality, exploitation rates and stock structure) and subsequent management.

AOTTP PROCUREMENT OF ELECTRONIC TAGS

Electronic (**internal, implantable, 'archival' and externally attached 'pop-up' satellite archival type)** tags will be deployed in substantial numbers by AOTTP and are the subject of this Call for Tender. The electronic tags will be used to collect important behavioural data; in particular on horizontal and vertical movements/migrations of tuna. This is a substantial order and ICCAT/AOTTP will expect corresponding reductions in price. If the tags can be re-used/re-furbished after recovery then it should be discussed by the Tenderer. The successful Supplier(s) will:

Supply 4**00** internal, implantable, archival electronic tags (specifications and delivery dates below);

Supply **70** pop-up electronic satellite tags (specifications and delivery dates below) and attachment system;

Include the cost of data retrieval, processing and dissemination to ICCAT/AOTTP (details to be described by the potential Supplier).

Specifications

Internal, Implantable, Archival Tags should be suitable for internal (surgical) implantation in tropical tuna, have accurate depth and temperature sensors and an external “stalk” for the accurate measurement

of ambient light levels. It should be possible, using an algorithm to estimate location from these parameters and the Contractor should explain how this will be done. Depth sensor range should be 0-2000m, resolution ±1m, and accuracy ±2%. Temperature sensor accuracy should be ±0.1°C, and range -20°C to +60°C. Light sensor range should be $5x10^{-12}$ Wcm^{-2} to $5x10^{-2}$ Wcm^{-2} . The tags should have a diameter/width < 40mm, length < 100mm, and be pressure-rated to at least 2000m. Ten years maximum deployment length should be possible, depending on recording frequency. Contractor to provide details in the Offer.

Delivery (To: ICCAT HQ, Calle Corazon de Maria, 8, 28002, Madrid, Spain but this may be changed at short notice) can be in four 'tranches': 100 tags by 20 May 2016; 100 tags by 24 June 2016; 100 tags by 22 July 2016; and 100 tags by 26 August 2016. Any deviations should be described in the Offer. Proposals that can supply tags earlier are welcome.

External Pop-Up Satellite Archival Tags should be suitable for external attachment to tropical tuna and have sensors for the accurate determination of depth, temperature and ambient light. It should be possible, using an algorithm to estimate location from these parameters and the Contractor should explain how this will be done. Method of attachment to the fish should be described by the Tenderer and the cost of any ancillary equipment needed should be included in the Proposal/Offer. Depth sensor range should be 0-2000m, resolution ±1m, and accuracy ±2%. Temperature sensor accuracy should be ±0.1°C, and range -20°C to +60°C. Light sensor range should be $5x10^{-12}$ Wcm^{-2} to $5x10^{-2}$ Wcm^{-2} . The tags should have a diameter/width < 40mm, length < 150mm, and be pressure-rated to at least 2000m. Two years maximum deployment length should be possible. Contractor to provide details in the Offer.

Delivery (To ICCAT HQ, Calle Corazon de Maria, 8, 28002, Madrid, Spain but this may be changed at short notice) can be in two 'tranches': 35 tags by 20 May 2016; and 35 tags by 24 July 2016. Any deviations should be described in the Offer. Proposals that can supply tags earlier are welcome.

Request for bids

Interested entities should submit an offer to the attention of Mr. Driss Meski, the Executive Secretary of ICCAT, at the following address: driss.meski@iccat.int by **17:00 GMT on May 03 , 2016, including:**

a) Acknowledgment of this Call for Tenders **(ICCAT/AOTTP 03/2016)**

b) A detailed Proposal/Offer, based on the objectives of this Call for Tender. Detailed descriptions of the specifications of the tags, modality of data collection and dissemination, delivery dates and any modifications suggested should be supplied in the Offers.

c) The name, address, and telephone number of the tendering body.

d) The bank account of the tendering body, (bank name, account number, IBAN and SWIFT codes), and the IVA=VAT identification code.

e) The institutional and administrative background of the tendering body (e.g., statutes, type of institution, annual budget, budget control procedures, etc.).

f) A declaration that the tendering institution will follow the ICCAT Pop-Up Satellite Archival Tagging Standards (Appendix I). In case of any departure, a justification should be made in the Offer.

g) A declaration that the tendering institution will follow the ICCAT Internal, Implantable, Archival Tag Standards (Appendix II). In case of any departure, a justification should be made in the Offer.

h) A statement specifying the extent of agreement with all terms, conditions, and provisions included herein, confirming dates for the delivery of the electronic tags.

The ICCAT Secretariat will select the best Offer in consultation with the ICCAT/AOTTP Steering Committee. Contractors should be aware that the selection will be based on a range of criteria (e.g. likelihood of premature releases, ease of working with the data & past indicators of performance in the published literature etc.) and not only price. In their Offers, Contractors should outline a system for compensating ICCAT/AOTTP for tags that fail due solely to hardware and software problems.

The ICCAT Secretariat will inform potential Contractors on the result of this process by **10 May 2016**.

Offers that fail to furnish the required documentation or information, or that reject the terms and conditions of the Call for Tenders will not be considered.

The Contractor should be available to report to any meeting requested by ICCAT/AOTTP.

Payment details

Disbursements will be made according to the following schedule:

1. 50% of the total amount of the contract upon **signing of the Contract**.
2. 50% upon completion and acceptance of **delivery of all 400 internal archival tags and all 70 external pop-up tags.**

Logistics

All documents provided by the Contractor must be in MS Word or compatible software; tables must be in Excel format or compatible; figures and pictures must be in JPEG or TIFF format or compatible. Tagging data shall be input in the ICCAT tagging database. All documents submitted can be in either English, French or Spanish.

Copyright

All the material produced by the Contractor will remain the property of the ICCAT/AOTTP, will be kept confidential, and cannot, in any case, be circulated by the Contractor selected. The scientific use of the data by the Contractor shall always be notified to ICCAT in advance for clearance.

For further information concerning this Call for Tenders, please contact the ICCAT/AOTTP Coordinator at the following address: aottp@iccat.int.

APPENDIX 5

MINUTES MARCH 2016 AOTTP STEERING COMMITTEE MEETING

Date: 12 March 2016

Location: AZTI Pasaia, Herrera Kaia, Portualdea z/g 20110 – Pasaia (Gipuzkoa), Spain.

Time: 9am to 13pm

Chairman: David Die

Participants: David Die (DD, Steering Committee), Driss Messki (DM, Steering Committee), Doug Beare (DB, Coordinator), Paul de Bruyn (PB, Observer), Shannon Calay (SC, Steering Committee), Justin Amande (JA, Steering Committee), Hilario Murua (HM, Steering Committee), Olimpia Orlandoni (OO, Observer), Antonio Cervantes (AC, Observer), Nicolas Goni (NG, Guest), Craig Brown (CB, Guest).

Summary

- The meeting was opened by the ICCAT Executive Secretary. Craig Brown (NOAA) was invited to provide information on electronic tagging of tuna and Nicolas Goni (AZTI) was invited to give a presentation on the AZTI tagging consortium proposal.
- Doug Beare presented progress on ICCAT/AOTTP thus far. Note that the same presentation was also given to the Yellowfin Data Preparatory meeting on Friday 11th March.
- Nicolas Goni presented details of AZTI Consortium proposal to address first phase tagging in Eastern Atlantic.
- The AZTI Consortium proposal was discussed. Overall the AOTTP Steering Committee were happy with the proposal and voted to contract AZTI.
- Craig Brown provided an introduction to electronic tagging of oceanic fish and the types of information that they can produce. The pros versus cons of each type of electronic tag were then discussed.

The workplan for the next few months was described, actions agreed.

Key decisions and Actions

DECISION	**ACTION**
Launch Call for Tender for supply electronic tags for	Draft Tender specifications and circulate among

first phase tagging only. Split the budget 70% to 30% in favor of internal archival tags.	Steering Committee (ICCAT/AOTTP management).
Award Phase 1 tagging in Zones A-D to the AZTI Consortium	Draft Contract between AZTI and ICCAT (ICCAT/AOTTP management).
Relaunch Call for Tender for second phase tagging in South Africa, Brazil and Caribbean with more time for proposal preparation.	Draft Tender specifications and circulate among Steering Committee (ICCAT/AOTTP management). Note: Potential tenderers need at least 1 month to prepare their proposals.
Contract Website and Database Consultants for 6 months.	Meet Consultants at ICCAT HQ (ICCAT/AOTTP management).
Consider potential inclusion of South American representative and/or external expert on AOTTP Steering Committee	ICCAT Executive Secretary and AOTTP Steering Committee Chair.
Launch Call for Tender for Awareness and Tag Recovery teams in Abidjan, Tema and Dakar	Draft Tender specifications and circulate among Steering Committee (ICCAT/AOTTP management).
Organise travel to Azores, Dakar, Canaries, Tema, and Abidjan (Awareness and Tag Recovery Campaign)	Draft detailed work plan (ICCAT/AOTTP management).
Recruit AOTTP Assistant	To be discussed by Steering Committee.
Next AOTTP Steering Committee Meeting	Mid April and bi-monthly subsequently.

APPENDIX 6 Publicity and Awareness Workplan 2016

PUBLICITY AND AWARENESS ACTIVITIES	YEAR 2016									
	March	April	May	June	July	August	September	October	November	December
Negotiation mobile company	A									
Design edition posters	Z									
Disemination posters, visits	O									
Radio fm/newspapers publicity	R									
Disemination sms	E									
Youtube awareness	S									
Negotiation mobile company										
Design edition posters	D									
Disemination posters, visits	A									
Radio fm/newspapers publicity	K									
Disemination sms	A									
Youtube awareness	R									
Negotiation mobile company	C									
Design edition posters	A									
Disemination posters, visits	N									
Radio fm/newspapers publicity	A									
Disemination sms	R									
Youtube awareness	Y									
Negotiation mobile company	A									
Design edition posters	B									
Disemination posters, visits	I									
Radio fm/newspapers publicity	D									
Disemination sms	J									
Youtube awareness	A									
	N									
Negotiation mobile company										
Design edition posters										
Disemination posters, visits	T									
Radio fm/newspapers publicity	E									
Disemination sms	M									
Youtube awareness	A									

APPENDIX 7

Evidence based approach for sustainable management of tuna resources in the Atlantic

Atlantic Ocean Tropical Tuna Tagging Programme (AOTTP)

AWARENESS AND TAG RECOVERY ACTIVITIES IN DAKAR (SENEGAL), TEMA (GHANA) AND ABIDJAN (COTE D'IVOIRE).

ICCAT/AOTTP Background and Objectives

The overall objective of the Atlantic Ocean Tropical Tuna Tagging Programme (AOTTP) is to contribute to the food security and economic growth of the Atlantic coastal states by ensuring sustainable management of their tropical tuna resources. Specifically the AOTTP will use the information it collects on tuna stocks in the Atlantic to provide improved and updated scientific advice to developing coastal states, and other Contracting Parties, enabling them to adopt appropriate Conservation and Management Measures (CMMs) for tunas in the framework of the International Commission for the Conservation of Atlantic Tunas (ICCAT).

AOTTP will collect tag-recapture, and associated data, for the main tropical tuna species in the Atlantic Ocean. Neritic species will also be tagged in an *ad hoc* manner. The overall target is to tag **120 000** individual fish. The data will be used to calculate key population parameters in support of stock assessments (e.g. growth rates, natural mortality, exploitation rates and stock structure) and subsequent management. Scientists from relevant Contracting Parties of ICCAT will be trained in tagging, data-collection and the use of tagging data in stock assessment and management.

This Call for Tenders concerns two of the activities of the AOTTP, ie. **Awareness Campaigns and Recovery of tags and transmission of data to the ICCAT Secretariat,** outlined in the External Action of the European Union –DCI-FOOD/2015/ 361-161, and approved by the ICCAT SCRS. It will deliver Expected Result 1 (Tag-recapture and associated data for the three main tropical tuna and on neritic tuna species in the Atlantic are stored in a database at the ICCAT Secretariat) via the implementation of Activities 1 (Awareness campaign and recovery schemes) and 2 (Recovery of tags and transmission to ICCAT Secretariat).

The awareness and recovery activities will be implemented during a 42 month period covering the second, third and fourth phases of the project.

CALL FOR TENDER: Awareness and Tag Recovery in Abidjan, Dakar and Tema

The objectives of these campaigns will be to raise awareness among relevant stakeholders with respect to:

the ICCAT AOTTP tagging programme itself (overall objectives, operations, etc.);

what actions to take whenever a tagged fish is recaptured;

what information/metadata is to be collected when a tag is found;

who is to be contacted when a tag is found;

the reward associated with the recapture and accurate transmission of metadata.

Awareness and tag-recovery will be promoted through a range of relevant media. The successful Tenderer(s)/Contractor(s) will distribute brochures and posters on board fishing vessels, at ports, fish markets and at fish-processing plants. [Note: the brochures and posters will be supplied by the ICCAT/AOTTP management team]. Radio and TV spots will also be used where possible, press articles will be written, and mobile text messages will be sent to target groups. [Note: the services provided by the media will be funded by the ICCAT/AOTTP coordination team but managed by the Tenderer(s)/Contractor(s)] Potential tag finders will be made aware of the exact procedure to follow when reporting a recapture, and that (sometimes substantial) rewards are available for any reported tag.

During the implementation of these campaigns, the ICCAT/AOTTP programme and the successful Tenderer(s) will work closely with fishing authorities, but also with the fishing industry, including fishing vessel operators, processing plants, *etc.*

The effectiveness of the Publicity and Awareness Campaign will be measured by implementing 'Tag-Seeding' experiments, probably primarily on purse-seiners but also on baitboats and longliners and organized by engagement with extant Observer Programmes. These experiments allow the Reporting Rate to be estimated, *i.e.* the proportion of tags recovered and reported from the total number of recaptured tunas. The tag-seeding experiments should also form part of any prospective Tenderer(s) proposal.

Publicity and reward schemes will be developed to motivate tag reporting and to ensure that tags and associated recovery information are reported swiftly to the programme. It is essential that the rewards are paid and/or distributed immediately to the finder of the tag (*e.g.* fishers, stevedores, workers, *etc.*). These schemes should be carefully 'tailored' to each different country and target group in order to best motivate relevant fishers and other stakeholders to report their recaptures, together with the appropriate metadata.

Target groups for the tag-recovery campaigns will be:

all relevant fishers (skippers and crew);

stevedores in unloading ports;

cannery and processing plan workers;

fishing markets workers/salesmen;

recreational fishers.

Several teams of Tag Recovery Officers (TRO) will be trained and deployed for the whole duration of the AOTTP programme in the ports of Abidjan, Tema and Dakar, where the largest proportions (>80%) of Atlantic tropical tuna catch are landed. The TRO teams will be fully functional and autonomous, the AOTTP Programme providing them with necessary equipment, office space and transport.

Note: For the other ports of the Atlantic Ocean, a comprehensive network of Recovery Officers will also be set up by AOTTP to ensure the recovery and reporting of the recaptured tagged tuna. This network will mainly rely on local fisheries institutions and research organizations, as well as on stakeholders involved in tuna fisheries and processing.

In summary the successful Tenderer(s) will:

work closely with the ICCAT/AOTTP coordination team and Steering Committee;

implement the Targeted Tag Awareness Campaigns;

assist ICCAT/AOTTP in the implementation of Tag-Seeding Experiments using Observers;

recover conventional and electronic tags;

pay and/or distribute relevant rewards;

accurately record metadata (location of capture, length etc.) from recovered, tagged fish;

upload data to the ICCAT/AOTTP database;

collect biological samples from chemically tagged fish and arrange their purchase;

recruit Tag Recovery Officers and Administration Assistants to manage tag-recovery teams and their transport.

In:

A. Dakar (Senegal);

B. Abidjan (Cote D'Ivoire); and

C. Tema (Ghana).

ICCAT/AOTTP encourages Proposals from prospective Contractor(s)/Tenderer(s) that, either focus on each country individually, or a Consortium that could bid to work simultaneously in all three countries. Ideas for implementing awareness and tag-recovery activities in other West African states (e.g. Sierra Leone, Angola, Liberia, Guinea, Togo, Mauritania) will also be welcomed in any proposal.

Note: The Tag Recovery Officers and Administration Assistants will be recruited by the successful Tenderer via a transparent and public process involving the ICCAT/AOTTP coordination team who will be part of the Candidate Evaluation and Selection Panel.

The budget for the Awareness and Tag Recovery Activities during the 42 month period is considered sufficient to recover information from at least **11 500** individual tagged fish in total, from **600** fish marked chemically, and for **30** electronic tags.

ICCAT/AOTTP will work with the successful Contractor(s) to procure all necessary permits and provide all necessary information to local authorities, local fishermen and relevant processing and transport. Note that ICCAT **Recommendation 11-06** should ensure cooperation with the relevant coastal states, all of which are ICCAT CPCs.

ICCAT/AOTTP contribution

The ICCAT/AOTTP program will:

provide training and technical support to the successful Contractor/Tenderer and to the TRO teams for the duration of the project;

provide posters, brochures, t-shirts etc;

liaise with mobile communication/phone companies to work out a *modus operandi*;

stipulate and set the rewards paid and other incentive schemes;

manage the database, develop the "schema", and furnish the successful Contractor(s)/Tenderer(s) with the correct forms for recording the data and provide advice, hardware and software in all procedures relating to data collection and storage;

provide computer hardware and software, devices, and the necessary biological sampling material to the Tenderer;

procure tags (conventional, double-barbed) for the tag-seeding experiments; and

provide manuals and other relevant training material.

Submission of proposals

Interested Contractor(s)/Tenderer(s) shall provide one or any combination of proposals to organise and put in operation TRO teams in Dakar, or Tema or Abidjan to achieve ICCAT/AOTTP Tag Recovery objectives. The prospective Contractor(s) should endeavor to ensure full coverage of all areas and stakeholder groups as indicated above. The ICCAT/AOTTP coordination team, therefore, reserves the right (where reasonable) to intervene in TRO work plans and alter activities where necessary in order to ensure adequate and representative coverage of locations, species and size-classes is attained.

Detailed descriptions of the proposed activities and any modifications suggested should be supplied in proposals.

Contractor minimum qualifications

Documented multi-year experience in tuna or tuna-species studies; previous experience in fish tag recovery and awareness campaigns or local multi-year tagged fish recovery.

Availability of sufficiently qualified scientific and technical staff to carry out the duties.

Availability of the necessary office space, administration and technical support to carry out the duties.

Availability of at least one specialist in "populating" tag recovery databases.

Excellent working knowledge of one of the three official languages of ICCAT (English, French, Spanish). A high level of knowledge of English is highly desirable.

Evidence of commitment to capacity building / training in developing countries.

Involvement of local institutions.

Request for bids

Interested entities should submit an offer to the attention of Mr. Driss Meski, the Executive Secretary of ICCAT, at the following address: driss.meski@iccat.int by **17:00 GMT on Monday 25 May, 2016, including:**

a) Acknowledgment of this Call for Tenders **(ICCAT/AOTTP 04/2016)**
b) A detailed offer, based on the objectives of this Call for Tenders, clearly specifying the objective(s) for which the tender is submitted, describing the activities that will be conducted. The overall tag fish recovery and awareness design, described above, can be made with justification.
c) The *curricula vitae* of the scientific support staff.
d) The *curricula vitae* of the institution(s) or entity(ies) applying for the ICCAT/AOTTP tag recovery and awareness activities 2016-2020, with any documented experience in these fields, to include recent and relevant contracts for the same or similar items and other references (including contract numbers, points of contact with telephone numbers and other relevant information).
e) A preliminary estimated budget for the tag fish recovery and awareness campaigns activities and for populating the ICCAT/AOTTP tag recovery information databases, to be detailed by individual components [e.g., tag recovery and administration staff, organization of staff including the time for data input, transport (vehicle rent), operational costs, travel, consumables, etc.] and any discount

terms (overhead to cover administrative and general costs could be admitted within a maximum limit of 10% of the personnel costs).

f) The name, address, and telephone number of the tendering body.

g) The bank account of the tendering body, (bank name, account number, IBAN and SWIFT codes), and the IVA=VAT identification code.

h) The institutional and administrative background of the tendering body (e.g., statutes, type of institution, annual budget, budget control procedures, etc.).

i) A detailed list of any sub-contracting activities.

j) A declaration that the tendering institution will follow "*the ICCAT/AOTTP tag recovery design, the ICCAT/AOTTP Tagging Manual provided by the ICCAT/AOTTP; all recommendations made by the ICCAT Steering Committee; and all details of the present Call for Tenders. The Contractor/Tenderer should also declare that any modifications will be first agreed upon with the AOTTP Coordination Team and that all administrative rules and procedures specified in the contract will be strictly adhered to.*"

k) A declaration that all the comments made on the Draft Final Report will be incorporated in the Final Report prior to submission to the ICCAT SCRS.

l) A declaration that the staff and all the subcontracted staff will be covered by full insurance for the tag recovery activities in both port and coastal areas, according to the Call for Tenders. These should exclude ICCAT from any responsibility concerning any activities undertaken by the tendering institution/organization.

m) A statement specifying the extent of agreement with all terms, conditions, and provisions included herein, confirming dates for the submission of the Draft Final Report and Final Report.

The ICCAT Secretariat will make a selection of the offers in consultation with the ICCAT/AOTTP Steering Committee. The ICCAT Secretariat will inform potential Contractors on the result of the selection process by **06 June 2016**.

Offers that fail to furnish the required documentation or information, or that reject the terms and conditions of the Call for Tenders will not be considered.

Contractors/Tenderers can be either research institutions, such as government or private laboratories, universities, or private consultancy firms, individual scientists or other entities having the qualifications required.

The Contractor/Tenderer should be available to report to any meeting requested by ICCAT/AOTTP.

Contractors/Tenderers should be aware that ICCAT/AOTTP will not pay for rises in the price of fuel.

Deliverables

#1 A **Inception Report** (template will be provided by ICCAT/AOTTP) detailing preparations for the tag recovery and awareness campaign activities, including all protocols for tag recovery, the work plan and a short description of the work carried out up to that date, to be submitted at the latest **30 days after the signature of the contract**.

#2 **A Monthly Technical and Administrative Report** Tag recovery and awareness campaign activities, including a detailed description of the work carried out up to that date, including administrative issues (table of expenditures, copy of proper justifications) to be submitted at the latest in the first week of the next month to the ICCAT/AOTTP Coordinator team. The monthly report will be short (template will be provided by ICCAT/AOTTP) and will outline: details of the activities; which spot areas were

visited by the team; meetings; awareness products, tag recovery information, species, sizes; and the data successfully uploaded. Recommendations and problems should also be described.

#3 A **Draft Final Report** shall be send to the ICCAT/AOTTP coordination team one calendar month after the end of the project. A reporting template will be provided by ICCAT/AOTTP) containing:

A full description of the work carried out during the tag recovery and awareness activities in the various areas, with the total number of tag tunas recoveries, specifications of the double-tagged tuna and awareness campaigns.

Detailed descriptions of the methodology and protocols.

Maps of the areas in which the tag recoveries were carried out.

Detailed tables with the definitive number of tagged specimens by location, size composition and type of tag.

Copies of the data input worksheets from the ICCAT tag recovery database.

Any possible recommendations for adjusting the tag recovery strategy for conventional tagging.

An Executive Summary and

A PowerPoint presentation of the main results.

#4 Each successful Contractor will submit a **Final Report by 1 July 2020** taking into account any comments on the Draft Final Report which will be provided in a timely fashion by ICCAT/AOTTP, and also **A Full Administrative Report by 1 July 2020** including copies of all the administrative documents required by ICCAT/AOTTP.

Payment details

Disbursements will be made according to the following schedule:

1. 25% of the total amount of the contract upon **signing of the contract**.

3. 1% upon completion and acceptance of each Monthly report, successful transmission of data to ICCAT databases, and completion with the draft final report**.**

4. 25% after the approval of **Deliverable #4** upon incorporation of comments by the ICCAT/AOTTP Steering Committee and the approval of the administrative documents.

Logistics

All documents provided by the Contractor must be in MS Word or compatible software; tables must be in Excel format or compatible; figures and pictures must be in JPEG or TIFF format or compatible. Tagging data shall be input in the ICCAT tagging database. All documents submitted can be in either English, French or Spanish.

Copyright

All the material produced by the Contractor will remain the property of the ICCAT/AOTTP, will be kept confidential, and cannot, in any case, be circulated by the Contractor selected. The scientific use of the data by the Contractor shall always be notified to ICCAT in advance for clearance.

For further information concerning this Call for Tenders, please contact the ICCAT/AOTTP Coordinator at the following address: aottp@iccat.int.

Supporting Terms of Reference.

The Tag Recovery Officer will:

Be the liaison officer between the Contractor and the ICCAT/AOTTP for all practical issues concerning the tag recovery and awareness campaign activities.

Work closely with the ICCAT/AOTTP Publicity and Tag Recovery Coordinator and with the ICCAT/AOTTP Coordinator maintaining effective and productive communication channels.

Organise and implement the logistical and operational components of the publicity and tag recovery activities including proper desk space, equipment in operation, transport, transmission of information and supervision of all operational aspects.

Implement awareness campaigns by FM-AM radio, internet, cell phone, WhatsApp etc.

Visit spot areas to explain the objectives of the project, to place posters etc.

Explain and publicise the importance of providing accurate information on the recovery of tagged fish for more sustainable future management of tuna fisheries.

Be fully available to receive any communication by cell phone, text message or email from any stakeholder finding a tagged fish.

Collect all the necessary metadata on each tagged fish, e.g. species, dates of capture, position of capture and size (total length in centimetres). If possible quickly move to the place where the tagged fish is located to collect local information; especially to take a picture, record the accurate length and weight, to validate date and location of capture and eventually collect tissue samples.

If any communication received relates to a coral pink coloured tag, acquire the fish as rapidly as possible (the fish will need to be bought), take relevant metadata, and also take and store (appropriately) biological samples of hard parts like otoliths, spines and vertebrae, stomach contents and muscle samples.

Once tagged tuna metadata are validated, the successful tenderer will coordinate immediately with the cell phone company to proceed with issuing the free cell phone credit reward to the relevant person. Coordinate with the relevant tag-finder to deliver any cash reward stipulated and any other rewards (eg. t-shirts, caps).

Visit to key spot areas like ports, landing sites, fish market and processing plants to promote continuous awareness and to coordinate and collect all possible information about tagged fish.

Ensure that all data collected as part of the tag recovery information activities under the ICCAT/AOTTP are properly recorded and/or transcribed in electronic form, and uploaded to the ICCAT/AOTTP databases.

Facilitate the coordination among a network of focal points that will also be set up in The Azores, The Canaries, Cape Verde Islands and also South and North America to ensure the recovery and reporting of the recaptured, tagged tuna. This latter network envisaged will mainly depend on local fisheries institutions and research organisations, as well as on stakeholders involved in tuna fisheries and processing

Prepare Inception, Monthly and Final Reports, as required, summarizing all awareness and tag recovery activities, in strict cooperation with the ICCAT/AOTTP coordination team.

Work with the ICCAT/AOTTP coordination team to prepare all necessary documents for requesting permission for accessing areas like ports, landing sites, industrial plants… (to be formally requested by the Contractor).

APPENDIX 8

CALL FOR TENDERS ICCAT/AOTTP 05/2016

Evidence based approach for sustainable management of tuna resources in the Atlantic - Atlantic Ocean Tropical Tuna Tagging Programme (AOTTP)

(ICCAT/AOTTP – TAGGING ACTIVITIES IN SW AND SE ATLANTIC)

ICCAT/AOTTP General Background and Objectives

The overall objective of the Atlantic Ocean Tropical Tuna Tagging Programme (AOTTP) is to contribute to the food security and economic growth of the Atlantic coastal states by ensuring sustainable management of their tropical tuna resources. Specifically the AOTTP will use the information it collects on tuna stocks in the Atlantic to provide improved and updated scientific advice to developing coastal states, and other Contracting Parties, enabling them to adopt appropriate Conservation and Management Measures (CMMs) for tunas in the framework of the International Commission for the Conservation of Atlantic Tunas (ICCAT).

AOTTP will collect tag-recapture, and associated data, for the main tropical tuna species in the Atlantic Ocean. Neritic species will also be tagged in an *ad hoc* manner. The data will be used to calculate key population parameters in support of stock assessments (e.g. growth rates, natural mortality, exploitation rates and stock structure) and subsequent management. Scientists from relevant Contracting Parties of ICCAT will be trained in tagging, data-collection and the use of tagging data in stock assessment and management.

This Call for Tenders concerns one of the most important activities of the AOTTP, ie. **The First Tagging-Recovery Programme** (January 2016 to June 2017) outlined in the External Action of the European Union –DCI-FOOD/2015/ 361-161, and approved by the AOTTP Steering Committee. It will deliver Expected Result 1 (Tag-recapture and associated data for the three main tropical tuna and on neritic tuna species in the Atlantic are stored in a database at the ICCAT Secretariat) via the implementation of Activity 1 (Tagging of tunas).

Note that the tagging activities will be divided into 2 parts; this first lasting 18 months and the second lasting 12 months. This Call for Tenders relates to the first 18 month period. After the first 18 month tagging activities have been completed, the data (also recaptures) and experiences of the various tagging teams will be reviewed by the AOTTP Steering Committee and used to inform improvements and modifications for the second phase. **Tagging teams that have performed well during the first phase will be preferred for the second phase**.

AOTTP FIRST (18 MONTH) TAGGING PROGRAMME 2016 to 2017

In the first AOTTP 18 month tagging programme teams will be deployed to tag tropical tunas in the Atlantic Ocean. The tags will be distributed as evenly as possible among the three main species, *i.e.* yellowfin (*Thunnus albacares*), bigeye (*Thunnus obesus*) and skipjack (*Katsuwonus pelamis*). Neritic species, *e.g.* Little Tunny *Euthynnus alletteratus*), and Wahoo (*Acanthocybium solandri*) will also be tagged on an opportunistic basis.

During the programme, several types of tag will be used to achieve different objectives. All tags will be procured by ICCAT/AOTTP and delivered to the Contractor(s) prior to the commencement of cruises.

Conventional dart tags will be the main type of tag used. These are simple plastic tags uniquely identified and implanted at the basis of the second dorsal fin of the tuna through the pterygiophores. Twenty percent (**20%**) of fish should be double tagged which allows "tag shedding rates" to be estimated.

Samples of the tagged fish will also be marked chemically by injecting them with, either oxytetracycline or strontium chloride which leaves a white mark in the hard parts of the animal as it grows, in particular in the otoliths, the bones and the spines. When the hard parts are "read" from a recaptured fish, its age can be estimated together with its growth rate.

Internally implanted archival and/or pop-up electronic tags will also be deployed to collect important behavioural data, in particular on horizontal and vertical movements of tuna.

The following 7 regions will be covered in total but **PLEASE NOTE THAT THIS CALL FOR TENDER RELATES ONLY TO AREAS/TASKS, E, F and G:**

A) Mauritania-Guinea,

B) Gulf of Guinea,

C) Canary Islands,

D) Azores and Madeira,

E) Caribbean/Venezuela,

F) Brazil and Uruguay,

G) South Africa, Angola, Namibia and St. Helena.

The AOTTP is targeting similar numbers of each of the 3 main tropical species but this will clearly depend on the local availability of each species. Targets will be most easily be reached for skipjack (2000 tagged per day is known) but might be difficult for bigeye. Potential contractors should state how they would deal with such problems.

Tuna fishing is highly seasonal and the time periods (tasks E to G) below indicate "windows" within which the tagging should (ideally) take place. Contractors should state the exact time periods (months) they will plan their tagging to take place, and state their justifications.

Contractors should clarify how tagging will be distributed among "free schools", oil platforms, FADs, and FADS belonging to purse-seiners where relevant. The "Associated School" fishing technique was used very successfully in the Indian Ocean (Hallier & Fonteneau, 2015) for tagging activities and Contractors are encouraged to consider this possibility, see also Fonteneau & Diouf (1994).

Tagging operations should not be planned to take place close to the most active fishing areas. Note: It is relatively easy to tag tunas in the core fishing zones, but ICCAT/AOTTP does not want excessive numbers of short-term recoveries with limited scientific value.

Live bait availability is often a very serious limiting factor in tuna tagging by baitboat. If opting to use baitboats Contractors should describe their vessel capacity for live bait storage, and the equipment to be carried and used to catch live bait. They should consider where, when, and how live bait can be caught. If live baits are to be bought from artisanal fishermen, they should describe where, when and how, and include necessary budget.

Electronic tagging of skipjack is controversial and ICCAT/AOTTP reserves the right to alter this plan at short notice.

Tagging shall be distributed over as much of the age and size range of the three target species distributions as possible.

Contractor tasks

The successful Contractor(s), will work in close consultation with the ICCAT/AOTTP Coordination team and Steering Committee, and will tag fish in the various regions of the Atlantic.

ICCAT/AOTTP will work with the successful Contractor(s) to procure all necessary agreements with local authorities, local fishermen and industries when carrying out tagging within national jurisdictions. Note that ICCAT **Recommendation 11-06** should ensure cooperation with the relevant coastal states, all of which are ICCAT CPCs.

Tagging teams will be provided and trained by the Contractor(s) in close collaboration with the ICCAT/AOTTP Coordination team. It is anticipated that the crews of chartered vessels for the work will comprise mostly commercial fishers, while 3-4 individuals will make up the specialist tagging team.

The Contractor(s) shall be responsible for all basic data management and for uploading all data collected to the ICCAT database. ICCAT/AOTTP will manage the database, develop the "schema", and furnish the Contractor with the correct forms for recording the data and provide advice, hardware and software in all procedures relating to data collection and storage.

A vitally important component of any fish tagging programme is to maximize the recovery of the tags; all relevant metadata; and in some cases the actual fish itself, e.g. the chemically and internally tagged specimens, which will also be tagged with a differently colored (coral pink) conventional dart tag. The ICCAT/AOTTP Coordination team will coordinate recovery activities in all the major Atlantic tuna ports. Contractors, however, should provide some details/ideas as how best their activities might best be used to help the AOTTP Coordination team raise awareness of the tagging programme and increase recovery rates.

The necessary tags (all types), and applicators will be provided by ICCAT/AOTTP.

Tagging tables, tagging mattresses, tag blocks, mp3 recorders, measuring tapes, gloves, computer hardware and software, and cradles) will also be provided by AOTTP.

Manuals and other relevant training material will be provided by the AOTTP.

E) Conventional, electronic and chemical tagging of tropical tunas in the Caribbean-Venezuela region

Offers under AOTTP Tagging, item E, shall ensure the following:

At least **9 000** individual tropical tuna should be tagged, shared as evenly as is practical among bigeye, yellowfin and skipjack. Twenty percent (**20%**) should be double tagged and the age range across all species should be as wide as possible.

Tunas tagged should be spread as sensibly as possible, given fishing and bait catching opportunities, among the Exclusive Economic Zones (EEZs) of Venezuela and Trinidad & Tobago.

A minimum of **36** internal/pop-up electronic tags should be shared between yellowfin, skipjack (assuming sufficiently small tags can be sourced) and the bigeye, these electronic tags will be set for the longest possible time frame and will be implanted by the same team in charge of conventional tagging. (Note: the conventional tags of various types, the applicators and the internal/pop-up electronic tags will be provided by the AOTTP).

The tagging will take place between **the start of September 2016 and the end of March 2017.**

Any vessels used in AOTTP must be on the ICCAT List of Authorised Vessels available by emailing aottp@iccat.int. The total number of vessels used in the area shall be sufficient for reaching the final objective.

Carry out chemical tagging with either oxytetracycline or strontium chloride; a minimum of **730** fish spread among the three main species should be chemically tagged.

Any tagging activity has a Tagging Leader (Annex I), hired under a short-term contract, who has experience in large-scale tagging of tunas. These Leaders will work in close, constant contact with the AOTTP Coordination team and be responsible for managing all field activities. He/she

will write and submit Reports and ensure data are submitted/uploaded to ICCAT. The management of the scientific teams on board, and their training and monitoring will also be the responsibility of the Tagging Leader.

The hiring of tagging teams for each fishing vessel/tagging platform with short-term contracts or using its own crew. Each team should include a tagging specialist.

All necessary permits for accessing and operating in the waters under the jurisdiction of each CPC concerned have been procured.

F) Conventional, electronic and chemical tagging of tropical tunas in Brazil and Uruguay

Offers under AOTTP Tagging, item F, shall ensure the following:

At least **13 000** individual tropical tuna should be tagged, shared as evenly as is practical among bigeye, yellowfin and skipjack. Twenty percent (**20%**) should be double tagged and the age range across all species should be as wide as possible.

Tunas tagged should be spread as sensibly as possible, given fishing and bait catching opportunities, within the Exclusive Economic Zones (EEZ) of Brazil and Uruguay.

A minimum of **55** internal/pop-up electronic tags should be shared between yellowfin, skipjack (assuming sufficiently small tags can be sourced) and bigeye, these electronic tags will be set for the longest possible time frame and will be implanted by the same team in charge of conventional tagging. (Note: the conventional tags of various types, the applicators and the internal/pop-up electronic tags will be provided by the AOTTP).

The tagging will take place between the **start of March 2017 and the end of May 2017**.

Any vessels used in AOTTP must be on the ICCAT List of Authorised Vessels available by emailing aottp@iccat.int. The total number of vessels used in the area shall be sufficient for reaching the final objective.

Carry out chemical tagging with either oxytetracycline or strontium chloride; a minimum of **1100** fish spread among the three main species should be chemically tagged.

Any tagging activity has a Tagging Leader (Annex I), hired under a short-term contract, who has experience in large-scale tagging of tunas. These Leaders will work in close, constant contact with the AOTTP Coordination team and be responsible for managing all field activities. He/she will write and submit Reports and ensure data are submitted/uploaded to ICCAT. The management of the scientific teams on board, and their training and monitoring will also be the responsibility of the Tagging Leader.

The hiring of tagging teams for each fishing vessel/tagging platform with short-term contracts or using its own crew. Each team should include a tagging specialist.

All necessary permits for accessing and operating in the waters under the jurisdiction of each CPC concerned have been procured.

G) Conventional, electronic and chemical tagging of tropical tunas in Angola, South Africa, Namibia and St Helena

Offers under AOTTP Tagging, item G, shall ensure the following:

At least **6 500** individual tropical tuna should be tagged, shared as evenly as is practical among bigeye and yellowfin. Twenty percent (**20%**) should be double tagged and the age range across all species should be as wide as possible.

Tunas tagged should be spread as sensibly as possible, given fishing and bait catching opportunities, among the Exclusive Economic Zones (EEZ) of Angola, South Africa (Atlantic), Namibia and St. Helena.

A minimum of **27** internal/pop-up electronic tags should be shared between yellowfin and bigeye, these electronic tags will be set for the longest possible time frame and will be implanted by the same team in charge of conventional tagging. (Note: the conventional tags of various types, the applicators and the internal/pop-up electronic tags will be provided by the AOTTP).

The tagging will take place between the **start of November 2016 and the end of January 2017 although fishing should not be planned in this area between July and October.**

Any For use in AOTTP they must be on the ICCAT List of Authorised Vessels available by emailing aottp@iccat.int. The total number of vessels used in the area shall be sufficient for reaching the final objective.

Carry out chemical tagging with either oxytetracycline or strontium chloride; a minimum of **1100** fish spread among the three main species should be chemically tagged.

Any tagging activity has a Tagging Leader (Annex I), hired under a short-term contract, who has experience in large-scale tagging of tunas. These Leaders will work in close, constant contact with the AOTTP Coordination team and be responsible for managing all field activities. He/she will write and submit Reports and ensure data are submitted/uploaded to ICCAT. The management of the scientific teams on board, and their training and monitoring will also be the responsibility of the Tagging Leader.

The hiring of tagging teams for each tagging platform with short-term contracts or using its own crew. Each team should include a tagging specialist.

All necessary permits for accessing and operating in the waters under the jurisdiction of each CPC concerned have been procured.

Interested Contractor(s) or (s) shall provide one or any combination of proposals to achieve the AOTTP objectives for the Phase 1 tagging work. The prospective Contractor(s) should endeavor to ensure full coverage of all areas and tuna size groups as indicated above. Fishing is difficult to predict. For this reason accurate and timely reports are essential, detailing the numbers and size ranges of the fish tagged. ICCAT/AOTTP Coordination team, therefore, reserves the right (where reasonable) to intervene in planned tagging programmes to alter activities so adequate coverage of regions, species and size-classes is attained.

As mentioned prospective Contractor(s) can apply for any of the individuals tasks (tasks E to G), and applications for larger sub-sets <u>are encouraged</u>. For instance one Contractor might decide to cover the western (tasks E and F) Atlantic and another the eastern (G) making it easier to standardize the activities of the tagging teams. Preference will be given to proposals that implement one of the components (E to G) listed, in full, or a combination of components. Proposals that include one type of tagging (e.g. electronic pop-up/archival tagged fish, trapping or sonic tagging) will, however, also be considered. Given that the AOTTP objective is to accomplish all components listed above, ICCAT/AOTTP reserves the right to negotiate with individual proponents the partial funding of sub-components of each proposal where relevant.

Detailed descriptions of the proposed activities and any modifications suggested should be supplied in proposals.

Contractor minimum qualifications

Documented multi-year experience in tuna or tuna-species studies; previous experience in large-scale tagging or local multi-year tagging.

Availability of sufficient qualified scientific and technical staff to carry out the duties.

Availability of the necessary 'platforms' or vessel(s) to carry out the duties.

Availability of at least one specialist in “populating” tagging databases.

Excellent working knowledge of one of the three official languages of ICCAT (English, French, Spanish). A high level of knowledge of English is highly desirable.

Request for bids

Interested entities should submit an offer to the attention of Mr. Driss Meski, the Executive Secretary of ICCAT, at the following address: driss.meski@iccat.int by **17:00 GMT by Monday 13 June, 2016, including:**

a) Acknowledgment of this Call for Tenders (ICCAT/AOTTP 05/2016)

b) A detailed offer, based on the objectives of this Call for Tenders (E to G), clearly specifying the objective(s) for which the tender is submitted, describing the strata where the tagging will be conducted. Departures from the overall tagging design, described above, can be made with justification.

c) The *curricula vitae* of the scientific staff.

d) The *curricula vitae* of the institution(s) or entity(ies) applying for the ICCAT/AOTTP tagging activity 2016-2017, with any documented experience in these fields, to include recent and relevant contracts for the same or similar items and other references (including contract numbers, points of contact with telephone numbers and other relevant information).

e) A preliminary estimated budget for the tagging activity and for populating the ICCAT tagging databases, to be detailed by individual components (e.g., tagging staff, organization of staff including the time for data input, vessel rent, operational costs, travel, consumables, etc.) and any discount terms (overhead to cover administrative and general costs could be admitted within a maximum limit of 10% of the personnel costs).

f) The name, address, and telephone number of the tendering body.

g) The bank account of the tendering body, (bank name, account number, IBAN and SWIFT codes), and the IVA=VAT identification code.

h) The institutional and administrative background of the tendering body (e.g., statutes, type of institution, annual budget, budget control procedures, etc.).

i) A detailed list of any sub-contracting activities.

j) A declaration that the tendering institution will follow: the AOTTP tagging design, the AOTTP *Tagging Manual* provided by the ICCAT/AOTTP; all recommendations made by the ICCAT Steering Committee; and all details of the present Call for Tenders. The Contractor/ should also declare that any modifications will be first agreed upon with the AOTTP Coordination Team and that all administrative rules and procedures specified in the contract will be strictly adhered to.

k) A declaration that all the comments made on the Draft Final Report will be incorporated in the Final Report prior to submission to the ICCAT SCRS.

l) A declaration that the staff and all the subcontracted staff will be covered by full insurance for tagging activities at sea, according to the Call for Tenders. These should exclude ICCAT from any responsibility concerning any activities undertaken by the tendering institution/organization.

m) A statement specifying the extent of agreement with all terms, conditions, and provisions included herein, confirming dates for the submission of the Draft Final Report and Final Report.

The ICCAT Secretariat will make a selection of the offers in consultation with the AOTTP Steering Committee. The ICCAT Secretariat will inform potential Contractors on the result of the selection process by Monday **4th July 2016**.

Offers that fail to furnish the required documentation or information, or that reject the terms and conditions of the Call for Tenders will not be considered.

Contractors can be either research institutions, such as government or private laboratories, universities, or private consultancy firms, individual scientists or other entities having the qualifications required.

The Contractor should be available to report to any meeting requested by ICCAT/AOTTP.

Contractors should be aware that ICCAT/AOTTP will not pay for any rises in the price of fuel.

Deliverables

#1 A **Short Report** (template will be provided by AOTTP) detailing preparations for the tagging activities, including the identification of the Tagging Leaders, all protocols for tagging, any vessel chartering agreements and a short description of the work carried out up to that date, to be submitted at the latest **30 days after the signature of the contract (for all objectives from E to G)**.

#2 Tagging activities will be divided up into individual cruises or "events". Immediately after each such "event" the Tagging Leader will submit a **"Report"** to the AOTTP Coordinator summarising all the activities that took place during that "event". This Report will be short (template will be provided by AOTTP) and will outline: details of any crew/person involved; where exactly the vessel went if relevant; where the tagging took place; where bait was captured if relevant; the numbers, species and size-profile of the fish caught/tage and released; and the data successfully uploaded. Recommendations and problems should also be described.

#3 Each successful Contractor will submit a **Draft Final Report** one calendar month after the tagging activities have ceased, ie. according to item d) in tasks E to G above at the latest (a reporting template will be provided by ICCAT/AOTTP) containing:

A full description of the work carried out during the tagging activities in the various areas, with the total number of tagged tunas and specifications of the double-tagged tuna.

Detailed descriptions of the methodology and protocols (particularly whether tagging was carried out strictly according to the ICCAT *Tagging Manual*).

Maps of the areas in which the tagging was carried out.

Detailed tables with the definitive number of tagged specimens by area, size composition and type of tag.

Copies of the data input worksheets from the ICCAT tagging database.

Any possible recommendations for adjusting the tagging strategy for tagging in the second 12 month AOTTP tagging phase.

An Executive Summary and

A PowerPoint presentation of the main results achieved.

#4 Successful Contractor(s) will submit **Final Reports by 1 July 2017** taking into account any comments on the Draft Final Report which will be provided in a timely fashion by ICCAT/AOTTP, and also **A Full Administrative Report by 1 July 2017** including copies of all the administrative documents required by ICCAT/AOTTP.

(Note: To facilitate the reporting requirements, the AOTTP will provide a template for the reports).

Payment details

Disbursements will be made according to the following schedule:

1. 25% of the total amount of the contract upon **signing of the contract**.
2. 25% upon completion and acceptance of **Deliverable #1**.
3. 25% upon completion and acceptance of all reports, successful transmission of data to ICCAT databases, and draft final report, i.e. **Deliverables #2 & #3.**
4. 25% after the approval of **Deliverable #4** upon incorporation of comments by the ICCAT/AOTTP Steering Committee and the approval of the administrative documents.

Logistics

All documents provided by the Contractor must be in MS Word or compatible software; tables must be in Excel format or compatible; figures and pictures must be in JPEG or TIFF format or compatible. Tagging data shall be input in the ICCAT tagging database. All documents submitted can be in either English, French or Spanish.

Copyright

All the material produced by the Contractor will remain the property of the ICCAT/AOTTP, will be kept confidential, and cannot, in any case, be circulated by the Contractor selected. The scientific use of the data by the Contractor shall always be notified to ICCAT in advance for clearance.

For further information concerning this Call for Tenders, please contact the ICCAT/AOTTP team at the following address: aottp@iccat.int.

Duties and Responsibilities of the Tagging (Cruise) Leader

The duties and responsibilities of the Tagging (Cruise) Leader shall be as follows:

Be the liaison officer between the Contractor and the ICCAT/AOTTP for all practical issues concerning the tagging activities.

Selection and training of the staff engaged in the tagging programme, organising the necessary training courses.

Implement the logistical and operational components of the tag release activities (conventional and internal/pop-up electronic tagging) including planning, tagger training and supervision of all aspects of the operational releases.

Lead any tagging cruises, that may involve long periods at sea.

Ensure that all data collected as part of the tag and release activities of tags under the ICCAT/AOTTP are properly recorded, transcribed in electronic form, and uploaded to the ICCAT/AOTTP databases.

Arrange, on behalf of the Contractor, for any vessel chartering, contracting staff for tagging operations and purchasing any of the gear or fish required to properly implement the tagging program.

Prepare reports, as required, summarizing all tag release and recovery activities, in strict cooperation with the ICCAT/AOTTP Coordination team.

Provide information describing the AOTTP for promotional purposes.

Work with the AOTTP Coordination team to prepare all necessary documents for requesting permission for accessing the national waters under the jurisdiction of each CPC concerned (to be formally requested by the Contractor).

Work closely with the ICCAT/AOTTP Coordinator, maintaining effective and productive communication channels.

References

Hallier, J.P. and A. Fonteneau. 2014. Tuna aggregation and movement from tagging data: A tuna “hub” in the Indian Ocean. *Fisheries Research*, **163**, 24-43.

Fonteneau, A. and T. Diouf, 1994. An efficient way of bait-fishing for tunas recently developed in Senegal. *Aquatic Living Resources* **7,** 139-151**.**

APPENDIX 9

MINUTES JUNE 2016 AOTTP STEERING COMMITTEE MEETING

Date: 27 June 2016

Location: AZTI Pasaia, Herrera Kaia, Portualdea z/g 20110 – Pasaia (Gipuzkoa), Spain.

Time: 6pm to 8pm

Chairman: David Die

Participants: David Die, Shannon Calay, Justin Amande, Hilario Murua, and Paulo Travassos (Steering Committee Members), Miguel Santos (ICCAT Secretariat, on behalf of the Executive Secretary), and Doug Beare (AOTTP Coordinator).

Agenda: see Appendix I

Summary

- Progress on AOTTP was described by the Coordinator.
- Issues outlined in the Agenda (Appendix I) were then discussed by the Steering Committee.

Key decisions and actions

DECISION	**ACTION**
AOTTP should not undertake acoustic tagging, certainly in the short-term until a thorough assessment of the usefulness of such methodology to the AOTTP objectives is made available (including a proper survey design).	Coordinator to discuss this issue with EU/DG-DEVCO.
AOTTP needs a clear plan/experimental design to maximize ultimate utility of the electronic tags. The plan should incorporate questions of (i) hardware, e.g anchor types, (ii) tagging procedures, e.g. standards for minimizing mortality, (iii) settings, e.g. sampling frequency, (iv) manufacturer comparisons, and (v) their deployment in space and time.	AOTTP Coordinator to seek advice, consult tagging teams, and draft proposal for circulation among the SC.
Re-launch Call for Tender or send formal invitation(s) for the presentation of proposal(s) for Tagging in the Caribbean, but this time explicitly mentioning the Caribbean Sea and Gulf of Mexico.	AOTTP Coordinator will do this after tagging proposals for Brazil and South Africa have been properly evaluated and preliminary contacts are made with regional entities (e.g. Recreational Fishing Associations).

Make contact with relevant Ghanaian networks and arrange tag recovery infrastructure.	AOTTP Coordinator to make enquiries and possibly re-launch the Call for Tender or consider formal invitation(s) for the presentation of proposal(s).
Publish Call for Tender for mobilizing sport-fishers in specific areas of the tropical Atlantic.	AOTTP Coordinator to draft call and circulate for comments.
Plan for tag recovery officers and focal points on most relevant ports for tropical tuna fisheries in the Atlantic.	Plan already exists for eastern Atlantic, which will be refined; and relevant networks will be consulted for tag-recovery in Brazil, Uruguay, Caribbean, South Africa, Caribbean, etc.
Move budget (underspent) between Human Resources and Tag Recovery activities.	AOTTP Coordinator to seek approval from EU and draft clear, researched, and budgeted plan for all tag-recovery activities across the Atlantic for the SC.
Next AOTTP SC meeting should be a whole day	AOTTP Coordinator to investigate possibilities (e.g. before the SCRS Species Group Meetings).

Introductions

The meeting was opened by the Chair (David Die) and the AOTTP coordinator volunteered for rapporteur. Paulo Travassos the new Steering Committee member, representing the south-western Atlantic, was welcomed. A brief overview of progress since the last AOTTP Steering Committee meeting on March 12th was provided by the AOTTP Coordinator. This included summaries on the progress made on the procurement of electronic-tags, data collection (development of Android Applications for both tagging and recovery), data storage and visualization (see, https://aottp.cartodb.com/viz/cd8a1698-3b08-11e6-a4a3-0ecd1babdde5/public_map), tag recovery infrastructure, progress being made by the AZTI Consortium (tagging underway in Azores, to start first week in July in Senegal, update on access to EEZs of 19 countries) and the recently published Call for Tender for first phase tagging in Brazil, Caribbean and South Africa (rough outline of bids so far, etc.).

Discussions

Proposed acoustic tagging around the Azores data ownership (Ocean Tracking Network & ICCAT policy). The AOTTP Coordinator had proposed a pilot study with the AZTI Consortium on acoustic tagging around the Azores, potentially using static listening arrays owned by Ocean Tracking Network and IMAR; and also mobile listening devices deployed by observers on purse-seiners. A review of data-ownership issues by ICCAT, however, led to a postponement of this work. The ICCAT Secretariat needs clarity on who actually owns the data. The problem with OTN and acoustic tags is that anyone, anywhere in the world, could pick up the signals from the acoustic tags and keep the data for themselves. Some members of the Steering Committee then questioned the overall utility of doing acoustic tagging during AOTTP and recommended that AOTTP cancel the work completely - or possibly delay the work until stage 2 by which time a thorough assessment of the usefulness of such methodology to the specific AOTTP objectives, including a proper survey design can be organised - and the AOTTP

Coordinator agreed to explain this issue to the EU. It should be noted, however, that the same issue was raised during the last SC meeting on March 12th when the EU warned us of the potential difficulties involved in deviating substantially from the work detailed in the Grant Contract (see Appendix II). The reason for this is that The Call for Tender for the first phase work included acoustic tagging, and one might question whether such a requirement could have prevented other consortia from applying and may, therefore, have given AZTI an advantage.

Electronic tags. After an International Call for Tender published in May, AOTTP has bought 90 Wildlife Computers (WC) Mini PAT-348C pop-ups, 40 Desert Star (DS) Seatag 3D pop-ups, and 400 (LAT 2810) and 40 (ARCGEO-9) Lotek internal archival tags. The AOTTP SC discussed details of their deployment addressing questions such as:

- How should they be best deployed in space and time?
- How should they be anchored to the fish (type of anchor, length of tether, type of tether, color of tether, double or single tagged)?
- How they should be internally programmed?
- How we should test the relative utility of DS vs WC pop-ups?

It was noted that there are various reviews regarding the performance of pop-up tags. Small sample sizes, however, often mean conclusions are difficult to make. Due to the cost of pop-ups few people in the world have actually tagged many fish, and opinions often more subjective than objective. AOTTP should draft a set of standards for handling fish and tagging them. Note that AZTI and AOTTP have prepared manuals in 3 languages to guide tagging crews on these procedures. AOTTP should make a proposal to the SC. Shannon Cass-Caley, and her colleagues from NOAA, could be asked to provide a summary memo on specific recommendations. Note that there are two issues here: (1) the hardware and anchoring procedures; and (2) the programming of the tag itself (sampling frequency, pop-up date, etc.). Some members questioned utility of pop-ups, completely, since longer deployments of fine-scale sampling is more likely achievable with internal tags. The Chair clarified that they were originally included in AOTTP because there is no guarantee that you would ever get internal tags back, and pop-ups do not depend on the fish being caught, and there is therefore a degree of fishery "independence". The SC noted that very long deployments for pop-ups are not realistic, and they should be programmed for 3-6 month releases only. Very long deployments increase the chance of tag failure to report due to mal-functioning, flooding, etc. There is a trade-off between the amount of data that can be stored and then transmitted. DS tags have solar panels and can transmit data for a long time, whereas WCs' tags can send data for only about 2 weeks before their batteries expire. It was then questioned how useful 3-6 month deployments could be for studying migration. Staggered releases in areas, and at times of year when yellowfin and bigeye are about to start their migrations would provide adequate information on migration patterns. Experts should be consulted and a plan drafted by AOTTP coordination team for the SC to deliberate. It was agreed that very fine tag sensor sampling frequencies (e.g. < 4 minutes) were not needed for AOTTP objectives. The AOTTP coordination team should centralize the programming and interrogation of tags, gathering the raw data stored by the tags and organising them in the main ICCAT database. The AOTTP coordination team and the AZTI Consortium leader attended a 3 day training course in the use of DS tags given by the CEO of DS, Marco Flagg, at ICCAT HQ. It was recommended that a proposal be developed by the AOTTP

Coordinator, recommending a deployment schedule, experimental design, sensor settings, but obviously taking logistic issues into account.

No proposal for tagging in Caribbean zone and potential tagging in USA territorial waters? Recently a Call for Tender for Tagging off Brazil/Uruguay, South Africa and the Caribbean was published. Two proposals were received and are being evaluated now. Neither proposal, however, includes tagging in the area of the Caribbean Sea. When and if either of these proposals are funded the SC recommended re-publishing the Call for Tenders for the Caribbean Sea or considering sending formal invitations for the submission of proposals, but explicitly including parts of the United States' EEZ in the Gulf of Mexico and to the east of Florida.

Mobilizing sport fishers for AOTTP tagging. There is no specific budget in AOTTP for chartering vessels for tagging in the EEZ of the USA, but sport fishers will be mobilized to do this work. AOTTP coordination must start to organise this soon. AOTTP coordinator suggested issuing a Call for Tender, possibly for a consultant, to build a network (for the remainder of the project) among sport fishers across the tropical Atlantic. Sport fishers would be contacted, and a database built up. Each could be issued with a tagging kit including for example ten or so spaghetti tags, t-shirts, brochures etc. The sport fishers would be trained in (conventional) tagging and the use of the android data collection application. Those anglers or charter boat skippers doing well, sending in the data accurately, could then, for example, take out a scientifically trained and experienced technician who would tag any fish caught with pop-up tags. The online maps, etc., could also be used to motivate them. There is a strong educational and advocational component to this work, which DG-DEVCO would like. It would need strong leadership and a clear design and 'quality releases' would need to be ensured. The Steering Committee thought the idea appealing, but recommended 'regionalising' the Call for Tender into key areas (e.g. The Caribbean, Azores, West Africa) so potential bidders could chose different areas. The AOTTP Coordination agreed to draft and circulate such a Call for Tender among the SC.

Tag Recovery. In response to a recent Call for Tender for setting up tag-recovery offices and infrastructure in the key west African countries, good proposals were received from Dakar and Abidjan. These were evaluated and have been awarded to the respective institutions who will start immediately setting up offices, transport, etc.. Nothing, however, was received from Ghana (Tema) where a presence on the ground is also needed. It was recommended that a mode of tag recovery (and reward payment) in Ghana be arranged as soon as possible.

Budget summary. Due to the delay in starting AOTTP, the project spent just over 75% of its allocated budget in its first year (29 June 2015- 28 June 2016). Since the first Interim Report is due in early July, the AOTTP Coordinator sought approval to allocate these funds (in particular from Travel) to the tag recovery effort, awareness raising and reward payment. AOTTP, for example, will be setting up Tag Recovery Offices in Abidjan, Dakar and possibly Tema, and Focal Points in other areas. The SC broadly approved, but wants a clear idea of where exactly Focal Points will be located around the tropical Atlantic and a detailed programme of expenditure provided, notwithstanding the potential difficulties involved in accurately estimating the budget required for payment of rewards for finding tags.

APPENDIX 10

AOTTP Data and Publication policy

The ICCAT Atlantic Ocean Tropical Tuna Tagging Programme (AOTTP) is an international research project co-funded by the European Union, ICCAT CPCs, ICCAT CPCs and Contributors.

The publication of any form of results (data, scientific papers) during the ICCAT-AOTTP programme must follow mandatory rules included in the contract between ICCAT and its funders. The acceptance of any ICCAT-AOTTP contract will automatically imply acceptance of the "Publication Policy and Editorial rules" detailed below:

Ownership of the results of the Programme (ICCAT-AOTTP), including industrial and intellectual property rights, and of the reports and other documents relating to it shall be vested by ICCAT.

The results of all activities carried out within the programme (ICCAT-AOTTP) and all the scientific results obtained shall be presented to the ICCAT-SCRS at the first possible opportunity.

The scientific results of activities carried out within the Programme (AOTTP) may be published, entirely or in part, in either any scientific journal, or in the ICCAT Collective Volume of Scientific Papers providing they have first been presented to the ICCAT/SCRS.

Any researchers who wish to publish results in any media (websites, blogs, newspaper articles, scientific journals) shall require prior permission from ICCAT. ICCAT, however, will, actively encourage any prospective authors engaged in research activities within the ICCAT-AOTTP programme to disseminate their results; particularly in peer-reviewed international scientific journals.

Any report or article describing results obtained by the ICCAT-AOTTP programme must include the following sentence:
"This work was carried out under the provision of the ICCAT Atlantic Ocean Tropical Tuna Tagging Programme (AOTTP), funded by the European Union, ICCAT CPCs, and by various other entities. The contents do not necessarily reflect the views of ICCAT nor of any of the other funders. This work does not in any way anticipate the Commission's future policy in this area."

All data collected during any ICCAT-AOTTP activities shall be used for scientific purposes only, according to the ICCAT policies. Any other use of these data should be specifically authorized by ICCAT.

APPENDIX 11

List of personnel trained by AOTTP

Name	Type	Address
Ailton Augusto DOS SANTOS ROCHA	OBSR	INDP, Rua: Cova de Inglesa Mindelo, São Vicente, C.P: 132, Cabo Verde
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David ITANO	SCIE	National Marine Fisheries Service, University of Hawaii at Manoa, 2570 Dole St #114, Honolulu, HI 96822, USA
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Ebenezer Francis EKUBAN	OBSR	FSSD, P. O. Box BT 62, Tema, Greater Accra, Ghana
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Emmuauel Okine NEOKYE	OBSR	FSSD, P. O. Box BT 62, Tema, Greater Accra, Ghana
Ernest ANSONG	OBSR	FSSD, P. O. Box BT 62, Tema, Greater Accra, Ghana
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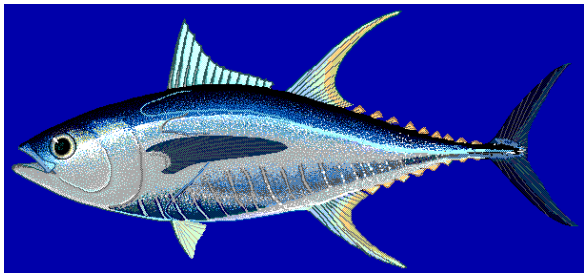
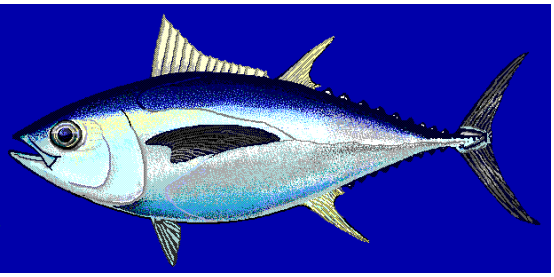
APPENDIX 12

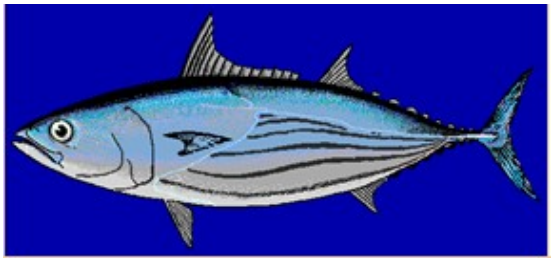
AOTTP tagging handbook

Thunnus albacares

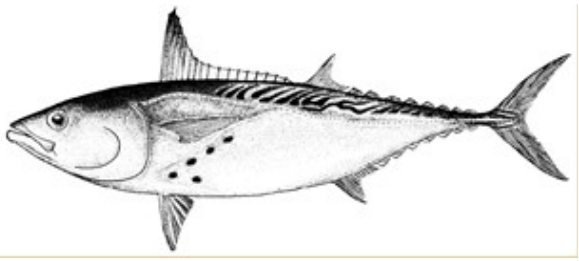


Thunnus obesus

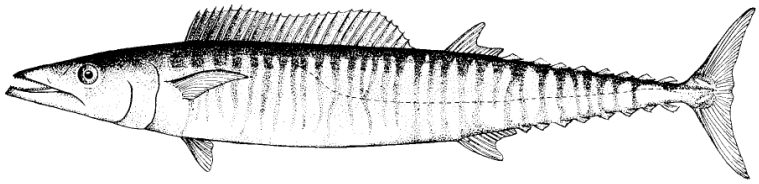




Katsuwonus pelamis



Euthynnus alleteratus



Acanthocybium solandri

1. Ultimate objective

The objective of any fish tag-recapture programme is to tag fish, return them to the sea, and to get as large a number of recaptures as possible. To do this one must minimize the number of fish that die after being incorrectly/poorly tagged, and the number of tags that fall out soon after insertion. If fish are not tagged according to the correct protocols then levels of mortality and the rate of early detachment can be very high.

Fish recaptures provide information upon:

- **natural mortality rates** (if fishing effort and reporting rates are well known)
- Validation of **growth** equations $\left(\frac{\Delta FL}{\Delta t}\right)$
- Patterns of **migration** and **stock structure**

These three parameters are **basic necessities** for stock assessment and fisheries management.

2. Operational goal

The operational goal will be to get both a high number of recaptures and relevant recaptures, which means having a long time at liberty after tagging
Having relevant recaptures will depend on the tagging **strategy**, having a high number recaptures will depend on the **quality of tagging operations**.

2.1. Tagging strategy

- Ideal: spread the tagging as widely as possible in space, time and among species and size-groups
- Avoid too close a proximity to purse-seiners (avoids recoveries with short time between tagging and recapture)
- Constraints to deal with: distribution of tuna, local abundance of each target species, navigation constraints, administration (license), live bait.

Decisions to be taken by the consortium steering committee, in coordination with ICCAT / AOTTP. We will also use the skippers' experience and Real-time information.

2.2. Safety of tagging operations

▪ Safety

- Never run on a vessel
- Handle the applicators carefully
- Non waterproof material always at dry places

- **Hygiene**

Fish skin, and the mucous that covers it, are sensitive to infection. It is essential, therefore, to avoid rough cloths, nets, and organic materials like cotton and replace them with synthetic materials with soft, smooth surfaces. Any surface that will be in contact with the skin of the fish must first be thoroughly cleaned with an antiseptic solution (bleach, chloro-hexidine), and then rinsed with seawater.

- **Material**

  - ***Tagging cradles***

Tagging cradle = work station

3 to 4 tagging cradles will be simultaneously active on the Aita Fraxku
Equipment, work organization and data recording will be organized accordingly.
At every tagging cradle there will be:

- 2 fishermen with poles
- 1 fisherman to remove the hook and release the fish
- 1 scientist tagging and recording data
- tag block with tags prepared in applicators

- tag series for refill
- a smartphone with Memento app and battery full
- an MP3 recorder and a notepad with paper if necessary

Tag blocks and applicators

Make sure all the tagging equipment is prepared well in advance. Put the spaghetti tags into the metal applicators and organise them always upside down in the box, registering the ID number of the first tag. You can prepare up to 200 tags in a block. It's important to always have tags prepared in advance. Always finish a tag series before starting a new one.

Tags

You must always know the locations of your tags.

- On board:
  - reserve space in a dry area to store tags
  - update the file when opening a lot of tags
  - update the file when tags are used
  - make cross-checks with the tagging data

Other materials

For conventional tagging:
- Nitrile gloves
- Chloro-hexidine
- Submersible paper (if available)
- Pencils
- Cable extension and power strips
- Computer and smartphones
- Power suppliers and spare batteries for computers and phones
- template and files updated
- software for programming archival and pop-up

Additional material for internal archival tags:
- betadine
- scalpels with additional blades
- sutures
- needle holder / scissor
- amoxiciline
- syringes

Additional material for chemical tagging:
- Injection gun
- oxytetracyclin

Additional material for pop-up tagging:

- Tag applicators

Individual catch and assessment of the tunas viability

Tunas will be caught by pole and line and immediately put in the tagging cradle. Tunas must be treated with great care to avoid any type of harm or damage which will compromise their subsequent survival. Please do not to tag any fish which appear unlikely to survive. Remember to:

- Pick-up the fish with both hands and never pick up a fish by its tail or gills.
- Keep the fish calm by covering its eyes with a damp cloth/plastic film if necessary. Make sure the fishermen unhook the fish and release it from the tagging cradle carefully.

DO NOT TAG if :

- the fins or eyes are damaged.
- the fish is bleeding substantially from mouth or gills.
- the fish seems agitated,
- too much time is taken to remove the hook or insert the tag, or any other unforeseen mishap occurs.

Remember that in such cases it is always better to use the tag on another fish. If you do tag a damaged fish it is essential to make a note of its state or condition.

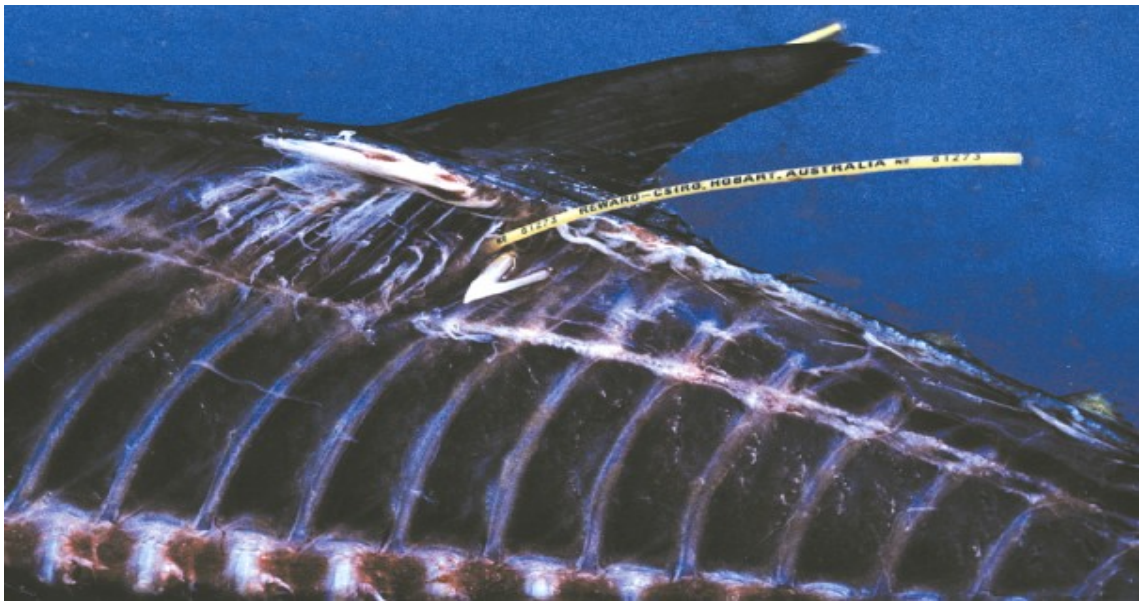
3. Tagging

3.1. Implantation of spaghetti tags:

The fish should be out of the water for as little time as possible; ideally less than 15 seconds. Orient the applicator from behind the fish, from the left side of the second dorsal fin. The applicator (and tag) should be positioned at an angle of 45 degrees towards the tail and towards yourself with the tip directed towards the head (the final orientation of the tag should be 'hydrodynamic'), avoiding the hard scales which surround the base of the fin.

Place the tuna with its mouth in contact with the stop of the cradle. Implant the tag at the base of the second dorsal fin.

Drive the tag firmly into the fish. The dart should first penetrate the skin and be securely hooked under the pterygiophores of the second dorsal fin. The depth of insertion will vary with the size of the specimen (in a small fish it will be a maximum of 4cms and deeper in bigger fish).



3.2. Colors and double tagging

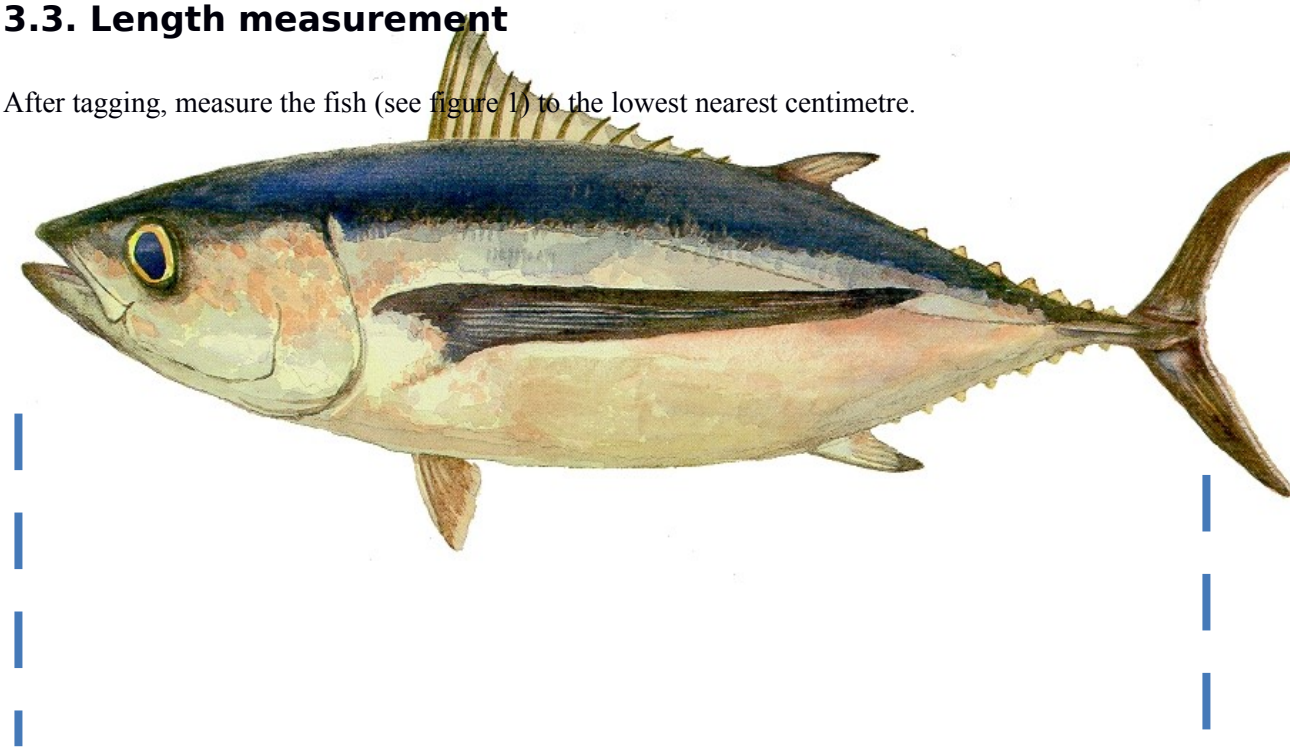
Some tuna will be double tagged allowing 'shedding rates' to be estimated. This is important for the stock assessment process. When marking a tuna with two tags, always implant the first tag in the left side of the 2nd dorsal fin and the second tag on the right side of the 2nd dorsal.

Single tagging: **yellow** tag on the left side of the fish, i.e. the side that faces you when the head of the fish is at your left.
Double tagging: first **yellow** tag ALWAYS on the left side of the fish, second **yellow** tag ALWAYS on the right side.
Chemical tagging, internal archival, pop-up: **orange** tag on the left side of the fish (or right when tagging with pop-up, in this case it does not matter)

yellow tag means: " when recapturing the fish, keep the tag"
orange tag means: "when recapturing the fish, keep the whole fish"

3.3. Length measurement

After tagging, measure the fish (see figure 1) to the lowest nearest centimetre.



Always return the fish to the water head-first and carefully.

3.4. Implantation of internal archival tags

3.4.1. Precautions

If there is any question that the fish has been damaged and its survival likely compromised in any way, always remove the tag. We will not tag a fish that is not in perfect condition. Please do not just pull the tag out by force. It must be removed by carefully cutting the flesh around the tag so that it can be used on another individual.

All surgical equipment, gloves and archival tags, should be kept in an anti-septic solution (chloro-hexidine 0.5% dissolved in water for at least 2 minutes). Please always use sterilized gloves, or gloves impregnated with anti-septic solution and then rinsed.

The needle and thread used should be specifically designed for medical suturing. A needle with triangular section is better than a round one for keeping steady in the suturing tweezers/forceps. The diameter of the needle should not be too great, and neither should it be easily bent. The thread used must be correct type so as to be absorbed by the fish over time.

Keep the tag, together with the tweezers and the scalpel, in an open container of iodine solution. Hold the needle with the tweezers. Ensure you have the hose ready and your the latex gloves on. Make sure the identification of both the electronic and conventional tag has been noted.
Using the ventral fins for handling, place the fish stomach-up in the tagging cradle and quickly irrigate its mouth with a salt-water hose. The flow must be adequate to keep the fish 'breathing' but be careful not to apply too much water pressure.

Make sure the fishermen remove the hook carefully.

3.4.2. Tagging

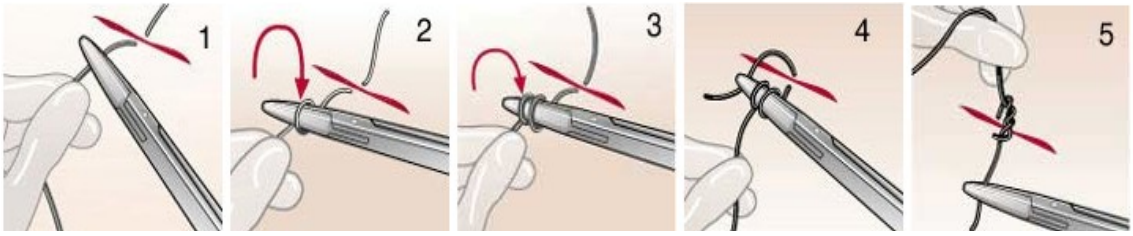
3.4.2.1. Incise the tuna

Open the fishes' stomach cavity carefully with the scalpel. Do this by cutting a lengthwise slot of *circa* 3.5 to 4cms (depending on the size of the tag) in length along the smooth part of the stomach. Do not reach too far into the stomach cavity with the scalpel because you will damage the fishes' organs and compromise its ultimate survival. You should only cut through the abdominal muscle until you have reached the stomach membrane. Then, with a finger (your latex gloves should be on) probe through the stomach membrane (peritoneum) until you feel you have reached the stomach cavity. Be careful. If you do not cut sufficiently deeply, when you try to drill into the fish with your finger, resistance will be too hard and you risk crushing the tunas' guts. The slot, therefore, must be large enough to be able to work inside the fish with your finger.

The tag shall be introduced at an angle, with the tag body towards the head of the fsh and the antenna towards the tail. The tag should then be fixed between the abdominal muscles and the organs. Again, it is important that the initial cut is sufficiently wide so the tag can be introduced at an angle enabling it to stick to the abdominal muscle. Remember that the light stalk must protrude from the animal. Once the tag is implanted, we inject 2.5 mL of amoxycilin with a needlleless syringe (the needle keeps in the capsule).

3.4.2.2. Sewing the tuna

We make one or two sewing points according to the incision (two points if the incision is large). We pass the suture from the opposite side to the near side. We make a double knot



To make the knot, the clamp is placed on the wire and we make 3 turns from the outside to the inside

Once the first node is done, we do the same symmetrically on the opposite side (the clamp on the wire, then 3 turns from the outside to the inside).

The node should be firm but not too tight, not to hurt the animal. Once the node is done we cut the thread, leaving 5 mm on each side. The whole operation should take no more than 1 minute 30. It is essential to train previously.

After inserting the archival tag, we implant an orange spaghetti tag on the left side of the animal at the base of the second dorsal fin, we measured the tuna and we release it.

3.5. Implantation of pop-up tags (tunas > 90 cm FL)

The tags will be either miniPAT from Wildlife Computers or Sea-Tag 3D from Desert Stars.
For miniPATs, ensure that the tag is in standby mode. For Desert Stars tags, ensure that the tag is in 'armed' mode (a separate guide will be provided for tag preparation).
Note the tag number before implantation. Soak the dart and the applicator with betadine. Ensure that the light sensor is facing up.
Implant in the same way as a spaghetti tag, using the applicator, crossing the pterygiophores. The ideal depth is 7.5 cm, for fish between 90 and 100 cm FL.
After tagging, we also implant an orange spaghetti tag on the side of the animal at the base of the second dorsal fin.

3.6. Chemical tagging

We will use an oxytetracyclin vial mounted on an injection gun.
The gun will first be calibrated to deliver the proper dose (dependent on the size of the individual). The dose must be between 25 and 60mg of oxytetracyclin by kilogram of fish.
The injection will be intramuscular on the right side of the animal. After tagging, we also implant an orange spaghetti tag on the left side of the animal at the base of the second dorsal fin.