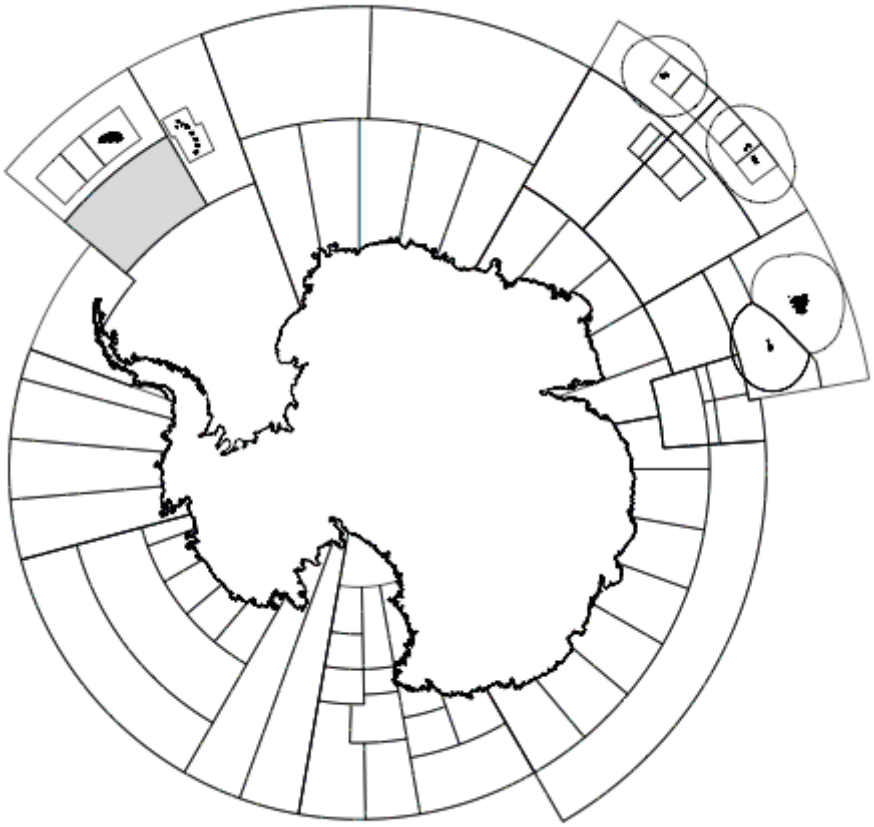
CCAMLR

Commission for the Conservation of Antarctic Marine Living Resources
Commission pour la conservation de la faune et la flore marines de l'Antarctique
Комиссия по сохранению морских живых ресурсов Антарктики
Comisión para la Conservación de los Recursos Vivos Marinos Antárticos

FISHERY REPORT

Fishery Report 2016: *Dissostichus* spp. (Subarea 48.2)



The map above shows the management areas within the CAMLR Convention Area, the specific region related to this report is shaded.

Throughout this report the CCAMLR fishing season is represented by the year in which that season ended, e.g. 2015 represents the 2014/15 CCAMLR fishing season (from 1 December 2014 to 30 November 2015).

Fishery Report 2016: *Dissostichus* spp.
Subarea 48.2

Introduction

1. Research fishing for *Dissostichus* spp. in Subarea 48.2 was first conducted by Chile in 1998, when seven hauls were conducted and 36 kg of Patagonian toothfish (*Dissostichus eleginoides*) were caught. In 2015, Ukraine began a multiyear research program and conducted 29 hauls with a total catch of 31 tonnes of Antarctic toothfish (*D. mawsoni*) and 4 tonnes of *D. eleginoides*.

Description of the fishery

Catch and CPUE

2. The total catch and catch-per-unit-effort (CPUE) reported from the research surveys that have been conducted in Subarea 48.2 are comparatively low (Table 1).

Table 1: Catch (tonnes) and CPUE (kg/hook) of *Dissostichus mawsoni* and *D. eleginoides* in Subarea 88.3.

Year	*D. mawsoni*		*D. eleginoides*	
	Catch	CPUE	Catch	CPUE
1998			<1	0.002
2015	31		4	
2016	71		4	

Illegal, unreported and unregulated (IUU) fishing

3. Illegal, unreported and unregulated (IUU) gear was recovered from Subarea 48.2 in March 2016 (CCAMLR-XXXV/10). There has been no other recorded evidence of IUU activities in this region between 2006 and 2016. Research fishing was undertaken in Subarea 48.2 in 2015 and 2016.

Tag releases and recaptures

4. In 2015, a total of 157 *D. mawsoni* were tagged and released. In 2016, a further 303 *D. mawsoni* and two *D. eleginoides* were tagged and two *D. mawsoni* were recaptured. One of the recaptures was of a fish tagged in the research in Subarea 48.2 in 2015, the other was tagged in Subarea 48.6 (research block 486_5) in 2012.

Length-frequency distributions of catches

5. The length-frequency distributions of *D. mawsoni* caught during research in this subarea in 2015 and 2016 are presented in Figure 1.

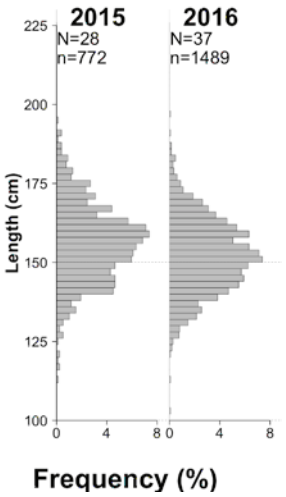


Figure 1: Annual length-frequency distributions of *Dissostichus mawsoni* caught in Subarea 48.2 in 2015 and 2016. The number of hauls from which fish were measured (N) and the number of fish measured (n) in each year are provided.

Inventory of age data

6. No age data are available for this subarea.

Model parameters available

7. No specific parameters are available for this subarea.

Other sources of mortality

8. No specific parameters are available for this subarea.

Research plan summary

Data collection plan

9. In 2014, Ukraine proposed a three year (2015–2017) research plan using longline gear (trotline) to sample the toothfish populations in the eastern part of Subarea 48.2. The purpose of the research is to characterise the toothfish populations found in that region to better understand stock structure, movement patterns and improve estimation of population characteristics in the northern Weddell/Scotia Sea which is an overlap area in the distribution of the two species of *Dissostichus*. Additional outcomes of the research relate to mapping of the fishable area, documenting relative abundance of *D. eleginoides* and *D. mawsoni*, tagging toothfish for biomass estimation and for stock linkage studies, input into spatial population models and collecting information on distribution, relative abundance and life history of by-catch species.

10. In 2014, the Scientific Committee endorsed the advice of WG-FSA (SC-CAMLR-XXXIII, Annex 7, paragraph 5.48) that the research plan of Ukraine in Subarea 48.2 proceed in 2015 with an effort limit of 30 lines and catch limit of 75 tonnes of *Dissostichus* spp. and a tagging rate of 5 toothfish per tonne. This research program was continued in 2016 with the following specific objectives:

(i) to utilise the expertise and experience of crew aboard vessels to explore and locate fishable habitat and sample toothfish in Subarea 48.2

(ii) to document the spatial distribution of toothfish species in the area to east of the South Orkney Islands, thus providing catch and biological observations to test and develop the functionality of spatial population models of the north Weddell Sea region

(ii) to tag toothfish and collect biological samples to further understand toothfish movement, migration, spawning and stock linkages within Area 48 and adjacent waters.

11. In 2015, Chile proposed to undertake research fishing in Subarea 48.2. The aim of the Chilean study was to cooperate with the generation of enough data upon which to base a management advice in accordance with the requirements of the Commission in a manner that allows it to carry out stock assessments of *Dissostichus* spp. in Subarea 48.2 and to develop fisheries of this resource in a sustainable manner. The Chilean proposal presented the following specific objectives:

(i) determine spatial and bathymetric distribution of *Dissostichus* spp. in Subarea 48.2

(ii) generate basic information to identify population units of *Dissostichus* spp.

(iii) estimate an abundance index of *Dissostichus* spp. based on catch and effort data for the surveyed area

(iv) identify suitable areas to develop fishing activities of *Dissostichus* spp. in Subarea 48.2.

12. In addition, Chile proposed the following specific objectives and general methodology:

(i) Determination of spatial and bathymetric distribution –

- estimation of the probability of occurrence of *Dissostichus* spp. (site-occupancy models).

(ii) Generating basic information to identify population units –

- microelement analysis of otoliths
- genetic techniques (microsatellite and mitochondrial DNA)
- parasitological techniques (analysis of stomach content).

(iii) Estimating an abundance index of *Dissostichus* spp. from catch and effort data for the surveyed area –

- estimation of index of local abundance using catchability assumed constant between a reference region and the surveyed area.

(iv) Abundance estimates of *Dissostichus* spp. based on tag-recapture data –

- standard methodology used by CCAMLR.

(v) Identifying suitable areas to develop fishing operations –

- estimation of the probability of occurrence of suitable fishing areas (site-occupancy models).

13. The Ukrainian vessel *Simeiz* and the Chilean vessel *Puerto William* undertook research fishing in 2016.

Advice by the Scientific Committee for research fishing in 2017

14. In 2016, the Scientific Committee reviewed the progress of research and proposals for research in Subarea 48.2 in 2017 from Chile, Ukraine and the UK (SC-CAMLR-XXXV, paragraphs 2.220 to 2.232) and:

(i) agreed that the advice from WG-SAM-16 regarding the proposal by Chile to continue the longline research survey for *Dissostichus* spp. in Subarea 48.2 was clear and that the proponents had not followed this advice in full. Therefore, the Scientific Committee was unable to support the proposed extension of the Chilean survey in 2016/17 and requested that Chile prepare another proposal for this research and present this to WG-SAM-17

(ii) noted the results from the first two years of research undertaken by Ukraine (WG-FSA-16/50) and considered a revised plan for the third year (WG-FSA-16/49) and recommended that the research catch limit of 75 tonnes in Subarea 48.2 from 2016 be brought forward to 2017 to allow Ukraine to complete the three-year longline research survey in Subarea 48.2

(iii) noted a proposal by the UK for a three-year longline survey to develop *Dissostichus* spp. stock hypotheses and connectivity between Subareas 48.2 and 48.4 and recommended that the survey commence in 2017 with catch limits of 23 tonnes in the eastern area of Subarea 48.2 and 18 tonnes in the southern area of Subarea 48.4, and that these limits were sufficiently precautionary to allow the survey to proceed in 2017.

15. Research fishing in Subarea 48.2 is conducted under Conservation Measure 24-01 and the research catch limits that apply to this research are set out in Table 2 with the areas of the 'research blocks' to which these limits apply provided in Figure 2. The proposal by Ukraine originally included separate catch allocations for research blocks 482_N and 482_S and hence they are shown separately in Figure 2, even though they have a combined catch limit.

Table 2: Research catch limits in place for research blocks 484_S, 482_E, 482_S and 482_N.

Research block	Member	Research catch limit (tonnes)
482_N and 482_S	Ukraine	75
482_E	UK	23
484_S	UK	18

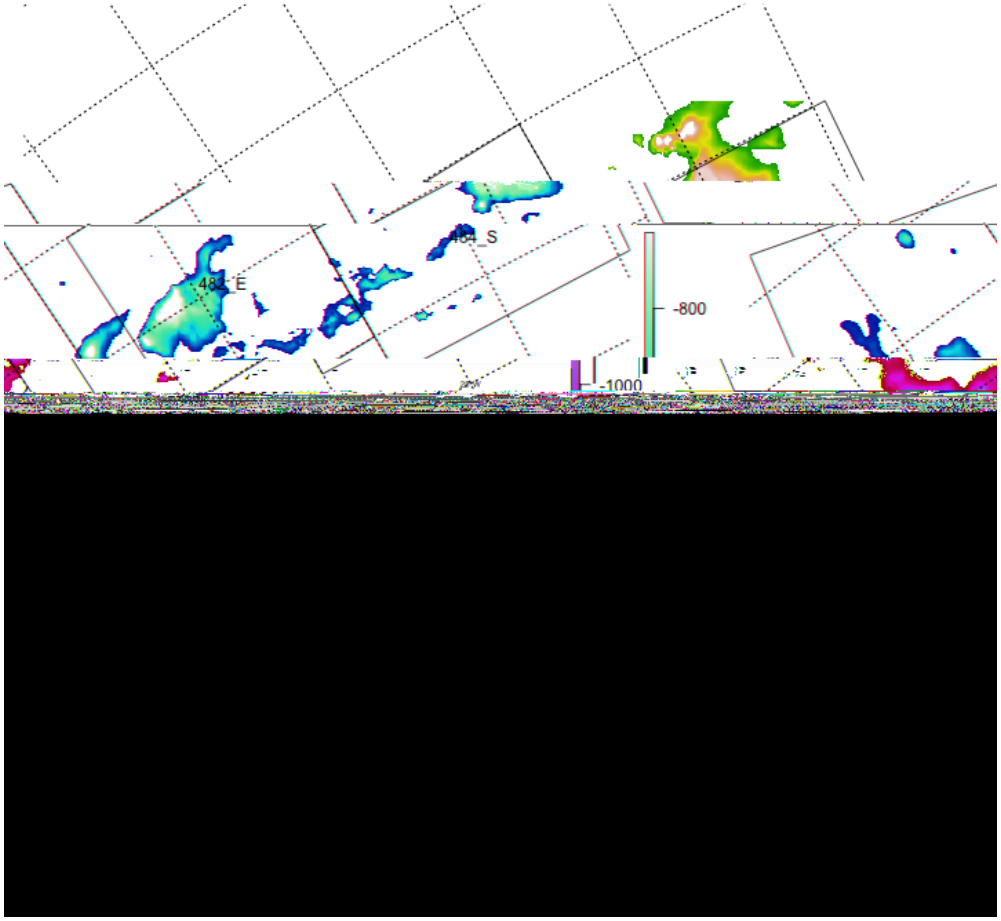


Figure 2: Spatial extent and fishable bathymetry (600–1 800 m) for research blocks 484_S, 482_E, 482_S and 482_N.