Appendix T

Fishery Report: Exploratory fishery for *Dissostichus* spp. (TOT) in Division 58.4.3b

CONTENTS

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: EXPLORATORY FISHERY FOR *DISSOSTICHUS* SPP. (TOT) IN DIVISION 58.4.3b

1. Details of the fishery

1. The longline fishery for *Dissostichus* spp. in Division 58.4.3 began as a new fishery in 1997 (Conservation Measure (CM) 113/XV). Following the Commission's decision 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), and renewed interest in this fishery, the fishery was reclassified as exploratory in 2000. That year, the Commission agreed on four exploratory fisheries for *Dissostichus* spp. in this region in 2001: exploratory trawl fisheries on BANZARE Bank (CM 203/XIX) and Elan Bank (CM 205/XIX); and exploratory longline fisheries outside areas of national jurisdiction on BANZARE Bank (CM 204/XIX) and Elan Bank (CM 206/XIX).

2. In 2001, the boundaries of Division 58.4.3 were rearranged on the basis of ecological considerations, and two new divisions were formed: Division 58.4.3a (Elan Bank) and Division 58.4.3b (BANZARE Bank) (see Figure 1). The Commission agreed to exploratory fisheries for *Dissostichus* spp. in each of these new divisions, outside areas of national jurisdiction. In 2007, the division was subdivided into small-scale research units (SSRUs) A (north of 60°S) and B (south of 60°S). In 2008, SSRU A was further subdivided into SSRUs A, C, D and E. Since 2010, operations in this fishery have been limited to research fishing only, in accordance with CM 24-01.

3. The limits on the exploratory fishery for *Dissostichus* spp. in Division 58.4.3b are described in CM 41-07. In 2012, the fishery was limited to research fishing conducted by one Japanese vessel using longlines only. Environmental protection in this fishery is regulated by CMs 22-06, 22-07, 22-08 and 26-01.

4. One Member (Japan; one vessel) notified its intention to conduct research fishing in Division 58.4.3b in 2013.

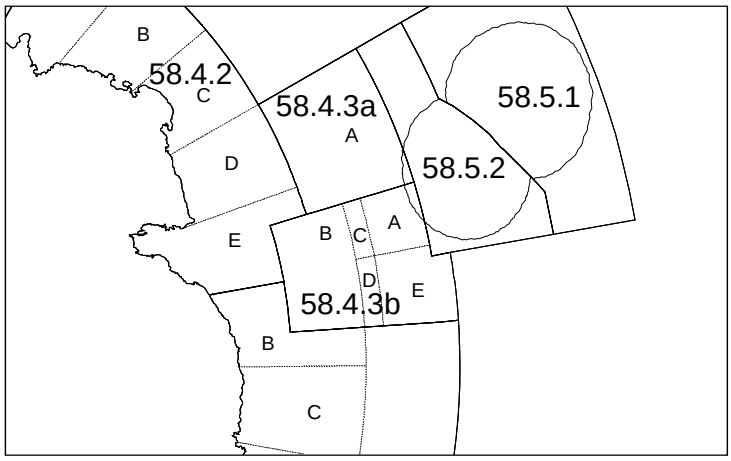


Figure 1: General map of Divisions 58.4.3a (Elan Bank) and 58.4.3b (BANZARE Bank). Division 58.4.3b consists of SSRUs A–E.

1.1 Reported catch

5. Licensed longline vessels have fished the exploratory fishery for *Dissostichus* spp. in Division 58.4.3b since 2004, and the target species is *D. mawsoni*, although some catches of *D. eleginoides* have also been reported since 2006 (Table 1). In 2012, one vessel participated in research fishing and reported a total catch of 9 tonnes of *Dissostichus* spp.

Table 1: Catch history for *Dissostichus* spp. in Division 58.4.3b. (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 removals (tonnes)
	Effort (number of vessels)		*Dissostichus* spp.					
			Catch limit (tonnes)	Reported catch (tonnes)				
	Limit	Reported		*D. eleginoides*	*D. mawsoni*	Total		
2004	6	1	300	1	6	7	-	7
2005	5	4	300	<1	297	297	1 015	1 312
2006	5	4	300	44	317	361	1 903	2 264
2007	6	4	300	74	176	251	3 226	3 477
2008	6	4	200*	42	101	142	360	502
2009	6	2	120	15	89	104	610	714
2010	4	1	0 (72)**	2	12	14	171	185
2011	1	1	0 (15)**	2	9	11	***	11
2012	1	1	0 (40)**	5	4	9	***	9

* Includes 50 tonnes for research fishing
** Research catch limit in brackets
*** Not estimated.

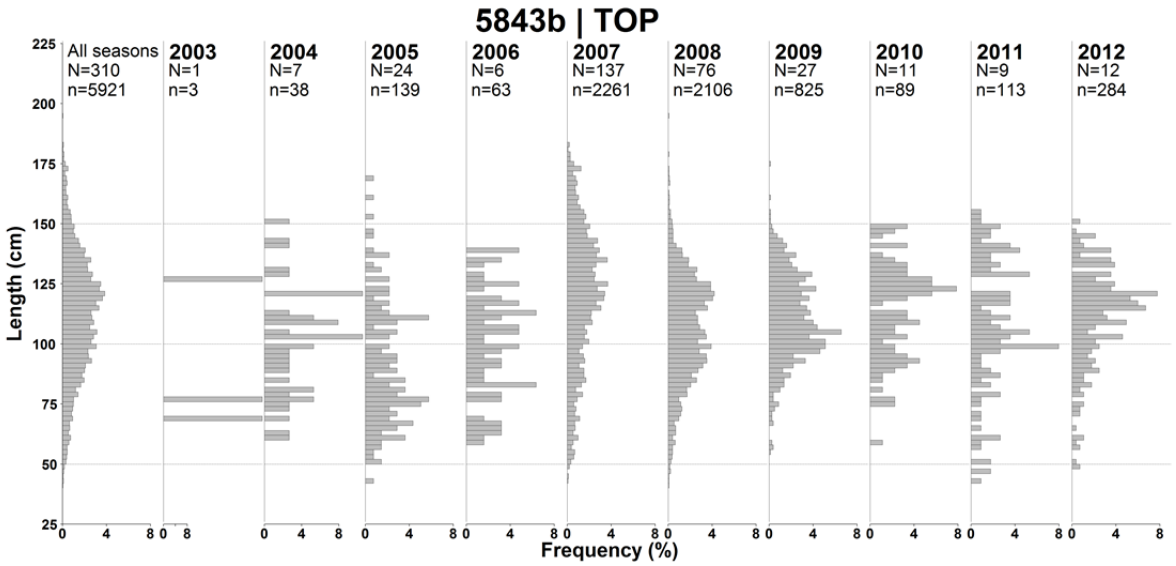
1.2 IUU catch

6. Information on IUU activities indicated high levels of IUU fishing between 2005 and 2007, peaking with an estimated IUU catch of *Dissostichus* spp. of 3 226 tonnes in 2007 (approximately 10 times the catch limit at that time; Table 1). 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

7. Length frequencies for *D. eleginoides* (TOP) and *D. mawsoni* (TOA) for each season are presented in Figures 2(a) and 2(b) respectively. 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. A description of how length data are used in assessments is provided in the relevant section of this report. Most *D. eleginoides* caught in the fishery ranged from 50 to 175 cm in length, with a broad mode at approximately 80–130 cm (Figure 2a), although it is likely some *D. eleginoides* were misidentified as *D. mawsoni* prior to 2007. *D. mawsoni* ranged from 100 to 175 cm in length, with a broad mode at approximately 125–160 cm (Figure 2b).

(a)



(b)

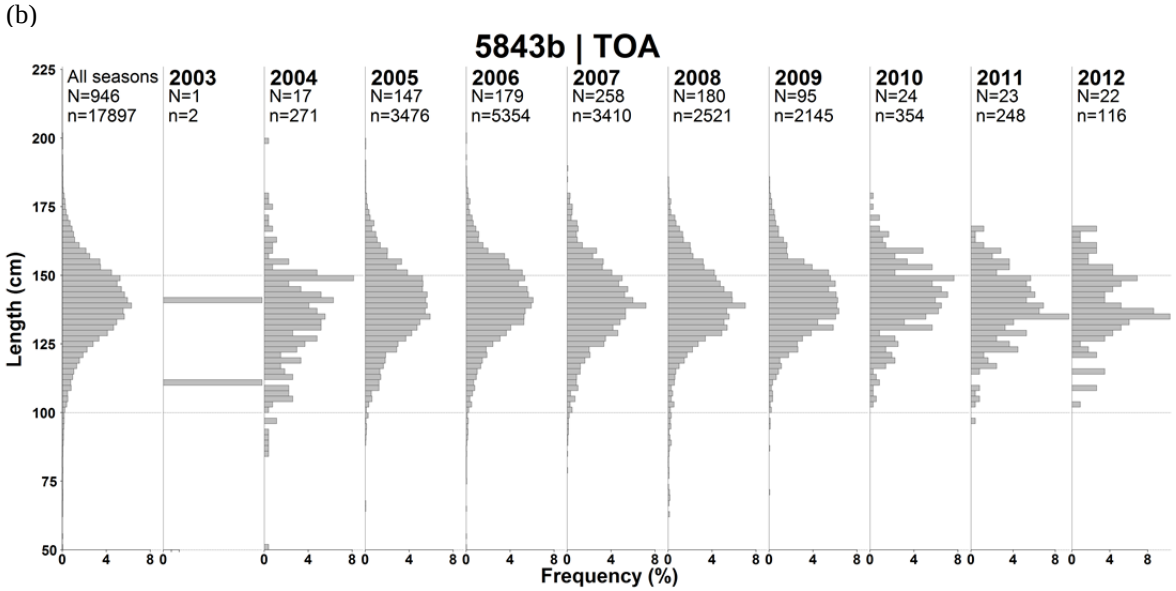


Figure 2: Length frequencies for (a) *Dissostichus eleginoides* (TOP) and (b) *Dissostichus mawsoni* (TOA) in Division 58.4.3b from 2003 to present using observer data. The number of hauls (N) and the number of fish measured (n) in each year are given at the top of each panel.

2. Stocks and areas

8. The most likely areas where *D. mawsoni* spawn are the Pacific–Antarctic Ridge (SSRU 881B/C) north of the Ross Sea and the Amundsen Ridge (SSRU 881E) in the Amundsen Sea. In East Antarctica (Subarea 58.4) the most likely area of spawning is BANZARE Bank and nearly all *D. mawsoni* caught in the fishery in Division 58.4.3b were mature. Spawning occurs in winter and may extend into autumn or spring (WG-FSA-08/14). A single tag-recovery in Division 58.4.3b of a fish released in Division 58.4.1 confirms some level of linkage between these stocks.

3. Parameter estimation

3.1 Observations

9. A demersal trawl survey has been undertaken in this area in 1999, which caught only two *D. eleginoides* in 40 tows (SC-CAMLR-XVIII, Annex 5, paragraph 3.79; WG-FSA-99/69).

10. More recently, vessels operating in this fishery have been 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). Research fishing has been conducted in accordance with a research plan submitted under CM 24-01. The number of research hauls reported in each season are summarised in Table 2.

Table 2: Research (R) and commercial (C) longline hauls reported by vessels operating in the exploratory fishery for *Dissostichus* spp. in Division 58.4.3b. (Source: fine-scale data.)

Season	Flag State	Vessel name	SSRU	Number of hauls		
				R	C	Total
2004	Australia	*Eldfisk*	-	13	6	19
2005	Chile	*Globalpesca II*	-	10	9	19
	Korea, Republic of	*Yeon Seong No. 829*	-	10	6	16
	Spain	*Arnela*	-	30	67	97
		Galaecia	-	20	8	28
2006	Chile	*Globalpesca I*	-	11		11
	Spain	*Galaecia*	-	21	47	68
		Tronio	-	6	63	69
	Uruguay	*Paloma V*	-	23	20	43
2007	Japan	*Shinsei Maru No. 3*	-	20	128	148
	Namibia	*Antillas Reefer*	-	18	32	50
	Spain	*Tronio*	-	20	17	37
	Uruguay	*Paloma V*	-	20	27	47
2008	Japan	*Shinsei Maru No. 3*	North 60°S	20	114	134
	Namibia	*Antillas Reefer*	North 60°S	20	6	26
	Uruguay	*Banzare*	North 60°S	10	7	17
2009	Japan	*Shinsei Maru No. 3*	A	10	18	28
		Shinsei Maru No. 3	E	10	8	18
	Uruguay	*Banzare*	D	10	16	26
		Banzare	E	10	13	23
2010	Japan	*Shinsei Maru No. 3*	Sector SE	24	0	24
2011	Japan	*Shinsei Maru No. 3*	-	24	0	24
2012	Japan	*Shinsei Maru No. 3*	-	22	0	22

11. Since 2011, vessels have been required to tag and release *Dissostichus* spp. at a rate of five fish per tonne of green weight caught. Prior to this, the required rate was four fish per tonne of green weight caught in 2010, three fish per tonne in 2008 and 2009, and one fish per tonne between 2004 and 2007 with a limit of 500 fish tagged per vessel. A total of 1 198 *D. mawsoni* and 400 *D. eleginoides* have been tagged and released and 10 *D. mawsoni* and one *D. eleginoides* have been recaptured in this division (Table 3).

Table 3: Number of individuals of *Dissostichus* spp. (a) tagged and released and (b) tagging rates reported by vessels operating in the exploratory fishery for *Dissostichus* spp. in Division 58.4.3b since 2007, and (c) total number of tagged fish released and recaptured. (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					
		2007	2008	2009	2010	2011	2012
Australia	*Janas*		15 (9)				
Japan	*Shinsei Maru No. 3*	112 (37)	346 (120)	126 (74)	60 (8)	62 (16)	51 (30)
Namibia	*Antillas Reefer*	49 (47)	13 (1)				
Spain	*Tronio*	81 (0)					
Uruguay	*Banzare*		43 (*)	230 (1)			
	Paloma V	47 (43)					

* 43 *Dissostichus* spp. (species not identified).

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

Flag State	Vessel name	Season					
		2007	2008	2009	2010	2011	2012
Australia	*Janas*		6.4				
Japan	*Shinsei Maru No. 3*	1.0	3.2	3.2	4.3	5.8	5.7
Namibia	*Antillas Reefer*	2.1	0.6				
Spain	*Tronio*	1.0					
Uruguay	*Banzare*		4.5	3.6			
	Paloma V	1.2					
Required rate		1	3	3	4	5	5

(c) Total number of tagged *Dissostichus* spp. released and recaptured in Division 58.4.3b.

Season	Number tagged and released			Number recaptured		
	D. eleginoides	*D. mawsoni*	Total	*D. eleginoides*	*D. mawsoni*	Total
2005	10	221	231	0	1	1
2006	4	171	175	0	6	6
2007	127	162	289	0	1	1
2008	130	244	417*	0	1	1
2009	75	281	356	0	1	1
2010	8	52	60	1	0	1
2011	16	46	62	0	0	0
2012	30	21	51	0	0	0
Total	400	1198	1641	1	10	11

* Includes 43 *Dissostichus* spp. (species not identified).

12. Vessels catching more than 2 tonnes of *Dissostichus* spp. were required to achieve a minimum tag-overlap statistic of 50% in 2011 and 60% from 2012 onwards (Annex 41-01/C). The vessel fishing in Division 58.4.3b in 2012 achieved a tag-overlap statistic of 69 to 86% (Table 4).

Table 4: Time series of the tag-overlap statistic (CM 41-01) for *Dissostichus mawsoni* and *D. eleginoides* tagged in Division 58.4.3b. The tag-overlap statistic was not calculated for total catches of less than 2 tonnes. Only vessels fishing in CCAMLR fisheries in 2012 are listed in the table.

Species	Flag State	Vessel name	Season					
			2007	2008	2009	2010	2011	2012
D. mawsoni	Japan	*Shinsei Maru No. 3*	29	48	36	55	85	86
	Spain	*Tronio*	65					
D. eleginoides	Japan	*Shinsei Maru No. 3*	36	36	21	*	81	69

3.2 Fixed parameter values

13. None available for this fishery.

4. Stock assessment

14. An analysis provided in WG-FSA-07/44, based on fine-scale catch and effort data, indicated that catch-per-unit-effort (CPUE) data for BANZARE Bank show high levels of heterogeneity, making the production of a standardised CPUE series difficult. The Working Group concluded that the combination of high levels of IUU and legal fishing in small areas had resulted in a severe decline in CPUE, indicating unsustainable depletion of toothfish in the main areas where fishing data are available.

15. A random longline survey was carried out in this division by Australia in May 2008 (WG-FSA-08/57). The results of the survey indicated that catch rates of *Dissostichus* spp. were very low, consistent with toothfish being depleted to low densities across the surveyed area. It also noted that only very large *Dissostichus* spp. were present in the area. The precision of the average catch rate was not reported in WG-FSA-08/57 but was further calculated during the 2008 Working Group meeting using the methods described in Candy (2004) which gave an approximate 95% confidence bound of between 17 and 60 kg/thousand hooks. This indicates that catch rates can be considered small relative to other areas such as Subarea 88.1.

16. The Working Group noted that only two of the three preferred fishing grounds in the area were covered by the Australian survey. However, the random nature of the survey implies the area was adequately covered. Japan noted it would have liked to see the third preferred fishing ground surveyed and a larger number of stations sampled to provide a more robust estimate of biomass. The Working Group recommended that WG-SAM should look at how to design longline surveys and, in particular, how to deal with preferred fishing grounds, and how to reconcile datasets from different types of fishing gear.

17. In 2008 the Working Group agreed (SC-CAMLR-XXVII, Annex 5, paragraph 5.57) that:

(i) based on fishing information until 2007, the fisheries across BANZARE Bank show that the preferred fishing grounds were depleted in the Southern Area (adopted by WG-FSA-07, resulted in the closure of the Southern Area)

(ii) based on the survey and fisheries across BANZARE Bank, there are very few fish apart from in the preferred fishing grounds

(iii) the fish found in the preferred fishing grounds are large and likely spawning, there are no small fish and fish are male dominated (79%)

(iv) in the survey, the fish were large and mostly male

(v) spawning fish in East Antarctica have only been found on BANZARE Bank (WG-FSA-07/44 and SC-CAMLR-XXVII, paragraph 3.32).

18. In 2009, the Working Group considered three possible scenarios for the *D. mawsoni* stock on BANZARE Bank, based on existing knowledge (SC-CAMLR-XXVIII, Annex 5, paragraph 5.57):

(i) Scenario 1: spawning fish have a high turnover in Division 58.4.3b, moving freely within this division between SSRUs and other areas each year.

(ii) Scenario 2: spawning fish move sporadically to Division 58.4.3b, and then remain in the area, moving little across the area between years.

(iii) Scenario 3: there is large turnover of large fish in Division 58.4.3b, but they represent only a fraction of the spawning stock that sustains the population in East Antarctica.

19. The Working Group further noted that, due to their proximity, the fish on BANZARE Bank are likely to originate from the coastal areas of Antarctica in the southern Indian Ocean. The Working Group noted that other plausible scenarios could be envisioned, however, it saw that the three scenarios captured useful alternative hypotheses for this division (Figure 3).

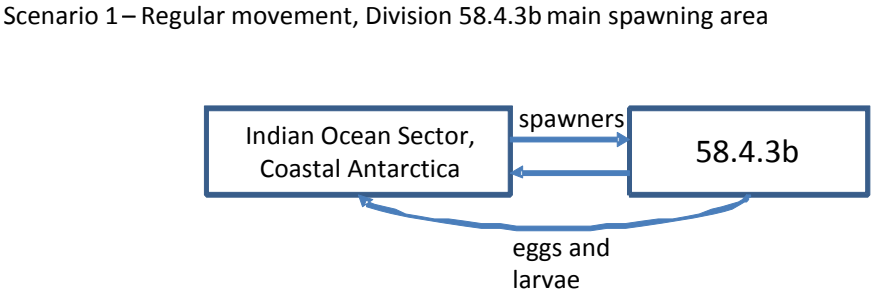


Figure 3: Diagram illustrating possible scenarios for the *Dissostichus mawsoni* stock on BANZARE Bank (Division 58.4.3b). Solid arrows indicate regular movements of fish, dashed arrows indicate sporadic movement of fish.

20. Also in 2009, the Working Group considered the data and analyses on CPUE, size distribution and tagging from Division 58.4.3b (SC-CAMLR-XXVIII, Annex 5, paragraph 5.60). The Working Group agreed that CPUE data indicated that:

(i) depletion had occurred during fishing in Patch B in 2008 and Patch C in the 2009 season, but the results of the depletion analysis were ambiguous for Patch A and for Box C (see Figure 4 for location of grounds and patches)

(ii) un-standardised CPUE for the whole of Division 58.4.3b had increased between 2004 and 2009 (Figure 5)

(iii) CPUE is affected by factors such as gear and bait type, vessel, season, depth fished, species and area fished, and these have serious consequences for interpreting un-standardised CPUE (SC-CAMLR-X, Annex 6, paragraphs 7.107 to 7.121; SC-CAMLR-XI, Annex 5, paragraphs 6.143 to 6.166).

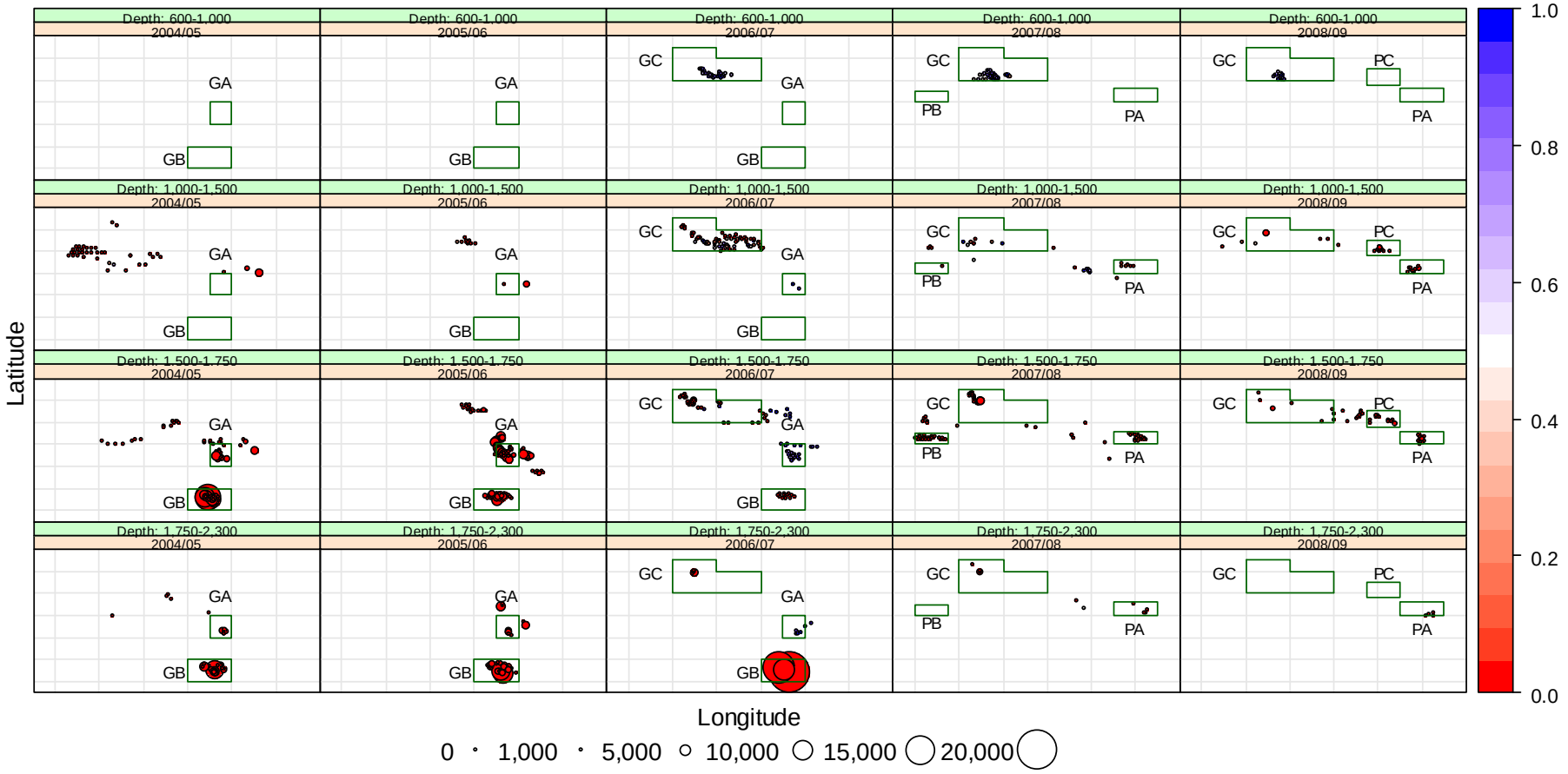


Figure 4: Bubbleplot showing total toothfish removals (kg) proportional to symbol size for individual longlines fished in BANZARE Bank, showing different panels for season and depth fished. Colour on a red-blue gradient represents *Dissostichus eleginoides* catch as a proportion of total catch (i.e. blue – *D. eleginoides*, red – *D. mawsoni*). Also shown are Grounds A–C defined in McKinlay et al. (2008) and Patches A–C defined in WG-FSA-09/44, and the seasons in which they were analysed.

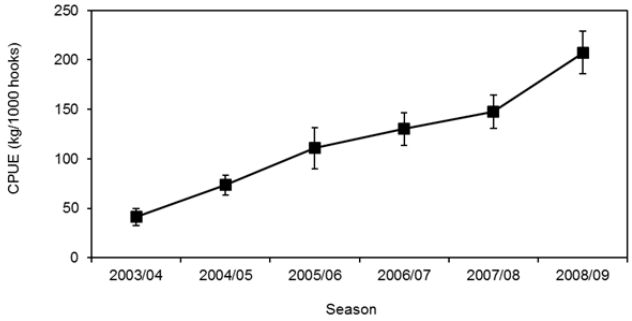


Figure 5: Unstandardised CPUE (kg/thousand hooks) of *Dissostichus* spp. in the exploratory longline fishery in Division 58.4.3b. (Source: fine-scale catch and effort data.) Error bars: 95% confidence limits.

21. Scientific research fishing undertaken by Japan in the southeast sector of four designated sampling sectors (CM 41-07 (2009), Annex A, Figure 1) during 2009 (WG-FSA-10/45) indicated that CPUE was lower than in previous seasons in the northwestern sector. It was noted by the Working Group that the sampling design undertaken for this research was not submitted for review by any SC-CAMLR working group, and that future research plans should be reviewed by WG-FSA.

22. The Working Group noted that CPUE observed in the Australian survey was lower than that observed for commercial/research fishing and that this indicated that the abundance of fish in the survey area was low, and that higher CPUE observed in previous seasons may be a reflection of the aggregated nature of commercial fishing, whereby fishers aggregate to areas where catch rates are highest, but that other factors – such as removals by IUU fishing – could also be contributing to these results.

23. In 2009, the Working Group also agreed (SC-CAMLR-XXVIII, Annex 5, paragraph 5.61) that:

(i) out of 10 recaptured *D. mawsoni* in Division 58.4.3b, nine were released in Division 58.4.3b and one was released in Division 58.4.1 (Figure 6). The one recaptured *D. eleginoides* was released in Division 58.4.3b (Figure 7)

(ii) large movements of fish have been observed for fish at liberty for two years or more, and tend to be from the east to the west in coastal Antarctica, or from the coast to BANZARE Bank

(iii) stocks of *D. mawsoni* are likely to be distinct at the scale of ocean basins (see also citation of Smith and Gaffney, 2005).

24. Exploratory longline fishing during 2007–2009 indicated that *D. eleginoides* was typically found in shallower waters than *D. mawsoni*, and that larger fish (predominantly female) were found deeper (WG-FSA-10/47). Based on the size distribution of catches, the study concluded that recruitment to BANZARE Bank is unlikely and that the population may consist primarily of adults migrating from other areas. The Working Group noted that this study only used data from a single vessel. However, the conclusions of the paper seemed consistent with previous work on the biology and ecology of toothfish in this area, such as that described in WG-FSA-08/57. The Working Group recommended that authors of such reviews should consider collaborating to synthesise current knowledge.

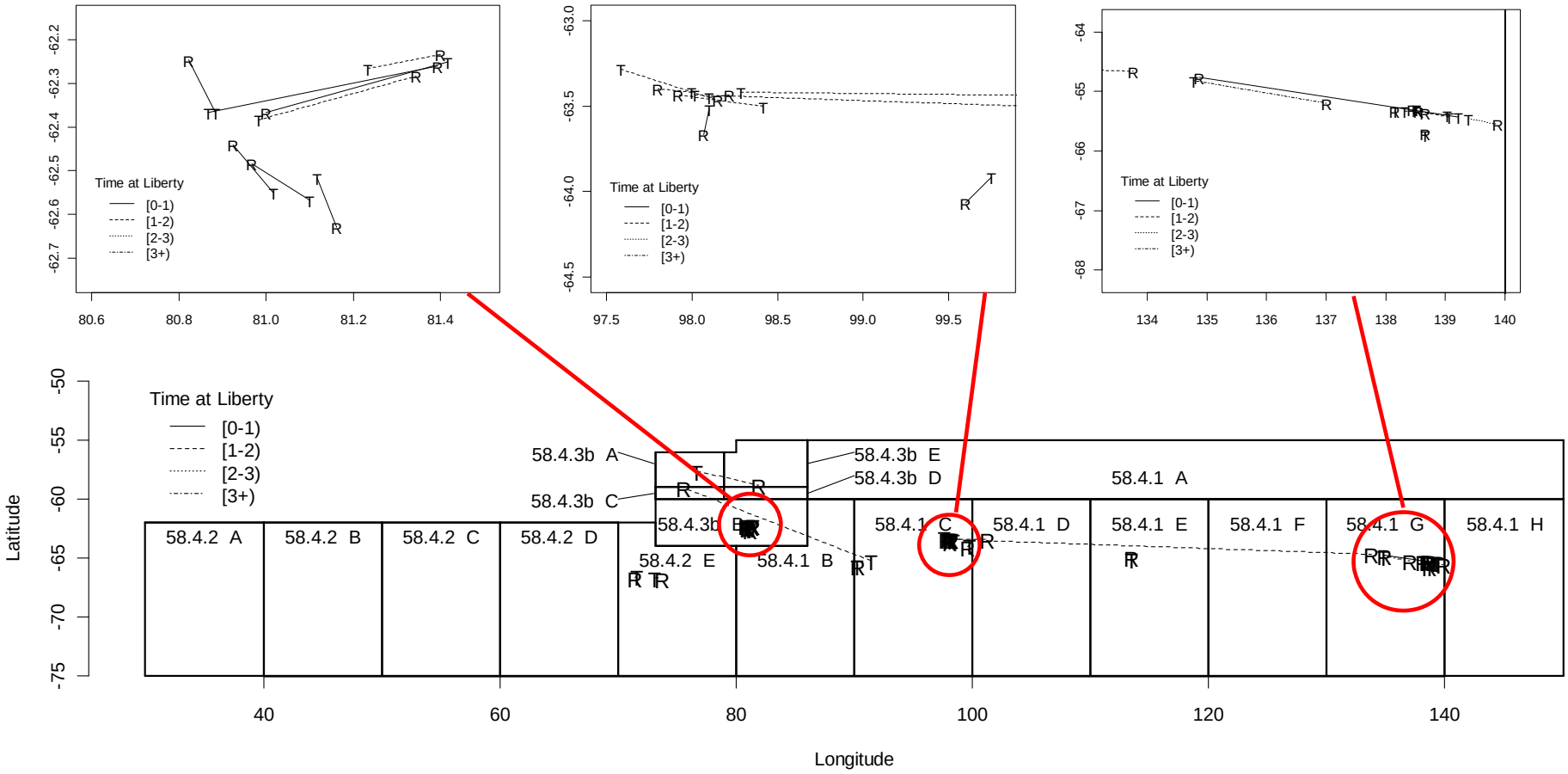


Figure 6: Plot of tag-recaptures of *Dissostichus mawsoni* in Divisions 58.4.1, 58.4.2 and 58.4.3b recorded between 2004 and 2010. 'T' indicates the release location and 'R' indicates the recapture location.

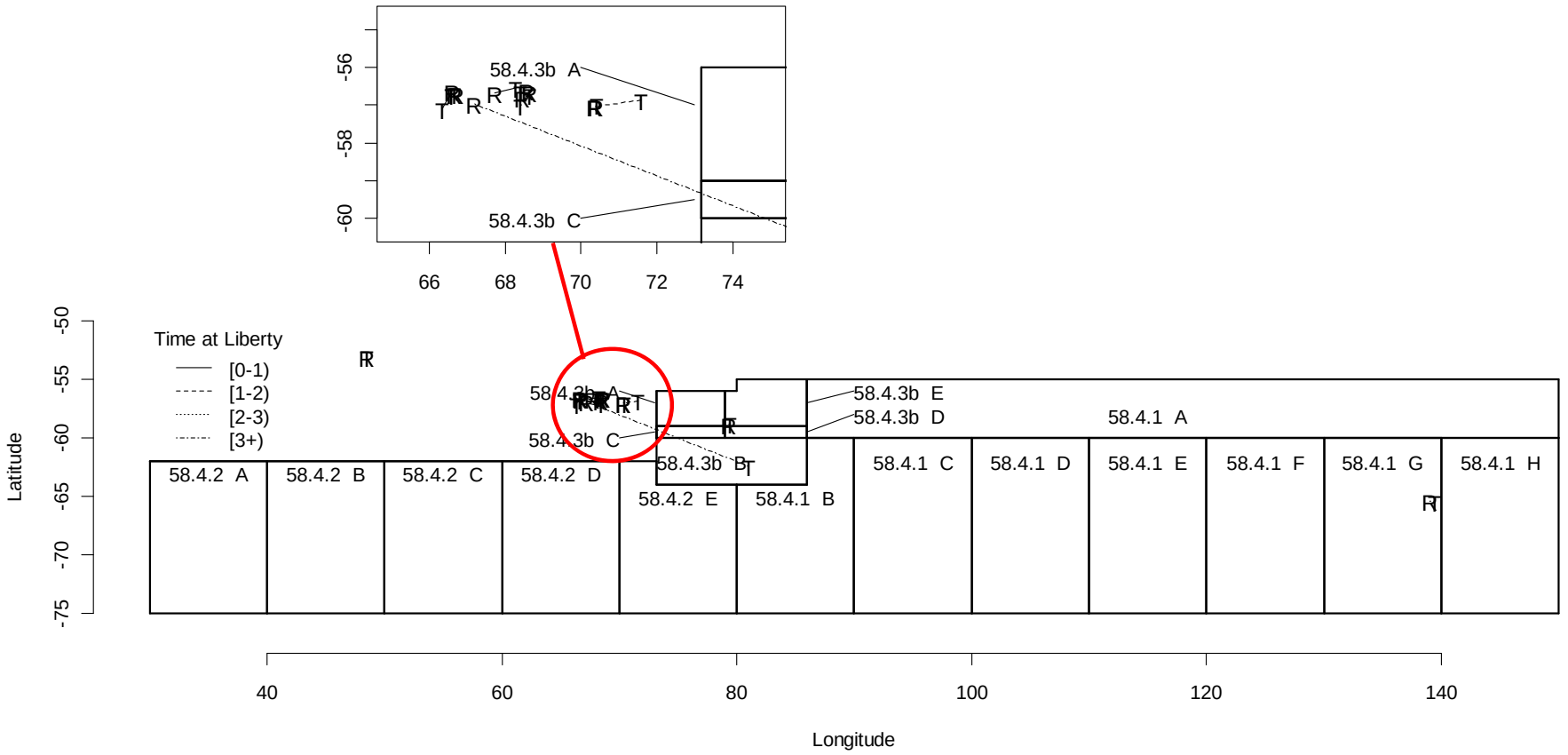


Figure 7: Plot of tag-recaptures of *Dissostichus eleginoides* in Divisions 58.4.1, 58.4.2 and 58.4.3b recorded between 2004 and 2010. 'T' indicates the release location and 'R' indicates the recapture location.

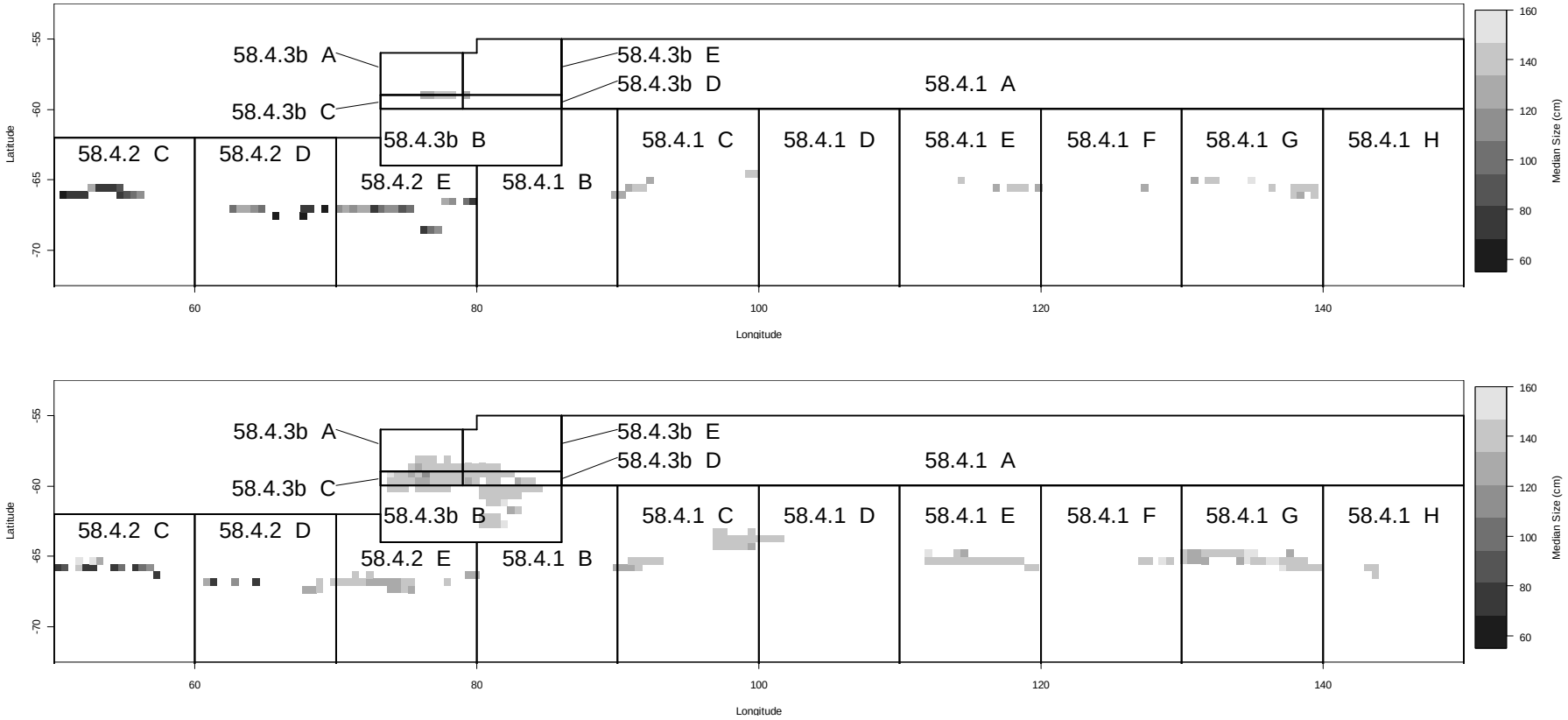


Figure 8: Plot of median lengths of *D. mawsoni* sampled in Divisions 58.4.1, 58.4.2 and 58.4.3b between 2004 and 2009, aggregated into 0.5° latitude × 0.5° longitude boxes. The upper panel shows data for fishing in depths shallower than 1 000 m, the lower panel for fishing in depths deeper than 1 000 m. Note: darker squares indicate smaller median length; lighter squares indicate larger median length.

25. In 2009, the Working Group:

(i) agreed that size distribution data and maturity data indicated that (SC-CAMLR-XXVIII, Annex 5, paragraph 5.62):

(a) there is no evidence of recruitment of small (<60 cm) *D. mawsoni* in Divisions 58.4.1, 58.4.2 and 58.4.3b (Figure 8)

(b) *D. mawsoni* are likely to move throughout Divisions 58.4.1, 58.4.2 and 58.4.3b

(c) smaller fish are found in the western area of Division 58.4.2 and in waters shallower than 1 000 m, and larger fish deeper than 1 000 m

(ii) noted that the observed size distribution and location of tag-recaptures of *D. mawsoni* from Subarea 58.4 suggested a life-history pattern that was analogous to that proposed for *D. mawsoni* in the Ross Sea by Hanchet et al. (2008). Hence, the size distribution of *D. mawsoni* on BANZARE Bank would be expected to be similar to that in the north of the Ross Sea

(iii) noted that the development of this hypothetical lifecycle for the Ross Sea had been useful in understanding population dynamics in this region (SC-CAMLR-XXVIII, Annex 5, paragraph 5.64)

(iv) encouraged Members to develop a similar detailed review of data to develop a hypothetical lifecycle for *D. mawsoni* in the Indian Ocean sector of the Convention Area for Subarea 58.4, including consideration of oceanographic features in the area

(v) noted that analysis of otoliths would assist in understanding population dynamics of *D. mawsoni* in this area.

26. In 2011, the Working Group estimated initial biomass using the catch rate and seabed area comparison method, as recommended by SC-CAMLR-XXX, Annex 5, paragraph 2.40(ii) (because Petersen biomass estimates from tag-recaptures were not available for this area). Since this estimate was highly uncertain due to the inherent difficulty of CPUE standardisation and the assumption of a comparable reference area, a precautionary discount factor of 0.3 was applied, similar to that used for *D. mawsoni* in the Ross Sea in 1998 (SC-CAMLR-XXVII, Annex 5, paragraphs 4.58 and 4.67 to 4.68). Using this approach, the precautionary biomass was estimated at 4 078 tonnes. Applying a precautionary exploitation rate of 0.01 (consistent with assuming that the current status of this potentially depleted stock is 30% B_0 under the GYM application described in WG-FSA-10/42 Rev. 1) resulted in a precautionary research catch limit of 41 tonnes. The Working Group stressed that the actual status of the stock is unknown, but thought these assumptions to be precautionary.

5. By-catch of fish and invertebrates

5.1 By-catch removals

27. Catches of by-catch species groups (macrourids, rajids and other species) reported in each season, 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 17 tonnes per season). Catches of rajids have reached 6 tonnes per season.

Table 5: Catch history for by-catch species (macrourids, rajids and other species), catch limits and number of rajids released alive in Division 58.4.3b. 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)
2004	159	<1	50	<1	-	20	0
2005	159	7	50	6	-	20	<1
2006	159	8	50	1	-	20	<1
2007	159	17	50	3	1 267	20	1
2008	80	7	50	1	157	20	2
2009	80	4	50	1	102	20	<1
2010	80	2	50	<1	22	20	<1
2011	-	1	-	<1	-	-	<1
2012	-	1	-	<1	-	-	<1

5.2 Assessment of impacts on affected populations

28. *Macrourus* spp. and *Raja taaf* were very common by-catch species during the survey conducted by Australia in May 2008, summarised in WG-FSA-08/57, indicating that previous by-catch records of rajids from the Northern Area of the division were likely to be *R. taaf*. The sex-specific size-at-maturity of *R. taaf* was estimated based on individuals caught in the survey, indicating that males and females have a median size-at-maturity of 75.5 and 79.5 cm respectively (total length). The majority of the catch ranged between 40 and 90 cm, indicating that juvenile females may be more vulnerable to longline gear.

5.3 Identification of levels of risk

29. None available for this fishery.

5.4 Mitigation measures

30. Catch limits for by-catch species groups (macrourids, rajids and other species) are provided in CM 33-03.

6. Incidental mortality of birds and mammals

6.1 Incidental mortality reported

31. There have been no observed seabird mortalities since 2006 in Division 58.4.3b (Table 6).

Table 6: Seabird by-catch limit, observed mortality rate and total estimated mortality of seabird by-catch in Subarea 58.4, including Division 58.4.3b.

Season	By-catch limit (number of birds)	Mortality rate (birds/thousand hooks)	Total estimated mortality (number of birds)
2004	3*	0	0
2005	3*	0	0
2006	3*	0.0002	2
2007	3*	0	0
2008	3*	0	0
2009	3*	0	0
2010	3*	0	0
2011	3*	0	0
2012	3*	0	0

* Per vessel during daytime setting.

32. No marine mammal interactions or mortalities were observed in 2011.

6.2 Identification of levels of risk

33. The risk level for seabirds in this fishery in Division 58.4.3b is category 3 (average) (SC-CAMLR-XXX, Annex 8, paragraph 8.1).

6.3 Mitigation measures

34. 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 CM 26-01.

7. Ecosystem implications/effects

35. No evaluation available for this fishery.

8. Harvest controls and management advice

8.1 Conservation measures

36. The limits on the exploratory fishery for *Dissostichus* spp. in Division 58.4.3b are defined in CM 41-07. 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 Division 58.4.3b in force (CM 41-07) and advice to the Scientific Committee for 2013.

Element	Limit in force	Advice for 2013
Access	No more than one vessel per country at any one time.	Carry forward
Catch limit	Precautionary catch limit for *Dissostichus* spp. was zero tonnes outside areas of national jurisdiction.	Carry forward
Season	1 May to 31 August, with fishing permitted outside the prescribed season provided that each vessel demonstrated its capacity to comply with the requirements for longline weighting outlined in CM 24-02.	Carry forward
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
	Limit of three (3) seabirds per vessel fishing outside the prescribed season.	Carry forward
Observers	At least one scientific observer 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 Annex 41-07/A and 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), and CM 24-01	Carry forward
	Toothfish tagged at a rate of at least five fish per tonne green weight caught.	Carry forward
Environmental protection	Regulated by CMs 22-06, 22-07, 22-08 and 26-01.	Carry forward

8.2 Management advice

37. In 2012 the Working Group recalled SC-CAMLR-XXX, paragraphs 9.34 to 9.36, where it was agreed that further advice on population status and trends, and the potential for a future fishery in the area, could not be provided until such time as available data on the current status of the stock on BANZARE Bank, historical fishing data, the results of past surveys and current research, and estimates of past and ongoing IUU removals have been fully analysed and reviewed. In the absence of such a review, the Working Group was not able to provide additional advice on the research plan or to revise management advice.

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