THE ATLANTIC-WIDE RESEARCH PROGRAMME ON BLUEFIN TUNA (ICCAT-GBYP)
Tagging as a must!

SCIENCE FOR SUSTAINABILITY

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Assemblée Générale de la Conféderation Internationale de la Pêche Sportive
Melilla (Spain)– March 29-April 1, 2012

There are still too many things we don't know about bluefin tuna

THE TOO HIGH UNCERTAINTIES OF THE BLUEFIN TUNA ASSESSMENTS AND SEVERAL MANAGEMENT PROBLEMS IN THE LATE ’90s AND IN THE YEARS 2000s CLEARLY SHOWED THE LIMITS OF THE CURRENT SYSTEM

SINCE 2009, A NEW APPROACH TO THE SCIENTIFIC PROBLEMS:

ICCAT officially adopted the “Atlantic-wide Research Programme on Bluefin Tuna”, conventionally ICCAT-GBYP, with the purpose of providing fishery independent data, improving the models and the assessments, according to the objectives defined by the Commission.

ICCAT-GBYP IN 2010-2011

The ICCAT-GBYP was started on March 2010

In the first two years, funds were provided by several CPCs: European Community (80%), Canada, Croatia, Japan, Libya, Morocco, Norway, Turkey, United States of America, plus Chinese Taipei and ICCAT.

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

The programme, in the original format, will costs about 19.000.000 €

in 6 years, if sufficient funds will be made available

A TRANSPARENT STRUCTURE FOR ICCAT-GBYP

- The GBYP is directed by a Steering Committee, and 7 meetings have been held so far.
- A GBYP Coordinator is responsible for the Programme at the ICCAT Secretariat since March 2010; a coordinator assistant was hired in March 2011.
- GBYP publication policy, editorial and data use rules have been established and updated in 2011.
- GBYP Scientific Reports must be submitted yearly to SCRS (see SCRS/2010/135, SCI/2010/038, SCRS/2011/166 and SCI/2011/037).
- We defined very precise GBYP administrative procedures.
- A GBYP web page is available and regularly updated within the ICCAT site http://www.iccat.int/GBYP/en

FINALLY WE HAVE BROKEN THE ICE!

(and we already started working very hard!)

THE ICCAT-GBYP PROGRAMME

The GBYP includes the following activities:

- Data recovery and data mining (initiated in 2010);
- Aerial surveys on spawning aggregations (initiated in 2010 and suspended in 2012 for budget constraints);
- Biological and genetic samplings and analyses (initiated in 2011);
- New modelling approaches (initiated in 2011);
- Tagging activities and tag awareness and recovery programme (initiated in 2011).

THE ICCAT-GBYP IN 2010-2011

A HUGE AMOUNT OF PAPER WORK!

8 Call for Tenders in 2010
11 Calls for Tenders in 2011
12 external contracts in 2010
22 external contracts in 2011
7 ICCAT reports in 2010
1 report to the EC in 2010
6 ICCAT reports in 2011
19 deliverables to the EC in 2011!!!!!!

DATA RECOVERY AND DATA MINING

The first goal was beginning the Data Recovery Plan, aimed at mining historical data sets, at recovering data missing in the ICCAT BFT data base, at improving the quality of already existing data sets by filling the gaps, to deeply analyse VMS & other data.

Three calls were released in 2010, awarding five bids; more than 250,000 new data arrived to the ICCAT data base, while other 175,000 auction data were provided as a donation in kind.

Three calls were released in 2011, awarding six bids; more than 26,000,000 tuna trap data and 38,078 data sets from other fisheries (BB, HL, LL) have been provided to ICCAT.

Trap data series now include records from year 1511 on, with details on single trap operations: now we have the longest data series on a single species among all the International Commissions.

A treasure of information we have to use as soon as possible!

DATA RECOVERY AND DATA ELABORATION

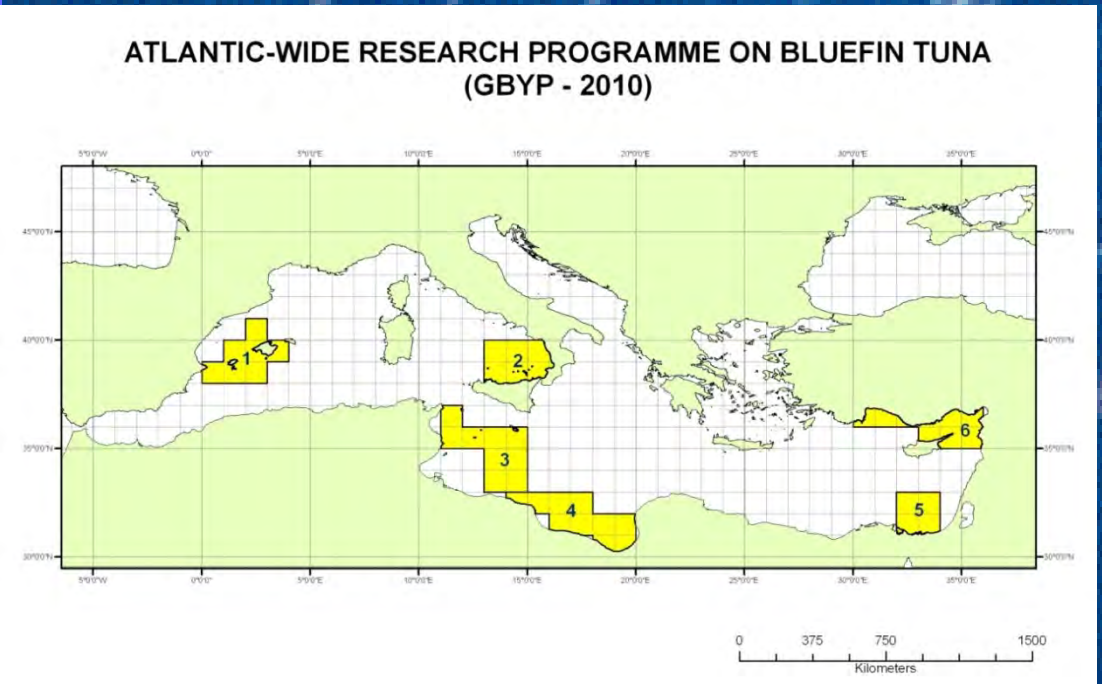
Now, we hired a scientist for supporting the ICCAT Statistical Department in properly inputting all the huge amount of data collected by GBYP in the ICCAT data base, making them available for SCRS purposes.

The first elaborations are showing extremely interesting overviews.

The GBYP recovered also the SST data (now available from 2000 to 2011), which are essential for developing spatial models, using data collected under various parts of the programme.

THE ICCAT-GBYP AERIAL SURVEYS

Another goal was to set-up an Aerial Survey on Bluefin Tuna Spawning Aggregations for obtaining an index about the trends of minimum SSB over the years. A preliminary analysis of VMS data and previous scientific knowledge were used to define 6 relevant spawning areas, always considering that they were only a part of the total spawning area, which includes a large part of the Mediterranean Sea.



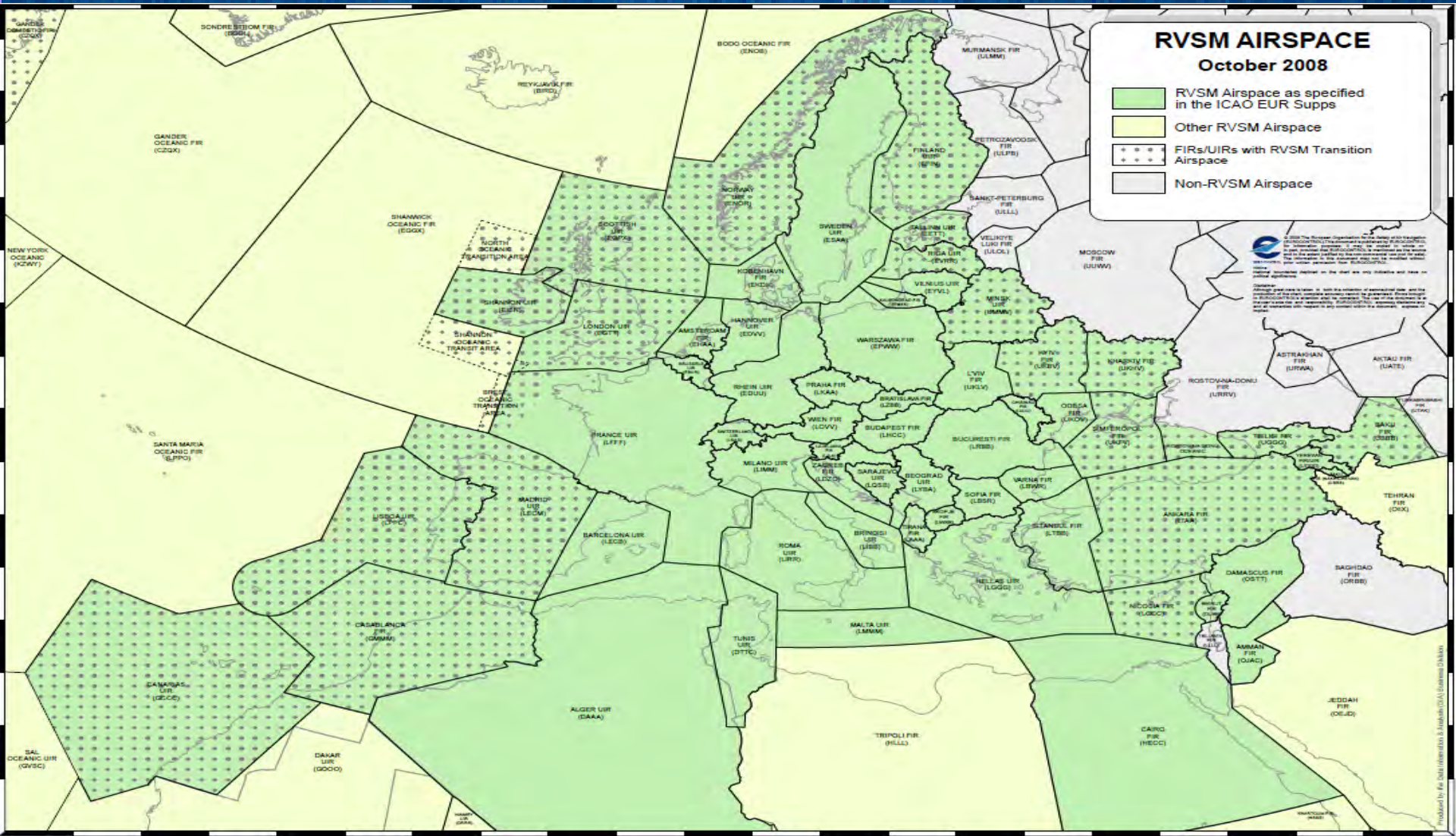
The Aerial Survey Design, statistically sound and based on the "DISTANCE" methodology, was adapted to the various areas, with several replicates and linear transects.

Three companies were awarded and up to 5 different aircrafts were used in the various sub-areas in 2010 and 2011.

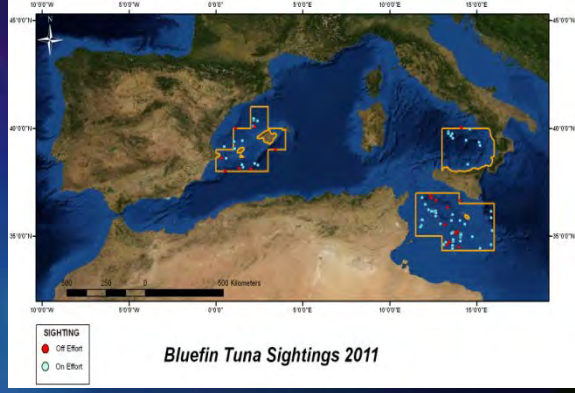
Flight permits have been provided by all Countries concerned, **except Libya, Syria, Tunisia and Egypt in both years and Turkey in 2011.**

THE ICCAT-GBYP AERIAL SURVEYS

The situation of the Mediterranean Sea is extremely complex and there are 24 different airspaces to be considered. Nobody never had the same challenge!



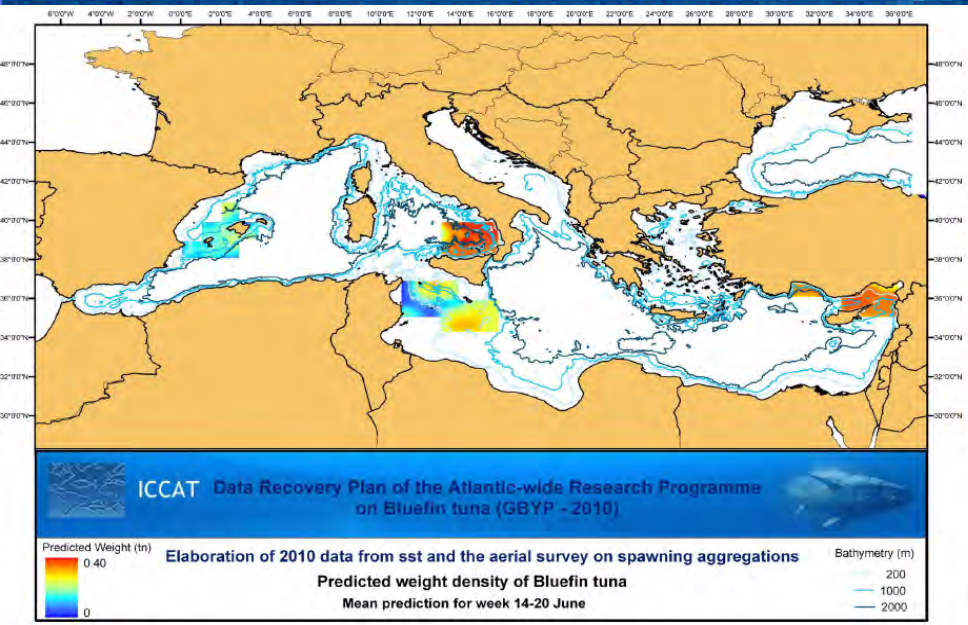
THE ICCAT-GBYP AERIAL SURVEYS

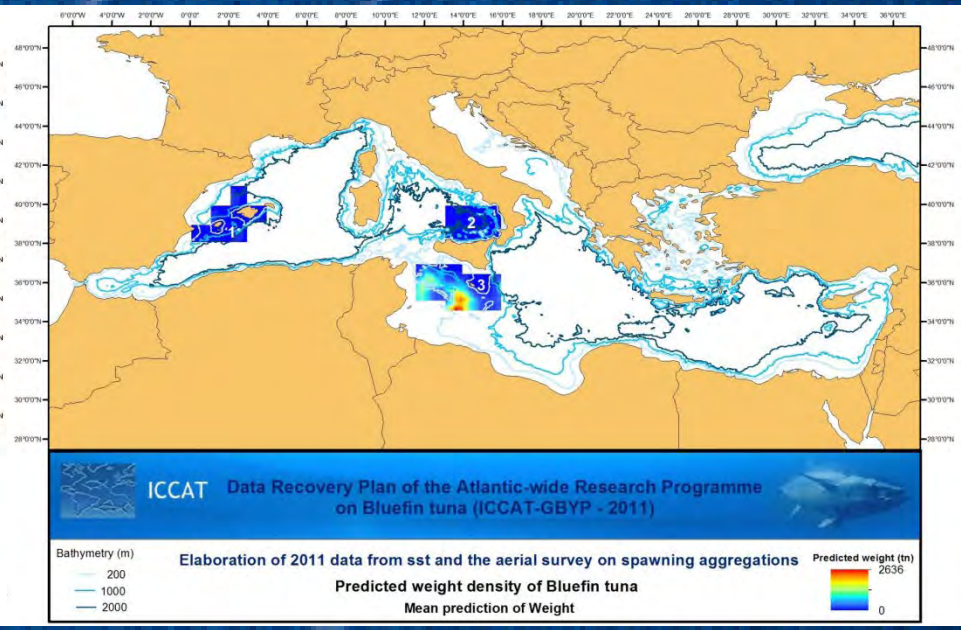


Year	2010			2011		
Sub-area	**1**	**2**	**3 (left truncation)**	**1**	**2**	**3M (left truncation)**
Survey area (km^2)	62,264	52,461	90,796	62,264	52,461	100,471
Number of transects	52	45	42	131	77	65
Transect length (km)	6,301	8,703	5,288	7,977	8,771	11,429
Effective strip width x2 (km)	9.66	2.92	9.66	7.03	7.03	0.66
Number of schools	7	6	19	11	10	35
Encounter rate of schools	0.0011	0.0007	0.0036	0.0014	0.0011	0.0031
%CV encounter rate	51	43	39	32	31	24
Density of schools (1000 km^{-2})	0.157	0.237	0.508	0.196	0.162	3.980
%CV density of schools	55	53	44	37	36	26
Mean weight (t)	127.1	124.2	50.6	84.8	42.7	102.8
%CV weight	8.0	5.6	25	26	44	27
Total weight (t)	**1,244**	**1,540**	**2,335**	**1,033**	**364**	**44,837**
%CV total weight	56	53	51	43	54	41

THE ICCAT-GBYP AERIAL SURVEYS

The GBYP provided a contract to a specialised company for carrying out the aerial survey data elaboration, including the first spatial analysis and a predicting model. Taking into account all the limits and the environmental conditions during the 2010 and 2011 aerial survey campaigns, the results were very positive and showed the good possibilities of this methodology to detect trends if surveys can be carried on over a sufficient number of years (6-9).





GBYP also organised an international Workshop on Aerial Survey and training courses for pilots, scientific observers and professional observers.

BIOLOGICAL AND GENETIC SAMPLING AND ANALYSES

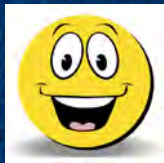
GBYP organised a dedicated operational meeting on Biological and genetic Sampling in February 2011, for specifically defining all operative details of the programme.

The biological sampling activity started in 2011, after the approval of the GBYP Sampling Design, awarded to INRH.

The biological and genetic sampling and analyses was awarded to a Consortium of 13 Institutes from 8 Countries with other 6 institutes from additional 2 Countries as sub-contractors (again there is the will to work together!). The first activities shall be completed within April 2012 (about 1000 tunas were sampled so far in East & Central Atlantic and Mediterranean), but a part of the analyses will be carried out in Phase 3.

The GBYP activity will be complementary of national programmes (or the opposite!).

The study includes ageing determinations from otoliths and spines, genetic analyses also from historical samples for defining eventual subpopulations, and sophisticated microchemistry analyses on various tissues for defining the origin of each fish.



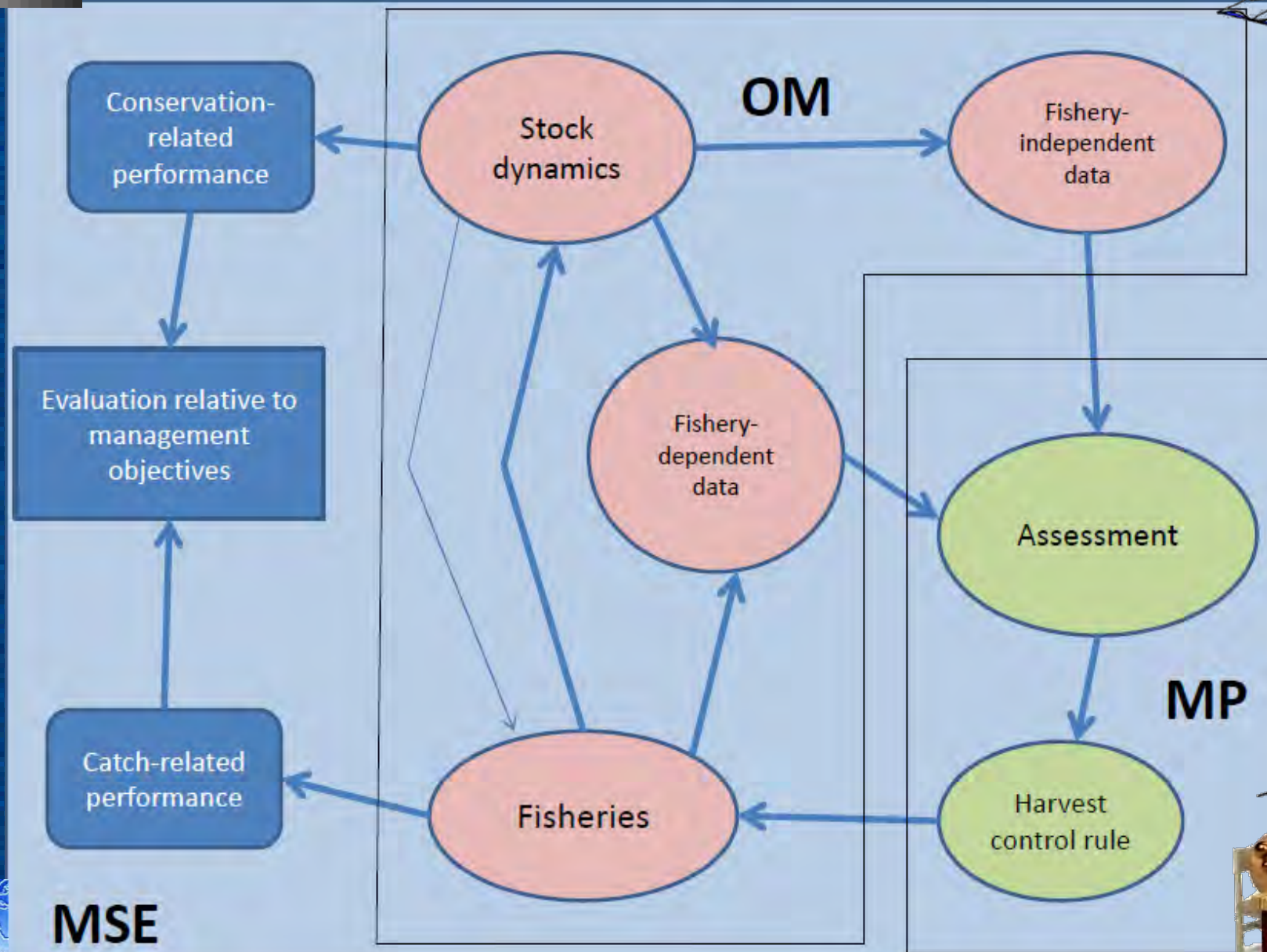
ICCAT-GBYP
MODELLING APPROACHES

The original GBYP plan included the modelling trials in Phase 3, but it was decided to anticipate some activities to Phase 2.

A Call for tender was issued for three small contracts and two bids were awarded (a. Risk analysis to identify the main perceived sources of uncertainty related to assessment and advice, and b. Develop new assessment and advice based on new data sets collected by GBYP). Other work was developed by a small group of SCRS scientists. A second Call for tenders was issued for the third available contract, and now ICCT-GBYP has some new software tools.

The very first outputs were presented to SCRS in October 2011, while the results will be available at the end of April 2012.

ICCAT-GBYP MODELLING APPROACHES
We have a lot of work to be done!



THE ICCAT-GBYP TAGGING PROGRAMME

A tagging programme was included in the GBYP since the beginning, scheduled on the second year of activity, with the purpose of updating some essential population parameters necessary for the assessment.

THE ICCAT-GBYP TAGGING PROGRAMME

The ICCAT-GBYP Tagging Design was drafted and discussed in 2010 and then approved in 2011, limiting the tagging activity in Phase 2 to traditional tags only (about 5000 specimens), with 40% double tagging, due to budget constrains.

A GBYP Tagging Manual was also produced.

Opportunistic tagging will be carried out by sport fishers.

GBYP organised a dedicated operational meeting on bluefin tagging in February 2011, for specifically defining all operative details of the programme and another one is planned for 17-18 April 2012.

THE ICCAT-GBYP TAGGING PROGRAMME

An additional tagging activity, with miniPATs, was carried out in May, in the Moroccan traps, thanks to the support of the tuna trap industry, the Moroccan Fishery Authority, the IEO, the INRH and the WWF Mediterranean Programme, demonstrating that GBYP is the right framework to promote these cooperative activities.

These tags worked very well and they are providing very exiting and unexpected results!

THE ICCAT-GBYP TAGGING PROGRAMME IN 2011

GBYP 07/2011 Bay of Biscay

GBYP 07/2011 Bay of Biscay

Area	Methods to be decided	Age1	Age2	Age3	Total	Age4
Bay of Biscay	Bait Boat	585	835	580	2000	75 (Archival tags)
Gibraltar/Atlantic	Bait Boat/Trap	585	835	580	2000	
Balearic Islands/Gulf of Lions	PS	585	835	580	2000	
Central Mediterranean	PS/Trap	875	1250	875	3000	75 (Archival tags)
Eastern Mediterranean	PS	875	1250	875	3000	

At the moment, more than 4000 tunas have been tagged (40% double tagged).

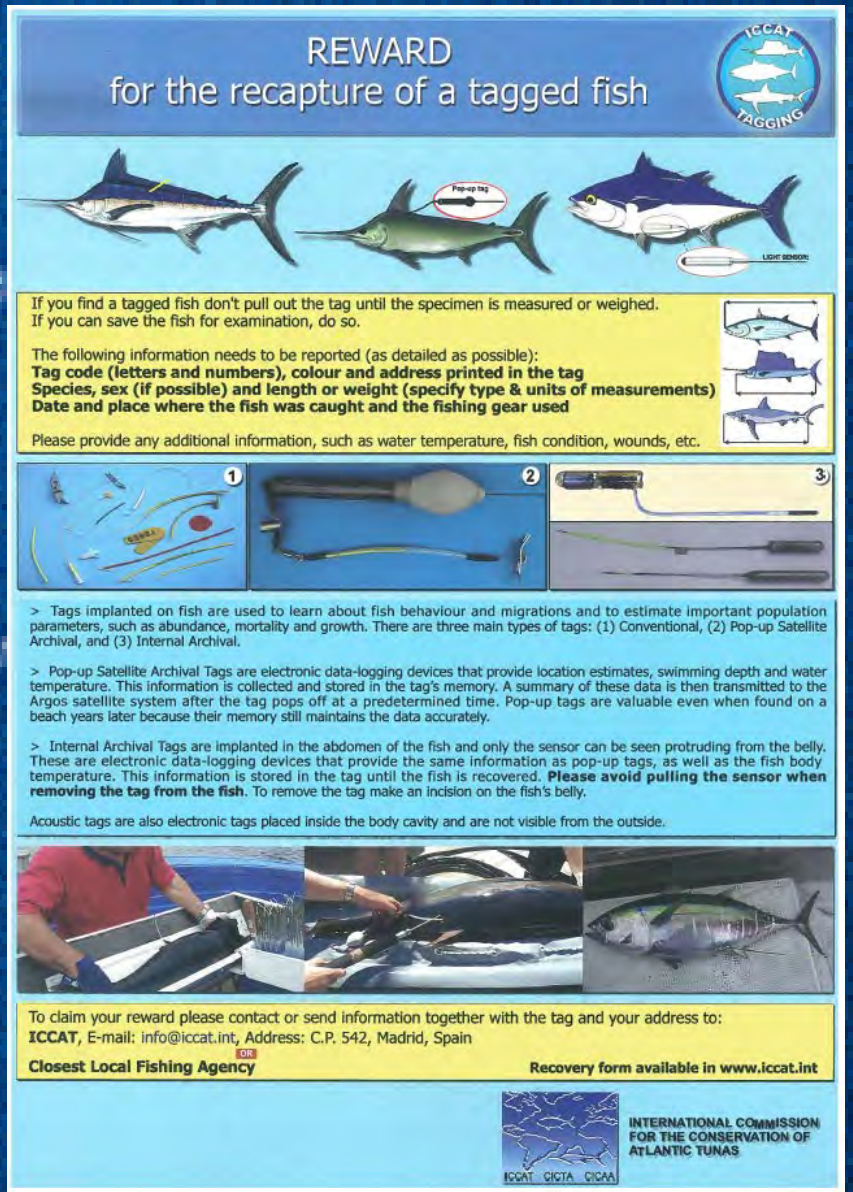
THE ICCAT-GBYP TAGGING PROGRAMME IN 2012

The GBYP tagging activity in 2012 will be still focused mostly on juveniles, with a more intense conventional tagging, having a target between 10000 to 20000 bluefin to be tagged (40% double tagged). Electronic satellite pop-up tags will be used in various areas, while about 100 internal electronic archival tags will be implanted. Possibly, electronic tagging in Morocco will be continued under the same cooperative framework.

But a major importance is also attributed to the awareness campaign about the GBYP tagging programme, for improving tag recovery and reporting.

THE CURRENT ICCAT AWARENESS STRATEGY ON TAGGING

- ICCAT has produced awareness posters in five languages (English, French, Spanish, Arabic and Portuguese), valid for all ICCAT species.
- These were distributed to SCRS scientists and ICCAT national correspondents.
- Rewards are not specified.



THE ICCAT-GBYP TAG AWARENESS PROGRAMME

GBYP launched an international tag awareness campaign, with an associated strategy and along with the new tag rewarding strategy.

The ICCAT-GBYP Steering Committee recommended strongly improving the communication campaign with new posters, adopting a specific logo and creating a top-quality T-shirt.

Furthermore, the strategy includes a strong awareness activity, with direct contacts with other RFMOs active in the ICCAT Convention area, national and international fishery organisations, national fishers associations, sport fishing official Federations and national recreational fishery associations, NGOs, RACs and national scientific Institutes.

THE ICCAT-GBYP TAG AWARENESS PROGRAMME

All posters and the logo (stickers) are produced in many languages and they are clear and essential. This is the logo:

Russian and Mandarin are on the way!

THE ICCAT-GBYP TAG AWARENESS PROGRAMME

The new ICCAT-GBYP posters for the tag recovery campaign are very simple and direct, providing only essential information. The poster are already printed in 10 languages (English, French, Spanish, Arabic, Croatian, Greek, Italian, Japanese, Portuguese and Turkish), while posters in Russian and Mandarin are on the way.

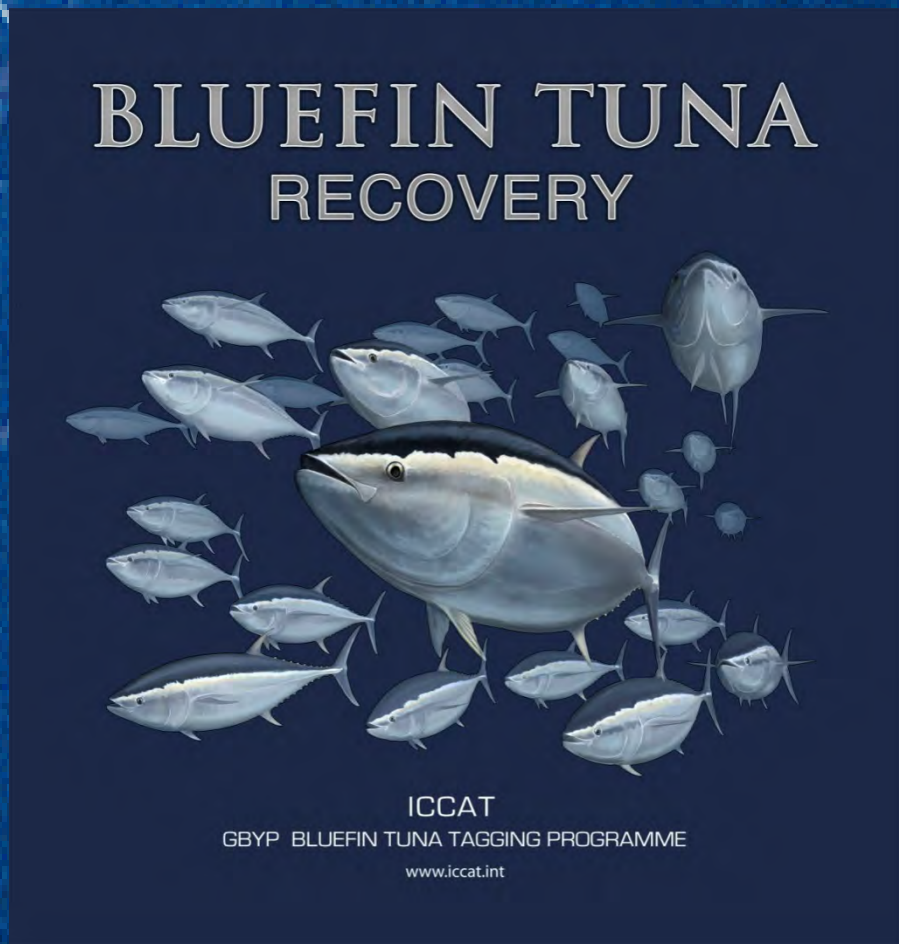
Two types of posters were produced, with three sizes: A4, A3 and A1.

THE ICCAT-GBYP TAG AWARENESS PROGRAMME

An exclusive T-shirt was produced, using a top-quality and strong cotton tissue, with colours resistant to UV exposure and nice cutting.

The design is a very high-quality one, made only for GBYP by a well-known artist (Les Gallagher). Printing was done using 9 colours screens by a top-quality company.

These T-shirts will be given to sponsors, national reference persons for tag recovery, and as an alternative reward for any recovered conventional tag reported to ICCAT, for those who will prefer the T-shirt instead of the money.



THE ICCAT-GBYP TAG AWARENESS PROGRAMME

The ICCAT-GBYP staff will have the following duties:

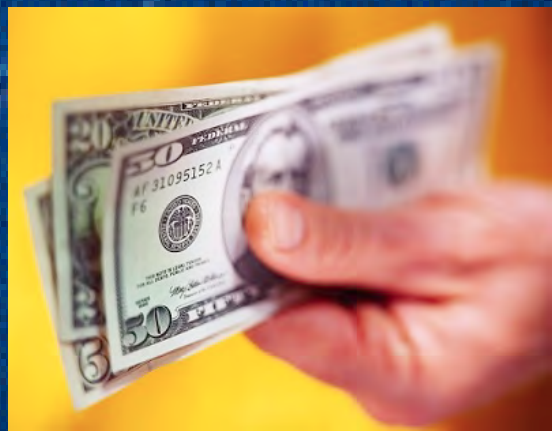
1. Ensuring a capillary diffusion of posters to all potential stakeholders.
2. Ensuring direct contacts on site with all potential stakeholders.
3. Participating to the relevant meetings for increasing the awareness on the GBYP tag recovery programme.
4. Promoting the diffusion of articles on relevant newspapers and magazines.
5. Ensuring a dedicated follow-up for all tags reported, sending the individual tag information to the tagger and the recoverer, for increasing individual satisfaction.

THE CURRENT ICCAT TAG REWARDING SYSTEM

The current tag rewarding system is demonstrating its limits for high value species as bluefin tuna.

Actually, ICCAT tag rewarding system includes the following rewards:

1. 20 US $ for each tag returned and reported to ICCAT;
2. 500 US $ for the annual lottery by group of species (bluefin is grouped with “temperate tuna” species).
3. 1000 US $ for each electronic tag returned and reported to ICCAT.



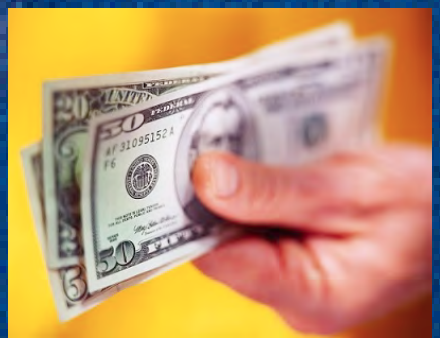
THE CURRENT ICCAT TAG REWARDING SYSTEM

As a matter of fact, only a very few bluefin tuna tags were returned to ICCAT in the last few years:

1. 2 conventional tags in 2010;
2. 5 conventional tags and 1 electronic tag in 2011.
   (Most of these have been recovered thanks to personal contacts!)

1. After checking the data, ICCAT will send a bank draft or a postal credit order.
2. The fisher should go to the bank or the post office and will be charged of the exchange and/or credit costs.

Are 20 US $ compensating for all these efforts?



BETTER TAG REWARDING AS ICCAT-GBYP SYSTEM

The ICCAT-GBYP Steering Committee recommended strongly improving the current rewarding system.

Now, the ICCAT-GBYP rewarding system includes the following rewards, limited to bluefin tuna:

1.50 € or an exclusive T-shirt for each conventional tag returned and reported to ICCAT;

2.Annual ICCAT-GBYP lottery (September): 1000 € for the 1st drawn tag and 500 € each for the 2nd and 3rd tags drawn.

3.1000 € for each electronic tag returned and reported to ICCAT.

BETTER TAG REWARDING AS ICCAT-GBYP SYSTEM

These considerably higher rewards are supposed strongly improving the bluefin tuna tag recovery and reporting.

The tag awareness campaign will facilitate this strategy.

PLUS, we guarantee the full confidentiality about the name!

THE ICCAT-GBYP IN 2010-2011

Plus, GBYP is making a lot of contacts, with the purpose to increase knowledge, consensus, cooperation, participation and awareness about the GBYP activities among all stakeholders

17 meetings have been attended in 2010 and 16 in 2011.

Working together is a must for GBYP

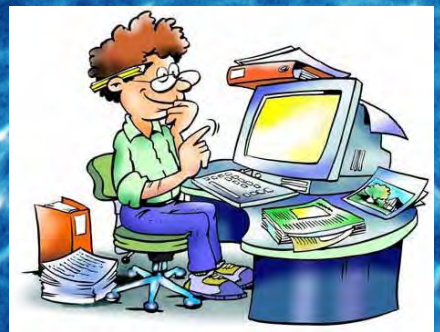
THE ICCAT-GBYP TAGGING PROGRAMME IN 2012-2015

Phase 3 to Phase 6

If funds will be made available, we will continue tagging for at least a couple of years, following the original design.

All these efforts have the final goal to:

- **Improve our understanding of the Atlantic bluefin tuna stocks structure;**
- **better model key biological processes: growth, stock-recruitment relationship, natural mortality, etc.**
- **improve assessment models including mixing between various areas**
- **improve the operating models for more rigorous management options testing.**



WE ALL HAVE THE SAME GOAL

We all need a healthy population of Bluefin tuna

Only under this condition we can sustainably exploit this important fish resource, maintaining the biodiversity, providing proteins to humans, labour to fishers, fun for sport fishers and a widespread economy.


ICCAT CICTA CICAA
THANKS!
ICCAT-GBYP : SCIENCE FOR SUSTAINABILITY