**SHORT-TERM CONTRACT FOR MODELLING APPROACHES: SUPPORT TO BFT**

**ASSESSMENT (GBYP 07/2017) OF THE ATLANTIC-WIDE RESEARCH PROGRAMME ON**

**BLUEFIN TUNA (ICCAT-GBYP – Phase 8)**

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**Progress Report 8** (April 20 – June 5 2018)

**Executive summary**

MSE development over the last two months has focused on the feedback obtained at the 2018 ICCAT bluefin tuna species group MSE intersessional meeting, April 16-20, 2018 (the ‘MSE intersessional’). There are two principal areas to be reported on:

1. The majority of the changes requested have been implemented.
2. A critical need to re-evaluate the stock of origin data (genetics and otolith microchemistry) became apparent following the MSE intersessional following concerns over overestimation of stock mixing. This feedback required a detailed data summary and the application of a new mixture modelling approach (Appendix A).
3. The trial specifications document has been updated to reflect changes outlined at the MSE intersessional meeting (Appendix B).
4. Final OM fitting must wait for approval of the stock-of-origin data that are pivotal in determining model estimates of stock size and mixing.

**Progress in current contract since April 20th 2018**

**Table 1.** Changes arising from MSE intersessional. Red items have yet to be included, yellow items have been included but not tested, green items have been included and fully tested

|  |  |
| --- | --- |
| **SUGGESTED CHANGE** | **IN ABT-MSE V2.9?** |
| **Data** |  |
| Reinterpretation of genetics and otolith microchemistry data |  |
| Split French aerial survey index |  |
| Add US RR > 177 index |  |
| Include JPN LL GOM 1974-1981 |  |
| Remove Canada combined index, replace with SWNS and GSL |  |
| All indices start in 1975 |  |
| Indices provided to MPs for years before 1975 |  |
|  |  |
| **Observation model** |  |
| Indices are y-2 lagged, Catches are y-3, Catches in TAC y-2/y-1 are the TAC |  |
| Include Canada acoustic index as a western projected index |  |
|  |  |
| **OM calculations** |  |
| Revisit BMSY calculation in light of R0 estimation and stock-recruit models |  |
| Dynamic B0 calculation |  |
| Dynamic BMSY calculation |  |
| Dynamics B0/BMSY plots |  |
| Add update interval to OM object |  |
| Beverton-holt stock recruitment model included |  |
| Hockey-stick stock recruitment model included |  |
| Stock recruitment shift model (BH – HS, BH(low) – BH(high)) |  |
|  |  |
| **OM fitting** |  |
| Move final year to 2016 or 2017 | CATDIS to 2015 only |
| Investigate 7-area model |  |
| Correctly account for autocorrelation in index fitting |  |
|  |  |
| **Robustness OMs** |  |
| Split Med larval |  |
| 2% fishing efficiency gain for CPUE indices |  |
| Increasing gravity in GSL |  |
|  |  |
| **Automatic reports / plotting** |  |
| Index fit – AC report |  |
| Stock mixing plot |  |
| Historical SSB depletions (ie including the SRA phase) |  |
| Dynamic B0-BMSY plots |  |
| Like-with-like length composition plots |  |
| Cryptic biomass diagnostics |  |
| Create an automatic Candidate MP performance report |  |
| Various scale and labelling bugs (e.g. Shuya y-axis scale issues) |  |
| Average annual yield – negative only edition |  |
|  |  |
| **Trial specifications document** |  |
| Update to reflect MSE intersessional changes |  |
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