

**FISHERY REPORT: EXPLORATORY FISHERY  
FOR *DISSOSTICHUS* SPP. IN DIVISION 58.4.2**

## CONTENTS

	Page
1. Details of the fishery .....	1
1.1 Reported catch .....	1
1.2 IUU catch .....	2
1.3 Size distribution of catches .....	2
2. Stocks and areas .....	3
3. Parameter estimation .....	3
3.1 Observations .....	3
3.2 Fixed parameter values .....	5
4. Stock assessment .....	5
5. By-catch of fish and invertebrates .....	5
5.1 By-catch removals .....	5
5.2 Assessment of impacts on affected populations .....	5
5.3 Identification of levels of risk .....	5
5.4 Mitigation measures .....	6
6. By-catch of birds and mammals .....	6
6.1 By-catch removals .....	6
6.2 Mitigation measures .....	6
7. Ecosystem implications/effects .....	6
8. Harvest controls and management advice .....	7
8.1 Conservation measures .....	7
8.2 Management advice for <i>Dissostichus</i> spp. in Subarea 58.4 .....	7

## FISHERY REPORT: EXPLORATORY FISHERY FOR *DISSOSTICHUS* SPP. IN DIVISION 58.4.2

### 1. Details of the fishery

The exploratory fishery for *Dissostichus* spp. in Division 58.4.2 was first agreed by the Commission in 1999/2000. This was a trawl fishery which was permitted in association with a new fishery for *Chaenodraco wilsoni*, *Lepidonotothen kemp*i, *Trematomus eulepidotus* and *Pleuragramma antarcticum* (Conservation Measure 186/XVIII). The exploratory trawl fishery was also permitted in 2000/01, and in 2001/02 in association with a new fishery for *Macrourus* spp. In 2002/03, the fishery for *Dissostichus* spp. in Division 58.4.2 changed to an exploratory longline fishery.

2. In 2006/07, the exploratory fishery for *Dissostichus* spp. in Division 58.4.2 was limited to Australian, Korean, Namibian, New Zealand, Spanish and Uruguayan vessels using longlines only (Conservation Measure 41-11). The precautionary catch limit for *Dissostichus* spp. was 780 tonnes, of which no more than 260 tonnes could be taken in SSRUs A, C and E (see Figure 1). Two other SSRUs (B and D) were closed to fishing. Fishing was prohibited in depths less than 550 m in order to protect benthic communities. The catch limits for by-catch species were defined in Conservation Measure 33-03. The fishing season was from 1 December 2006 to 30 November 2007.

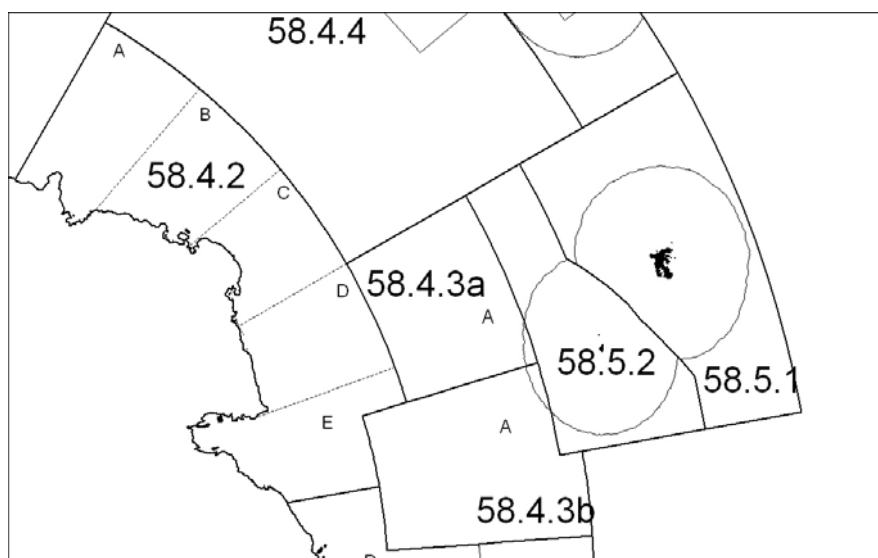


Figure 1: General map of Division 58.4.2 and location of SSRUs (A–E in that division).

### 1.1 Reported catch

3. Licensed longline vessels have fished the exploratory fishery for *Dissostichus* spp. in Division 58.4.2 since 2003/04, and the target species is *D. mawsoni* (Tables 1(a) and (b)). In 2006/07, three vessels fished in SSRUs A and E and reported a total catch of 124 tonnes of *Dissostichus* spp. (Table 1(b), Figure 1); this catch represented 16% of the precautionary catch limit for the fishery.

4. The reported catches of *Dissostichus* spp. in SSRUs A and E were 58 tonnes (22% of catch limit) and 66 tonnes (25% of catch limit) respectively (CCAMLR-XXVI/BG/17, Table 4).

## 1.2 IUU catch

5. Information on IUU fishing indicated that approximately 799 tonnes of *Dissostichus* spp. had been taken during IUU fishing in Division 58.4.2 between 2002/03 and 2006/07 (Table 1(a); see also WG-FSA-07/10 Rev. 5). The total removals of *Dissostichus* spp. is estimated at 1 321 tonnes.

Table 1(a): Catch history for *Dissostichus* spp. in Division 58.4.2 (source: STATLANT data for past seasons, and catch and effort reports for current season, WG-FSA-07/10 Rev. 5 and past reports for IUU catch).

Season	Regulated fishery						Estimated IUU catch (tonnes)	Total removals (tonnes)
	Effort		Catch limit (tonnes)	<i>Dissostichus</i> spp.				
	(number of vessels)			Reported catch (tonnes)				
	Limit	Reported		<i>D. eleginoides</i>	<i>D. mawsoni</i>	Total		
2002/03	1	1	500	0	117	117	98	215
2003/04	-	1	500	0	20	20	197	217
2004/05	8	4	780	1	125	127	86	213
2005/06	7	3	780	0	163	164	192	356
2006/07	8	3	780	0	123	124	197	321

Table 1(b): Catch of *Dissostichus* spp. in Division 58.4.2 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	E	A	B	C	D	E
2002/03			<1		<1			17	16	84
2003/04					<1				5	14
2004/05			1		<1	62		15		48
2005/06						4		4		156
2006/07					<1	58				65

## 1.3 Size distribution of catches

6. Most *D. mawsoni* caught in the fishery ranged from 50 to 170 cm in length (Figure 2). A bimodal distribution was observed from 2002/03 to 2004/05, with broad modes at approximately 60–80 cm and 130–160 cm, while the distribution in 2005/06 and 2006/07 peaked at 125–150 cm. This peak at 60–80 cm was not seen in 2005/06 and 2006/07. The detailed distribution of catches will have to be investigated in order to understand these changes.

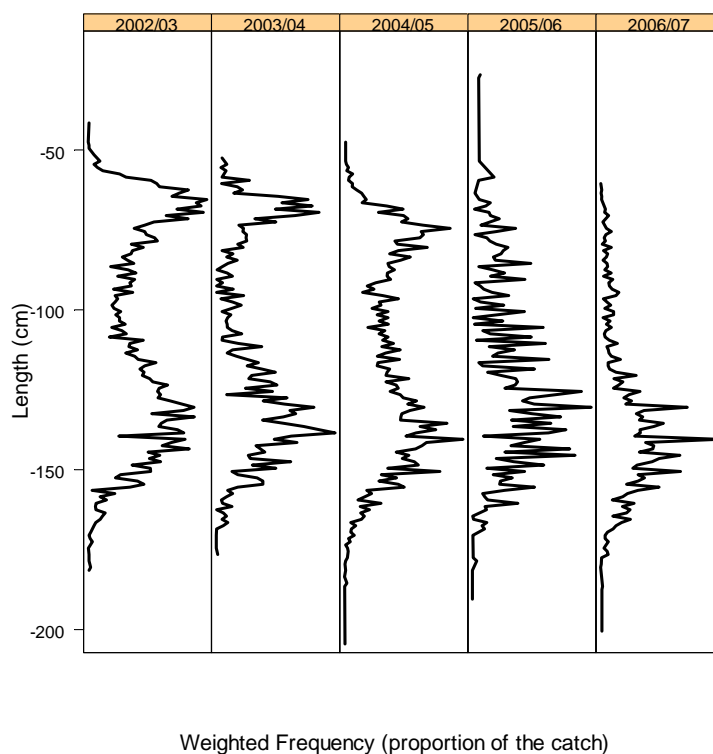


Figure 2: Catch-weighted length frequencies for *Dissostichus mawsoni* in Division 58.4.2 (source: observer, fine-scale and STATLANT data, and the length–weight relationship was taken from observations on *D. mawsoni* in Subarea 88.1).

## 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. Vessels operating in this fishery are required to conduct fishery-based research in accordance with Conservation Measure 41-01. This includes the collection of detailed catch, effort and biological data (Annex 41-01/A), the setting of research lines (Annex 41-01/B) and participation in the tagging program (Annex 41-01/C).

9. Vessels, on first entry into an SSRU, are required to make 10 research longline hauls. A further 10 research hauls are required during the course of fishing. The number of research hauls reported in fine-scale data are summarised in Table 2.

10. Vessels are also required to tag and release *Dissostichus* spp. at a rate of three fish per tonne of green-weight catch, and vessels may discontinue tagging once 500 fish have been tagged. A total of 711 *D. mawsoni* and 15 *D. eleginoides* (total 726 fish) have been tagged and released, and one *D. mawsoni* has been recaptured in that division (Table 3). Of the fish tagged and released, 399 were in SSRU A, 51 in SSRU C, and 276 in SSRU E. No fish were tagged in SSRU D in the first two years of the fishery.

Table 2: Research (R) and commercial (C) longline hauls reported by vessels operating in the exploratory fishery for *Dissostichus* spp. in Division 58.4.2 (source: fine-scale data).

Season	Flag State	Vessel name	SSRU	Number of hauls		
				R	C	Total
2002/03	Australia	<i>Eldfisk</i>	5842C	21	17	38
		<i>Eldfisk</i>	5842D	16	4	20
		<i>Eldfisk</i>	5842E	20	63	83
2003/04	Australia	<i>Eldfisk</i>	5842D	10	8	18
		<i>Eldfisk</i>	5842E	19	9	28
2004/05	Chile	<i>Globalpesca II</i>	5842A	20	2	22
		<i>Globalpesca II</i>	5842E	8		8
	Korea, Republic of	<i>Bonanza No. 707</i>	5842A	15	38	53
		<i>Bonanza No. 707</i>	5842C	*	18	18
	New Zealand	<i>Janas</i>	5842A	15	2	17
		<i>Janas</i>	5842E	20	7	27
Spain	<i>Arnela</i>	5842E	13	7	20	
2005/06	Chile	<i>Globalpesca I</i>	5842A	8		8
		<i>Globalpesca I</i>	5842C	4		4
		<i>Globalpesca I</i>	5842D	1		1
		<i>Globalpesca I</i>	5842E	18	16	34
	Korea, Republic of	<i>Insung No. 2</i>	5842E	20	22	42
	Spain	<i>Galaecia</i>	5842E	19	2	21
2006/07	Korea, Republic of	<i>Insung No. 1</i>	5842A	10	9	19
		<i>Insung No. 1</i>	5842E	2		2
		<i>Jung Woo No. 2</i>	5842A	16	22	38
	Namibia	<i>Antillas Reefer</i>	5842E	19	36	55

\* Research hauls were not identified in the data

Table 3: Number of individuals of *Dissostichus* spp. tagged and released and the tagging rate (fish per tonne of green weight caught) reported by vessels operating in the exploratory fishery for *Dissostichus* spp. in Division 58.4.2. The number of *D. eleginoides* is indicated in brackets. The total number of tagged fish recaptured to date in Division 58.4.2 is also included. (Source: observer data and catch and effort reports.)

Season	Flag State	Vessel name	<i>Dissostichus</i> spp. tagged and released	
			Number of fish	Tagging rate
2002/03	Australia	<i>Eldfisk</i>	-	-
2003/04	Australia	<i>Eldfisk</i>	-	-
2004/05	Chile	<i>Globalpesca II</i>	145 (7)	5.79
	Korea, Republic of	<i>Bonanza No. 707</i>	141 (5)	2.57
	New Zealand	<i>Janas</i>	45 (2)	1.17
2005/06	Spain	<i>Arnela</i>	11 (0)	1.34
	Chile	<i>Globalpesca I</i>	24 (1)	0.91
	Korea, Republic of	<i>Insung No. 2</i>	101 (0)	0.8
2006/07	Spain	<i>Galaecia</i>	11 (0)	1.03
	Korea, Republic of	<i>Insung No. 1</i>	88 (0)	4.36
		<i>Jung Woo No. 2</i>	74 (0)	1.94
	Namibia	<i>Antillas Reefer</i>	86 (0)	1.32
Total number of fish tagged and released			726 (15)	
Total number of tagged fish recaptured in Division 58.4.2			1 (0)	

### 3.2 Fixed parameter values

11. None available for this fishery.

## 4. Stock assessment

12. The catch limits in this fishery were agreed by the Commission based on advice provided by the Scientific Committee.

## 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 cut from lines and released alive are summarised in Table 4. The by-catch in this fishery consists predominantly of macrourids (up to 28 tonnes per season). Catches of rajids have been reported up to 3 tonnes per season.

14. The Working Group noted that the reported catch of macrourids in the fishery in 2004/05 was relatively higher (22% of the catch of *Dissostichus* spp.) when fishing was concentrated in SSRU A, than in other seasons (2–10% of the catch of *Dissostichus* spp.) when fishing was concentrated in SSRU E.

Table 4: Catch history for by-catch species (macrourids, rajids and other species), catch limits and number of rajids released alive in Division 58.4.2. Catch limits are for the whole fishery (see Conservation Measure 33-03 for details). (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)
2002/03	250	12	250	0	-	100	1
2003/04	80	1	50	0	-	100	0
2004/05	124	28	50	3	3	60	2
2005/06	124	4	50	0	-	60	1
2006/07	124	7	50	0	-	60	0

### 5.2 Assessment of impacts on affected populations

15. None available for this fishery.

### 5.3 Identification of levels of risk

16. None available for this fishery.

## 5.4 Mitigation measures

17. The Commission has agreed that, where possible, vessels should release rays from the lines by cutting the snoods when the rays are still in the water, unless requested not to do so by the scientific observer during the biological sampling period (CCAMLR-XXIV, paragraph 4.51). The Commission has been requested to review this mitigation practice (see SC-CAMLR-XXVI, Annex 5, paragraph 5.53).

## 6. By-catch of birds and mammals

### 6.1 By-catch removals

18. Details of seabird by-catches are summarised in Table 5.

Table 5: Seabird by-catch limit, observed mortality rate and total estimated mortality of seabird by-catch in Division 58.4.2 (from SC-CAMLR-XXVI, Annex 6, Part II, Table 2).

Season	By-catch limit (number of birds)	Mortality rate (birds/thousand hooks)	Total estimated mortality (number of birds)
2002/03	3*	-	-
2003/04	3*	-	-
2004/05	3*	0	0
2005/06	3*	0	0
2006/07	3*	0	0

\* Per vessel during daytime setting

19. No marine mammal interactions or mortalities were reported.

20. Ad hoc WG-IMAF assessed the risk level of seabirds in this fishery in Division 58.4.2 as category 2 (average to low) (SC-CAMLR-XXVI, Annex 6, Part II, Table 20).

### 6.2 Mitigation measures

21. Conservation Measure 25-02 applies to this fishery and in recent years has been linked to an exemption for night setting in Conservation Measure 24-02 and subject to a seabird by-catch limit. Offal and other discharges are regulated under annual conservation measures (e.g. Conservation Measures 41-09, 41-10 and 26-01).

## 7. Ecosystem implications/effects

22. No evaluation available for this fishery.



## 8. Harvest controls and management advice

### 8.1 Conservation measures

23. The limits on the exploratory fishery for *Dissostichus* spp. in Division 58.4.2 are defined in Conservation Measure 41-05. The limits in force in 2006/07 and the Working Group's advice to the Scientific Committee for the forthcoming 2007/08 season are summarised in Table 6.

Table 6: Limits on the exploratory fishery for *Dissostichus* spp. in Division 58.4.2 in 2006/07 (Conservation Measure 41-05) and advice to the Scientific Committee for 2007/08.

Element	Limit in 2006/07	Advice for 2007/08
Catch limit	Precautionary catch limit for <i>Dissostichus</i> spp. was 780 tonnes, and catch limits for each SSRU was as follows: A – 260 tonnes; B – 0 tonnes; C – 260 tonnes; D – 0 tonnes; E – 260 tonnes.	Carry forward
Season	1 December to 30 November	Same period
By-catch	Regulated by CM 33-03	Review
Mitigation	In accordance with CM 25-02, except paragraph 4 if requirements of CM 24-02 are met.	Carry forward
	Limit of three (3) seabirds per vessel during daytime setting.	Carry forward
Observers	At least two (2) scientific observers, one of whom shall be appointed in accordance with the CCAMLR Scheme.	Carry forward
Data	Five-day catch and effort reporting	Carry forward
	Haul-by-haul catch and effort data	Carry forward
	Biological data reported by the CCAMLR scientific observer	Carry forward
Research	Fishery-based research in accordance with CM 41-01, including the collection of detailed catch, effort and biological data (Annex 41-01/A), setting of research hauls (Annex 41-01/B) and tagging (Annex 41-01/C).	Carry forward
	Toothfish tagged at a rate of at least three fish per tonne green weight caught.	Carry forward
Environmental protection	Regulated by CM 26-01. No offal discharge.	Carry forward

### 8.2 Management advice for *Dissostichus* spp. in Subarea 58.4

24. In 2006 the Scientific Committee noted several features of exploratory *Dissostichus* spp. fisheries in the southern Indian Ocean (Subarea 58.4) which gave cause for concern as to the status of the resource in this area, and the lack of a scientific basis for setting catch limits (SC-CAMLR-XXV, paragraphs 4.184 to 4.192). In its management advice for this and other exploratory fisheries, the Scientific Committee requested urgent consideration by Members of methods for collecting data and of assessing these stocks.

25. The Working Group requested submissions by Members on stock structure, biological parameters (e.g. growth, length–weight relationship, maturity), recruitment and methods for assessment of these stocks.

26. The Working Group recommended that the minimum tag rate be at least three fish per tonne for Subarea 58.4 and that the Scientific Committee consider whether a higher rate should be applicable for each of the divisions of Subarea 58.4 which:

- (i) was commensurate with the size of the fishery and the stock abundance in the division;
- (ii) took into account the practical considerations of maintaining a high-quality tagging program.

27. The Working Group recommended that a depletion analysis similar to that applied to Division 58.4.3b and presented in WG-FSA-07/44 be completed for Divisions 58.4.1 and 58.4.2.