SELECTING AN OM FOR ABFT MP DEVELOPMENT TUNING

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SUMMARY

An initial suggestion is put forward for an Operating Model (OM) to be used for development tuning. This is based on ordering median Br30 performance statistics for two CMPs applied to the 96 OMs of the interim grid of OMs. An OM is sought for which Br30 is near to the median value for all the OMs – this both for the Eastern and Western stocks, and for the two CMPs considered. The OM put forward on this basis is OM1.

RÉSUMÉ

Une première suggestion est faite pour un modèle opérationnel (OM) à utiliser pour le calibrage du développement. Cette proposition est basée sur le classement de la médiane des statistiques de performance de Br30 pour deux CMP appliquées aux 96 OM de la grille provisoire des OM. Un OM pour laquelle Br30 est proche de la valeur médiane de tous les OM, tant pour les stocks de l'Est et de l'Ouest que pour les deux CMP considérées. Le OM proposé sur cette base est OM1.

RESUMEN

Se presenta una sugerencia inicial para usar un Modelo operativo (OM) en la calibración del desarrollo. Esto se basa en ordenar la mediana de las estadísticas de desempeño de Br30 para dos CMP aplicados a los 96 OM de la matriz provisional de OM. Se busca un OM para el que Br30 esté cerca del valor de la mediana para todos los OM - tanto para el stock oriental como para el occidental y para los dos CMP considerados. En base a esto, el OM presentado es OM1.

KEYWORDS

Management Strategy Evaluation, Candidate Management Procedure, Operating Model grid, Atlantic bluefin tuna, tuning

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Introduction

Development tuning for CMPs is generally based on a single Operating Model (OM), as this makes application easier than having to carry out calculations and then weight in some manner across a number of OMs. Typically, this OM is chosen as one that is "central" across the reference set (grid) of OMs in terms of its productivity. In turn, this is judged by some longer-term depletion statistic for a given CMP, where one seeks an OM which is near the centre of the Reference Set (or "grid") of OMs, ordered in terms of this statistic.

Here we have chosen median Br30 as this depletion statistic. Even given this criterion, however, selection of the OM is not straightforward for two reasons:

- ABFT involves two stocks – Eastern and Western – and the ordering of OMs in terms of Br30 will likely differ between these two stocks; and

- the ordering may also differ somewhat amongst different CMPs.

A somewhat pragmatic approach is therefore required. Here we make use of two CMPs from different developers to move towards an initial proposal. These two CMPs are:

- « 0.75-0.75 » (described in Butterworth and Rademeyer, 2020); and

- MPx31 (Tom Carruthers).

Stochastic projections were carried out for all 96 OMs in the interim grid, under both these CMPs.

Results and Discussion

The median of the interim grid of the median Br30 values across the 96 OMs for the Eastern and Western stocks are shown below under both CMPs:

		"075-075"	MPx31
Br30 medians	Eastern	1.59	1.96
	Western	0.98	1.42

For each CMP and stock, the Br30 median values for each OM were compared to the overall median across all OMs, and OMs with a median within +-0.2 of the overall median were selected. The OMs, together with their median Br30 values, selected for each stock and CMP combination are shown in **Table 1.** The median Br30 values of the two OMs which are within +-0.2 of the overall median for all four combinations are highlighted in the Table; this is achieved by only two OMs: OM1 and OM48. OM1 corresponds to "L, --, MixI, A, R1" while OM48 corresponds to "L, ++, MixII, B, R3".

Our initial selection between these two is OM1, as we prefer not to choose an OM which involves an abrupt future regime shift which may have a large impact on behaviour.

Pending further wider discussion and more final selection, we have conducted some development tuning computations based on OM1.

Reference

Butterworth, and Rademeyer. 2019. Can the wide range of resource behaviours evident across the ABFT MSE interim grid of OMs be "tamed" by the feedback control provided by a CMP? SCRS/2019/130.

Table 1. OMs with their median Br30 values within +-0.2 of the overall Br30 median for each stock/CMP combination. The OMs which satisfy this criterion for all four combinations are highlighted.

"075-075"				MPx31			
	Eastern		Western		Eastern		Western
OM1	1.63	OM1	0.80	OM1	1.89	OM1	1.44
OM7	1.62	OM27	1.14	OM4	2.06	OM7	1.30
OM10	1.53	OM33	0.98	OM7	1.91	OM13	1.47
OM18	1.61	OM45	1.17	OM15	2.09	OM16	1.22
OM21	1.41	OM48	1.15	OM18	2.01	OM19	1.42
OM24	1.66	OM49	1.10	OM21	2.15	OM27	1.41
OM28	1.62	OM50	1.00	OM24	2.07	OM33	1.47
OM34	1.71	OM55	0.99	OM25	2.04	OM39	1.49
OM39	1.59	OM56	1.01	OM31	2.06	OM45	1.53
OM42	1.66	OM58	0.93	OM42	2.04	OM48	1.52
OM45	1.61	OM61	1.00	OM48	2.07	OM50	1.36
OM48	1.71	OM62	1.03	OM54	1.93	OM54	1.45
OM51	1.56	OM64	0.98	OM60	2.00	OM55	1.51
OM54	1.75	OM67	1.02	OM75	2.07	OM56	1.37
OM57	1.52	OM68	0.98			OM58	1.50
OM60	1.78	OM70	0.86			OM61	1.61
OM62	1.39	OM77	1.17			OM62	1.36
OM68	1.45	OM83	1.01			OM66	1.33
OM75	1.59	OM89	1.13			OM67	1.58
OM78	1.42	OM95	1.12			OM68	1.30
OM81	1.72					OM70	1.45
OM84	1.50					OM77	1.47
OM92	1.42					OM78	1.48
						OM83	1.32
						OM84	1.46
						OM87	1.58
						OM89	1.40
						OM95	1.39
						OM96	1.57