

**FISHERY REPORT: EXPLORATORY FISHERY
FOR *DISSOSTICHUS* SPP. IN SUBAREA 48.6**

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1. Details of the fishery

The longline fishery for *Dissostichus* spp. in Subarea 48.6 began as a new fishery in 1996/97 (CM 114/XV). In 1999, the Commission agreed that high levels of IUU fishing for *Dissostichus* spp. in the Convention Area had rendered it unrealistic to consider this fishery as 'new' (CCAMLR-XVIII, paragraph 10.14), and the fishery was re-classified as exploratory.

2. In 2010/11, the exploratory fishery for *Dissostichus* spp. in Subarea 48.6 was limited to Japanese, Korean and South African flagged vessels using longlines only, and no more than one vessel per country was permitted to fish at any one time (CM 41-04). The precautionary catch limit for *Dissostichus* spp. was 200 tonnes north of 60°S (SSRUs A and G¹) and 200 tonnes south of 60°S (SSRUs B–F; see Figure 1). The catch limits for by-catch species were defined in CM 33-03. The fishing season was from 1 December 2010 to 30 November 2011. Environmental protection in this fishery is regulated by CMs 26-01, 22-06, 22-07 and 22-08.

3. In recent seasons, the Japanese-flagged vessel operating in this fishery has been using trotlines (WG-FSA-06/15; see also SC-CAMLR-XXIV, Annex 5, paragraphs 3.23 and 7.21; SC-CAMLR-XXV, Annex 5, paragraph 3.14).

4. Five Members (Japan, Republic of Korea, Norway, Russia and South Africa) and a total of seven vessels notified their intention to participate in the exploratory fishery for *Dissostichus* spp. in Subarea 48.6 in 2011/12 and the Working Group recommended the existing limits for this fishery be retained in 2011/12.

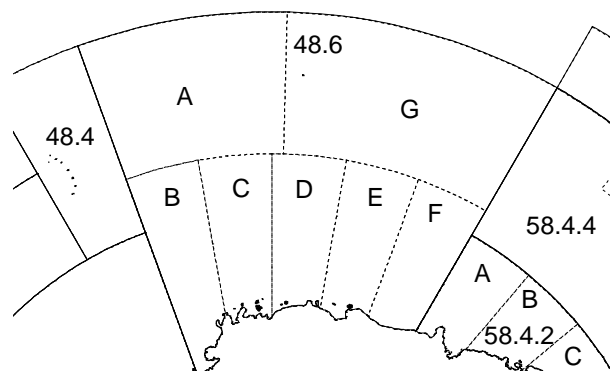


Figure 1: General map of Subarea 48.6 and location of SSRUs (A–G in that subarea).

¹ SSRU A was divided into A and G in November 2007.

1.1 Reported catch

5. Licensed longline vessels have fished the exploratory fishery for *Dissostichus* spp. in Subarea 48.6 since 2003/04, and the dominant species in the catches in recent seasons was *D. mawsoni* (Table 1). In 2010/11, the SSRUs south of 60°S were closed on 7 February 2011 (catch limit for *Dissostichus* spp.: 200 tonnes; final reported catch: 197 tonnes). The SSRUs north of 60°S were closed on 19 April 2011 (catch limit for *Dissostichus* spp.: 200 tonnes; final reported catch: 196 tonnes). Consequentially the fishery was also closed on 19 April 2011 (catch limit for *Dissostichus* spp.: 400 tonnes; final reported catch: 393 tonnes).

Table 1(a): Catch history for *Dissostichus* spp. in Subarea 48.6 (source: STATLANT data for past seasons, and catch and effort reports for current season, WG-FSA-11/10 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		
2003/04	6	1	910	7	0	7	-	7
2004/05	3	2	910	49	2	51	-	51
2005/06	2	1	910	100	63	163	-	163
2006/07	4	3	910	78	34	112	-	112
2007/08	4	1	400	12	11	24	-	24
2008/09	2	2	400	17	265	282	-	282
2009/10	3	3	400	50	342	392	-	392
2010/11	3	4	400	34	359	393	-	393

Table 1(b): Catch of *Dissostichus* spp. in Subarea 48.6 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	G	B	C	D	E	F	A	G	B	C	D	E	F
2003/04	7	*							*					
2004/05	49	*							*				2	
2005/06	100	*						63	*					
2006/07	78	*						25	*			2	8	
2007/08		12							12					
2008/09		17							77				189	
2009/10	28	26						21	120			97	100	
2010/11	16	17	<1					2	161	104	92			

* SSRU A was divided into A and G in November 2007.

1.2 IUU catch

6. There is no information to derive an estimate of the level of IUU fishing in Subarea 48.6 (Table 1(a)).

1.3 Size distribution of catches

7. Most *D. eleginoides* caught in the fishery ranged from 60 to 170 cm in length, with a broad mode at approximately 70–130 cm, and most *D. mawsoni* ranged from 100 to 180 cm in length, with a broad mode at approximately 140–160 cm except in 2004/05 (Figure 2). The length-frequency distributions indicate a consistent difference in modal size between the two species.

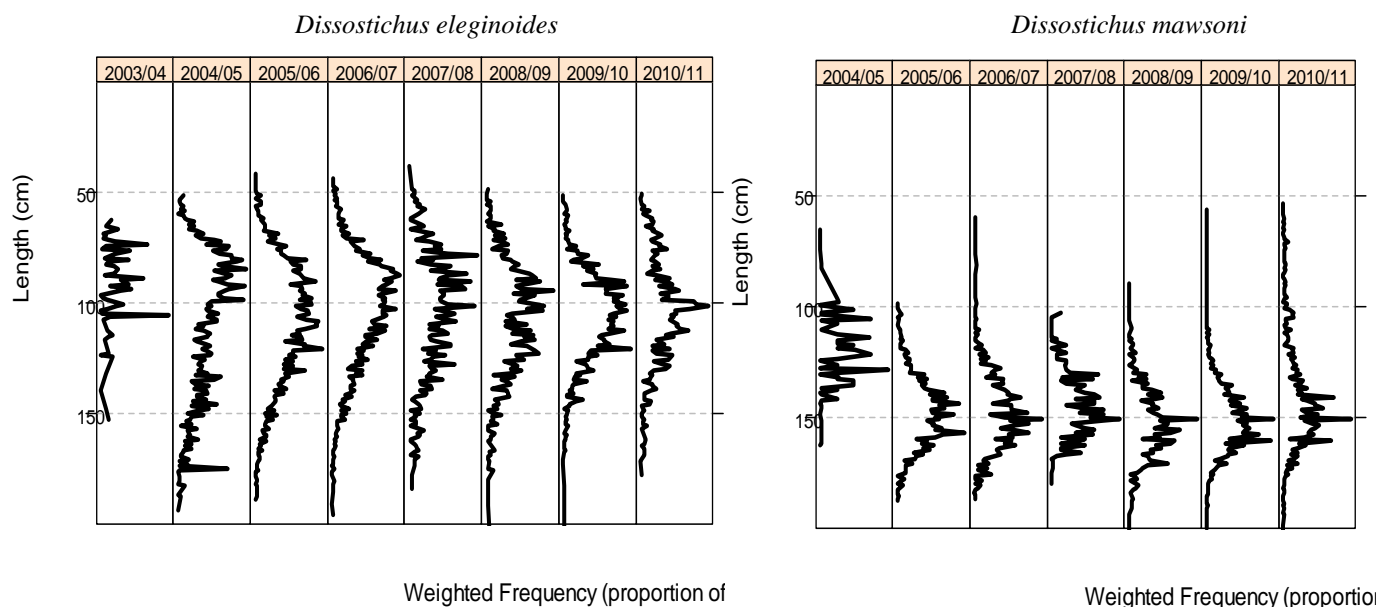


Figure 2: Catch-weighted length frequencies for *Dissostichus eleginoides* and *Dissostichus mawsoni* in Subarea 48.6 (source: observer and fine-scale data).

2. Stocks and areas

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

3. Parameter estimation

3.1 Observations

9. Vessels operating in this fishery are required to conduct fishery-based research in accordance with CM 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).

10. Vessels, on first entry into an SSRU, are required to make 10 research longline hauls. The requirement for a further 10 research hauls during the course of fishing was removed in 2008 and since 2008/09 the starting position of research hauls has been allocated by the Secretariat. The number of research hauls reported in fine-scale data are summarised in Table 2.

11. Since 2006/07, vessels have been required to tag and release *Dissostichus* spp. at a rate of three fish per tonne of green weight caught (previously one fish per tonne), with a limit of 500 fish tagged per vessel applied until the end of 2009/10. A total of 885 *D. eleginoides* and 2 943 *D. mawsoni* have been tagged and released, and 13 *D. eleginoides* and six *D. mawsoni* have been recaptured in that subarea (Table 3). Of the fish tagged and released, 329 fish were released in SSRU A, 312 in SSRU B, 275 in SSRU C, 298 were in SSRU D, 863 were in SSRU E and 1 751 in SSRU G.

12. In 2010, the Commission required each vessel catching more than 2 tonnes of *Dissostichus* spp. in an exploratory fishery to achieve a minimum tag overlap statistic of 50% in 2010/11 and of 60% from 2011/12 onwards (Annex 41-01/C). All vessels fishing in Subarea 48.6 in 2010/11 achieved a tag overlap statistic greater than 50% (range 53 to 95%, Table 4).

Table 2: Research (R) and commercial (C) longline hauls reported by vessels operating in the exploratory fishery for *Dissostichus* spp. in Subarea 48.6 (source: fine-scale data).

Season	Flag State	Vessel name	SSRU	Number of hauls		
				R	C	Total
2003/04	Japan	<i>Shinsei Maru No. 3</i>	486A	*	29	29
2004/05	Japan	<i>Shinsei Maru No. 3</i>	486A	32	86	118
	Korea, Republic of	<i>Bonanza No. 707</i>	486E	6		6
2005/06	Japan	<i>Shinsei Maru No. 3</i>	486A	20	243	263
2006/07	Japan	<i>Shinsei Maru No. 3</i>	486A	20	169	189
	Korea, Republic of	<i>Jung Woo No. 2</i>	486A	7	13	20
		<i>Jung Woo No. 2</i>	486E	6		6
	Norway	<i>Froyanes</i>	486D	10		10
<i>Froyanes</i>		486E	8	1	9	
2007/08	Japan	<i>Shinsei Maru No. 3</i>	486G	20	19	39
2008/09	Japan	<i>Shinsei Maru No. 3</i>	486E	11	6	17
		<i>Shinsei Maru No. 3</i>	486G	10	71	81
		<i>Shinsei Maru No. 3</i>	486G	10	15	25
2009/10	Korea, Republic of	<i>Insung No. 22</i>	486E	10	15	25
	Japan	<i>Shinsei Maru No. 3</i>	486A	10	19	29
		<i>Shinsei Maru No. 3</i>	486D	10	30	40
		<i>Shinsei Maru No. 3</i>	486G	10	41	51
	Korea, Republic of	<i>Insung No. 1</i>	486A	10	61	71
		<i>Insung No. 1</i>	486G	10	91	101
<i>Insung No. 2</i>		486E	10	12	22	
2010/11	Japan	<i>Shinsei Maru No. 3</i>	486B	10	22	32
		<i>Shinsei Maru No. 3</i>	486C	10	42	52
	Korea, Republic of	<i>Hong Jin No. 701</i>	486G	10	57	67
		<i>Insung No. 7</i>	486G	6	0	6
	South Africa	<i>Koryo Maru No. 11</i>	486A	10	29	39
		<i>Koryo Maru No. 11</i>	486G	10	29	39

* Research hauls were not identified in the data.

Table 3: Number of individuals of *Dissostichus* spp. tagged and released (a) and tagging rates (b) reported by vessels operating in the exploratory fishery for *Dissostichus* spp. in Subarea 48.6 since 2006/07, and total number of tagged fish released and recaptured (c) (source: observer data and catch and effort reports).

(a) Number of individuals of *Dissostichus* spp. tagged and released. The number of *D. eleginoides* is indicated in brackets.

Flag State	Vessel name	Season				
		2006/07	2007/08	2008/09	2009/10	2010/11
Japan	<i>Shinsei Maru No. 3</i>	99 (76)	29 (14)	392 (65)	598 (38)	594 (0)
Korea, Republic of	<i>Hong Jin No. 701</i>					493 (52)
	<i>Insung No. 1</i>				310 (310)	
	<i>Insung No. 2</i>				305 (0)	
	<i>Insung No. 22</i>			520 (0)		
	<i>Insung No. 7</i>					132 (5)
	<i>Jung Woo No. 2</i>	19 (15)				
Norway	<i>Froyanes</i>	11 (1)				
South Africa	<i>Koryo Maru No. 11</i>					89 (79)

(b) Tagging rate (number of fish tagged per tonne of green weight caught) of *Dissostichus* spp.

Flag State	Vessel name	Season				
		2006/07	2007/08	2008/09	2009/10	2010/11
Japan	<i>Shinsei Maru No. 3</i>	1.0	1.1	3.6	3.1	3.0
Korea, Republic of	<i>Hong Jin No. 701</i>					4.0
	<i>Insung No. 1</i>				3.2	
	<i>Insung No. 2</i>				3.1	
	<i>Insung No. 22</i>			3.0		
	<i>Insung No. 7</i>					3.0
	<i>Jung Woo No. 2</i>	3.0				
Norway	<i>Froyanes</i>	1.6				
South Africa	<i>Koryo Maru No. 11</i>					3.1
Required rate		1	1	3	3	3

(c) Total number of tagged *Dissostichus* spp. released and recaptured in Subarea 48.6.

Season	Number tagged and released			Number recaptured		
	<i>D. eleginoides</i>	<i>D. mawsoni</i>	Total	<i>D. eleginoides</i>	<i>D. mawsoni</i>	Total
2003/04	4	0	4	0	0	0
2004/05	57	5	62	0	0	0
2005/06	169	2	171	3	0	3
2006/07	92	37	129	2	0	2
2007/08			*			*
2008/09	79	862	941	0	2	2
2009/10	348	865	1213	7	3	10
2010/11	136	1172	1308	1	1	2
Total	885	2943	3828	13	6	19

* One vessel fished from 23 October to 28 December 2008 and tag information was reported under 2008/09.

Table 4: Time series of the tag overlap statistic (CM 41-01) for *Dissostichus mawsoni* and *D. eleginoides* tagged in Subarea 48.6. The statistic was implemented in 2010/11, and comparative values were calculated for previous seasons. Values were not calculated for total catches of less than 2 tonnes (*) and length data were aggregated by 10 cm length intervals.

Species	Flag State	Vessel name	2006/07	2007/08	2008/09	2009/10	2010/11
<i>D. mawsoni</i>	Japan	<i>Shinsei Maru No. 3</i>	33	31	65	68	95
	Korea, Republic of	<i>Hong Jin No. 701</i>					84
		<i>Insung No. 7</i>					54
		<i>Jung Woo No. 2</i>	11				
<i>D. eleginoides</i>	South Africa	<i>Koryo Maru No. 11</i>					53
	Japan	<i>Shinsei Maru No. 3</i>	36	45	26	40	*
	Korea, Republic of	<i>Hong Jin No. 701</i>					75
		<i>Insung No. 7</i>					*
		<i>Jung Woo No. 2</i>	42				
South Africa	<i>Koryo Maru No. 11</i>					81	

3.2 Fixed parameter values

13. None available for this fishery.

4. Stock assessment

14. 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

15. 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 5. The by-catch in this fishery consists predominantly of macrourids (up to 13 tonnes per season), and the total reported catch of rajids has been low (<100 kg).

Table 5: Catch history for by-catch species (macrourids, rajids and other species), catch limits and number of rajids released alive in Subarea 48.6. Catch limits are for the whole fishery (see CM 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)
2003/04	146	0	100	0	-	120	0
2004/05	146	6	100	0	-	120	0
2005/06	146	10	100	0	-	120	3
2006/07	146	13	100	0	-	120	2
2007/08	62	1	100	0	-	140	0
2008/09	64	5	100	0	-	140	2
2009/10	64	10	100	0	-	140	1
2010/11	64	8	100	0	-	140	1

5.2 Assessment of impacts on affected populations

16. None available for this fishery.

5.3 Identification of levels of risk

17. None available for this fishery.

5.4 Mitigation measures

18. In 2008, the Commission agreed to the Year-of-the-Skate and the protocol in CCAMLR-XXVII, paragraph 4.55, was implemented.

19. In 2009, the Commission agreed that the Year-of-the-Skate should be extended to 2009/10 in order to allow for sufficient data to be collected for preliminary assessments to be made in the future (see SC-CAMLR-XXIX, Annex 8, paragraphs 6.14 to 6.21).

20. During WG-FSA-10 it was concluded that the Year-of-the-Skate had been a success overall and had met its objectives to enhance data collection and improve tagging in order to develop assessments (SC-CAMLR-XXVI, Annex 5, paragraphs 6.34 and 6.35). Based on conclusions reported in WG-FSA-10/25 for data in Subareas 88.1 and 88.2 and review of data across all exploratory areas and divisions during the meeting, the Working Group concluded that data collection rates for skates could return to standard levels for these species in 2010/11 until further notice, and the mandatory skate tagging requirements could be removed from the relevant conservation measures. However, the requirement for all skates to be brought on board or alongside the hauler to be correctly identified, scanned for tags and for their condition to be assessed should be made mandatory, and the Working Group recommended that CM 33-03 be revised accordingly. Continued scanning for tags by crew and observers is imperative to enable updates to be made to preliminary assessments of skates in the future.

6. By-catch of birds and mammals

6.1 By-catch removals

21. There have been no observed seabird mortalities in Subarea 48.6 (Table 6).

Table 6: Seabird by-catch limit, observed mortality rate and total estimated mortality of seabird by-catch in Subarea 48.6.

Season	By-catch limit (number of birds)	Mortality rate (birds per thousand hooks)	Total estimated mortality (number of birds)
2003/04	3*	0	0
2004/05	3*	0	0
2005/06	3*	0	0
2006/07	3*	0	0
2007/08	3*	**	**
2008/09	3*	0	0
2009/10	3*	0	0
2010/11	3*	0	0

* Per vessel during daytime setting.

** One vessel fished from 23 October to 28 December 2008 and observations were reported under 2008/09.

22. No marine mammal interactions or mortalities have been reported.

23. In 2011, as in previous seasons, WG-IMAF agreed the risk level of seabirds in this fishery in Subarea 48.6 is category 1 (low) south of 55°S, and category 2 (average to low) north of 55°S (SC-CAMLR-XXX, Annex 8).

6.2 Mitigation measures

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

7. Ecosystem implications/effects

25. No evaluation available for this fishery.

8. Harvest controls and management advice

8.1 Conservation measures

26. The limits on the exploratory fishery for *Dissostichus* spp. in Subarea 48.6 are defined in CM 41-04. The limits in force and the Working Group's advice to the Scientific Committee for the forthcoming season are summarised in Table 7.

Table 7: Limits on the exploratory fishery for *Dissostichus* spp. in Subarea 48.6 in force (CM 41-04) and advice to the Scientific Committee for 2011/12.

Element	Limit in force	Advice for 2011/12
Access	No more than one vessel per country at any one time.	Carry forward
Catch limit	Precautionary catch limit for <i>Dissostichus</i> spp. was 200 tonnes north of 60°S and 200 tonnes south of 60°S.	Carry forward
Season	1 December to 30 November	Same period
By-catch	Regulated by CM 33-03.	Carry forward
Mitigation	In accordance with CM 25-02, except paragraph 5 if requirements of CM 24-02 are met.	Carry forward
Observers	Limit of three (3) seabirds per vessel during daytime setting.	Carry forward
	At least two (2) scientific observers, one of whom shall be appointed in accordance with the CCAMLR Scheme of International Scientific Observation.	Carry forward
Data	Daily and 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 CMs 26-01, 22-06, 22-07 and 22-08. No offal discharge.	Carry forward

8.2 Management advice

27. The Working Group agreed that it could provide no new advice on catch limits for this subarea and noted the recommendations for increasing the research requirements in this fishery identified in the main report, paragraphs 6.75 to 6.80.

28. The Working Group requested the Secretariat examine the possibility of obtaining a Peterson estimate of *Dissostichus* spp. biomass from tag recaptures in Subarea 48.6 in the intersessional period.