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Comparison of USSR and Canadian Estimates of  
Silver Hake Ageing

by

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Introduction

Estimates of the age of silver hake from interpretation of otoliths have been used to partition commercial catches into yearclasses. Independent ageing by Soviet and Canadian has resulted in differing estimates of age composition and, to identify sources of disagreement, otolith samples have been exchanged on a regular basis since 1982. The present study reports on the exchange of samples collected in 1984.

Methods

A total of 100 otoliths were collected by the USSR in August of 1984 and stored in glycerin. Ages were assigned by Soviet readers and the sample given to a Canadian representative for ageing. Ages were assigned by the author without prior knowledge of the USSR ages using accepted conventions.

Results

Otoliths were received in March 1985 and ageing completed in one day. All otoliths were judged to be of good quality and could be assigned an age without difficulty. Ages in the sample ranged from 1 to 10+ years and length from 17 to 52cm.

Initial agreement between the two independent estimates of age was 74% and otoliths with differing age were re-examined by the author. A total of 8 were changed to agree with the Soviet interpretation bringing the final agreement to 82%. Changes were made to the initial interpretation in the case of otoliths assessed to be difficult to assign an age to and for which the author felt either the USSR or Canadian age could be correct. Of the remaining 18 disagreements, 3 were aged one more by the author, 14 one less and one 2 years less, relative to Soviet ages. The re-examination identified the source of disagreement, in the author's opinion, as edge type and checks. Inclusion of the edge as the last annulus accounted for six disagreements and interpretation of checks for twelve. Fish length, weight, sex and age for the exchange sample are given in Table 1. A trend for Soviet ages to be higher than Canadian was noted and results are summarized in Table 2. An age length key, using only ages with agreement between the two readers, is shown in Table 2.

Conclusions

Comparison of independent estimates of age suggests good agreement between Canadian and Soviet age readers and a level of 82% is within expected inter-reader agreement. This level of agreement is consistent with results of earlier exchanges of otoliths. In seven (39%) of the disagreements, interpretation of the edge was a factor and it appeared the Soviet reader assessed the edge to be and annulus even though the sample was collected in August when summer growth would be expected.

The apparent bias for the Soviet reader to estimate fish to be older, relative to Canadian ages, could result in discrepancies in estimates of catch composition for 1984. Considering the small amount of time required to age the sample of 100 otoliths and the requirement to monitor ageing between the USSR and Canadian, it is suggested that exchanges of ageing material continue and the number of otoliths could be increased to provide a better assessment of agreement.



Table 2. Comparison of estimates of age of silver hake by USSR and Canadian age readers in 1984.

Age	USSR Age										Totals		Difference
	1	2	3	4	5	6	7	8	9	10+	CDN	USSR	
1	12	-	-	-	-	-	-	-	-	-	12	12	0
2	-	10	-	-	-	-	-	-	-	-	10	10	0
C a n a d i a n	3	-	-	28	4	-	-	-	-	-	32	28	+4
	4	-	-	-	16	5	-	-	-	-	21	21	0
A g e	5	-	-	-	1	4	1	-	-	-	6	11	-5
	6	-	-	-	-	2	9	3	1	-	15	10	+5
7	-	-	-	-	-	-	2	1	-	-	3	5	-2
8	-	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-	-
10+	-	-	-	-	-	-	-	-	-	1	1	1	0
Total	12	10	28	21	11	10	5	2	0	1	100	100	-

Overall agreement..... 82%  
 One year less..... 3%  
 One year more..... 14%  
 Two years more..... 1%

Table 3. Age length key for silver hake using agreed USSR and Canadian ages

Length	Age										Total	
	1	2	3	4	5	6	7	8	9	10+		
17cm	2											2
18	3											3
19	3											3
20	2											2
21	1											1
22	1											1
23												-
24												-
25	1											1
26	3											3
27	3	4										7
28	3	5										8
29	4											4
30	6											6
31	7											7
32	1	2										3
33	1	4	1									6
34		10	1									11
35			1									1
36			1									1
37												-
38					1							1
39					2							2
40					1							1
41					3							3
42						1						1
43					1							1
44					1	1						2
..												
52										1		1
Total	12	10	28	16	4	9	2	-	-	1		82

