

# ICCAT GBYP

## ATLANTIC-WIDE BLUEFIN TUNA RESEARCH PROGRAMME

### ACTIVITY REPORT FOR 2011 (PHASE 2)

#### 1.0 Introduction

The Atlantic-wide research programme for bluefin tuna was officially adopted by SCRS and the ICCAT Commission in 2008, and it started officially at the end of 2009, with the objective to:

- a) Improve basic data collection, including fishery independent data;
- b) Improve understanding of key biological and ecological processes;
- c) Improve assessment models and provision of scientific advice on stock status.

The total budget of the programme was estimated at about 19 million Euros in 6 years, with the engagement of the European Community and some other Contracting Parties to contribute to this programme in 2009 and in the following years. The first initial year had a budget of 750,000 euro, while the second phase had a total budget of 2,502,000 euro (against the original figure of 3,476,075 euro).

Phase 1 and Phase 2 activities were jointly committed by the European Community (80%), Canada, Croatia, Japan, Libya, Morocco, Norway, Turkey, United States of America, Chinese Taipei and the ICCAT Secretariat. Some private entities provided funds or in kind support; the detailed list is available on <http://www.iccat.int/GBYP/en/Budget.htm>.

#### 2.0 Coordination activities

The GBYP Phase 2 officially started on 22 December 2010, with the signature of the agreement between the European Community and the ICCAT Secretariat. A detailed weekly work-plan for 2011 was set-up in the very first period of this second Phase. The GBYP coordination staff was reinforced with a Coordinator Assistant: Dr. M'Hamed Idrissi was selected and he started his duty on 1<sup>st</sup> March 2011. The ICCAT Secretariat nominated Dr. Laurence Kell as internal focal point for the GBYP activities.

A relevant activity at the early beginning of Phase 2 was the organisation of the three meetings planned in February, which required a huge effort.. The participation of 44 scientists from 11 countries and the extremely positive comments received compensated all efforts and confirmed the positive reaction of the scientific community and stakeholders to the GBYP activities. Another meeting (the Symposium on Traps) was organised in Tangier on May 2011, with the participation of 58 scientists.

During this Phase 2 it was necessary to issue 9 Calls for Tenders on various items and a total of 18 contracts were signed by the ICCAT Secretariat. The EC Grant Agreement includes 19 deliverables (periodic reports) and many have been already delivered. The administrative and desk work behind these duties was quite important. In Phase 2 of GBYP, the coordination staff participated officially to 14 meetings in various Countries. Furthermore, the GBYP coordination is providing a scientific support to all the national initiatives which are potentially able to increase the effectiveness of the GBYP and its objectives.

The detailed report is available on document SCRS/2011/166.

#### 3.0 Steering Committee

The GBYP Steering Committee was renewed after the 2010 ICCAT Commission meeting; the members are the Chair of SCRS, Ph.D. Josu Santiago, the BFT-W Rapporteur, Ph.D. Clay Porch, the BFT-E Rapporteur, Ph.D. Jean-Marc Fromentin, the ICCAT Executive Secretary, Mr. Driss Meski, and an external expert, Ph.D. Tom Polacheck, who was duly contracted.

The activity of the Steering Committee included continuous and constant e-mail contacts with the GBYP coordination, which provided the necessary information. The Steering Committee hold two meetings (February 17, 2010; June 27 – July1, 2011), discussing various aspects of the programme, providing guidance and opinions. A third meeting is planned during the SCRS Species Group meeting, for defining the activities and the budget options for Phase 3.

#### 4.0 Data mining and data recovery

The data mining and data recovery activity continued following the objectives recommended by the Steering Committee, with a particular focus on tuna trap data series. Two Calls for Tenders were issued and seven contracts were awarded. A very important amount of data, previously not included in the ICCAT data base, was recovered, particularly for tuna trap series, which now start from 1525, including about 25 million new entries for tuna trap catches and about 33,000 new entries for other fisheries. With these data, GBYP is filling many of the existing gaps, but not all, extending the historical data series back in centuries. All data were provided on the forms provided by the ICCAT Secretariat, according to the needs of the ICCAT data base.

GBYP also acquired SST data for the three months of the main spawning period (May-June-July) for the years 2000-2011. These data are used for the spatial analysis of the aerial survey data and they are also available for further analyses by SCRS. Following the same approach agreed in Phase 1, aerial survey data have been analysed also within the data recovery budget and the final results will be available at the end of 2011. In Phase 2, the team elaborating on the data has been requested to provide extensive survey scenarios for setting up the GBYP working programme for 2012 and the following years.

## **5.0 Aerial surveys**

The aerial surveys have the scope to provide fishery-independent indices, concerning various fractions of the stock. The aerial surveys targeting spawning aggregations can potentially provide trends and indices for the spawning stock biomass, while aerial surveys targeting aggregations of juveniles can potentially provide indices for the recruitment. Surveys shall be conducted with a statistically sound design and for several years in order to get reliable indices. Since the beginning of GBYP, it was decided to concentrate all efforts on spawning aggregations, while the surveys on juveniles should be conducted by the various countries concerned..

In Phase 2, as planned, the activity was preceded by a Workshop on Aerial Survey (14-16 February 2011). The Workshop discussed how improving the methodology and which technical requirements should be necessary. The Steering Committee endorsed most of the recommendations.

A training course for pilots, professional observers and scientific observers concerned by the GBYP Aerial Survey activity was organised at the ICCAT Secretariat on May 17-18, 2011)

### **5.1 Aerial survey design**

The preliminary work was devoted to update the identification of the most relevant areas and it was carried out at the ICCAT Secretariat, by using the 2008 to 2010 VMS data from tuna purse-seine vessels. It was agreed concentrating the efforts only on areas where the PS fishing activity was more intense in these last three years and 4 or 5 sub-areas were identified, under two different scenarios

The study for the aerial survey design committed to the same team who provided the design for Phase 1, adopting the same methodological approach (DISTANCE software). The design was provided on March 30, 2010 and the ICCAT Secretariat provided the revised file to submit the survey data.

### **5.2 Aerial survey on spawning aggregations**

The aerial survey on spawning aggregations was carried out by three companies, selected over four tenders and the contracts were discussed and agreed on May 17, 2011. All tenders were able to get the flight permits from Spain, Italy, and Malta in due time, but it was not possible to get flight permits from Syria, while the permit from Turkey was released after the expiry date of the survey. All these problems imposed a revision of one contract and, at the same time, a revision of the aerial survey design, limiting the areas to three (Balearic area, South Tyrrhenian Sea and central Mediterranean), in agreement with the Steering Committee. The aerial survey started at the beginning of May and was completed on July 15, 2011.

The monitoring of the sea surface temperatures and sea state and winds was carried out by the coordination team and data were provided to the various teams in real time. The wind in the western Mediterranean and in the Tyrrhenian Sea, some international constrains in the central Mediterranean and some technical problems to two aircrafts created additional operational problems to the aerial survey in Phase 2. Three aircrafts and teams conducted the surveys in the various sub-areas, while a fourth aircraft and its team was stopped in Turkey. The aerial survey data have been provided on schedule by all teams and the individual reports are already available.

A contract was provided to the same team who provided the data elaboration in Phase 1, for analysing the aerial survey data. The interim report was provided on due time (September 19, 2011) and the results are considered very useful for

improving and develop the aerial survey activities in the following years, providing also the various scenarios for a Mediterranean comprehensive survey in Phase 3, as requested by the Steering Committee. This second year activity of aerial surveys confirmed the validity of the methodological approach in general, as one of the very few able to provide fishery independent data and trends. At the same time, the problems encountered showed the need to get very precise engagements by the CPCs concerned, in order to have the necessary flight permits on time.

The final report concerning the elaboration on aerial survey data, the spatial analyses and the complete range of scenarios and designs for the comprehensive surveys will be provided before the end of Phase 2, according to the decision of the Steering Committee on June-July 2011 and the contract.

## **6.0 Tagging**

The GBYP tagging activity was planned from Phase 2. The tagging design, elaborated as a draft in Phase 2, was better defined in the first part of Phase 2. The operational meeting on biological sampling was held at the ICCAT Secretariat in Madrid on February 17, 2011, for discussing the many aspects of this complex activity and the GBYP Tagging Design, including the GBYP Tagging Manual, which were officially adopted. The meeting was attended by 42 scientists.

The Tagging Design was officially adopted by the Steering Committee and it is considered extremely relevant, because an appropriate tagging activity is a better estimate of natural mortality rates ( $M$ ) by age or age-groups and/or total mortality ( $Z$ ), of course if the tag reporting rate will substantially improve, reaching a sufficient level by major fisheries and areas, and it should improve the knowledge on the habitat utilisation and movement patterns of bluefin tuna in the various areas. It is the base for carrying out the tagging activities in the following years, with important implications on the GBYP budget.

A sufficient number of conventional tags were acquired on time (10,000 single barb dart, 8,000 double barb small darts and 2,000 double barb big darts), along with a sufficient number of tag applicators and 50 PIT readers.

### **6.1 Tagging activity**

The GBYP tagging activity was defined by the Steering Committee on February 17, 2011 and refined during the summer meeting (June 27-July 1, 2011). A Call for tenders was issued on May 12, 2011 and only one bid was received. The bid was not awarded and another Call for Tenders was issued on June 11, 2011. Another bid was submitted and awarded on July 9, while the contract was released on July 29, 2011, to a Spanish consortium of 6 entities.

The tagging activity will be carried out on juvenile bluefin tunas (age 0 to age 3) in the Bay of Biscay by bait-boats (about 1250 tunas), in the area of Gibraltar by bait-boats (about 1250 tunas), in the Western Mediterranean by a purse-seiner (about 1250 tunas) and in the central Mediterranean by a purse-seiner (about 1250 tunas). A complementary tagging activity will be carried out, on opportunistic basis, by the sport fishermen (possibly 500-700 tunas).

The tagging activity started immediately, finding several operational problems, mostly due to bad weather situations, but the first mid-term report, submitted by September 23, 2011, shows that about 2,000 tunas have been tagged at the date and that the tagging activity will continue till the end of the period.

Another tagging activity, not included in Phase 2 due to budgetary problems, was carried out with electronic tags in a Moroccan trap, thanks to the cooperation of several institutions, the tuna industry and WWF-MED Programme (the details are included in the detailed report). A total of 11 large tunas were tagged and several tags were providing surprising and extremely interesting data.

### **6.2 Tag awareness campaign**

According to the recommendations provided by the Steering Committee in all meetings, GBYP started a tag awareness campaign, with the purpose of improving the tag recovery and reporting rates. This activity, which was carried out by ICCAT and SCRS for all species since various years, needed to be strengthened and further improved, particularly after the starting of the massive tagging activities by the GBYP. For this reason, it was decided to find a specific slogan, a dedicated logo, two types of posters and a leaflet, to be translated in Arabic, English, French, Greek, Japanese, Italian, Portuguese, Spanish and Turkish, and distributed capillary in all the ICCAT convention area with the purpose to reach all stakeholders in all fisheries. A Call for Tenders was issued on July 28, 2011, receiving three bids. One bid was partly awarded and the first report was submitted on September 23, 2011 and the drafts of the various designs are now available and the final version will be available soon for printing the material before completing the tagging campaign. The tagging awareness campaign is coupled by a tag rewarding campaign strongly recommended by the Steering

Committee. It was decided to improve the ICCAT annual lottery with GBYP rewards for tags recovered from bluefin tuna and regularly reported to ICCAT. High level rewards will be given for the recovery of each electronic tag from bluefin (1000 euro) or for additional prizes for the annual ICCAT tagging lottery (an annual prize of 1000 euro for the 1<sup>st</sup> tag drawn and two prizes of 500 euro each, respectively for the 2<sup>nd</sup> and 3<sup>rd</sup> tags drawn, to be delivered during the ICCAT Tag Lottery. Within the same item, the ICCAT Secretariat and the GBYP coordination are working to detect an attractive design for the T-shirts to be used as reward for each conventional tag recovered. It is also considered very important to provide immediate feedback to the tagging teams and the tag recover person, informing both of them about the history of each tag.

## **7.0 Biological and genetic sampling and analyses**

The biological and genetic sampling and analyses have been planned from Phase 2. The details were discussed during a specific operational meeting held at the ICCAT Secretariat on February 17, 2011, which was attended by 42 scientists. The meeting discussed in depth all the various aspects and suggested to have a common scheme. The Steering Committee, on the same day, endorsed this suggestion and recommended to issue a Call for tenders to have a “Biological Sampling Scheme” to be used to more precisely establish the sampling levels in the various areas and fisheries in Phase 2 activity. The Call was issued on March 11, 2011, receiving only one bid, which was awarded to a consortium of 13 institutions from 8 countries on July 14, 2011.

Taking into account that some areas and fisheries included in the “Biological Sampling Scheme” cannot be sampled, due to concurrent geo-political factors, the sampling activity under contract includes now a total of 1950 samples, including 50 larvae, 1300 for genetic tissue, otoliths and spines, and 600 for genetic tissue, otoliths, spines and gonads. A first report was received on September 24, 2011 and about 1000 tunas have been sampled at the date, while the analytical works had already started.

The GBYP activity will be supported by a twin programme carried out by NOAA-NMFS, which will focus the research activities on the western Atlantic Ocean.

## **8.0 Modelling approaches**

To ensure that modelling work would be started this year, the GBYP issued a Call for Tenders 2011 on Stock Assessment Modelling on March 15, 2011, for a first set of contracts. These were: a) one contract for a risk analysis to identify the main perceived sources of uncertainty related to assessment and advice, and, b) two contracts to help develop new assessment and advice based on various data sets being collected and the new knowledge being gained under the GBYP. Unfortunately, only one bid was received for the second theme. Two contracts were awarded on April 5, 2011 and the methodologies were presented at the ICCAT Working Group on Stock Assessment Methods (WGSAM) on June 27 - July 1, 2011, where one day (June 28) was devoted to the bluefin tuna issues. The preliminary reports on the work done were presented at the Bluefin Tuna Species Group on September 29, 2011. Additional works was developed by a team of SCRS scientists together with Dr. Laurie Kell of the ICCAT Secretariat and presented at the WGSAM.

## **9.0 Cooperation with ROP**

The GBYP coordination, together with the ICCAT Secretariat, is maintaining the contacts between the two consortiums in charge of the biological sampling and tagging and the ROP observers, for strengthening the cooperation and providing opportunities.

## **10.0 Definition of GBYP Publication Policy, Editorial and Data Rules**

The GBYP publication policy, along with editorial and data use rules adopted in Phase 1 were updated by the GBYP Steering Committee during the last meeting (June 26-July 1, 2011). They are here attached as Annex 3.

## **8.0 GBYP web page**

The ICCAT-GBYP web page, which was created in the last part of Phase 1, is usually regularly update with all documents produced by GBYP; in some cases, due to the huge workload, some set of documents are posted all together.

The updating includes also the budget page, where all contributions (monetary or in kinds) are regularly listed, to ensure a full transparency.

## 9.0 Following activities

The next phases of the Atlantic-Wide Research Programme for Bluefin Tuna will include mostly activities able to provide fishery independent data and indices within the time-frame of the whole programme and in agreement with the GBYP general plan adopted by the SCRS and the ICCAT Commission. Additional activities will be developed for the modelling approaches.

The Steering Committee and the GBYP Coordination agreed to continue the discussion during the SCRS meeting, where the various options will be discussed and selected, with the necessary budget variations. It is to be noted that the current budget figure is very far from the budget figure adopted by the Commission in 2009 for Phase 3, which was in the order of about 6.3 million euro and this is caused by the announcement of the reduced contribution available from some CPCs.

GBYP Phase 3 (still temporarily under the reduced minimum budget perspective) will include in principle the following activities:

- 1) **Coordination.**
- 2) **Data mining, data retrieval and data elaboration**, including the data input in the ICCAT data base.
- 3) **Aerial surveys**, including the up-dating of the aerial survey design and the 3<sup>rd</sup> year survey on spawning aggregations (this point will be submitted to the ICCAT Commission for the final decision, because of the request by the Steering Committee to conduct an extensive survey, which will imply additional costs in the order of 1.2 to 2.5 million euro per year<sup>1</sup> for more than one year; the figure in the budget includes the minimum amount for conducting an extended survey and the additional activities required by the Steering Committee).
- 4) **Tagging**, including conventional tagging, a limited electronic tagging (50 tags) and activities to improve tag reporting, with the related rewards; a tag recapture campaign was also requested by the Steering Committee;
- 5) **Biological sampling**, including hard parts sampling for ageing and micro-constituent analysis, genetic sampling and related analysis.
- 6) **Modelling**, including 2 workshops, risk analysis, alternative MF and modelling trials.

GBYP Phase 3 budget and activities will be revised by the Steering Committee and SCRS in the last part of Phase 2, according to the updated budget perspectives and the research needs. The provisional calendar for the meetings in Phase 3 will be defined after these decisions.

**Table 2.** GBYP reduced minimum budget for Phase 2 (2010-2011) and Phase 3 (2011-2012)

GBYP PHASE 2 (2010-2011)		GBYP PHASE 3 (2011-2012)	
Allocation	Amount (€)	Allocation	Amount (€)
Coordination	453.000,00	Coordination	463.980,00
Data mining, data recovery, data elaboration, Trap Symposium	149.000,00	Data mining, data recovery, data elaboration, and data input)	133.000,00
Aerial survey (including updating design, workshop and training course)	465.000,00	Aerial survey (including updating design and the workshop)	1.370.000,00
Tagging (conventional, PITs, tag recovery and reporting, rewards)	890.000,00	Tagging (conventional, PATs, tag recovery campaign and reporting rewards) and an operational meeting.	1.776.000,00
Biological sampling (including hard parts, genetic sampling and analysis)	505.000,00	Biological sampling (including hard parts, genetic sampling and analysis) and an operational meeting	540.000,00
Modelling (workshop)	40.000,00	Modelling trials and 2 workshops	135.000,00
<b>Total</b>	<b>2.502.000,00</b>	<b>Total</b>	<b>4.417.980,00</b>

<sup>1</sup> The Steering Committee noted that any type of survey has serious scientific problems if the coverage will not include at least the areas where the bluefin tuna spawning activity is usually occurring with the highest intensity, e.g. the far eastern Mediterranean Sea. If permits to operate in these areas will not be guaranteed, then the survey should be suspended. At the same time, the commitment for the aerial survey should be for a number of years sufficient to provide a reliable trend.