Evaluating Management Strategies for Atlantic Bluefin Tuna
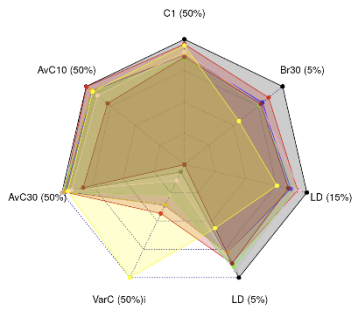
Interim report (Phase 11)

July 21st 2022

SHORT-TERM CONTRACT FOR THE
MODELLING APPROACHES: SUPPORT TO BLUEFIN TUNA STOCK ASSESSMENT
(GBYP 01/2022) OF THE ATLANTIC-WIDE RESEARCH PROGRAMME FOR BLUEFIN TUNA (ICCAT
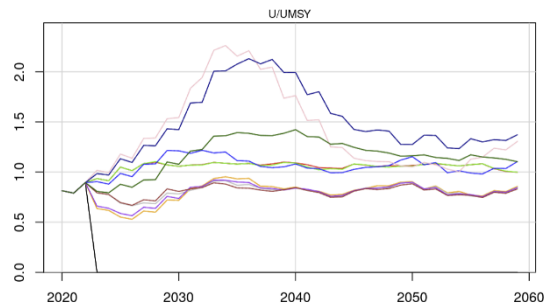GBYP – Phase 11)

	C1 (50%)	AvC10 (50%)	AvC30 (50%)	VarC (50%)	LD (5%)	LD (15%)	Br30 (5%)
AI2a	2.82	3.03	2.77	16.43	0.32	0.53	0.63
BR2a	2.71	3.02	2.72	12.61	0.28	0.49	0.54
FX2a	2.37	2.85	2.75	14.3	0.29	0.48	0.47
FZ2a	2.47	2.85	2.69	13.37	0.25	0.46	0.5
FO2a	2.41	2.84	2.77	14.29	0.3	0.48	0.48
FY2a	2.48	2.88	2.72	13.39	0.25	0.45	0.49
LW2a	2.53	2.68	2.56	15.63	0.28	0.5	0.49
PW2a	2.42	2.37	2.29	17.11	0.28	0.45	0.49
TC2a	2.68	2.83	2.64	6.71	0.18	0.4	0.35

CMP	West					East					Tot
	PGK (Mean)	AvC10 (50%)	AvC30 (50%)	VarC (50%)	LD (15%)	PGK (Mean)	AvC10 (50%)	AvC30 (50%)	VarC (50%)	LD (15%)	
BR2a	0.63	3.02	2.72	12.61	0.49	0.78	40.9	32.65	16.56	0.66	0.26
AI2a	0.58	3.03	2.77	16.43	0.53	0.71	41.16	37.62	16.17	0.65	0.27
PW2a	0.67	2.37	2.29	17.11	0.45	0.74	35.36	29.93	13.27	0.6	0.44
LW2a	0.59	2.68	2.56	15.63	0.5	0.72	34.63	30.27	17.21	0.6	0.46
FZ2a	0.63	2.85	2.69	13.37	0.46	0.67	37	30.29	11.87	0.43	0.49
FX2a	0.62	2.85	2.75	14.3	0.48	0.64	38.03	30.96	13.97	0.47	0.5
FO2a	0.62	2.84	2.77	14.29	0.48	0.64	37.37	30.46	13.93	0.47	0.5
FY2a	0.62	2.88	2.72	13.39	0.45	0.66	37.24	30.5	11.89	0.42	0.55
TC2a	0.61	2.83	2.64	6.71	0.4	0.73	33.43	29.21	6.18	0.54	0.58

https://apps.bluematterscience.com/ABTMSE_Performance2

https://apps.bluematterscience.com/ABTMSE_Performance

https://apps.bluematterscience.com/ABTMSE 'Fproj'

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1   Progress with respect to tasks and deliverables

All contracted deliverables were completed on time (Table 1).

In this 6-month contract, many more extra-contract requests were made by the group than were included in the contract itself (Table 2). Since the MSE framework and CMP adoption is in the final stages it was necessary to address these various requests to maintain momentum. As instructed by the MSE chair (D. Butterworth), in order to accommodate this extra work, unnecessary duplication was avoided. For example, where deliverables required results to be written up in SCRS papers instead only the presentation of the results were provided.

The exception to this was Deliverable 10 regarding the specification and fitting of operating models. Of the 11 robustness tests (44 OMs in total) all were completed except for 1 (4 OMs) – the non-linear indices OM would not converge and an alternative is being investigated where only future changes in index linearity are simulated.

Table 1. Status of 2022 (January – June) contract tasks/activities. Green denotes a completed task. Appendices available [here](#).

#	Deadline	Deliverable	Status
1	15 February 2022	Presentation on updated TC, AI and SP CMPs.	**Appendix A**
2	15 February 2022	Updated Shiny App with preliminary results	**Appendices B - D**
3	15 February 2022	A presentation on MSE contractor progress.	**Appendix A**
4	1 March 2022	A draft SCRS paper describing the newly configured SP, AI and TC CMPs and a summary of their performance and trade-offs	**Appendix E**
5	1 March 2022	A draft SCRS paper summarizing the performance of all submitted CMPs to date including trade-offs among performance metrics and across stocks	**Appendix E**
6	1 March 2022	A presentation accompanying CMP performance paper above	**Appendix E**
7	1 March 2022	Revised shiny app including latest CMP results	**Appendices B - D**
8	3 May 2022	A presentation of latest developments in robustness OMs	**Appendix F**
9	3 May 2022	A presentation including straw-dog examples of CMP comparison tables and figures	**Appendices C, D, G**
10	3 May 2022	Revised shiny app including latest CMP results	**Appendices B - D**
11	3 May 2022	Updated Trial Specifications document	**Appendix G**

Table 2. Additional non-contracted tasks (January – June). Appendices available [here](#).

#	Non contract product	
1	Working paper and presentation on the issues of FMSY related metrics for mixed stock fisheries	Appendices I & J
2	New shiny app with interactive performance summary tables	Appendix C
3	New shiny app with default formatting of primary and secondary performance summary tables	Appendix D
4	CMP summary description table	Appendix K
5	Working paper and presentation on a proposed F metric for calculation of overfishing metrics	Appendices L & M
6	A presentation accompanying CMP performance paper above	Appendix E
7	Revised shiny app including latest CMP results	Appendices B - D
8	Summary of Indices and TACs for recent years	Appendix N

9	Annotated description of how performance metrics are calculated	Appendix O
10	Animation of how a responsive CMP operates	Appendix P
11	Summary tables of area biomass composition and stock mixing	Appendix Q
12	Mid-meeting (April) update of CMP results following definition of new metrics and rebuilding of package / CMP tuning	Appendix R
13	Pre-meeting (June) update of CMP results following definition of new metrics and rebuilding of package / CMP tuning	Appendix S
14	Presentation of in – meeting (April) requests	Appendix T
15	Presentation of in – meeting (May) requests	Appendices U – W
16	Ordered table of OM depletion levels in 2019	Appendix X
17	Time series plots of F-metrics over time	Appendix B ('Proj F')
18	Updated ABT MSE splash page	Appendix Z

2 Acknowledgments

3 Appendices (available [here](#))

Appendix A - Preliminary CMP results_Feb_14_2022_v3.pptx
Appendix B - https://apps.bluematterscience.com/ABTMSE/
Appendix C - https://apps.bluematterscience.com/ABTMSE_Performance/
Appendix D - https://apps.bluematterscience.com/ABTMSE_Performance2/
Appendix E - Updated CMP results_May_03_2022_v2.pptx
Appendix F - Preliminary CMP results_Apr_05_2022_v1.pptx
Appendix G - Straw Dog Quilt Plot REV2.docx
Appendix H - BFTMSE_TSD22-01_25Apr2022.docx
Appendix I - Complications FMSY Atlantic bluefin v5.docx
Appendix J - FMSY-based performance metrics v2.pptx
Appendix K - CMP Overview.docx
Appendix L - F metric proposal v4.docx
Appendix M - F based metric_Apr_05_2022_v1.pptx
Appendix N - Indices and TACs as of 9 Mar 2022 TC2.docx
Appendix O - Performance metrics newLD.jpg
Appendix P - Responsive_MP.gif
Appendix Q - Summary tables of biomass composition and mixing.pptx
Appendix R - Updated_CMP_results_Apr_25_2022_v2.pptx
Appendix S - Updated CMP results_June_13_2022_v4.pptx
Appendix T - April Day 1 requests.pptx
Appendix U - May Day 1 requests.pptx
Appendix V - May Day 2 requests.pptx
Appendix W - May Day 3 requests v2.pptx
Appendix X - Ordered table of OM MLE depletion levels in 2019.docx
Appendix Y - Atlantic Bluefin Tuna MSE (iccat.github.io)