

**FISHERY REPORT: *DISSOSTICHUS ELEGINOIDES* PRINCE EDWARD ISLANDS
SOUTH AFRICAN EEZ (SUBAREAS 58.6 AND 58.7)**

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1. Details of the fishery

A licensed fishery within the South African EEZ at the Prince Edward Islands started in October 1996. Part of the South African EEZ is outside the CAMLR Convention Area (Area 51) and part falls within Subareas 58.6 and 58.7 and Division 58.4.4 (Figure 1). Most fishing in the South African EEZ takes place to the north and the east of the Prince Edward Islands in Subareas 58.6 and 58.7 and Area 51, and this Fishery Report focuses on Subareas 58.6 and 58.7.

2. Although the fishery began in 1996, intelligence reports indicated that IUU vessels were operating in the area in 1995 and possibly 1994. Prior to the 2001/02 fishing season, the estimated IUU catch exceeded the reported catch for most years (SC-CAMLR-XXVI, Annex 5, Appendix N, Table 2). Since the start of the fishery, a maximum of seven operators have been licensed by South Africa to fish in any one year. Since 2001/02, only two licensed vessels have been used by these operators in any one year, and only one vessel was active in 2005/06, 2007/08 and 2008/09.

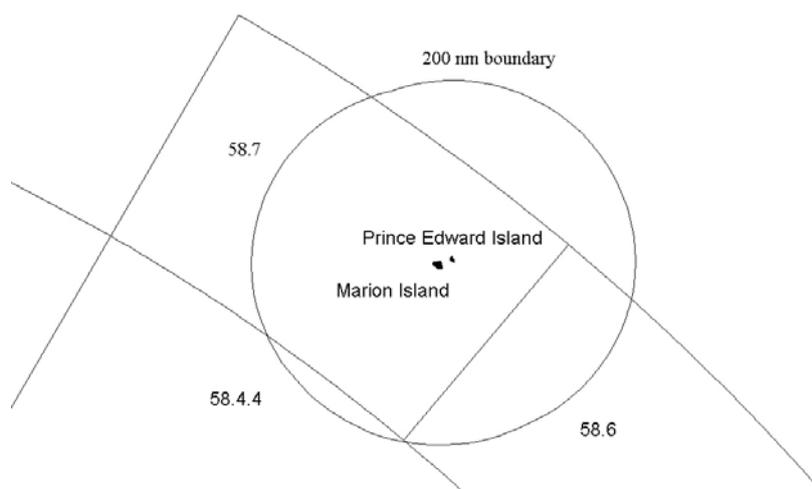


Figure 1: General map of the South African EEZ at the Prince Edward Islands and the boundaries of Subareas 58.6 and 58.7 and Division 58.4.4 in the CAMLR Convention Area. Area 51 lies to the north of Subareas 58.6 and 58.7.

1.1 Reported catch (time series)

3. The total annual catches taken in the South African EEZ in Subareas 58.6 and 58.7 in the Convention Area, and Area 51 outside the Convention Area, as reported to CCAMLR, are presented in Table 1.

Table 1: Catch history for *Dissostichus eleginoides* in Subareas 58.6 and 58.7 in the Convention Area, and Area 51 outside the Convention Area. (Source: STATLANT data for past seasons, fine-scale data for current season, WG-FSA-09/5 Rev. 1 and past reports for IUU catch in Subarea 58.7; IUU catches in Subarea 58.6 are described in the Crozet Island Fishery Report – Appendix P).

Fishing season	Reported catch (tonnes)				Estimated IUU catch (tonnes)	Total removal (tonnes)
	Area 51	Subarea 58.6	Subarea 58.7	Total		
1995/96	0	73	869	942	4958	5900
1996/97	0	53	1193	1246	7327	8573
1997/98	0	267	637	903	598	1501
1998/99	0	275	301	576	173	749
1999/00	0	79	1015	1094	191	1285
2000/01	0	36	235	271	120	391
2001/02	0	67	98	165	78	243
2002/03	46	39	219	304	120	424
2003/04	33	71	133	237	48	285
2004/05	53	79	142	274	60	334
2005/06	22	27	124	172	0	172
2006/07	41	26	148	216	0	216
2007/08	21	55	69	145	0	61
2008/09 ¹	0	0	4	4	0	4

¹ One vessel is currently fishing. The expected final catch is expected to be in the region of 80 tonnes.

4. The status of the resource within the South African EEZ was revised in 2007 (SC-CAMLR-XXVI, Annex 5, Appendix N; WG-FSA-07/34 Rev. 1). In that review, the removals from the South African EEZ were derived from SC-CAMLR-XXVI, Annex 5, Appendix N, Table 2.

1.2 IUU catch

5. The estimated IUU catch in Subarea 58.7 is presented in Table 1 (IUU catches in Subarea 58.6 are described in the Crozet Island fishery report (Appendix P)), whereas the estimated IUU catch from the South African EEZ (as used in the assessment in WG-FSA-07/34 Rev. 1) is presented in SC-CAMLR-XXVI, Annex 5, Appendix N, Table 2.

6. IUU fishing has occurred since at least 1995 (and possibly 1994), and initially the estimated IUU catch within the South African EEZ substantially exceeded the reported catch (SC-CAMLR-XXVI, Annex 5, Appendix N, Table 2). The IUU catch in the South African EEZ prior to 2003 (SC-CAMLR-XXVI, Annex 5, Appendix N, Table 2) was estimated as the sum of the IUU catch estimated for Subarea 58.7 and 50% of that estimated for Subarea 58.6 (Brandão et al., 2002). Since 2003 IUU catch estimates are based on the number and duration of fishing activities of illegal vessels known, or believed, to have operated in the South African EEZ and on the average green weight tonnages from vessels operating legally in that area in the corresponding years. Note that CCAMLR records indicated only one reported IUU vessel in this area during 2004, whereas other intelligence reports indicated that at least three IUU vessels were seen within the South African EEZ (WG-FSA-05/58). The latest IUU

reports record a single vessel in Subarea 58.6 in 2005/06, which may or may not have been within the South African EEZ (WG-FSA-07/10 Rev. 5). There was no evidence of IUU fishing in 2008/09.

1.3 Size distribution of catches (time series)

7. Catch-weighted length frequencies for *D. eleginoides* caught by longline are presented in Figure 2. The data cover the period 1995/96 to the current season, except for 2002/03 and 2004/05 where fine-scale catch and/or length data are not available in the CCAMLR database. Most *D. eleginoides* caught by longline range from 50 to 120 cm in length, with a mode at approximately 60–90 cm.

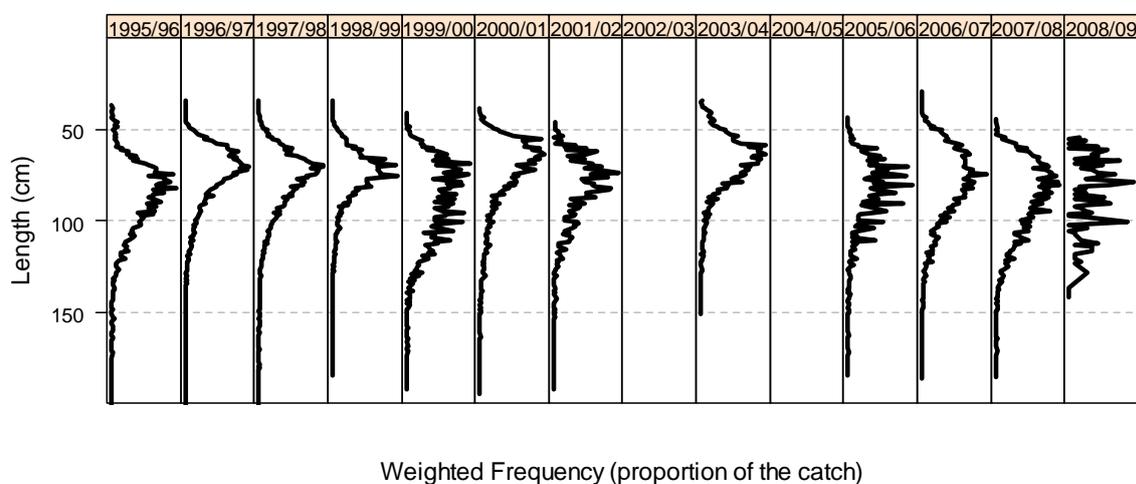


Figure 2: Catch-weighted length frequencies for *Dissostichus eleginoides* caught by longline in the South African EEZ in Subareas 58.6 and 58.7 (source: observer, fine-scale and STATLANT data; there were no fine-scale and/or length data available for 2002/03 and 2004/05).

2. Stocks and areas

8. The South African EEZ around the Prince Edward Islands is mainly in Subarea 58.7 but extends east into Subarea 58.6, south into Division 58.4.4, and north of the Convention Area into Area 51 (Figure 1). However, there are currently no fishing grounds in the south of the South African EEZ. The majority of the fishery occurs down to about 1 500 m, but fishing depths in excess of 2 000 m have been recorded. Subarea 58.6 also includes the Crozet Islands to the east of the Prince Edward Islands. The current stock assessments do not consider the possibility that these island groups share the same toothfish stock.

3. Parameter estimation

9. The parameters used in the assessment reviewed in 2007 are reported in SC-CAMLR-XXVI, Annex 5, Appendix N.

4. Stock assessment

10. The assessment was reviewed in 2007 (see SC-CAMLR-XXVI, Annex 5, Appendix N and WG-FSA-07/34 Rev. 1). No assessment was carried out in 2009. An operational management procedure (OMP) approach for the fishery was presented to and discussed by WG-SAM (SC-CAMLR-XXVII, Annex 7, paragraphs 6.1 to 6.3; Brandão and Butterworth, 2009). The adoption of the OMP as a basis for management is currently being considered by South Africa.

5. By-catch of fish and invertebrates

5.1 Estimation of by-catch removals

11. Estimated annual by-catch removals from the longline fishery for *D. eleginoides* in the South African EEZ in Subareas 58.6 and 58.7, and Area 51, are reported in Table 2. The Working Group noted that South Africa has voluntarily submitted accurate fine-scale data for all except two seasons (Figure 2) and encouraged South Africa to submit fine-scale data for those two seasons.

Table 2: Catch history for by-catch species (macrourids, rajids and other species) taken in the longline fishery for *D. eleginoides* in the South African EEZ in Subareas 58.6 and 58.7 in the Convention Area, and Area 51 outside the Convention Area (source: fine-scale data).

Season	Reported catch (tonnes)											
	Macrourids				Rajids				Other species			
	51	58.6	58.7	Total	51	58.6	58.7	Total	51	58.6	58.7	Total
1995/96	0	0	0	0	0	0	0	0	0	0	0	0
1996/97	0	0	0	0	0	0	0	0	0	0	0	0
1997/98	0	0	0	0	0	0	1	1	0	0	1	1
1998/99	0	0	0	0	0	0	0	0	0	0	0	0
1999/00	15	12	47	74	2	2	3	7	4	0	7	11
2000/01	8	2	13	22	0	0	0	1	1	0	1	2
2001/02	3	2	2	7	0	0	0	0	0	0	0	0
2002/03*	-	-	-	-	-	-	-	-	-	-	-	-
2003/04	0	0	0	1	0	0	0	0	0	0	0	0
2004/05	0	0	0	0	0	0	0	0	0	1	45	46
2005/06	2	1	8	12	0	0	0	0	1	0	0	1
2006/07	15	9	22	46	0	0	0	0	2	0	2	5
2007/08	2	3	5	10	0	0	0	0	1	0	2	2
2008/09	0	0	0	0	0	0	0	0	0	0	0	0

* No fine-scale data

5.2 Assessments of impact on affected populations

12. It was not possible to assess the impacts on affected populations.

5.3 Mitigation measures

13. There are no mitigation measures in force to reduce fish and invertebrate by-catch.

6. By-catch of birds and mammals

6.1 Estimation of longline by-catch removals

14. There were no observed incidents of seabird mortality in the South African EEZ in Subareas 58.6 and 58.7 during the 2008/09 season (Table 3). This is the fourth consecutive year of no observed seabird by-catch in this fishery. No new estimates of potential seabird removals by IUU fishing were calculated in 2009. Previous estimates are summarised in SC-CAMLR-XXVI/BG/32 and SC-CAMLR-XXVI, Annex 6, Part II, Table 20.

Table 3: Estimated by-catch of seabirds in the South African EEZ in Subareas 58.6 and 58.7 (taken from SC-CAMLR-XXVIII, Annex 7, Table 4).

Fishing season	By-catch rate (birds/thousand hooks)	Estimated by-catch
1996/97	0.52	834
1997/98	0.194	528
1998/99	0.034	156
1999/00	0.046	516
2000/01	0.018	199
2001/02	0	0
2002/03	0.003	7
2003/04	0.025	39
2004/05	0.149	76
2005/06	0	0
2006/07	0	0
2007/08	0	0
2008/09	0	0

15. WG-IMAF assessed the level of risk of incidental mortality of seabirds in the fishery in the South African EEZ at the Prince Edward Islands (in both Subareas 58.6 and 58.7) as category 5 (high) (SC-CAMLR-XXVIII, Annex 7, Table 14 and Figure 2).

16. There were no observed incidental mortalities of marine mammals during the 2008/09 season.

6.2 Pot fishery by-catch

17. This fishery was active only in 2003/04 and 2004/05. No by-catch of seabirds or mammals was observed in this fishery.

6.3 Mitigation measures

18. South Africa has consistently required the application in this area of the mitigation measures recommended by CCAMLR with the exception of a closed season.

6.4 Interactions involving marine mammals with longline fishing operations

19. On one vessel, some limited observations by the industry in the 2004/05 season indicated a loss of two toothfish to toothed cetaceans for each whole toothfish landed when longlines were hauled. Longline operations are now concentrated in shallower waters to attempt to minimise such losses. The Working Group noted that this level of cetacean predation is much greater than suspected for other toothfish fisheries, and encouraged the deployment of a scientific observer by South Africa to gather further data on this.

20. No marine mammal injuries or deaths were reported during the 2008/09 season (see SC-CAMLR-XXVIII, Annex 7).

7. Harvest controls and management advice

7.1 Management advice inside the EEZ

21. In 2005, the Scientific Committee noted that the advice on the appropriate levels of future catch provided in WG-FSA-05/58 (see also WG-FSA-06/58 and 07/34 Rev. 1) was not based on the CCAMLR decision rules. Therefore, the Working Group was unable to provide management advice for the fishery in the South African EEZ at the Prince Edward Islands. The Working Group recommended that CCAMLR decision rules also be used in estimating yields for this fishery. The proposed OMP addresses the concerns over the sensitivity of the ASPM to weightings used for different data sources and the estimation of recruitment levels for forward projections.

7.2 Management advice outside the EEZ

22. No new information was available on the state of fish stocks in Subareas 58.6 and 58.7 and Division 58.4.4 outside areas of national jurisdiction. The Working Group therefore recommended that the prohibition of directed fishing for *D. eleginoides*, described in Conservation Measures 32-10, 32-11 and 32-12, remain in force.

References

Brandão, A. and D.S. Butterworth. 2009. A proposed management procedure for the toothfish (*Dissostichus eleginoides*) resource in the Prince Edward Islands vicinity. *CCAMLR Science*, 16: 33–69.

Brandão, A., D.S. Butterworth, B.P. Watkins and D.G.M. Miller. 2002. A first attempt at an assessment of the Patagonian toothfish (*Dissostichus eleginoides*) resource in the Prince Edward Islands EEZ. *CCAMLR Science*, 9: 11–32.