

Minutes of the GBYP Steering Committee Meeting (Online, 15th January 2024)

Participants: Steering Committee (SC) members (Miguel Neves dos Santos (ICCAT Assistant Executive Secretary, on behalf of the Executive Secretary), Craig Brown (SCRS Chair), John Walter (W-BFT Rapporteur), Enrique Rodriguez-Marín (E-BFT Rapporteur) and Ana Parma (External expert)).

Invited: Francisco Alemany (GBYP Coordinator) and Alfonso Pagá (GBYP Database specialist)

The meeting started by modifying the tentative agenda initially proposed and circulated by the GBYP Coordinator, by adding point 7 (**Annex 1**).

Point 1 - Progress report on Phase 13

The GBYP Coordinator informed the participants about the status of the activities and updated as of January 2024, including: biological sampling and analyses, CKMR workshop, tagging program, data management, aerial surveys and modelling tasks, focusing in the problems affecting each line of research and on the points requiring a decision from the Steering Committee (SC).

Regarding biological studies, the SC was informed that the work carried out by the Consortium led by AZTI was progressing as expected, but that an extension of around 45 days could be necessary to ensure that all the planned analyses are completed. It was also reported that due to some discrepancies in administrative issues related to the contract clauses, the study awarded to Stanford University for genomic studies had not been signed yet; but that fortunately an agreement had been already reached and the works could start probably in few weeks. Given that a minimum of 4-5 months would be necessary to complete the first phase of this study, an extension of two or three months of the GBYP Phase 13 would be necessary to fully develop this activity.

Considering these unexpected delays, the SC suggested an extension of at least three months to be requested to the EU.

Concerning the CKMR workshop, aiming at optimizing the use of available funds, the GBYP Coordinator proposed that it could be totally or partially integrated in the SCRS BFT Species Group intersessional meeting, to be held in Malta between 15 and 18 April 2024, taking advantage of the fact that several CKMR related issues should be tackled during the meeting. Moreover, there is the possibility that a small group of specialists supported by GBYP to stay 1 or 2 additional days to allow them to deepen CKMR modelling tasks.

The SC agreed using the funds assigned to CKMR workshop item to invite some key experts to the SCRS BFT Species Group meeting and organize and fund additional sessions involving the experts directly working in the CKMR modelling. It was also remembered that it is very important to hold the planned on-line meeting of the SCRS BFT CKMR technical subgroup, focused on the analysis and comparison of the different genotyping approaches that could be used for CKMR implementation, as stated in the SCRS CKMR workplan. Consequently, it was

agreed that actions to ensure that the research groups currently applying these techniques in Atlantic bluefin stocks present in time all the requested information to allow such comparison. Finally, it was decided to keep part of the funds assigned to the GBYP CKMR workshop activity to organize an independent meeting, to advance on the elaboration of the CKMR feasibility study before the end of July 2024. Additionally, it was considered the possibility of organizing another meeting on this topic before September 2024, if deemed necessary, under GBYP Phase 14, although the final decision was kept on hold.

As regards the GBYP tagging program, the GBYP coordinator informed that the support to conventional tagging activities is continuing as usual; that the tag recovery program is being developed very successfully, maintaining the high level of recoveries of e-tags observed from some years ago (more than 20 e-tags recovered by year); that the electronic tagging program in Phase 13 is also being carried out as planned, having signed 11 MoU with different institutions and, finally, that the array of acoustic receivers across the Gibraltar Strait had been successfully deployed under the EU STRAITS project. The SC was informed also about the problems in the performance of the Wildlife Computers (WC) PSAT tags, associated to battery failures, which resulted in total lack or bad data transmissions in 50% of the tags deployed in 2022. He also informed about the work carried out by Secretariat staff to test the battery status, according to the new protocol provide by WC, of the recently received tags before its deployment, concluding that in spite of the new software developed by WC to prevent battery passivation many tags still present low battery voltages, below or close to the minimum threshold, which cast doubts on its future performance once deployed, and hence it is a fact to be considered when taking the decisions on new tags purchase. It is worth noting that has caused a number of miniPATs being sent back to WC.

The SC agreed that this problem, given that it affects not only GBYP program but all the ICCAT e-tagging programs, should be discussed at a wider and higher level. It was decided that, considering the urgency of taking decisions on new purchases, this item should be discussed within the next SCRS Workshop scheduled between 18-20 March 2024. It was also mentioned that the new array of acoustic receivers in Gibraltar, as well the higher recovery rates in internal tags, constitute an opportunity to diversify the current GBYP e-tagging program, which in a future, from Phase 14 onwards, could support not only the deployment of PSAT tags, but also acoustic and internal archival tags, which would help in answering important knowledge gaps, as natural mortality rates.

In relation to the GBYP 2023 aerial surveys, the SC was informed that field surveys in Balearic and Tyrrhenian seas had been developed successfully, but that in the Ionian sea (area E) only the area West of Malta, around 70% of the total area E, could be covered by operating from Pantelleria Italian island, whereas the area East of Malta, which should have been surveyed operating from Maltese airports, was not possible because the Maltese aerial civil authorities didn't give the necessary permissions. The specific problem was that they considered the Scientific observers were passengers and not members of the crew, and hence they asked for a certificate allowing the Contractor to carry passengers in its planes, which the contractor could not certify in the absence of such certificate. This was totally unexpected, because in previous years that requirement was never requested by the Maltese Authorities, nor were ever request by both Spanish and Italian aerial authorities.

The SC decided that EU be informed about these problems found in Area E, aiming to prevent them in future campaigns, because it could compromise the continuity of the aerial index

time series in the Central Mediterranean. It was also agreed that, taking advantage of the April SCRS BFT Group intersessional meeting to be held in Malta, if deemed necessary the Maltese authorities could be contacted by the Secretariat to comment about this issue.

Concerning the MSE process, the GBYP Coordinator informed that given that finally all the planned MSE BFT modelling tasks could have been completed within Phase 12, the 30000€ budget assigned to the MSE models further development had not been spent and could be reassigned to other priority related studies.

The SC agreed to reallocate Phase 13 MSE modelling budget to cover other research needs; but it was reminded that it is necessary to keep some funds for this specific activity within Phase 14, to be spent probably in 2025, to cover tasks related to the reconditioning of the current models that should be completed by 2027. It was mentioned that NOAA BTRP program is already funding some of these tasks.

2. SCRS CKMR work-plan (Annex 2)

The SC reviewed quickly all the points of the SCRS CKMR work plan to identify or confirm those in which GBYP could provide a direct support. It was mentioned that the most conflictive point was the deep analysis and comparison between the two methodological approaches currently applied to carry out CKMR related genetic analyses, and hence SCRS BFT Species Group rapporteurs should discuss in depth about this topic to look for ways to ensure that this is done in time and preventing further delays in the whole process. Just in case that the SCRS BFT CKMR technical subgroup could not carry out this comparison in the short term, as expected, it was considered the possibility that GBYP ask for the relevant available data and contract some other external team, or even the same teams already involved in the ongoing studies, to carry out such work. This is indispensable to know the uncertainties associated to each method, aiming to take a well-informed decision on the implementation of the CKMR in Atlantic BFT stocks. In any case, what shall be done is gather all relevant data as soon as possible, a responsibility that GBYP could take care of if the BFT CKMR technical subgroup cannot do it in the short- run.

It was agreed that GBYP will take care of the 2 contracts described in points 1 and 9, respectively (external expert to provide advice to the GBYP SC and contract experts to develop a model-based sampling design for EBFT CKMR). In both cases opening Calls for Tenders to guarantee transparency in the process and to enable free competition among bidders.

3. Phase 13 amendment

The GBYP Coordinator showed in detail all the Phase 13 activities and associated costs, explaining all the deviations in relation to the initially envisaged budget and its causes (mostly savings from travel costs lower than expected due to on-line or hybrid meetings, money from salaries due to the pass of part of GBYP staff to Secretary, amounts not spent on aerial surveys due to the non-coverage of East-Malta area and amounts remaining from MSE modelling task due to the completion of the work during the extension of Phase 12), specifying the exact quantities that could be reallocated to other priority activities, already planned or new ones, which represents in total around 170.000€.

A recollection was made of a number of activities recommended to be carried out by SCRS experts during previous workshops and meetings, new ones or already included in the GBYP Phase 13 work plan but that had not been carried out due to fund limitations in some lines of research, which had been already considered by the GBYP SC, concluding that these could be funded depending on balances from funding chapters (those approved by the Commission) and the EU authorization. However, the reassignment of such funds can only be done within the current ICCAT rules. Possible reallocation might include the allocation of remaining budget in the Biological Studies line to microchemical analyses already planned to be developed within GBYP Phase 13 biological studies, but not awarded initially due to lack of enough funding. Other already proposed and agreed activities for Phase 13 may include: contract for CKMR SC advisor (15000€), contract of CKMR modellers (up to 30000€), genotyping of 500 additional larvae for sibship detection (around 20000€) and blind test for epigenetics (around 10000€), and 50000€ that could be allocated to other activities, as awarding additional e-tagging proposals not initially awarded due to timing issues, but feasible in the case that the GBYP Phase 13 be extended; funding of other CKMR related pilot studies or continue the support to the development of Model-based approaches for aerial survey indices.

After discussing each of these scientific lines, the SC agreed the following, pending further analysis by the Secretariat based on the current ICCAT rules on the use of available funds:

- To award the e-tagging proposals informed positively but initially not approved only because of timing problems, in the case they became feasible with a Phase 13 extension.
- To amend the current contract with AZTI consortium to develop the microchemical studies initially not awarded only because fund limitations.
- To allocate funds for developing a new blind test for epigenetics, if feasible (contact AZTI and CSIRO to know if it is feasible).
- To allocate funds to develop also blind tests on genetics (determination of stock of origin and contamination) and to analyse additional 500 larvae in two different labs with different techniques to compare results in relation to sibship detection (the SC will contact BFT CKMR subgroup chairmen to ask them to help to develop ToRs)

4 - Presentation of new Phase 14 proposal

It was agreed to distribute the last version among SC members for a more detailed revision. It was explained the in spite this Phase 14 proposal will last for two years, for a total amount of 17000000€, of which 8850000€ were assigned to 2024 activities by the Commission. The remaining 8150000€ initially planned for 2025 activities should be considered only a preliminary estimation, since these funds will be discussed during the 2024 Commission meeting. It was also explained that the process of moving part of GBYP staff to Secretariat will probably continue in 2025, which will allow to dedicate more funds to research activities.

5 - Data requests (data from GBYP aerial surveys)

It was agreed to skip this point and address it later through email correspondence.

6 - GBYP strategic plan outline

It was raised a question about the necessity of allocating in a future GBYP funds to address requests from the Commission that have not been fully answered from years. This is the case of the analysis of catch rates/fishing capacity, the observer's coverage and the sufficiency of the recording and analyses of only 20% of the footages from the transfer of BFT specimens to fattening cages. It was concluded that the first point had been already partially addressed and should not be funded by GBYP. The same is applicable to the observer's coverage issue, since it is a CPCs responsibility. The third point could be potentially addressed by Secretariat with GBYP funds, but for make that possible, the CPCs should provide the base data before funds be formally requested. Moreover, it is not clear if the Commission really maintain this request, or it is fine with the partial answers already provided. So, a clear response should be requested to the Commission.

Following, the GBYP Coordinator proposed some discussion points that should be considered to elaborate a GBYP strategic plan for the forthcoming years, from 2025 onwards.

The SC decided that the GBYP strategic plan should be first discussed during the BFT intersessional April meeting, as a part of the new SCRS strategic plan, to which it should contribute. Specifically, it was agreed that the four first point proposed by the GBYP Coordinator should be included in the agenda of the BFT Species Group April 2024 intersessional meeting, whereas the fifth point, the coordination or integration of GBYP with other ICCAT research programs could be left in the hands of Secretariat as an internal issue. It was mentioned that the SCRS plan was going to be discussed shortly within the next SCRS workshop planned for March 2024. So, it was concluded that the first step should be to consider the outputs from that workshop regarding the SCRS strategic plan, and then take them into account when discussing and start drafting the more specific GBYP strategic plan during the BFT Species Group intersessional meeting in April 2024. It was proposed that it would be explored the possibility of taking advantage of this April meeting to inform also about the NOAA BTRP program, and discuss the possibility of strengthen the coordination between GBYP and BTRP, which make even more sense now considering the new BFT MSE based management system.

Annex 1

GBYP Steering Committee Meeting

15th January 2024

On-line (Teams), starting hour 14:00h CET, planned duration 3 hours)

TENTATIVE AGENDA

1 - Progress report on Phase 13

- Biological studies (delays in contract with Stanford and CKMR feasibility study implementation...)
- Aerial surveys (problems with Maltese aerial authorities in field surveys)
- Tagging (WC PSAT tags transmission failures, new array of acoustic receivers in Gibraltar, decisions on new tags purchase...)
- Data management (Etags and biological data DBs...)
- Modelling

2 - SCRS CKMR work-plan (role of GBYP in Phases 13 and 14, adaptation of activities - contracts and associated funding to GBYP timing ...)

3 - Phase 13 amendment (time extension, reassignments of funds to cover CKMR derived new research needs, possibilities for resuming microchemical analyses...)

4 - Presentation of new Phase 14 proposal (two years: 2024/2025; since the 2025 budget was not approved by the COM, it might be subject to an amendment at the beginning of 2025 to account for the COM decisions on the budget (for 2025) and to possible adjustments to the SCRS workplan)

- 5 - Data requests (data from GBYP aerial surveys)
- 6 - GBYP strategic plan outline, which will be made within the preparation of the new SCRS Strategic plan. It should bear in mind the BFT MSE reconditioning in 2026:
- model-based approaches for aerial surveys, biannual aerial surveys to save costs?
 - contribution to CKMR implementation
 - diversification of e-tagging program
 - coordination with BTRP and RCG LP
 - coordination/integration with other ICCAT research programs
- 7- Drafting points to address during Malta meeting.

Annex 2

ATLANTIC BLUEFIN TUNA CLOSE-KIN MARK-RECAPTURE WORKPLAN FOR 2023 - 2025

This workplan for an Atlantic bluefin tuna close-kin mark-recapture study identifies key pilot research and technical work group tasks, to move the project forward towards meeting the objectives outlined during the 2023 GBYP close-kin mark-recapture (CKMR) workshop.

Work plan tasks to implement as soon as possible:

1. Appoint an external expert on genetic methods and CKMR to assist the GBYP Steering Committee in decision making concerning genotyping and on the validity of epigenetic aging methods [GBYP]. It has financial implications.
2. Identify existing duplicate samples that have been run across both genotyping platforms (DArT vs SNP-array), (For example: Gulf of Mexico adults collected in 2010-2014, Gulf of Mexico larvae collected in 2016 and 2017, Balearic Islands larvae) and produce, derived from each method, the genetic ancestry profile and genetically assigned sex of each sample, the list of potential kins found, and any other relevant information that can be extracted from the genetic data (potential contamination, introgression level from albacore, ...).
3. Identify additional available samples that could be analyzed with both genotyping techniques if required (for example: Balearic larvae collected in 2022 and samples from the US and Canadian tissue bank).
4. Organize an online workshop (tentatively in early 2024, as preparatory work needs to be done) with genetic experts involved in BFT stock ID, other interested geneticists (Japan, Italy, ...) and the GBYP Steering committee, together with the external expert (see item

1), with the aim of creating a report with the main characteristics of each of the genotyping approaches including the pros and cons of each to inform GBYP on the most effective genetic methods to use for CKMR in the future. The tasks to be performed during the workshop are:

- a) To review the pros and cons for the different genotyping approaches potentially used for CKMR (at least the ones already used for BFT so far: DArT and SNP array), including:
 - i. Ability to detect cross contamination of samples.
 - ii. Quality control standards.
 - iii. Raw data processing steps.
 - iv. Potential of the genotyping method to be applied in a laboratory other than the laboratory of origin.
 - v. Total cost estimate per sample (including DNA extraction, genotyping, and data analysis).
 - vi. Possibility of obtaining several results at the lowest cost: Stock ID, kinship detection, sex.
 - vii. Potential to align methodology across East and West in the future.
- b) To evaluate if results are consistent (stock ID, sex, kinships) across methods based on results of applying both methods to the same samples (see item 2). Accessibility of the results is necessary for comparison. BFT chairs would be the repository of these data, which will be treated with the strictest confidentiality.
- c) To evaluate the need for further analyses with paired samples and the availability of samples, including the financial implications of these analyses.
- d) To develop protocols to avoid DNA cross-contamination and ensure high quality samples, including evaluating the use of single-use devices for sampling, essential, for example, for sampling adults on farms.
- e) To evaluate the epigenetic aging pilot study on BFT, including assessing the need for further analyses on epigenetic age determination, clarifying the issue of contamination (organic and DNA x-contamination), and considering the need for applying genotyping and epigenetics on the samples (DNA extracts).

Tasks for 2024:

5. Genotype at least 1000 Balearic larvae to determine kinship within and between tows (note: confirm if there is already a study working on it.). Use this preliminary information to evaluate the feasibility of using larval collections as juvenile samples. This task has financial implications.
6. Increase current (2024) sampling efforts focusing on larvae and juveniles (identify high yield, highly mixed areas and established sampling programs), ensuring that new larval samples will follow protocols that allow them to be used for CKMR (see 2023 larval workshop report). Priority is given to first collect juveniles, as those samples can be directly compared with future catches of mature fish to identify parent-offspring pairs. This task has financial implications.

7. Evaluate whether the existing samples and data can be used to evaluate hypotheses related to CKMR spatial structure. [GBYP consortium].
8. Identify suitable candidate fisheries (high yield) and field test protocols for CKMR. If possible, simulation tests alternative designs (assuming abundance and reproduction scenarios from the last assessment) to identify those that are expected to meet a minimum number of parent-offspring matches. The full CKMR study should not commence before confirming realistic and feasible sampling options.
9. Launch a Call for a model-based sampling design for EBFT CKMR [GBYP]. In order to draft the final feasibility study, including not only sampling design but a complete work-plan, with cost estimates, to be presented in September 2024 to SCRS and Commission. It has financial implications.

Tasks for 2025

10. Archiving of larvae and adult samples in a GBYP tissue bank until funds can be obtained to genotype.
11. Explore the feasibility of obtaining additional larval collections in other spawning areas besides the Gulf of Mexico and Balearic Islands.
12. Identify funding opportunities for the implementation of the proposal of CKMR for EBFT, once it has been approved.