

UPDATES TO INDICES USED BY THE ADOPTED MANAGEMENT PROCEDURE FOR ATLANTIC BLUEFIN TUNA

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SUMMARY

Updates to the indices used in the Atlantic bluefin tuna management procedure were submitted for use in exceptional circumstances protocols. The submitted data were rescaled so that mean of data points prior to 2020 was the same as the previous data set used to tune the adopted management procedure.

RÉSUMÉ

Des actualisations des indices utilisés dans la procédure de gestion pour le thon rouge de l'Atlantique ont été soumises pour utilisation dans les protocoles de circonstances exceptionnelles. Les données présentées ont été remises à l'échelle afin que la moyenne des points de données antérieurs à 2020 soit la même que celle du jeu de données précédent utilisé pour calibrer la procédure de gestion adoptée.

RESUMEN

Se presentaron actualizaciones de los índices utilizados en el procedimiento de ordenación del atún rojo del Atlántico para su uso en protocolos de circunstancias excepcionales. Los datos presentados se reescalaron para que la mediana de los puntos de datos anteriores a 2020 fuera la misma que la del conjunto de datos anterior utilizado para ajustar el procedimiento de ordenación adoptado.

KEYWORDS

Management strategy evaluation, management procedure, exceptional circumstances protocols, data

1. Introduction

Management advice for 2023 was calculated using the adopted MP (Butterworth and Rademeyer, 2022) and 10 fishery-dependent and fishery-independent relative abundance indices that were available to 2021. To calculate advice for 2024, the index data were updated to include data points for 2022.

2. Methods

In 2021, candidate management procedures (CMPs) were designed and tuned using up to 10 fishery-dependent and fishery-independent relative abundance indices (Table 1). The indices were later updated before the final round of CMP performance evaluation in 2022. Several of the updated indices were provided on a different scale to the previous data used for designing and tuning CMPs.

To address this, each of the new updated indices were rescaled by a factor k , so that the mean of the data used in the MP and new indices were the same over their common years up to and including 2020:

$$k_i = \frac{\sum_{y=1965}^{2020} I_{MP,i,y}}{\sum_{y=1965}^{2020} I_{new,i,y}} \quad (1)$$

$$I_{ECP,i,y} = k_i I_{new,i,y} \quad (2)$$

where:

I is an index observation for series i (e.g., MED_LAR_SUV), in year y ;

MP are the indices used in the MP for calculating TAC advice in 2023;

new are the newly submitted indices for use in exceptional circumstances (**Tables 1 and 2**);

ECP are the newly submitted indices rescaled to have the same mean as those used in TAC calculations (**Table 3**).

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Post MP adoption, all ten indices were updated again to include data points that include 2022 and in the case of the Japanese longline indices these also include a data point for 2023. These indices were recalculated by index providers using approaches to ensure that any data points used in the provision of 2023 TAC advice remained the same or very similar.

Indices were once again rescaled using the approach above.

Only a single data point for 2022 was submitted for the FR_AER_SUV2 – it was assumed that earlier data were identical to those previously used in MP calculations.

3. Results

All of the newly submitted indices had historical observations with a trend that was either identical or very similar to previously submitted versions (Figure 1).

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References

Butterworth, D.S., Rademeyer, R. 2022. BR CMP as at June 2022. Collect. Vol. Sci. Pap. ICCAT, 79(3): 587-597.

Table 1. Details of updated indices (values of all indices are available in BFTEW_CPUE_19Sep2023.xlsx for Executive Summary).

<i>Index</i>	<i>Years</i>	<i>Reference for Method</i>	<i>Document No.</i>	<i>Location</i>	<i>Note</i>
FR_AER_SUV2*	'22	Rouyer T., Derridj O., and Fromentin J.M.	SCRS/2022/068	Table 1	strict updated value for 2022 by email to the Chairs
MED_LAR_SUV	'22	Alvarez-Berastegui D., Tugores M.P., Martín M., Torres, A.P., Santandreu M., Calcina N., Balbín R., and Reglero P.	SCRS/2023/158	Table 2	available 2023 fishing year value
JPN_LL_NEAt2	'22	Tsukahara Y., Fukuda H., and Nakatsuka S.	SCRS/2023/140	Table 4	
GBYP_AER_SUV_BAR	'22	Paxton C. G. M., Oedekoven C. , Burt L., Chudzinska M., Pilar Tugores Ferrà M., and Alvarez-Berastegui D.	https://www.iccat.int/GBYP/DOCS/Aerial_Survey_Phase_12_CREEM_Data_Analysis.pdf		strict updated values by email to the Chairs
MOR_POR_TRAP	'22	Lino P.G., Abid N., Malouli M.I., Bensbai J., and Coelho R.	SCRS/2023/147	Table 4	
GOM_LAR_SUV**	'21	Lauretta M., Walter J., and Ingram W.	SCRS/P/2018/055		the survey was not conducted in 2022
JPN_LL_West2	'22	Tsukahara Y., Fukuda H., and Nakatsuka S.	SCRS/2023/140	Table 5	available 2023 fishing year value
CAN_SWNS	'22	Hanke A.	SCRS/2023/135	Table 2	
US_RR_66_144	'22	Lauretta M., Walter J.F., and Brown C.	SCRS/2021/034	Table 5	strict updated values by email to the Chairs
MEXUS_GOM_PLL2	'22	Lauretta M., and Ramirez K.	SCRS/2022/160	Table 2	strict updated values by email to the Chairs

* Only a data point for 2022 was submitted, historical data were assumed to be identical to those used in the MP calculation of TAC for 2023.

** The boat was inoperable in 2022 - these data will not be available in the future.

Table 2. The indices provided for evaluating exceptional circumstances protocols (I_{new}). These indices are not rescaled to match the mean of previously submitted in 2021 for which the CMPs were tuned.

<i>Year</i>	<i>FR_AE</i> <i>R_SUV</i> 2	<i>MED_LA</i> <i>R_SUV</i>	<i>GOM_LAR</i> <i>_SUV</i>	<i>GBYP_AE</i> <i>R_SUV_B</i> <i>AR</i>	<i>MOR_PO</i> <i>R_TRAP</i>	<i>JPN_L</i> <i>L_NEA</i> <i>tl2</i>	<i>JPN_L</i> <i>L_West</i> 2	<i>CAN</i> <i>SWNS</i>	<i>US_RR_</i> <i>66_144</i>	<i>MEXUS_GO</i> <i>M_PLL</i>
2008		2.123	0.338					0.787	0.699	0.780
2009	0.018		0.607					1.170	0.574	0.660
2010	0.014		0.319	1659.0		2.208	0.543	1.330	0.893	0.470
2011	0.026	10.341	1.075	1392.0		3.761	1.850	1.103	0.780	0.920
2012	0.018	30.281	0.287		101.600	8.253	2.410	1.058	0.854	1.560
2013		46.630	0.975	2393.0	139.700	6.795	1.921	0.695	1.349	0.720
2014	0.063	23.304	0.273		68.800	7.773	2.064	0.883	0.831	1.310
2015	0.027	40.291	0.402	4766.0	106.300	6.204	1.301	0.971	0.388	1.970
2016	0.107	34.894	2.412		104.300	5.715	3.152	1.091	0.594	1.580
2017	0.069	81.647	0.987	9392.7	118.800	7.019	3.470	1.020	0.956	1.210
2018	0.031		2.008	15682.9	78.700	8.416	6.537	0.953	0.697	1.500
2019	0.063	51.394	1.522	13946.5	108.400	8.048	5.578	1.075	1.259	1.690
2020	0.136	114.129			113.000	5.939	4.198	1.310	1.750	1.340
2021	0.097		1.718	5700.7	172.000	6.119	3.590	1.412	2.199	1.790
2022	0.054	120.917		9234.4	144.800	4.697	3.519	1.362	1.042	2.320

Table 3. Rescaled indices of Table 2 according to Equation 2 (I_{ECP}).

<i>Year</i>	<i>FR_AE</i> <i>R_SUV</i> <i>2</i>	<i>MED_LA</i> <i>R_SUV</i>	<i>GOM_LAR</i> <i>_SUV</i>	<i>GBYP_AE</i> <i>R_SUV_B</i> <i>AR</i>	<i>MOR_PO</i> <i>R_TRAP</i>	<i>JPN_L</i> <i>L_NEA</i> <i>tl2</i>	<i>JPN_L</i> <i>L_West</i> <i>2</i>	<i>CAN</i> <i>SWNS</i>	<i>US_R</i> <i>R_66-</i> <i>144</i>	<i>MEXUS_GO</i> <i>M_PLL</i>
2008		1.777	0.426					1.449	0.679	0.778
2009	0.018		0.764					2.155	0.558	0.658
2010	0.014		0.402	1456.902		2.316	0.181	2.450	0.868	0.469
2011	0.026	8.659	1.353	1222.428		3.943	0.618	2.031	0.759	0.917
2012	0.018	25.355	0.362		93.389	8.654	0.805	1.949	0.830	1.555
2013		39.045	1.227	2101.487	128.409	7.125	0.642	1.280	1.311	0.718
2014	0.063	19.514	0.344	0.000	63.240	8.150	0.689	1.626	0.808	1.306
2015	0.027	33.737	0.506	4185.410	97.709	6.505	0.435	1.788	0.377	1.964
2016	0.107	29.218	3.037		95.870	5.993	1.053	2.009	0.577	1.575
2017	0.069	68.367	1.243	8248.497	109.198	7.360	1.159	1.879	0.929	1.206
2018	0.031		2.528	13772.422	72.339	8.824	2.183	1.755	0.677	1.495
2019	0.063	43.034	1.916	12247.577	99.639	8.438	1.863	1.980	1.224	1.685
2020	0.136	95.565			103.867	6.227	1.402	2.413	1.701	1.336
2021	0.097		2.163	5006.203	158.099	6.416	1.199	2.601	2.137	1.784
2022	0.054	101.249		8109.453	133.097	4.925	1.175	2.508	1.013	2.313

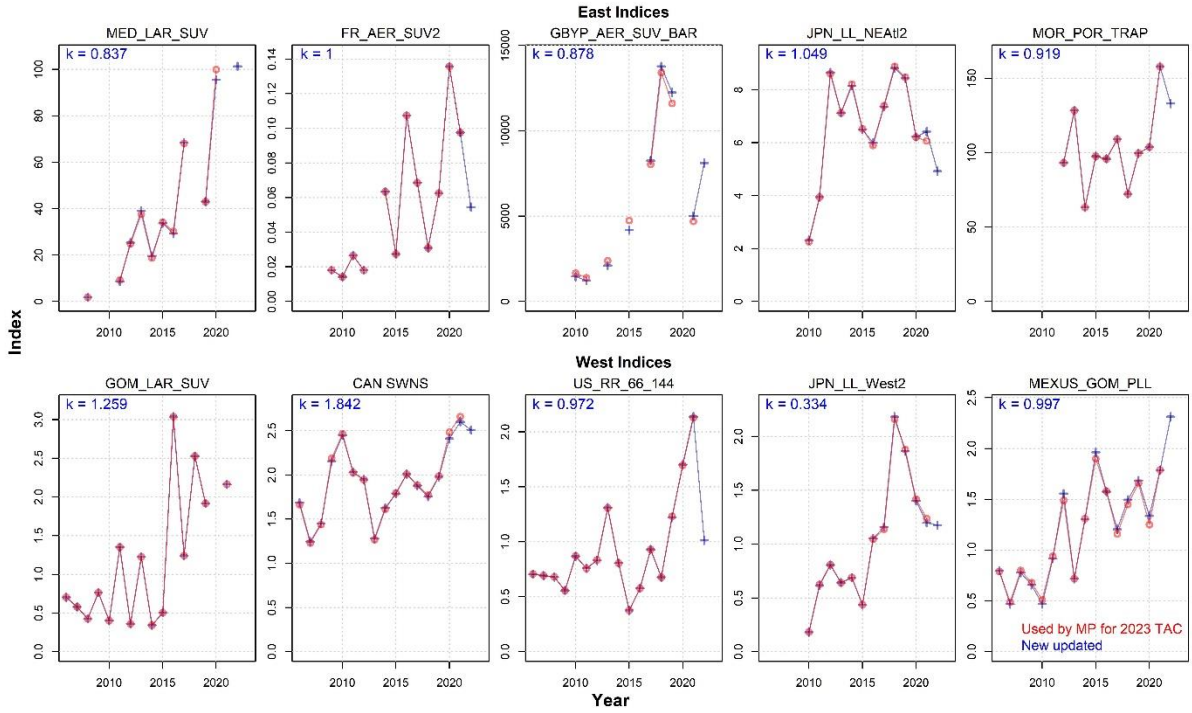


Figure 1. Comparison of previous indices used in MP calculations (red) and the new updated indices (blue, I_{ECP}) that were rescaled by the factor k .