

**Fishery Report: Closed fishery for *Dissostichus* spp. (TOT)  
in Divisions 58.4.4a and 58.4.4b**

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Throughout this report the CCAMLR fishing season is represented by the year in which that season ended, e.g. 2012 represents the 2011/12 CCAMLR fishing season (from 1 December 2011 to 30 November 2012).

## **FISHERY REPORT: CLOSED FISHERY FOR *DISSOSTICHUS* SPP. (TOT) IN DIVISIONS 58.4.4a AND 58.4.4b**

### **1. Details of the fishery**

1. The longline fishery for *Dissostichus* spp. in Divisions 58.4.4a and 58.4.4b<sup>1</sup> began as a new fishery in 1998 Conservation Measure (CM) 138/XVI. These divisions were managed as a single area and a catch limit for *Dissostichus* spp. applied to fishing north of 60°S, and in waters outside areas of national jurisdiction<sup>2</sup>. Following the Commission's recognition that high levels of illegal, unreported and unregulated (IUU) fishing for *Dissostichus* spp. in the Convention Area had rendered it unrealistic to consider this fishery as 'new' (CCAMLR-XVIII, paragraph 10.14), the fishery was reclassified as exploratory in 1999. In 1999 the divisions were subdivided into small-scale research units (SSRUs) A, B, C and D (Figure 1).

2. In 2002, the Commission expressed concern regarding the low levels of stocks of *Dissostichus* spp. in Divisions 58.4.4a and 58.4.4b and the high levels of IUU fishing in that region (CCAMLR-XXI, paragraph 11.36). Consequently, the Commission prohibited directed fishing for *Dissostichus* spp. in these divisions and the fishery for *Dissostichus* spp. was closed (CM 32-10). The Commission agreed that such prohibition shall apply at least until further scientific information is gathered and reviewed by the Scientific Committee and WG-FSA.

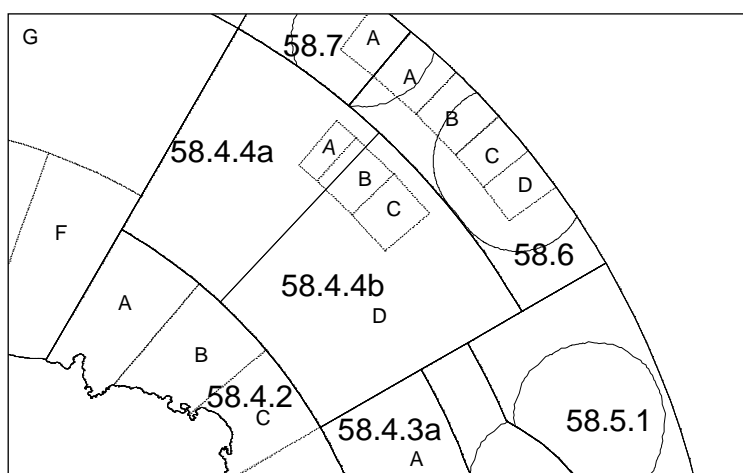


Figure 1: General map of Divisions 58.4.4a and 58.4.4b and location of SSRUs A, B, C and D.

### **1.1 Reported catch**

3. Two licensed longline vessels operated in the exploratory fishery for *Dissostichus* spp. in Divisions 58.4.4a and 58.4.4b in 2000 and reported a total catch of 156 tonnes of *D. eleginoides* (Table 1a). In the following season, a single vessel fished briefly, reporting a

<sup>1</sup> In 1995, Division 58.4.4 was subdivided into Division 58.4.4a (Ob Bank) and Division 58.4.4b (Lena Bank) (SC-CAMLR-XIV, Annex 5, paragraph 5.175).

<sup>2</sup> The South African EEZ at Prince Edward and Marion Islands extends into the northern part of Division 58.4.4a.

total catch of 8 tonnes of *D. eleginoides*. The fishery was closed in December 2002 (CM 32-10). Most of the reported catch of *D. eleginoides* was taken in SSRUs A and D (Table 1b).

4. Since 2008 a Japanese-flagged longliner has conducted research fishing in accordance with a research plan submitted under CM 24-01 (Tables 1a and 1b).

Table 1(a): Catch history for *Dissostichus* spp. in Divisions 58.4.4a and 58.4.4b. Catch limits are for both divisions combined, and apply to the north of 60°S. (Source: STATLANT data for past seasons, and catch and effort reports for current season, past reports for IUU catch.)

Season	Regulated fishery							Estimated IUU catch (tonnes)	Total removal (tonnes)
	Effort (number vessels)	Catch limit (tonnes)	<i>Dissostichus</i> spp.				Total		
			Reported catch (tonnes)						
			Division 58.4.4a		Division 58.4.4b				
		<i>D. eleginoides</i>	<i>D. mawsoni</i>	<i>D. eleginoides</i>	<i>D. mawsoni</i>				
1997	0	-	0	0	0	0	0	375	375
1998	0	580	0	0	0	0	0	1 298	1 298
1999	0	572	0	0	0	0	0	1 519	1 519
2000	2	370	84	0	72	0	156	1 254	1 410
2001	1	370	4	0	4	0	8	1 247	1 255
2002	0	103	0	0	0	0	0	880	880
2003	0	closed	0	0	0	0	0	110	110
2004	0	closed	0	0	0	0	0	0	0
2005	0	closed	0	0	0	0	0	220	220
2006	0	closed	0	0	0	0	0	104	104
2007	0	closed	0	0	0	0	0	109	109
2008	1	closed (80)*	18	0	58	<1	77	0	77
2009	0	closed	0	0	0	0	0	0	0
2010	1	closed (60)*	9	0	50	0	59	80	139
2011	1	closed (55)*	0	0	35	0	35	**	35
2012	1	closed (70)*	0	0	28	0	28	**	28

\* Research fishing permitted in accordance with CM 24-01. Research catch limits in brackets.

\*\* Not estimated.

Table 1(b): Catch (tonnes) of *Dissostichus* spp. in Divisions 58.4.4a and 58.4.4b reported by SSRU. (Source: fine-scale data pro-rated by total reported catch in Table 1(a).)

Season	<i>D. eleginoides</i>				<i>D. mawsoni</i>			
	A	B	C	D	A	B	C	D
2000	84	5	14	53				
2001	4	4						
....								
2008	19	11	21	26				<1
2010	9	20	16	14				
2011		16	19					
2012		9	19					

## 1.2 IUU catch

5. Information on IUU activities indicated high levels of IUU fishing, and the estimated annual catch of *Dissostichus* spp. exceeded 1 000 tonnes in each season between 1998 and 2001 (Table 1a). An estimated total of 7 116 tonnes of *Dissostichus* spp. has been removed by IUU fishing. There was no evidence of IUU fishing in 2004, 2008 and 2009. The estimated IUU catch for 2010 was 80 tonnes in Division 58.4.4a. The IUU catch of *Dissostichus* spp. in 2011 and 2012 was not estimated (SC-CAMLR-XXIX, paragraph 6.5).

## 1.3 Size distribution of catches

6. Most *D. eleginoides* caught in the fishery and during research fishing ranged from 50 to 100 cm in length in Division 58.4.4a and from 70 to 120 cm in Division 58.4.4b (Figure 2). These length-frequency distributions of catches are unweighted and the interannual variability shown in the figure may reflect differences in the fished population but are also likely to be biased by changes in factors such as the characteristics/number of vessels in the fishery and the spatial and temporal distribution of fishing.

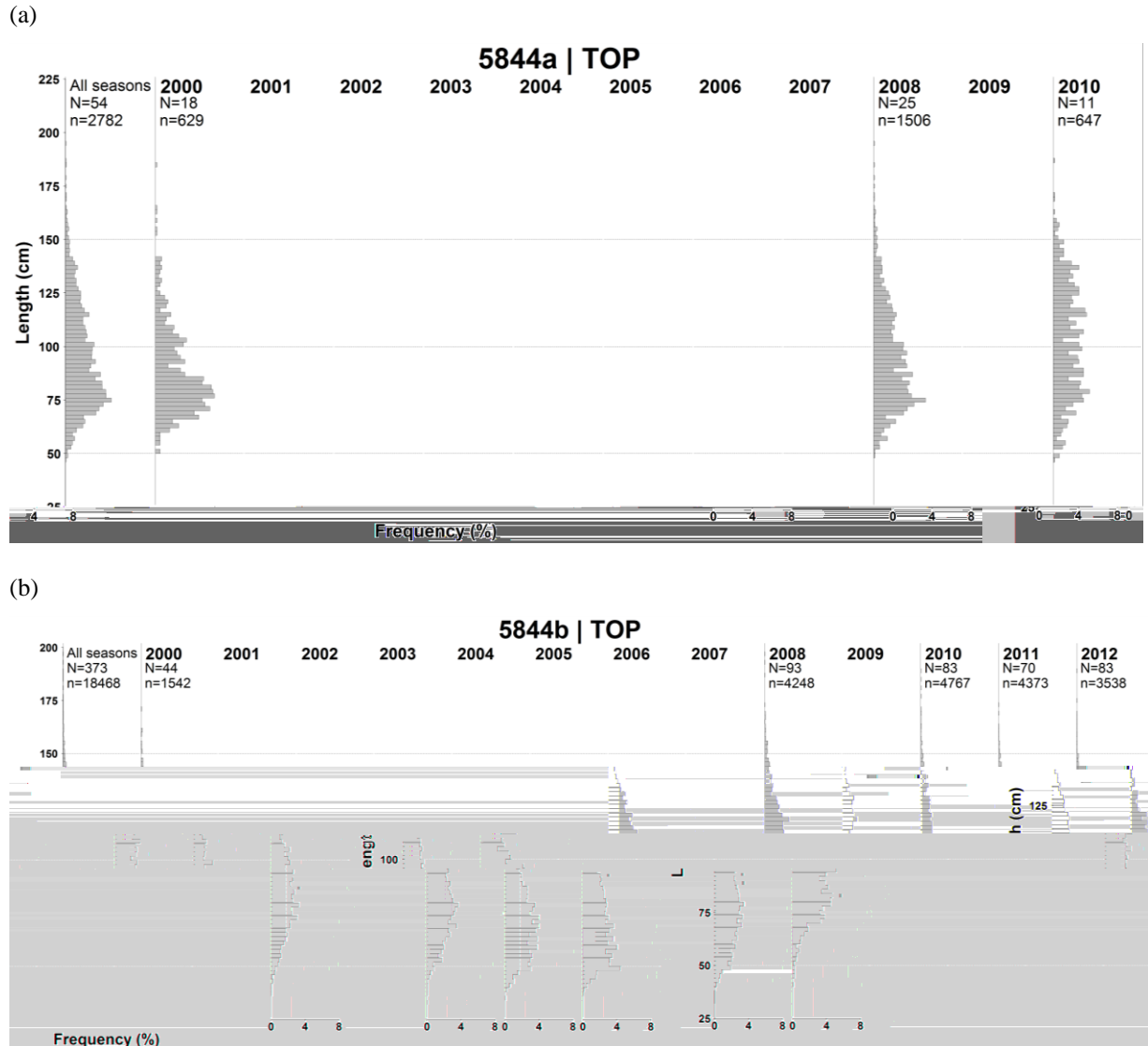


Figure 2: Length frequencies for *Dissostichus eleginoides* (TOP) in (a) Division 58.4.4a and (b) Division 58.4.4b from 2000 to present using observer data. The number of hauls (N) and the number of fish measured (n) in each year are given at the top of each panel.

## 2. Stocks and areas

7. No data are available on the stock structure of fish in this fishery.

## 3. Parameter estimation

### 3.1 Observations

8. Individual *D. eleginoides* were tagged and released by a Japanese-flagged vessel conducting research fishing in Divisions 58.4.4a and 58.4.4b in 2008, 2010 and 2011 (Table 2). A total of 941 *D. eleginoides* have been tagged and released, and eight fish have been recaptured.

Table 2: Details of research survey effort and tagging in Divisions 58.4.4a and 58.4.4b beginning in 2007/08.

Season	Sets	Catch (tonnes)	Number tagged				Total	Tagging rate	Tag- overlap statistic	Number recaptured	Rajids tagged
			SSRU A	SSRU B	SSRU C	SSRU D					
2008	118	77	64	73	72	71	280	3.6	51–59	0	0
2009											
2010	94	59	40	115	76	69	300	6.1	100	1	19
2011	70	35		88	101		189	5.3	95	4	0
2012	70	28		77	95		172	6.1	82	3	0

9. A sample of otoliths collected in 2008 has been aged and results reported in WG-FSA-11/16. Ages of 214 otoliths (of 3 013 fish sampled) ranged from 4 to 48 years for females and from 5 to 48 years for males (Figure 3). These ages may be overestimated by one year due to an interpretation issue concerning the location of the first annulus.

### 3.2 Fixed parameter values

10. WG-FSA-11/16 calculated von Bertalanffy growth curves fitted to the estimated age and length data (Figure 3).

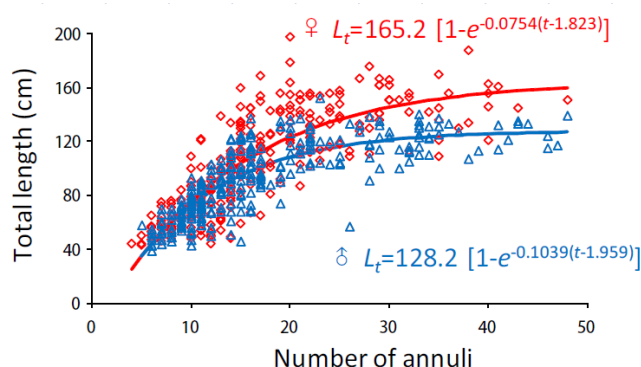


Figure 3: Estimated von Bertalanffy growth curves and parameter values for male (triangles) and female (diamonds) *Dissostichus eleginoides* ( $N = 214$ ) sampled in Divisions 58.4.4a and 58.4.4b in 2008. Figure reproduced from WG-FSA-11/16.

## 4. Stock assessment

11. Cumulative numbers of tags and recaptures (i.e. using all four tag-recaptures in 2011 from the pooled total of available fish tagged between 2008 and 2010) were used to generate a Petersen biomass estimate of 1 928 tonnes for Division 58.4.4a and 58.4.4b.

12. GYM scenarios were run from 2010 (SC-CAMLR-XXIX, Annex 8, paragraph 5.117) and estimated the likely trajectory of a *D. eleginoides* stock that had been (i) at a median SSB

of 20%  $SSB_0$  in 2006 (when the fishery in Ob and Lena Banks was closed), or (ii) was at a median  $SSB$  of 20% in 2009. These scenarios were rerun in 2011 (including the catch of 35.4 tonnes taken in the most recent survey by the Shinsei Maru No. 3) to estimate status in 2011 and corresponding constant catch rates under which the stock was expected to recover to 50%  $B_0$  within two decades from the date of the fishery closure (as in WG-FSA-10/42). Under the first scenario, the median current status was estimated to be 36.5%  $SSB_0$  in 2010, and the corresponding precautionary research catch was 1.25%  $B_0$ , or 115 tonnes per year. Under the second scenario, the median status was estimated to be 23%  $SSB_0$  in 2010, and the corresponding precautionary research catch was 0.074%  $B_0$ , or 58 tonnes per year. The Working Group noted that the actual current status of the stock was unknown, but these scenarios were thought to be conservative.

## 5. By-catch of fish and invertebrates

### 5.1 By-catch removals

13. Catches of by-catch species groups (macrourids, rajids and other species) reported in fine-scale data, their respective catch limits, and number of rajids released alive are summarised in Table 3.

Table 3: Catch history for by-catch species (macrourids, rajids and other species), catch limits and number of rajids released alive in Divisions 58.4.4a and 58.4.4b combined. Catch limits are for both divisions combined (see CM 33-03 for details). The fishery for *Dissostichus* spp. in these divisions was closed in 2002. MoR: Move-on rule only applied. (Source: fine-scale data.)

Season	Macrourids		Rajids			Other species	
	Catch limit (tonnes)	Reported catch (tonnes)	Catch limit (tonnes)	Reported catch (tonnes)	Number released	Catch limit (tonnes)	Reported catch (tonnes)
1997	50		50			50	
1998	50		50			50	
1999	50		50			50	
2000	MoR	14	50	<1	0	50	<1
2001	MoR	<1	80	<1	0	80	<1
2002	160		80			80	
2003	closed		closed			closed	
2004	closed		closed			closed	
2005	closed		closed			closed	
2006	closed		closed			closed	
2007	closed		closed			closed	
2008	closed*	3	closed*	<1	0	closed*	1
2009	closed		closed			closed	
2010	closed*	1	closed*	<1	20	closed*	<1
2011	closed*	2	closed*	<1	0	closed*	1
2012	closed*	2	closed*	<1	0	closed*	<1

\* Research fishing permitted in accordance with CM 24-01.



## **5.2 Assessment of impacts on affected populations**

14. None available for this fishery.

## **5.3 Identification of levels of risk**

15. None available for this fishery.

## **5.4 Mitigation measures**

16. None applied as this fishery is currently closed.

# **6. Incidental mortality of birds and mammals**

## **6.1 Incidental mortality reported**

17. There have been no observed seabird or marine mammal mortalities reported from Divisions 58.4.4a and 58.4.4b.

## **6.2 Assessment of risk**

18. The risk level of seabirds in this fishery in Divisions 58.4.4a and 58.4.4b is category 3 (average) (SC-CAMLR-XXX, Annex 8, paragraph 8.1).

## **6.3 Mitigation measures**

19. None applied as this fishery is currently closed.

# **7. Ecosystem implications/effects**

20. No evaluation available for this fishery.

## **8. Harvest controls and management advice**

### **8.1 Conservation measures**

21. The exploratory fishery for *Dissostichus* spp. in Divisions 58.4.4a and 58.4.4b is closed (CM 32-10). Directed fishing for *Dissostichus* spp. in these divisions is prohibited at least until further scientific information is gathered and reviewed by the Scientific Committee and WG-FSA.

### **8.2 Management advice**

22. The advice from WG-FSA in 2012 in respect of a proposal for research fishing in Divisions 58.4.4a and 58.4.4b is described in the main text, paragraphs 5.108 to 5.132, including the recommendations that:

- (i) a catch limit in the range of 50 to 70 tonnes be considered for this research in 2013, and that the catch limit be revisited in further years on the basis of new information from this research
- (ii) if research occurs in both SSRUs C and D in the coming year, all planned research sets in SSRU C should be completed before research in SSRU D is initiated.

23. This advice was noted by the Scientific Committee (SC-CAMLR-XXXI, paragraphs 9.17 to 9.24).