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Proposal for a simple exchange format for age-length data of jack mackerel

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Summary

The process of combining age/length data for different countries and calculating a total age composition could be facilitated if all participants would send their length-at-age to a coordinator who is responsible for combing all data into one set of catch-at-age data. This document gives an example of a format in which length at age data could be exchanged prior to the meeting of the Science Committee in order to facilitate this process.

1 Introduction

Some of the most important data needed for stock assessment of jack mackerel are catches at age for the different fleets. So far these data are not included in the standard SPRFMO protocol for data exchange. In practice, members of the Science Committee bring national catch-at-age data with them to the meeting, and here the data of different countries are combined for the assessment. This extra work during the meeting delays the assessment. Ad hoc decisions have to be made during the meeting as to which age/length keys (ALKs) have to be used for the different countries. For some countries, no age/length data are available, and ALKs for other countries have to be used. In other cases, the age/length data may be limited or unreliable, and in those cases it may also be advisable to use ALKs for other countries. These arbitrary decisions concerning the application of ALKs to the catch data of the various countries may have a strong effect on the estimated age composition of the total catch, and thereby on the results of the assessment. It is important, therefore, that these decisions are given sufficient thought and that they are properly documented.

The process of combining age/length data for different countries and calculating a total age composition could be facilitated if all participants would send their length-at-age data well before the meeting to a coordinator who is responsible for combing all data into one set of catch-at-age data for each of the four fleets used in the assessment. For countries and months for which no ALK is available, the coordinator would make an arbitrary choice as to which existing ALKs for other countries, areas or months he will use. The coordinator could then present a well documented proposal during the Committee meeting in which he presents his arguments for the combinations he has made. If the Committee would prefer other combinations of data, these could be instantly calculated, without delaying the assessment procedure.

This document gives an example of a format in which length at age data could be exchanged prior to the meeting of the Science Committee in order to facilitate this process.

2 Data and methods

The example presented here refers to the EU fleet in 2014. In this year, catches were made in May - October. Length distribution were available for each month, and age/length keys (ALKs) were available for each of the months of May - August.

Monthly catches were first converted into absolute numbers per length group, using the length samples and numbers per kg. These length distributions were then converted into age compositions, using the monthly ALKs. For the months of September and October, no ALKs were available, so for these catches the August ALK was used. This procedure was chosen because the fleet operated in the same area.

3 Results and Discussion

Table 1 provides as an example the ALK and length distribution for May 2014. This format could be used for the submission of age/length data by each country to the Science Committee. The ALK may be used to calculate the age composition of the catch in that particular month. In addition it may be used to calculate the mean length for each age group, and to construct a length/age relationship for that month and area.

Figure 1 shows the length/age relationship for each of the months of May - August. It is seen that the graphs for the various months nearly coincide, except for the month of August. Here the length for ages 2-6 was slightly lower than for the other months. The results show that in the area where the EU vessels operated between May and July the ALKs for the individual months could be combined, giving an age/length key based on more observations and thus with a greater precision. In August the fish were smaller for their age, at least for the youngest age groups. This was probably due to the fact that the vessels in this month had moved north of the Juan Fernández Islands where they were exploiting a different component of the stock. In this case, the ALK cannot be combined with those of other months.

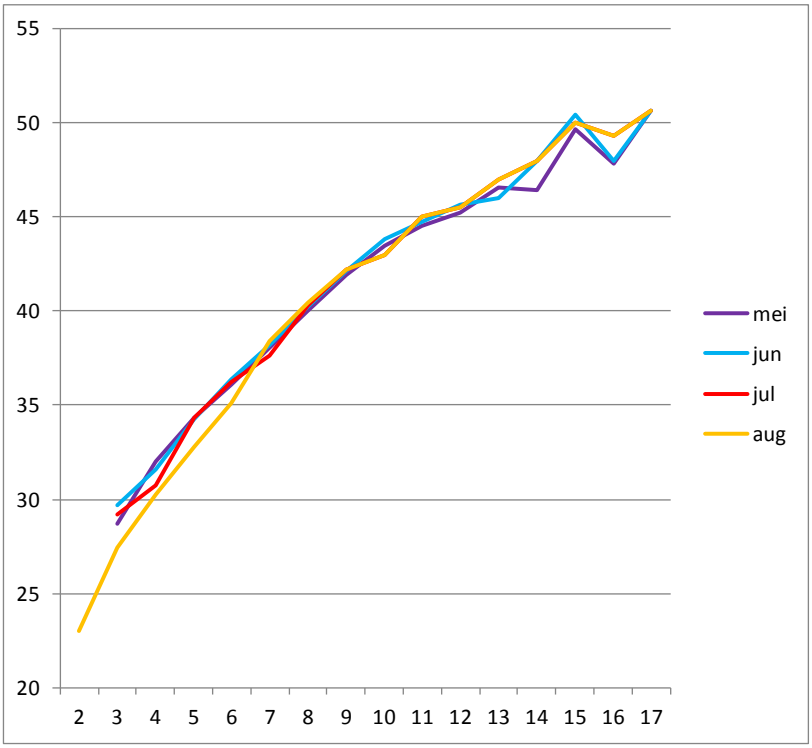

Figure 1. age/length relationship for EU catches in different months in 2014

MAY 2014			age																		
EU fleet 40-44°S	Fork Length	catch in numbers x 1000	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX
	28	10.882		4	1																
	29	19.809		5	1		1														
	30	13.731		1	4																
	31	1.712			2																
	32	34.300			9																
	33	247.101			11	17															
	34	326.291			1	38	4														
	35	475.845				18	31														
	36	648.739			1	11	69	7													
	37	551.316				2	33	43	1	1											
	38	374.926					12	55	9												
	39	269.994						30	24	2											
	40	178.288						15	35	3											
	41	145.958						2	11	21	2										
	42	103.456						1	11	21	4	2									
	43	79.490							3	15	11	1	1								
	44	85.865							1	9	13	9	1								
	45	81.266									4	9	13	1	1		1				
	46	60.519									1	2	2	6	2	1	1				
	47	28.799											3	4	1						
	48	32.836										1		2	1	3	2	1			
	49	5.879															2	2			
	50	7.553														2	1				
	51	4.307														1		1			
	52	0.232																1			
	53	1.695														2					
	54	0.232																			1
	55	0.394																1			
total		3791.414		10	30	86	150	153	95	72	35	24	20	13	5	9	7	6			1
weight (tons)		2443																			
mean weight (kg)		0.644																			

Table 1. Example of exchange format for age/length data