

## SHORT NOTE

### INTERACTION OF MARINE MAMMALS WITH THE LONGLINE FISHERY AROUND THE KERGUELEN ISLANDS (DIVISION 58.5.1) DURING THE 1995/96 CRUISE

D. Capdeville  
Centre d'Etudes Biologiques de Chizé  
79360 Villiers-en-Bois, France

#### Abstract

The only interaction observed between longliners fishing for Patagonian toothfish (*Dissostichus eleginoides*) to the west of the Kerguelen Islands during the 1995/96 cruise and marine mammals occurred with the Antarctic fur seal (*Arctocephalus gazella*). These seals are responsible for the loss of 0.75 % of toothfish during the longline sets in which interaction occurred, as against 2.2 % of fish lost from the hooks during line hauling.

#### Résumé

Les interactions observées entre les palangriers, ciblant la légine australe (*Dissostichus eleginoides*) opérant dans l'ouest de Kerguelen durant la campagne 1995 - 96, et les mammifères marins concernent uniquement les otaries de Kerguelen (*Arctocephalus gazella*). Ces dernières sont responsables de la perte de 0.75 % des légines capturées pour les 16 palangres où une interaction a été relevée, contre 2.2 % de décrochées avant la mise à bord pour ces mêmes palangres.

#### Резюме

В ходе рейса ярусного промысла патагонского клыкача (*Dissostichus eleginoides*), проведенный к западу от островов Кергелен в 1995/96 г., единственный вид морских млекопитающих, наблюдавшийся во взаимодействии с промыслом, был южный морской котик (*Arctocephalus gazella*). За время наблюдений 16 постановок яруса 0,75% рыб было потеряно из-за срыва с крючков морскими котиками, в то время как потери рыб из-за срыва с крючков во время выборки составили 2,2%.

#### Resumen

La única interacción observada entre los palangreros y los mamíferos marinos durante la pesca dirigida al bacalao de profundidad (*Dissostichus eleginoides*), en 1995/96 al oeste de las islas Kerguelén, fue con el lobo fino antártico (*Arctocephalus gazella*). Estos animales fueron responsables de la pérdida de 0.75 % de bacalao de los 16 calados de palangre en los cuales hubo interacción, comparado con 2.2% que se pierde de los anzuelos durante el virado del palangre.

Keywords: fur seals, interactions, Kerguelen area, longline fishery, CCAMLR

## INTRODUCTION

Interactions between commercial fisheries and marine mammals can result from competition for the same resource (Northridge, 1984). Such interactions can result in damage to fishing gear, a reduction of catch rates and an increase in the risk of incidental mortality of marine mammals (Ashford and Rubilar, 1994). Longlines are particularly attractive for marine mammals because they provide an easily accessible source of food and the fish caught on them are often large. Although interactions between longlines and seabirds in the Southern Ocean are now beginning to be documented, little is known about interactions of marine mammals with longline fisheries. The aim of this note is to show the potential impact on longline fisheries of the two species of marine mammals encountered around fishing vessels at Kerguelen, the Antarctic fur seal *Arctocephalus gazella* and the sperm whale *Physeter catodon*.

## METHOD

The Ukrainian longliner *N. Reshetnyak* fished Patagonian toothfish (*Dissostichus eleginoides*) in the Kerguelen area (west of 69°E; FAO/CCAMLR Division 58.5.1) from 19 October 1995 to 7 March 1996. The longliner used the method described by Duhamel (1992) and Cherel et al. (1996) for setting and hauling the longlines, each of which carried between 2 200 and 3 600 hooks.

Data were collected during the observation of 185 longline sets while counting the seabird by-catch. The results of seabird observations are described in Capdeville (1996).

## RESULTS

No killer whales (*Orcinus orca*) were observed close to the ship during fishing operations. A group of about 10 long-finned pilot whales (*Globicephala melana*) was observed on two occasions, namely on 12 and 22 February 1996. From one to seven sperm whales (*Physeter catodon*) were observed sporadically, quite close to the vessel, throughout the fishing cruise, both during setting and hauling. The presence of sperm whales was regularly noted although no interaction with longlines was noticed.

Antarctic fur seals (*Arctocephalus gazella*) were regularly observed around the vessel from 18 November to 13 December 1995 and from 4 to

8 January 1996. They were seen during 30 longline hauls (Table 1). Interactions were noticed for only 16 of the 30 hauls. During these hauls, fur seals were significantly more abundant (*T*-test,  $t = 3.98$ ,  $p < 0.05$ ). The following kinds of interactions were observed:

- fur seals feed on toothfish lost from the hooks during hauling (21 fish were eaten out of 70 lost);
- fur seals dived along the line and took the fish from the hooks (23 fish were taken from lines and 3 100 hauled on board).

The latter figure of fish taken from lines represents about 0.75% of all toothfish caught on the longlines when fur seals were present. It was found that the number of seals was independent of the number of toothfish landed ( $R = -0.03$ ,  $p = 0.91$ ) and of the number of toothfish lost from hooks during hauling ( $R = 0.13$ ,  $p = 0.61$ ).

## DISCUSSION

Interactions between longline fishing operations and marine mammals such as sperm whales and killer whales feeding directly from longlines were observed in the South Georgia area. In some cases, this was a matter of such concern that the vessels moved from this fishing area (SC-CAMLR, 1994). No such extreme case occurred in the Kerguelen area, where only sperm whales were present in the vicinity of the vessel during its 1995/96 cruise and no interactions were observed. However, the presence of sperm whales around the vessel may not be due to chance, but is likely to be linked to the fact that the vessels were fishing in an area in which sperm whales traditionally feed.

Fish loss caused by fur seals seems to be insignificant (0.75%) in the Kerguelen area, and is lower than the number of fish lost from the hooks during line hauling (2.2% for the same longline sets; *T*-test,  $t = 3.08$ ,  $p < 0.05$ ). Cherel et al. (1996) observed a 3.6% fish loss on the same vessel where no fur seals were present. This low percentage shows that fur seals offer no appreciable competition to the commercial fishery in the Kerguelen area. There does not seem to be any link between the catch rate of a line, or the number of fish lost, and the number of fur seals present. It should be noted that Antarctic fur seals are only observed during line hauling. No incidental mortality of marine mammals was recorded during this cruise.

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REFERENCES

Ashford, J.R. and P.S. Rubilar. 1994. Interactions between cetaceans and longlining operations for Patagonian toothfish *Dissostichus eleginoides* around South Georgia. Document WG-IMALF-94/16. CCAMLR, Hobart, Australia.

Capdeville, D. 1996. Incidental mortality of seabirds around Kerguelen Islands (Division 58.5.1) and effectiveness of mitigation measures: 1993/94 to 1995/96 cruises. Document WG-FSA-96/10. CCAMLR, Hobart, Australia.

Cherel, Y., H. Weimerskirch, and G. Duhamel. 1996. Interactions between longline vessels and seabirds in Kerguelen waters and a method to reduce seabird mortality. *Biol. Conserv.*, 75: 63–70.

Duhamel, G. 1992. Exploratory longline fishing around the Kerguelen Islands (Division 58.5.1). Description of the fishing effort; catchability and target size of *Dissostichus eleginoides*. Document WG-FSA-92/31. CCAMLR, Hobart, Australia.

Northridge, S.P. 1984. World review of interactions between marine mammals and fisheries. *FAO Fisheries Technical Paper*, 251.

SC-CAMLR. 1994. Report of the Ad Hoc Working Group on Incidental Mortality Arising from Longline Fishing. In: *Report of the Thirteenth Meeting of the Scientific Committee (SC-CAMLR-XIII)*, Annex 8. CCAMLR, Hobart, Australia: 401–440.

Table 1: Data on interactions of Antarctic fur seals with longline fishing in the Kerguelen area (Division 58.5.1) during the 1995/96 season, from 185 observed longline sets in which fur seals were present during 30 longline hauls. Statistics are mean values ± standard deviation calculated per longline set. Figures in brackets are minimum and maximum values of observed parameters.

	Longline Sets without Seal Interaction	Longline Sets with Seal Interaction
Number of longline sets observed	14	16
Number of seals present during line hauling	1.9 ± 0.7 (1 – 3)	4.4 ± 2.4 (1 – 8)
Toothfish:		
hailed on board	174.8 ± 124.5 (3 – 382)	189.3 ± 122.2 (2 – 486)
lost from hooks during line hauling	1.6 ± 1.3 (0 – 4)	4.4 ± 2.9 (0 – 10)
eaten lost fish	0	1.3 ± 1.7 (0 – 6)
taken from lines by seals	0	1.4 ± 2.3 (0 – 9)

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Tableau 1: Données sur les interactions des otaries de Kerguelen et de la pêche à la palangre dans la région de Kerguelen (division 58.5.1) pendant la saison 1995/96, d'après l'observation de 185 poses de palangres au cours desquelles 30 remontées ont été effectuées en présence d'otaries. Les statistiques correspondent aux valeurs moyennes  $\pm$  erreur standard calculées par pose de palangre. Les chiffres entre parenthèses indiquent les valeurs minimales et maximales des paramètres observés.

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Таблица 1: Данные по взаимодействию между южными морскими котиками и ярусным промыслом в районе Кергелен (Участок 58.5.1) в сезоне 1995/96 г. Морские котики наблюдались в ходе 30 из 185 постановок яруса. Статистические данные – это средние значения за каждую постановку яруса  $\pm$  стандартное отклонение. Цифры в скобках – это минимальные и максимальные величины наблюдавшихся параметров.

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