GBYP Steering Committee Meeting
(Madrid, 17-19 December 2018)

The meeting of the GBYP Steering Committee (SC) was held at the ICCAT Secretariat in Madrid on 17-19 December 2018, with the participations of the SC members Gary Melvin (SCRS Chair), John Walter (W-BFT Rapporteur), Ana Gordoa (E-BFT Rapporteur), Ivan Katavic (SC External Member), Camille Jean Pierre Manel (ICCAT Executive Secretary) and Miguel Neves dos Santos (ICCAT Assistant Executive Secretary, participated only first day). Francisco Alemany (GBYP Coordinator), Alfonso Pagá García (GBYP Database Expert), Stasa Tensek (GBYP Assistant Coordinator), Mauricio Ortiz (Head of the Department of Research and Statistics) and Ai Kimoto (Population Dynamics Expert) joined the meeting, invited by the Steering Committee.

The GBYP Coordinator presented the tentative Agenda (**Annex 1**) which was accepted.

LAST PART OF THE PHASE 8

The Coordinator informed the Steering Committee of the status of ongoing activities in the Phase 8, as well as the status of associated budget. Since there has been around €260,000 left, it was agreed to ask the EU for the Grant Amendment of the Phase 8 in order to include some new activities, reorganize the budget and ask for the extension of several months. The SC members were concerned if the overlapping of the Phase 8 and Phase 9 (which will start on 1 January 2019) would represent some problems from the administrative point of view, but the Coordinator explained that preliminary correspondence has already been made with EU project representatives, who confirmed that the extension can be made without any problem because each Programme phase is considered as a separate project. The duration of the extension is yet to be decided, but there is no limit from the EU administrative and financial point of view. It was agreed to request the amendment at least one month prior to the current closure of Phase 8 (21 February 2019). In order to be able to include some multi-annual activities into the annual budget, it was proposed that multi-year contracts include the statement that the contract will automatically be extended to the next phase, subject to the availability of the funds.

<u>Expert report on GBYP progress</u>

Regarding the planned activity on expert report on GBYP progress, it was decided to remove it from Phase 8 and resume it in later phases. It was acknowledged that the Programme has lately been somewhat restructured, due to the incorporation of the new coordinator and some new SC members and the strategic movement towards objective-oriented project planning. It was generally decided that the GBYP activities might be revised in 2020, because it was considered now to be too early to detect the possible effects of the Programme restructuration.

<u>Sex identification study</u>

As for the activity of Atlantic bluefin tuna sex identification assay, it was included not to carry it out. It was recognized that recently there has been some breakthroughs in the field of bluefin tuna genotyping and therefore exists the possibly this task has already been done by other scientific team. It was recommended to try contacting Barbara Block and AZTI to find out exactly in which phase this task is.

Otolith reading

With reference to the ageing of 2000 otoliths, which was envisaged to be done during Phase 8, it was decided only to make the preparatory work in this Phase (cutting otoliths), while the reading will be done in Phase 9. This activity was postponed on purpose, in order for the reading to be done according to the updated protocol, which is yet to be developed. The work will be done by Fish Ageing Services, who carried out this activity in the Phase 7 as well, and will be contracted directly for this task. Preparation will include getting 2 cuts from the same otolith. This method, although more costly, ensures that both microchemical analysis and age reading might be done using the same sample. The Coordinator informed the SC that 2000 otoliths have already been selected in AZTI and will be ready for transport when the contract with FAS is signed.

Ageing workshop

It was planned to organize the ageing workshop in order to draft a common reading protocol for Atlantic tuna, taking into account recent results. The workshop will be held from 4-8 February 2019 in Santander with assistance of various experts who have participated in bluefin tuna otolith reading in the last years. The Coordinator informed that 17 potential participants have already been identified.

Aerial survey

As for the aerial survey activities, it was decided to try to address some concerns which were expressed in relation to the reliability of the aerial survey results. It was decided to develop a habitat/environmental model, which will account for interannual variability, both concerning the horizontal and vertical distribution. It is envisaged to complete the model during the Phase 8, while in Phase 9 it should be explored if it can be used for correcting the aerial survey index. It was also decided to explore the possibility of validation of estimates of size and weights provided by professional spotters, which might possibly be done by comparing it to the values obtained by acoustic survey. Although the acoustic survey result might provide the ground truth regarding the number of individuals inside the school, it was explained that this is possible only as long as the schools are not too big. While the acoustic survey can provide the measures of density and school configuration, the backscattering for biomass cannot be obtained. In any case, it was planned to make the preliminary study in Phase 8, taking advantage of the presence of the Spanish IEO research vessel in the Balearic Sea area, which is equipped by scientific multi beam echo sounder (Simrad ME70). The SC recommended to contract a specialist for the analysis of the data (for example, French or Norwegian – Hector Pina) and assumed a work of 2 weeks would be enough for analysing the echo sounder recordings. In addition, a calibration exercise study will be designed during Phase 8, which should provide the statistical base for carrying out such an exercise, in order to obtain the individual spotter correction factor. The contractor will have to provide all the technical and logistic details for carrying out the calibration exercise study and will be asked to provide an updated version of the aerial survey protocol as well.

Electronic tags data mining

It was also decided to obtain the available electronic tag datasets from Molly Lutcavage, under the similar conditions as the datasets obtained from Barbara Block. It has to be noted that these data have already been provided in the aggregated form and are being used for the bluefin tuna MSE, but any further analysis is not possible without having the complete data. These data contain datasets of around 316 tags that have potentially great scientific value, because they

might provide, in addition to other available tags, new insights in the tuna mixing, especially in connection to the mature individuals that presumably have not entered neither to the Mediterranean nor to the Gulf of Mexico to spawn. The tissue samples of the tagged fish are also available and it was decided to obtain them as well. It was planned to make the genetic analysis of these samples under the separate contract.

Electronic tags database

The need of having all available bluefin tuna electronic tags datasets in the same database was discussed as well, as it is a prerequisite for making any further analysis. It was noted that currently the data are kept by Matt Lauretta, who was put in charge by SCRS for this task and for generating the aggregated file in a special format used by bluefin MSE. Since the quantity of data is increasing, it was recommended that all data be kept by GBYP. It was decided to start the preliminary arrangements within GBYP in order to develop an appropriate database.

Growth rate in farms study

Pursuant to the Article 28 of the Rec. 18-02, the study of bluefin growth in the farms has to be undertaken by SCRS, with the objective to find out what is the range of realistic growth rates under certain scenarios and to find maximum growth rate allowance. In line with the EU request, it was decided that this task be undertaken by GBYP. Given that the study has to be made in the way that recognizable individual fish is monitored during the fattening period, the fish has to be tagged before fattening takes place and has to be regularly monitored for weight/size gain until harvesting, which in some farms takes place 3 years after catch. Taking that into account, the growth rate table cannot be elaborated in 2020, as requested by the Commission, at least not for the farms that keep the fish for more than one year. It was decided that the preparatory work and scoping study be done during the Phase 8, including developing the study design, while the study itself will be carried out in the Phase 9, with the exception of the farms in Croatia, where the study will already start in Phase 8.

The scoping study will be done in January 2019 by the same team (Francisco Alemany, Ana Gordoa/Mauricio Ortiz), with the help of other experts in case of Portugal (Miguel Neves dos Santos) and Croatia (Ivan Katavic). It will include visiting the most representative farms in order to understand practices in each farm regarding operational capacities and farming practices and techniques, and associate them to the logistics of the study. The common questionnaire was developed for this purpose, which will be filled out by each visited farm. It was recommended that the national delegates be contacted first in order to inform them of the activity and the questionnaire be sent to farms prior to the visit. The visit to the farms will possibly also include collecting the existing data on growth if such are kept by a farm.

The information gathered by visiting different farms will be used for elaborating terms of reference for an independent expert who will be contracted for elaborating the statistical design of the actual study. The call for the expert statistician should be published before May 2019.

Given that the farming cycle in Croatia last for 20-36 months, the first activities will be initiated during the Phase 8, namely tagging of the individuals. Nevertheless, since fish have to be tracked individually during the whole farming/fattening process, it will not be possible to take advantage of the fish already in cages in Croatia and therefore the study will be initiated with the beginning of the farming cycle i.e. when the new fish are caught and placed in the cages.

Close kin mark recapture study

Given the notable success of the close kin study applied on Western bluefin tuna and some new methodological improvements in this field, it was recommended to re-evaluate the possibility

of realizing the study in the Eastern part as well. The initial CKMR simulations indicated a target number of adult-juveniles comparison of 25,000 fish (which would provide around 25 POPs). One of the key recent improvement is the possibility of using larvae instead of juveniles, which drastically reduces the costs of sampling. It was explained that, for obtaining a CKMR estimate of spawner abundance, a great level of samples has to be collected and analysed, while with fewer samples this method may provide some other intermediate products such as spawning fraction at age and fishing mortality rate, which would present valuable inputs for the stock assessment/MSE. Therefore, it was decided to initiate the genetic analysis of larvae, which have already been collected in the Balearic Sea in previous years (2017). It was acknowledged that the initial analyses will be more expensive, because they will be dedicated to the identification of the genetic markers to be used for identifying parent-offspring pairs. It was also recommended to strive for developing a common genetic analysis method, which would serve both for CKMR and stock assignment.

Financial implications for Phase 8

It was recommended to reserve the following budget for the new activities in the Phase 8:
Growth in farms: scoping study-travel costs for visiting farms (€20,000), study design (€25,000), initial study in Croatia – tagging (€30,000)
Data recovery: electronic tag datasets Molly Lutcavage + genetic assignment (€40000+e15000)
Biological studies: genetic study – close kin larvae (€25,000)
Ageing – calibration workshop in February 2018 (€35,000)
Aerial survey – habitat model (€30,000), calibration exercise study and protocol modification (€20,000), research vessel for preliminary acoustic survey (€25,000)

PHASE 9

It was agreed to maintain the majority of the activities in the Phase 9 as planned in the Grant Agreement with the EU. Nevertheless, some modifications will have to take place, which will be further detailed in the Amendment to the Phase 9 Grant Agreement.

Coordination

In relation to the collaboration with other organisms or programs engaged in bluefin tuna research, the activities will be directed towards drafting the protocol for coordination of common objectives (A1). In order to identify national bluefin tuna sampling programs (A2), an official letter will be submitted to relevant CPCs to identify national focal points and get more information on how the sampling is being done, what fraction is obtained and if it is possible to increase the level of sampling. For that purpose, a special questionnaire will be developed. SC decided to postpone running the workshop until preliminary information is obtained. The need for organizing the workshop will be evaluated in Phase 10.

Data recovery

As for the investigation of potential presence of bluefin tuna in other areas like South Atlantic and Black Sea in order to gain knowledge and information on its expansion in the previous years (A3), this task will be done by the GBYP Coordination Team and will therefore not have an associated budget. Regarding the time series of YOY catches in the Mediterranean (A4), SC commented that change in fisheries regime probably did not happen, but it should be further investigated. It will be explored if FAO GFCM might provide some useful information on YOY removals, possibly through bycatches of bluefin reported in small scale purse seine fisheries for anchovy. This activity will not have budget either. Other planned activities without budget

include recovery of raw biological parameters datasets (A6), for which the database will be developed in Phase 10, and development of database for electronic tagging (A7). Since the owner of tagging datasets which were not directly paid by GBYP is SCRS, it was decided that this task be prior discussed within the BFT Species Group, in order to obtain the official instructions on how to deal with no-GBYP data. The data recovery activity also will also include one task with associated budget, which refers to acquisition of datasets of electronic tags deployed by other researchers, in case that the useful datasets are available (A5). SC decided to dedicate the same amount to this task as in previous contracts of this type, taking as a reference a dataset unit price.

Aerial survey

It was decided to continue with the aerial survey activity in the Phase 9, on the same four overlapping areas (A9). Given some concerns about the validity of the results obtained, it was decided to continue with the efforts for improving the index. The use of static camera attached to the exterior of the airplane will be explored. Also, the new protocol will be used, presumably developed in the Phase 8. The calibration among spotters will be done in the Balearic Sea (A8) after finishing the aerial survey activities.

According to the results of the preliminary exploratory analysis of the acoustic survey, it will be decided if it can be used for calibration practice. If the acoustic survey proves as a valid method for aerial survey calibration practice, it has to be carried out for at least three years until a validation of the aerial survey results takes place. As a possible mean of validation of aerial survey school estimates, SC also recommended using data from fishery, namely VMS and BCDs. The analysis of the aerial survey results might include re-analysis of the previous data, taking into account possible improvements in the methodology. The potential to improve statistical standardisation of the index to include consideration of habitat models environmental factors and other covariates will be evaluated (A10).

Biological studies

As previously decided, in Phase 9 the aging of 2000 otoliths, previously prepared in the Phase 8, will be done by FAS (A13), in accordance with the new otolith reading protocol, which is to be drafted in February 2019. In addition, it was decided to continue with sample collection (A11) in order to address the issue of stock mixing and to develop ALKs, possibly on annual basis. Nevertheless, the intention is to keep the sampling paid by GBYP as a complementary activity for filling the gaps only and possibly focus instead on using samples already provided by national programs, if these are available. The amount of samples needs to be sufficient for developing the ALK and proportional to fisheries (it should be around 1% of total catches). It was recommended to ask for the detailed sampling needs to Lisa Ailloud. It was commented that the spines might be used for developing ALK, which is convenient because they are less costly than otoliths. Sampling of adults should continue on farms and young adults should be sampled in Canary Islands and in Gulf of Biscay, while 1-2 years old should be provided from Mediterranean. It should be explored if samples might be obtained by Japanese long liners. It should also be taken advantage of other activities for getting samples like tagging on farms for the purpose of developing growth index. In any case, as it has already been mentioned, it should be mandatory always to take a sample when tagging - a piece of muscle or a fin clip. The analysis of the genetic samples for the mixing purposes will continue (A12). The SC committee reiterated that the common protocol should be applied and the common list of markers identified for the genetic analysis for CKMR purposes (POPs) and stock of origin identification (SNPs). This activity should also possibly incorporate the analysis of the genetic samples corresponding to electronic tags

datasets already purchased from Barbara Block. It is yet to be decided if the micro-chemical analysis of the hard parts will be done in the Phase 9. It was planned to continue with the study of growth rates in farms (A14), but since this activity will take at least 2-3 years, it is important to stress that the report produced in the first year will be preliminary.

Tagging

The SC expressed concerns about continuation of tagging activities (A18), given the great cost they imply and short retention rates, which were attributed mainly to the deployment method, including the tether material and length and possibly the type of anchor. It was decided not to buy more tags until it is proven that the new deployment method can provide longer retention rates. Only some tags will be purchased, in order not to lose the 50% discount which is provided for each returned tag and to have enough tags to perform the deployment exercise. Given that 18 tags have not been deployed in the Phase 8, in the Phase 9 around 30 tags will be available. It was decided to deploy the tags on the location where the deployment costs are minimal and the total costs for this activity were reduced to €30,000. The preference was given to the Levantine Sea, Portugal and North Atlantic. It was decided to explore the possibility to use sport fishermen for tagging in the Levantine Sea.

It was decided to make the improved protocol for deployment of electronic tags (A16) and to hire BFT tagging experts for that purpose, preferably two that use different tagging techniques. It was reiterated that the new tag deployment protocol should include as mandatory taking of genetic sample from each tagged individual. Once the protocol is developed, the training workshop will be organized for GBYP tagging teams in order to improve their capacities with aim to obtain longer retention rates (A17). The practical part will possibly be organized in the Portuguese trap and for that purpose some already available electronic tags might be used.

It was also recommended to hold a workshop on electronic tagging (A16), taking into account all the results obtained so far. It was commented that it might be held after the Commission meeting or in 2020, but since it will include lots of interested participants, it has to be announced on time. It was recommended that GBYP not cover the travel expenses and subsistence of the participants, but only rent an appropriate venue and provide logistics. During the workshop the tagging data might be analysed in order to identify the gaps and priorities for possible future studies, in accordance with MSE purposes.

Modelling

It was decided that the follow up of the contract with modelling expert be signed, which will probably include the similar or higher workload as in Phase 8 (A20, A21). As for the budget dedicated to the technical meetings and workshops on modelling (A22), it was noted that it serves for covering the travel and subsistence expenses of three modelling group members (Doug Butterworth, Shuya Nakasuka, Carmen Fernandez). In case some money is left from this budget concept, it was recommended that it be extended to other experts as well. It was commented that the clear procedure is needed for selecting other potential experts funded by GBYP. In any case, CPCs head scientists might be contacted for that purpose and TOR should be developed before the application process.

Annex 1

GBYP STEERING COMMITTEE MEETING 17-19 DECEMBER 2018

DRAFT AGENDA

1. **QUICK GENERAL REVIEW ON THE STATUS OF PHASE 8 ACTIVITIES**
2. **LAST ACTIVITIES OF PHASE 8 :**

- AGING WORKSHOP (SANTANDER IEO LAB, 4-8 FEBRUARY)

  Justification: This activity (otolith readings calibration) was mentioned in the text of the Phase 8 proposal, but was not included in the budget. This is because it was a copy-paste error from previous proposals. However, it is in fact a pertinent and important activity, since the recent calibration exercise (otoliths vs spines readings) leaded by IEO have detected some inconsistencies and, in addition, it is crucial to guarantee that the otolith readings made within Phase 7 by the Australian company Fish Ageing Services, which will read another set of 2000 in Phase 9, be comparable to previous ALK developed by ICCAT area experts. In addition, it is a specific recommendation of the Species Group.

- PROCESSING OF A NEW SET OF 2000 OTOLITHS BY FAS

  Justification: In phase 8 it was envisaged to repeat the aging activity carried out in phase 7, contracting again FAS to read a new set of 2000 otoliths. However, once we were aware that they had used their own interpretation criteria, and that a new protocol was being developed by ICCAT area specialists, it was decided to postpone this activity to guarantee the complete standardization of the methodologies. There is not time now to process and read a new set of 2000 otoliths, but since the otoliths processing protocols have been already discussed and a new set of 2000 otoliths selected to produce separate ALKs for Atlantic and Mediterranean regions is already available, it would be possible at least to carry out the first steps (cutting, polishing…) within Phase 8, since we can ask for an extension of phase 8.

- REANALYSIS OF AERIAL SURVEY DATA

  Justification: The review of previous reports from aerial surveys let us know that the category “small” fishes, it is individuals under 25kg, had been considered for index calculations. Since this category can potentially include juvenile fishes, it should have not been used, unless it could be demonstrated that these schools of “small” individuals were composed by small but mature three years old individuals, because this aerial survey index was designed to determine the spawning stock biomass, and consequently should only include spawners. This represents a potentially huge problem, since in some areas, as Levantine Sea, this “small” category accounts for 90/100% of the observations. I think the whole data set should be reevaluated, first trying to get more precise information about the length distribution and behavior of the “small” fish schools and, in the cases in which the conclusion be that they were juvenile fishes and not spawners, the aerial survey indices should be recalculated to eliminate this important source of bias.

- DESIGN OF AERIAL SURVEYS CALIBRATION/VALIDATION EXERCISES

  Justification: In spite of numerous recommendations in this line, the school biomass and abundance estimations from spotters have never been validated. Moreover, important divergences between spotters have been detected from the very beginning, in some cases striking ones, and the problem remains, but any calibration exercise have been developed till now. I think we should start working on that, and the first step should be to set the minimum methodological requirements for such validation and calibration exercises

- DESIGN, PREPARATORY TASKS AND, IF POSSIBLE, STARTING OF SOME FIELD ACTIVITIES IN REPATION TO THE STUDY OF BFT GROWTH IN FARMS

  Justification: It is a must from EU request. We must not only decide to do it but start working on it within this SC meeting (point 4 of this agenda)

3. DRAFTING OF GBYP PHASE 8 AMENDMENT (to be submitted on January 2019)

Considering discussions from agenda point 2, the Phase 8 amendment should be drafted

4. PLANNING OF THE STUDY OF GROWTH IN FARMS

5. REVISION OF PHASE 9 PROPOSAL/WORK PLAN

6. DESIGN OF A GBYP STRATEGIC MID-LONG TERM PLAN: SUSTAINABILITY OF GBYP (short term project, implemented on annual basis, which is taking care of structural needs…something should change in the future to guarantee the maintenance of the "services" provided by GBYP)