THE ICCAT-GBYP TAGGING PROGRAMME FOR BLUEFIN TUNA

SCIENCE FOR SUSTAINABILITY

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Indian Ocean taggin Symposium - Mauritius– 30 October – 2 November 2012

THE ATLANTIC-WIDE RESEARCH PROGRAMME FOR BLUEFIN TUNA (ICCAT-GBYP)

The ICCAT-GBYP was started on March 2010

It is funded by the European Community (up to a maximum of 80%), Algeria, Canada, China, Croatia, Japan, Korea, Libya, Morocco, Norway, Tunisia, Turkey, United States of America, plus Chinese Taipei and ICCAT.

In addition to these funds, some private entities provided additional funds or in kind support.

The programme, in its current format, has a budget set at about 19.000.000 € for 6 years

(but we are experiencing several and severe budged shortcuts and we should possibly revise the programme very soon)

ICCAT-GBYP

The Commission in 2009 set a precise list of research priority actions for the GBYP:

1) Data mining and data recovery **(carried out since 2010 on)**
2) Aerial survey **(carried out in 2010 and 2011)**
3) Biological and genetic sampling and analyses **(initiated in 2011 and continued in 2012)**
4) Tagging (conventional and electronic) **(carried out since 2011 on)**
5) New modelling approaches **(initiated in 2011).**

Larval surveys were also included at a lower priority in the original plan adopted by SCRS.

The GBYP is currently directed by a Steering Committee (Jean-Marc Fromentin, Driss Meski, Clay Porch, Josu Santiago and Tom Polackeck)
A GBYP web page is available and regularly updated within the ICCAT site http://www.iccat.int/GBYP/en

TAGGING PROGRAMME OBJECTIVES

a) Conventional tagging (medium-long term objectives): obtaining population parameters (i.e.: M) for improving those currently assumed in the models, estimation of growth, estimation of tag reporting rates by fishery and areas, validation of current stock definition and mixing rate, estimation of retention rate of various tag anchors.
b) PITs (short-medium term objectives): suspended.
c) miniPATs (short-term objectives): calibration of aerial survey on spawning aggregations, use of habitat, detailed individual distribution.
d) Internal archival tags (medium-long time objectives): biological and behavioural information, individual distribution.
e) Tag awareness, reporting and reward campaign (short-long term objective): improving the recovery and reporting rates.

THE ICCAT-GBYP TAGGING PROGRAMME

The ICCAT-GBYP Tagging Design and the ICCAT-GBYP Tagging Manual were prepared in 2010, with the purpose to carry out an extensive tagging activity in the following years of the Programme.

Two ICCAT-GBYP Operational Meetings on Tagging were held in 2011 and 2012, with many scientists, for better focusing the activities and the procedures

THE ICCAT-GBYP TAGGING PROGRAMME

The first year of tagging activity (2011), carried out by a Spanish Consortium with 6 entities using BB & PS, had several operational difficulties and the tagging field strategy (PS & BB) showed some limits.

A total of 3,578 BFT were tagged, deploying 4,950 conventional tags (with 38.9% double tagging).
1,278 BFT were tagged in the Bay of Biscay
1,389 in the Strait of Gibraltar
911 in the Western Mediterranean Sea
0 in the Central Mediterranean Sea

An additional complementary tagging (several hundred tags) was carried out by sport fishermen in some areas

ICCAT-GBYP TAGGING PROGRAMME 2012

The Steering Committee recommended adopting a different strategy in 2012, using exclusively baitboat vessels in all areas.

A new Spanish Consortium with 9 entities is carrying out the activity in 2012, using 7 vessels: 1 in the Bay of Biscay, 3 (now 5) in the Strait of Gibraltar, 2 in the western Mediterranean and 1 in the central Mediterranean.

The target is to tag 11,750 bft of age 1 and 2, deploying also 50 internal archival tags and 40 miniPATs

ICCAT-GBYP TAGGING PROGRAMME 2012

A total of 3,411 BFT were conventionally tagged in the Bay of Biscay (with 41% double tagging).

Tagging in other areas is experiencing several problems, mostly due to the low presence of age 1 and 2 classes at the surface.

111 BFT were tagged in one month in the Western Mediterranean Sea and 97 in the Central Mediterranean in 20 days and these activities were suspended.

Tagging in the Strait of Gibraltar is ongoing.

ICCAT-GBYP TAGGING PROGRAMME 2012

We encountered many problems:

a. Need to apply for the permits with a long delay, incompatible with the ICCAT schedule;
b. Difficulties and delays for the permits to operate in marine areas different from the flag state of the vessels,
c. Impossibility for accessing some areas where it was important to carry out the tagging, due to difficult situations in coastal countries,
d. Difficulties and high costs for entering into some harbours, even if the CPC concerned provided official support.

ICCAT-GBYP TAGGING PROGRAMME 2012

Further field problems we encountered are possibly due to several reasons:

a) The different behaviour of age 1 and age 2 bft in the Mediterranean compared to the schooling behaviour in the Bay of Biscay;
b) The low available knowledge about the behaviour of age 1 and age 2 classes all year round;
c) The extreme climate situation in the Mediterranean area in 2012 (this year was among the four hottest in the last two centuries);
d) The low availability of live fish bait of the right size in some areas at the right time;
e) The poor knowledge of the Mediterranean area by Bask fishermen (even if their tagging experience is remarkable!);
f) and something else we don't understand so far!

But, for sure, we have been not so lucky!

ICCAT-GBYP TAGGING PROGRAMME 2012

13 internal archival tags were implanted so far on bluefin tunas in the Bay of Biscay in 2012 and 1 in the Gibraltar area.

14 miniPATs were deployed on bluefin tunas in the Bay of Biscay in 2012 (1 tag had already a premature detachment in the same area) and 2 were deployed in the western Mediterranean

Two conventional tags deployed in 2011 in the Bay of Biscay on age 1 BFT were recovered in New Jersey (USA) in summer 2012

A total of 15 conventional tags were recovered last year

ICCAT-GBYP TAGGING PROGRAMME IN 2013

Even if the details shall be defined later, the plan is to continue the conventional tagging activities, starting scientific recapture trials in some areas.

The strategy will be defined after the conclusion of the 2012 activities, taking into account experiences, opportunities and constraints.

TAGGING PRE-SPAWNERS IN MOROCCAN ATLANTIC TRAPS

For better calibrating (time at the surface) the aerial survey data of spawning aggregations, it was decided to carry out an experimental electronic tagging activity on pre-spawners, before their entrance into the Mediterranean Sea.

A cooperative agreement was set under the GBYP umbrella, among the Moroccan Fishery Authority, the tuna trap industries, the tuna traders, the INRH, the IEO and the WWF-MedPO.

TAGGING PRE-SPAWNERS IN MOROCCAN ATLANTIC TRAPS





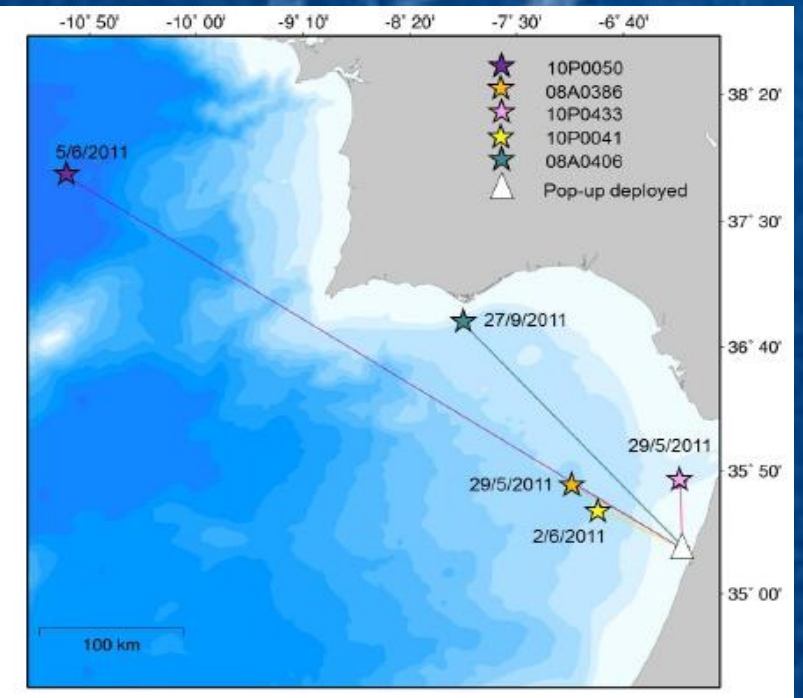


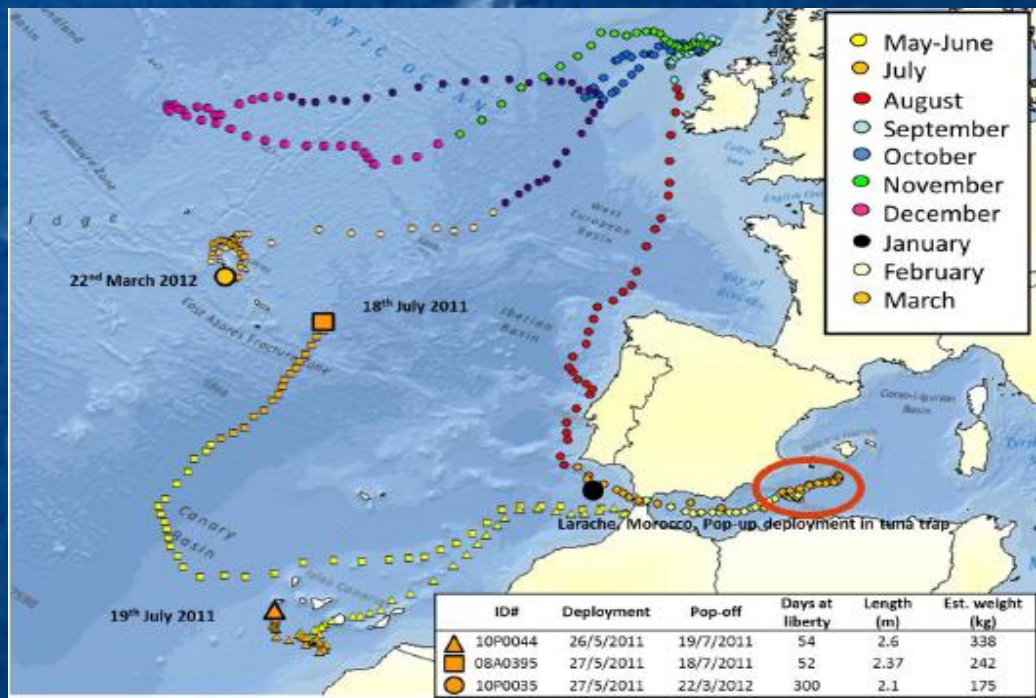


TAGGING PRE-SPAWNERS IN ATLANTIC MOROCCAN TRAPS - 2

A total of 34 bluefin tunas were tagged by miniPATs in 2011 and 2012, providing unexpected and very interesting results.

In 2011 some tunas did not enter into the Mediterranean sea for spawning!

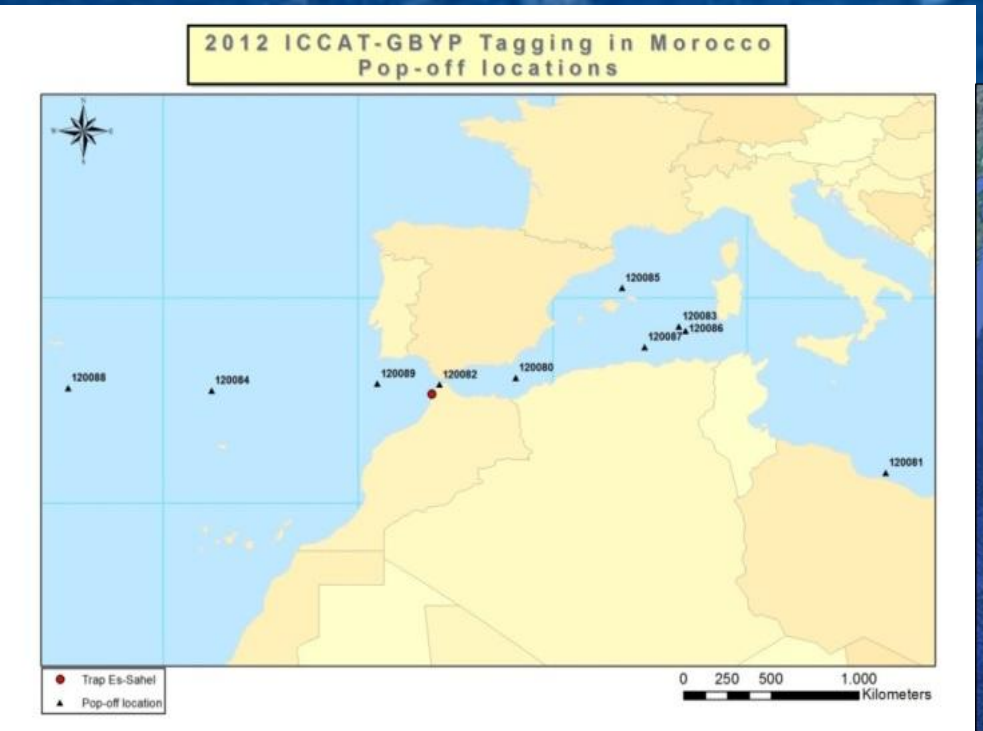


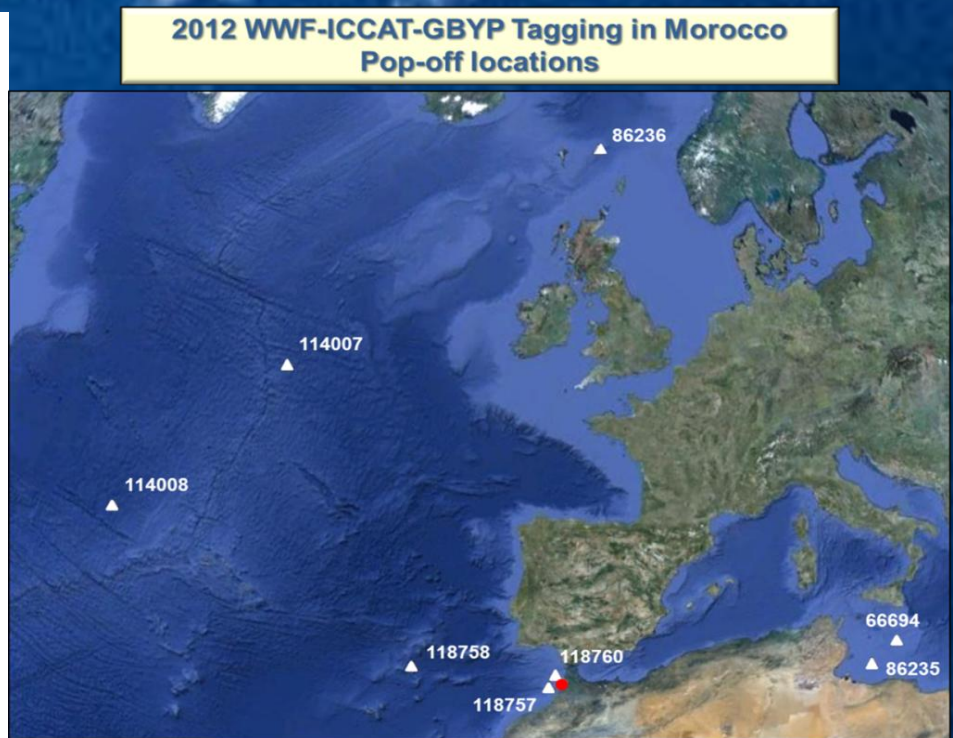


THE ICCAT-GBYP TAGGING IN MOROCCO (2012)

In 2012, again, others bluefin tunas did not enter into the Mediterranean sea for spawning.

An old interesting question: are they going close to the Azores or the Canary Isles also for spawning?

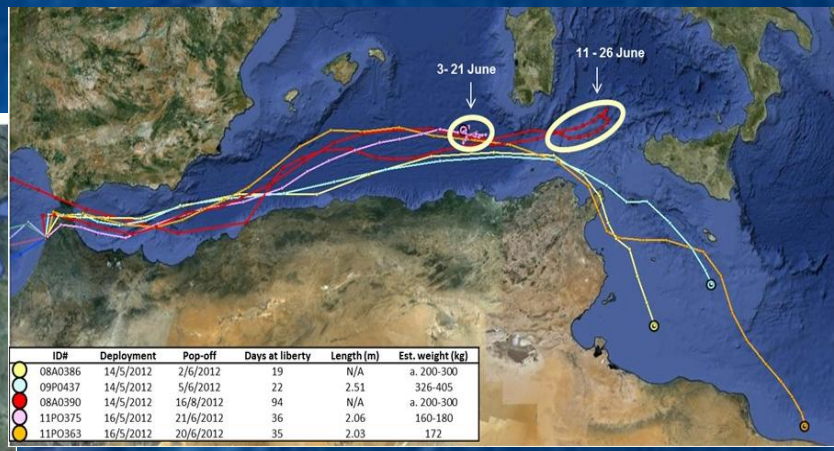




THE ICCAT-GBYP TAGGING IN MOROCCO (2012)

Other tunas regularly spawned into the Mediterranean and one individual, after spawning, went to the Norwegian Sea, where bft was absent since decades.

ID#	Deployment	Pop-off	Days at liberty	Length (m)	Est. weight (kg)
08A0386	14/5/2012	2/6/2012	19	N/A	a. 200-300
09P0437	14/5/2012	5/6/2012	22	2.51	326-405
11P0533	14/5/2012	14/6/2012	31	2.26	a. 238
11P0138	14/5/2012	31/7/2012	78	N/A	a. 200-300
08A0390	14/5/2012	16/8/2012	94	N/A	a. 200-300
11PO375	16/5/2012	21/6/2012	36	2.06	160-180
11PO363	16/5/2012	20/6/2012	35	2.03	172
11PO372	16/5/2012	24/6/2012	39	2.38	278
11PO378	16/5/2012	20/6/2012	35	2.65	384



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08A0390	14/5/2012	16/8/2012	94	N/A	a. 200-300
11PO375	16/5/2012	21/6/2012	36	2.06	160-180
11PO363	16/5/2012	20/6/2012	35	2.03	172

The preliminary results are reported on SCRS/2012/143

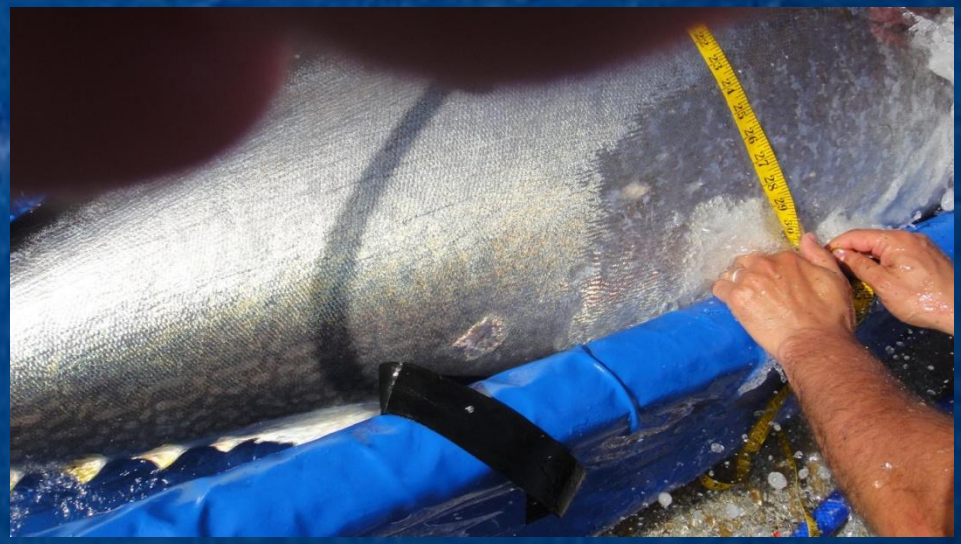
ICCAT-GBYP TAG DATA STORAGE

As usual, all tagging data are recorded and stored in the ICCAT tag data base, which is public and available on the ICCAT web site.

And now we are starting a tag data quality control, also on the historical BFT tag data base

FURTHERMORE, WE ARE WORKING ON NATURAL MARKS!

Some medium-giant BFT have clear natural marks, circular scares made by the smalltooth cookiecutter shark (*Isistius brasiliensis*). This is known since more than one century, but now all the contractors and the ICCAT observers have the duty to report them. These marks may possibly help in understanding the distribution of the BFT in South Atlantic.



ICCAT-GBYP TAG AWARENESS PROGRAMME

GBYP also launched an international awareness and reward campaign, with an associated strategy.

The logo, the slogan and the posters were printed in 12 languages and disseminated everywhere.

THE ICCAT-GBYP TAG AWARENESS PROGRAMME

RECOVERING BLUEFIN TUNA

The reward campaign includes T-shirts, 50 € ordinary reward, special annual rewards added to the usual ICCAT lottery (1000€ for the 1st, and 2 of 500€), 1000€ for electronic tags and full information to the tag reporter

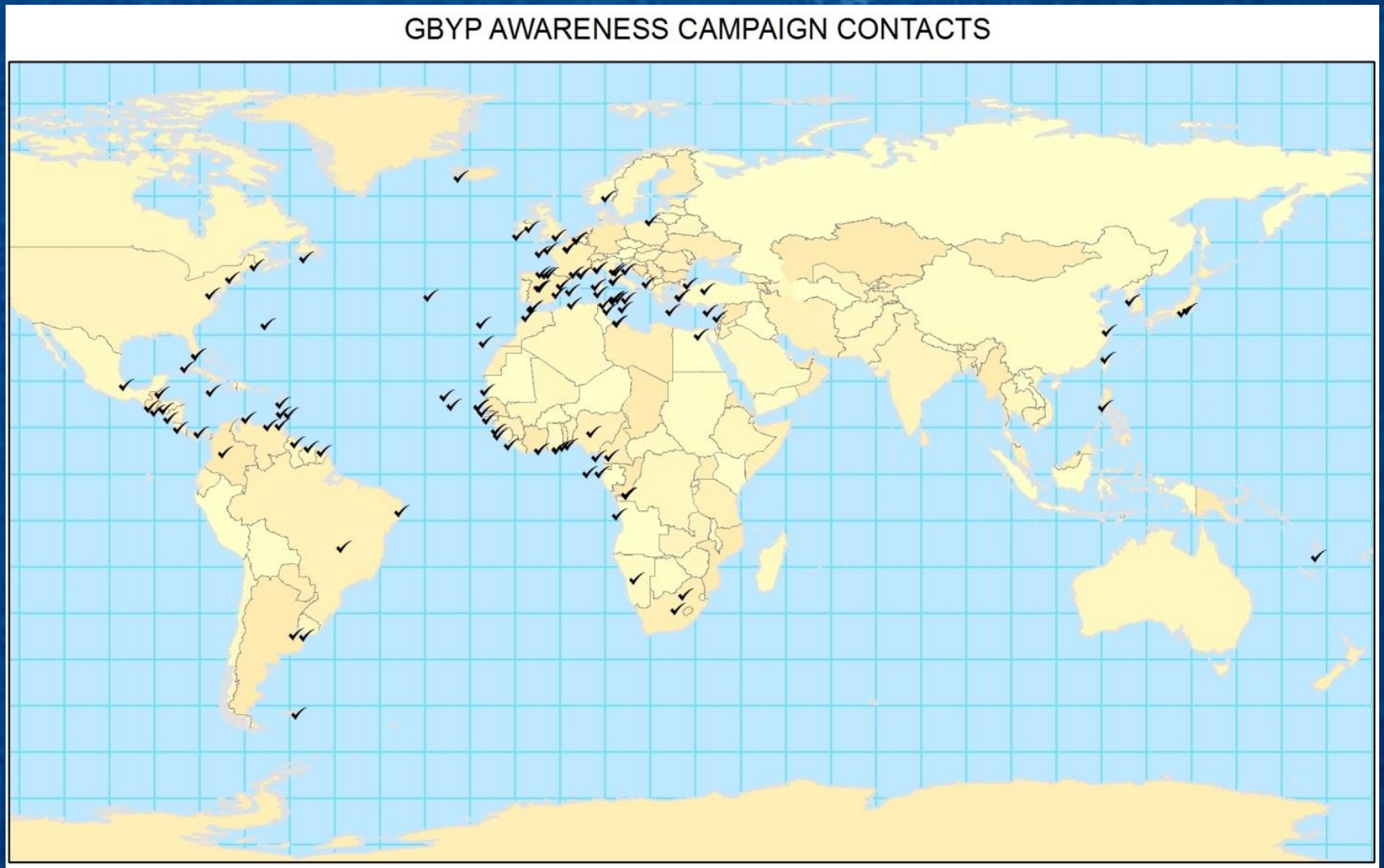
THE ICCAT-GBYP TAG AWARENESS PROGRAMME

A tag recovery and reporting programme needs attractive incentives!

Now the reporting rate is slowly improving

THE ICCAT-GBYP TAG AWARENESS PROGRAMME

The posters and the information on the tag awareness campaign are available on http://www.iccat.int/GBYP/en/AwCamp.asp



THE ICCAT-GBYP TAG AWARENESS PROGRAMME

We set a voluntary network of national scientists (most of them are scientists attending SCRS meetings), helping the national capacity building skill in this sector, and now they are helping in tag recovery and reporting and they are constantly in touch with GBYP.

Furthermore, we are supporting, as much as possible, articles on newspapers, magazines and web-sites for informing about the GBYP tagging programme. Several articles have been published so far.

European Commission

No 56 June 2012

FISHERIES AND AQUACULTURE IN EUROPE

- **Aquaculture: unleashing its potential**
- Bluefin tuna: cooperating with scientists
- International: measures to maintain cooperation
- Labelling: clearer, more complete and more accurate
- Supplement: fact sheets on aquaculture

Maritime Affairs And Fisheries

IN THE NEWS

Bluefin tuna: cooperating with scientists

The ICCAT has put out a call to all fishermen, both professional and recreational. The organisation needs their help to carry out an important research programme meant to improve knowledge of a flagship species: Atlantic bluefin tuna.

Since 2009, the ICCAT[1] has coordinated an Atlantic-wide research programme for bluefin tuna. Code-named 'GBYP' by scientists, the programme aims to improve knowledge of this species so that it can be managed in a more rational and sustainable manner.

There are still quite a few grey areas in scientists' knowledge of bluefin tuna, including its migration routes, reproductive behaviour, nurseries, whether two Atlantic stocks (eastern and western) actually exist, etc.

The European Union is the lead sponsor of GBYP. However, this programme also has the financial support of many partners, both private (including the tuna, tunny and other industries) and public (scientific institutions, the United States and other ICCAT contracting parties). It includes aerial surveys, collection and analysis of catch data, biological and genetic research, development of new assessment methods and tagging of individual fish. It is this latter aspect of the programme that concerns us here.

At the end of the 2011 fishing season, the programme organised an initial series of conventional tagging operations in the Bay of Biscay, the Gibraltar Straits and the Mediterranean. Around 4 000 tunas were tagged. The purpose of this tagging is not simply to track the movements of the tagged specimens, but also to improve knowledge of certain parameters such as natural mortality rate.

Different types of tagging are used: conventional tags attached to the specimen's back, and electronic tags. There are two types of electronic tags: those that detach automatically and transmit their data by satellite, and those implanted in the specimen's gastro-intestinal cavity, which have to be retrieved because their data are stored in an internal memory.

Unfortunately, retrieving these tags is not always easy. In principle, when the fish is caught, the tags have to be sent to the promoter of the research programme, in this case the ICCAT, based in Madrid. Fishermen are usually cooperative for research of this type and willingly send in the tags they find. But that is not always the case for research on bluefin tuna.

A tag awareness campaign

For the research programme currently under way, *'the return rate is under 1 % in the Mediterranean and less than 5 % in the Atlantic zone'*, explains Antonio Di Natale, ICCAT's programme coordinator. *'This is way too low for drawing scientific conclusions.'*

The tense and supervised context of this fishery probably explains the below normal rate of return by both professional and recreational fishermen. The ICCAT therefore decided to take certain measures to improve the tag retrieval rate.

First, it launched an information campaign among professional and recreational fishermen to encourage them to cooperate. Second, it guarantees the confidentiality of the fishermen who send in the tags. Third, it increased the amount of compensation paid to fishermen for their effort: they are paid EUR 50 per conventional tag returned and EUR 1 000 per electronic tag.

The ICCAT campaign urges fishermen to cooperate with scientists. The aim of this programme is optimal exploitation of this commercially and ecologically valuable stock. In the long run, all fisheries stakeholders stand to gain.

For more information:
http://www.iccat.es/GBYP/en/index.htm

To encourage fishermen to return tags found on caught bluefin tuna, the ICCAT has launched an information campaign in nine languages, including Arabic and Japanese.

(1) The International Commission for the Conservation of Atlantic Tunas (ICCAT) is the regional fisheries management organisation with responsibility for Atlantic and Mediterranean fisheries for tuna, swordfish, sawfish, sharks and their by-catches.

THE LEGAL FRAMEWORK

The Commission, in 2011, adopted the Rec. 11-06, allowing GBYP to use a dedicated Research Mortality Allowance, setting also specific rules for conducting the research (tagging and biological sampling) in terms of gears and tools, but also allowing activities to be conducted outside the fishing closure. A maximum of 20 tons of bluefin tuna can be taken annually for research purposes and of course they cannot be traded. Special RMA certificates are issued by ICCAT in real time, for tracking all fish used for research. Any additional mortality caused by GBYP research activities is transparently included in the ICCAT BFT statistics.


WE ARE TRYING TO FIND MORE PIECES OF THE BFT PUZZLE!

THANKS!

ICCAT-GBYP : SCIENCE FOR SUSTAINABILITY