

**FISHERY REPORT: FISHERY FOR *DISSOSTICHUS ELEGINOIDES*  
IN SUBAREA 48.4**

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**1. Details of the fishery**

The fishery for *Dissostichus eleginoides* in Subarea 48.4 was initiated as a new fishery in 1992/93 following notifications from Chile and the USA (SC-CAMLR-XI, Annex 5, paragraph 6.22), and the adoption of Conservation Measure 44/XI, which set a precautionary catch limit for *D. eleginoides* of 240 tonnes for that season. Subsequently, the USA withdrew from the fishery and the Chilean longline vessel abandoned fishing after one week of poor catches (SC-CAMLR-XII, Annex 5, paragraph 6.2). In addition, a Bulgarian-flagged longliner fished in November and December 1992 and reported a catch of 39 tonnes of *D. eleginoides* (SC-CAMLR-XII, Annex 5, paragraph 6.1).

2. Haul-by-haul data from the Chilean and Bulgarian vessels were submitted to CCAMLR, and WG-FSA used these data to estimate an annual yield of 28 tonnes of *D. eleginoides* for the subarea (SC-CAMLR-XII, Annex 5, paragraph 6.3, Table 1). The Commission adopted a precautionary catch limit for *D. eleginoides* of 28 tonnes per season. In addition, the taking of *D. mawsoni*, other than for scientific research purposes, was prohibited. These limits remained in force until 2004.

3. In 2004/05, the UK conducted a pilot tagging program using a fishing vessel. The vessel caught 27 tonnes of *D. eleginoides* and tagged 42 individuals, and the results of this research fishing were reported to WG-FSA (SC-CAMLR-XXIV, Annex 5, paragraphs 5.140 and 5.141).

4. Following the pilot study, the Commission agreed to an extensive mark-recapture experiment in Subarea 48.4 during the period 2005/06 to 2007/08, with fishing conducted in accordance with Conservation Measure 24-01 (CCAMLR-XXIV, paragraphs 11.46 and 11.47; SC-CAMLR-XXIV, paragraphs 4.113 to 4.117). The experiment required a revision of the catch limit for *D. eleginoides* to 100 tonnes per season and a revised fishing season (1 April to 30 September) to allow each vessel operating in the fishery to undertake a tagging program in accordance with the CCAMLR tagging protocol (Conservation Measure 41-03). In addition, fishing was limited to the region of Subarea 48.4 north of a deep-water trench between Candlemas Islands and Saunders Island in order to increase the likelihood of a successful assessment at the end of the tagging period (Figure 1).

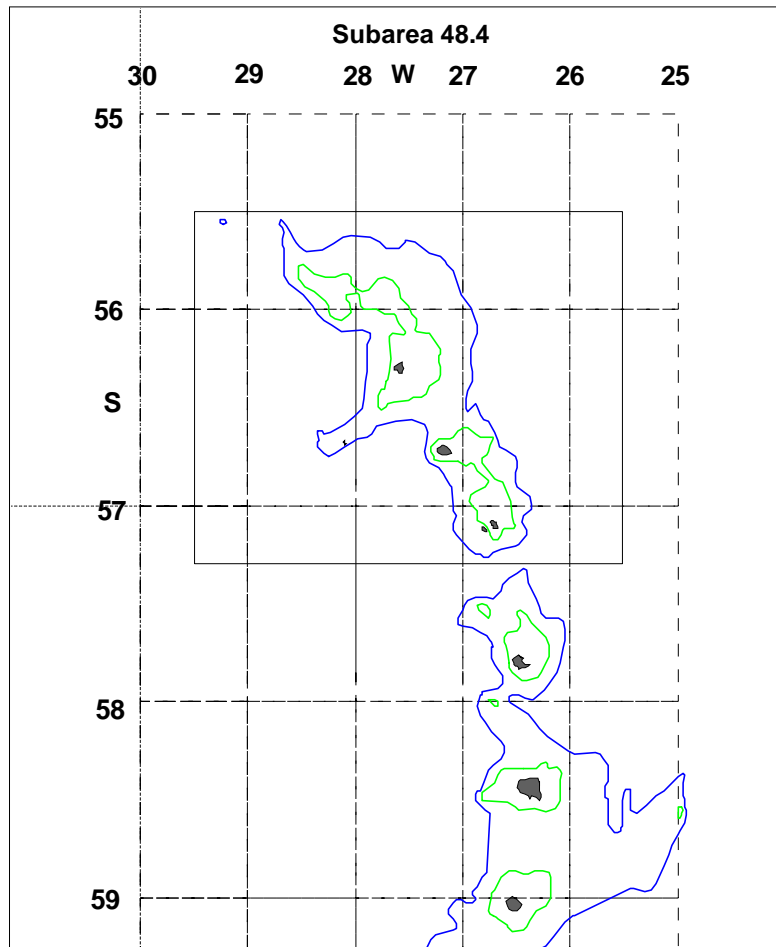


Figure 1: General map of Subarea 48.4. Fishing is limited to the area between latitudes 55°30'S and 57°20'S and longitudes 25°30'W and 29°30'W (box).

### 1.1 Reported catch

5. Licensed longline vessels commenced fishing for *D. eleginoides* in Subarea 48.4 in 1991/92 and 1992/93; fishing was abandoned following poor catches (Table 1). A tagging program was introduced in 2004/05, and research fishing has continued since that time. In 2006/07, one New Zealand-flagged vessel and one UK-flagged vessel conducted research fishing and reported a total catch of 54 tonnes of *D. eleginoides* from Subarea 48.4 (Table 1).

6. The total catch of *D. eleginoides* in 2006/07 represents 54% of the precautionary catch limit for the fishery.

### 1.2 IUU catch

7. There is no information to derive an estimate of the level of IUU fishing in Subarea 48.4 (Table 1).

Table 1: Catch history for *Dissostichus* spp. in Subarea 48.4 (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 (number of vessels)		Catch limit (tonnes)*	<i>Dissostichus</i> spp.				
	Limit	Reported		Reported catch (tonnes)				
				<i>D. eleginoides</i>	<i>D. mawsoni</i>	Total		
1991/92	-	1	-	30	0	30	-	30
1992/93	-	1	240	10	0	10	-	10
1993/94	-	0	28	0	0	0	-	0
1994/95	-	0	28	0	0	0	-	0
1995/96	-	0	28	0	0	0	-	0
1996/97	-	0	28	0	0	0	-	0
1997/98	-	0	28	0	0	0	-	0
1998/99	-	0	28	0	0	0	-	0
1999/00	-	0	28	0	0	0	-	0
2000/01	-	0	28	0	0	0	-	0
2001/02	-	0	28	0	0	0	-	0
2002/03	-	0	28	0	0	0	-	0
2003/04	-	0	28	0	0	0	-	0
2004/05	-	1	100	27	0	27	-	27
2005/06	-	2	100	18	0	19	-	19
2006/07	-	2	100	54	0	54	-	54

\* Applies to *D. eleginoides*

### 1.3 Size distribution of catches

8. Most *D. eleginoides* caught in the fishery ranged from 80 to 140 cm in length, with a broad mode at approximately 90–110 cm (Figure 2).

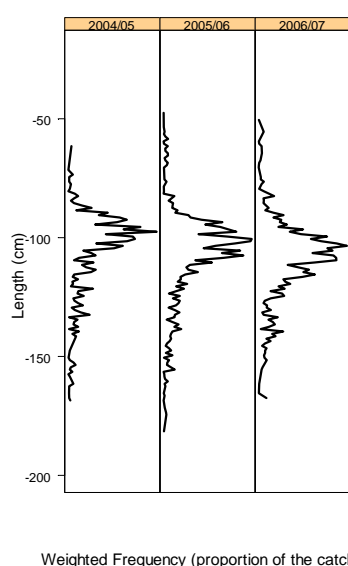


Figure 2: Catch-weighted length frequencies for *Dissostichus eleginoides* in Subarea 48.4 (source: observer, fine-scale and STATLANT data, and the length–weight relationships were taken from observations on *D. eleginoides* in Subarea 48.3).

## 2. Stocks and areas

9. No data are available on the stock structure of fish in this fishery. Available catch data indicate that *D. mawsoni* occurs predominantly in the southern region of Subarea 48.4, south of the area currently fished.

## 3. Parameter estimation

### 3.1 Observations

10. Since 2005/06, vessels operating in this fishery have been required to tag and release *Dissostichus* spp. at a rate of five fish per tonne of green-weight catch. A total of 467 *D. eleginoides* and 11 *D. mawsoni* (total 478 fish) have been tagged and released, and two *D. eleginoides* have been recaptured in that subarea (Table 2). In addition, one fish tagged in Subarea 48.4 was recaptured in Subarea 48.3.

Table 2: 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 *D. eleginoides* in Subarea 48.4. The number of *D. eleginoides* is indicated in brackets. The total number of tagged fish recaptured to date in Subarea 48.4 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	
2004/05	UK	<i>Argos Helena</i>	42	(42)	1.56
2005/06	New Zealand	<i>San Aspiring</i>	98	(88)	7.93
	UK	<i>Argos Helena</i>	46	(46)	7.16
2006/07	New Zealand	<i>San Aspiring</i>	252	(251)	5.25
	UK	<i>Argos Helena</i>	40	(40)	6.44
Total number of fish tagged and released			478	(467)	
Total number of tagged fish recaptured in Subarea 48.4			2	(2)	

### 3.2 Fixed parameter values

11. None available for this fishery.

## 4. Stock assessment

12. The catch limits in this fishery were revised in 2005 by the Commission based on the advice of the Scientific Committee (SC-CAMLR-XXIV, paragraphs 4.113 to 4.117).

## 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, and number of rajids cut from lines and released alive are summarised in Table 3. The by-catch in this fishery consists predominantly of macrourids (up to 14 tonnes per season) and rajids (up to 6 515 released alive). Catch limits for by-catch species have not been set for this fishery. However, the taking of *D. mawsoni*, other than for scientific research purposes, is prohibited.

Table 3: Catch history for by-catch species (macrourids, rajids and other species) and number of rajids released alive in Subarea 48.4 (source: fine-scale data).

Season	Macrourids	Rajids		Other species
	Reported catch (tonnes)	Reported catch (tonnes)	Number released	Reported catch (tonnes)
2004/05	3	0	0	<1
2005/06	5	1	4359	<1
2006/07	14	2	6515	<1

### 5.2 Assessment of impacts on affected populations

14. The distribution of rajids and macrourids in Subarea 48.4 is being investigated at the same time as the toothfish tagging experiment is ongoing. WG-FSA-07/32 provided descriptions of these distributions. It reported that 100 skates have been tagged in the subarea and that rajids are generally distributed to the east of the South Sandwich Islands, compared to toothfish being generally distributed to the north and west. The potential for significant impacts on rajids may therefore be limited.

### 5.3 Identification of levels of risk

15. None available for this fishery.

### 5.4 Mitigation measures

16. The Commission has agreed that, where possible, vessels should release rajids from the lines by cutting the snoods when the rajids 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 Working Group noted that, consistent with the 'year of the skate', skates in Subarea 48.4 have been and will be tagged over the next few years. These skates would be exempt from the requirement to cut off rajids at the sea surface.

## 6. By-catch of birds and mammals

### 6.1 By-catch removals

17. Details of seabird by-catch are summarised in Table 4.

Table 4: Seabird by-catch limit, observed mortality rate and total estimated mortality in Subarea 48.4 (from SC-CAMLR-XXVI, Annex 6, Part II, Table 2).

Season	By-catch limit (number of birds)	Mortality rate (birds per thousand hooks)	Total estimated mortality (number of birds)
2004/05	0	0	0
2005/06	0	0	0
2006/07	0	0	0

18. No marine mammal interactions or mortalities were reported.

19. Ad hoc WG-IMAF assessed the risk level of seabirds in this fishery in Subarea 48.4 as category 3 (average) (SC-CAMLR-XXVI/BG/31).

### 6.2 Mitigation measures

20. Conservation Measure 25-02 applies to this fishery.

## 7. Ecosystem implications/effects

21. No evaluation available for this fishery.

## 8. Harvest controls and management advice

### 8.1 Conservation measures

22. The limits on the fishery for *D. eleginoides* in Subarea 48.4 are defined in Conservation Measure 41-03. The current limits are in force for the period 2005/06 to 2007/08, and the Working Group's advice to the Scientific Committee for future seasons is summarised in Table 5.



Table 5: Limits on the fishery for *D. eleginoides* in Subarea 48.4 in 2005/06, 2006/07 and 2007/08 (Conservation Measure 41-03).

Element	Limit in 2005/06, 2006/07 and 2007/08	Advice
Access	Directed fishery on <i>Dissostichus eleginoides</i> by longline only. Fishing limited to area bounded by latitudes 55°30'S and 57°20'S and by longitudes 25°30'W and 29°30'W.	Carry forward
Catch limit	Precautionary catch limit for <i>D. eleginoides</i> was 100 tonnes per season. The taking of <i>D. mawsoni</i> , other than for scientific research purposes, is prohibited.	Carry forward
Season	1 December to 30 November	Carry forward
By-catch	No limits.	Carry forward
Mitigation	In accordance with CM 25-02.	Carry forward
Observers	At least one (1) scientific observer 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	Each vessel taking part in the fishery for <i>D. eleginoides</i> shall undertake a tagging program in accordance with the CCAMLR tagging protocol.	Carry forward
	Toothfish tagged at a rate of at least five fish per tonne green weight caught.	Carry forward
Environmental protection	Regulated by CM 26-01.	Carry forward

## 8.2 Management advice

23. The Working Group noted that Conservation Measure 41-03 is in force until the end of the 2007/08 season. Further, it noted that the results from the tagging experiment would be reported at the 2008 meeting, and this would provide an opportunity for WG-FSA to review the results, and develop the assessment and management of this fishery, including fishery-based research requirements. Given the current low rates of tagging, an extension of the current experiment for one or two further years may be required.

24. Future development of this fishery may include a similar tagging experiment for *D. mawsoni* in the southern region of Subarea 48.4, and the introduction of catch limits for by-catch species.