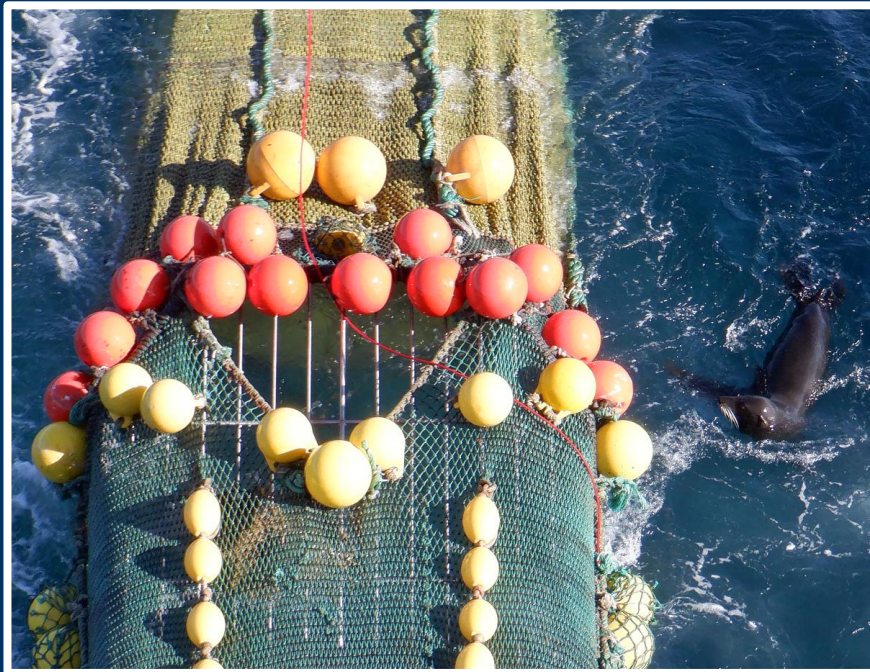


LOL 2024-C MMO Monitoring Program Report



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LOL 2024-C



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1. Introduction

This report presents the data regarding seabird and marine mammal interactions with the Patagonian longfin squid (*Doryteuthis gahi*, hereafter LOL) fishery, collected by the marine mammal observers (MMO) during the 2024-C season. For a description of the MMO Monitoring Program, MMO duties and sampling protocols, see [report 2022-C](#).

The LOL 2024-C season started on 25 February 2024, with eight vessels with an MMO aboard, SEDs being mandatory for the whole fleet. At the end of the first month of the season, observer coverage was transferred to the other half of the fleet.

The MMOs were supplied by MRAG (UK) and as part of a general training provided by the Falkland Islands Fisheries Department (FIFD), were briefed on seabird and marine mammal data collection by the Bycatch Mitigation Officer.

2. Results

2.1 Manoeuvre monitoring

Of 2,081 trawls carried out in the season, 1,035 (49.7%) were performed with an observer aboard. These included the monitoring of 1,034 shoots (49.6%) and 1,034 hauls (49.6%). Of the monitored shoots, 701 (68%) were observed from the gantry, 326 (31%) from the bridge/bridge wings, and 7 from the stern deck/other, while one was not observed (Fig.1). Regarding the monitored hauls, 896 (86%) were observed from the gantry, 134 (13%) from the bridge/bridge wings, and 9 (0%) from the stern deck/other, while one was not observed (Fig.1).

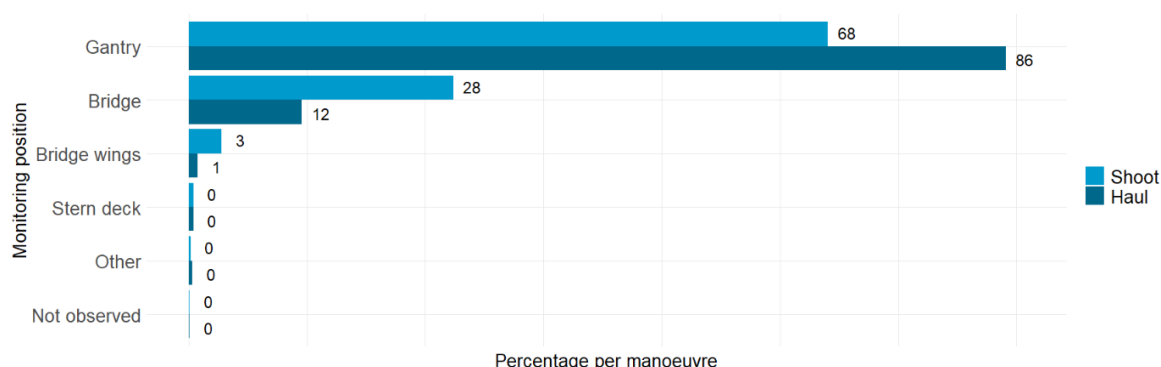


Fig.1. MMO observation effort.

Eighty-nine percent of the monitored fishing effort took place south of 52° S and 11% north (Fig.2). XVAK was the most visited grid square (238 shoots; 296 hauls), followed by XVAL (240 shoots; 197 hauls), XVAJ (166 shoots; 163 hauls), XVAH (158 shoots; 129 hauls) and XUAH (53 shoots; 44 hauls) (Fig.3).

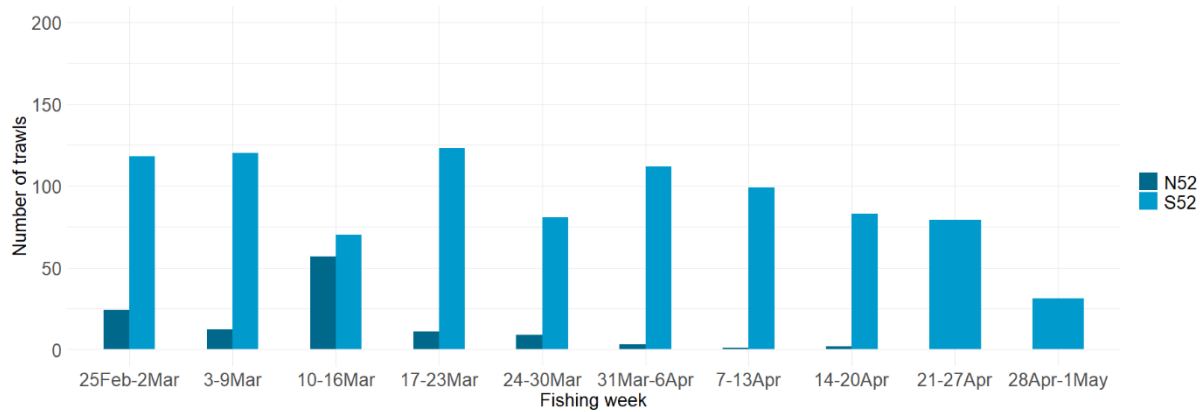


Fig.2. Observed fishing effort north and south of parallel 52°S.

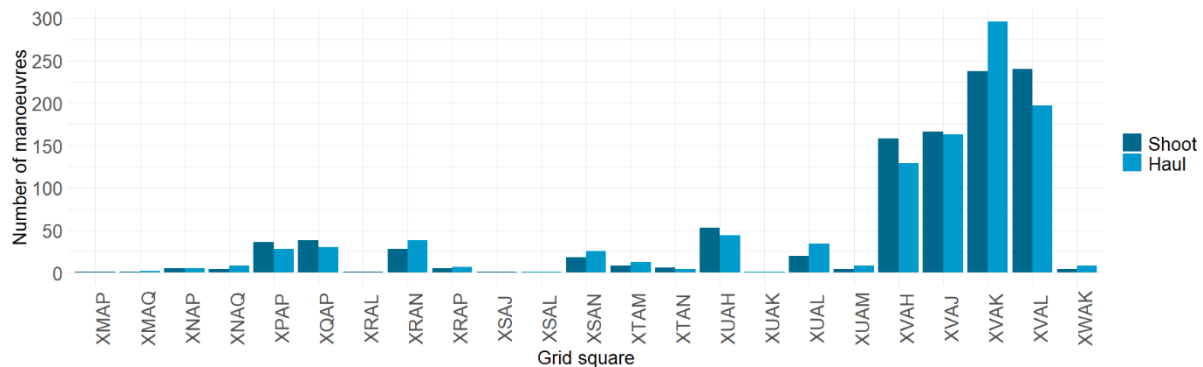


Fig.3. Observed fishing effort per grid square.

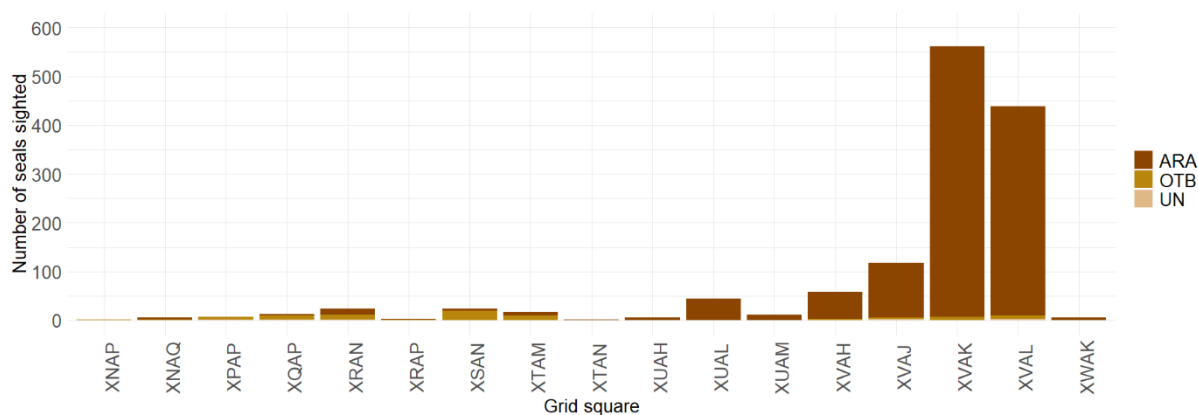
2.2. Pinniped sightings

A total of 1,334 seals [1,252 South American fur seals (*Arctocephalus australis*, hereafter ARA), 74 South American sea lions (*Otaria flavescens*, hereafter OTB), eight unknown species (UN)] attended the monitored fishing operations. Ninety-six percent of the interactions were recorded south of 52° S (Table 1), particularly in grid squares XVAK (42%), XVAL (33%), XVAJ (9%) (Fig.4), with ARA representing 94% of the sightings in the whole fishing area (Table 1).

Similarly to the previous two C seasons, overall pinniped attendance to the observed vessels increased throughout the fishing season, reaching a peak during week 6 (31 March - 06 April), while observed vessels concentrated their effort south of 52°S (Fig.5).

Table 1. Observed pinniped interactions per region.

Region	Species	N° sighted	SED escapes	Deck releases	Mortalities
North 52° S	OTB	28	0	0	0
	ARA	20	0	0	0
	UN	3	0	0	0
Sub-total north		51	0	0	0
South 52° S	OTB	46	0	0	0
	ARA	1232	8	3	0
	UN	5	0	0	0
Sub-total south		1283	8	3	0
TOTAL		1334	8	3	0

**Fig.4.** Observed pinniped attendance per grid square.

2.2.1 Pinniped attendance to vessels and behaviour

Of the 1,334 seals sighted, 1,085 (1,018 ARA, 59 OTB, 8 UN) were observed during hauling, comprising 81% of the individuals recorded. The remaining individuals (249) were seen during shooting (7%), trawling (9%), turning (2%) and steaming (1%). In 95% of the hauling attendance, seal behaviour was strictly related to foraging, with both ARA and OTB directly targeting unmeshed squid around the fishing gear (53%), eating from the net (20%) and eating from the net and climbing on the net (22%) (Fig.6). In the remaining vessel manoeuvres, the most common pinniped behaviour was to follow the vessel (51%), swim astern (20%) and forage around the net (12%) (Fig.7).

2.2.2 Pinniped bycatch

A total of 11 live ARA were caught south of 52° S, in grid squares XVAK (91%) and XUAL (9%) (Fig.8). No incidental mortalities were recorded by the MMOs.

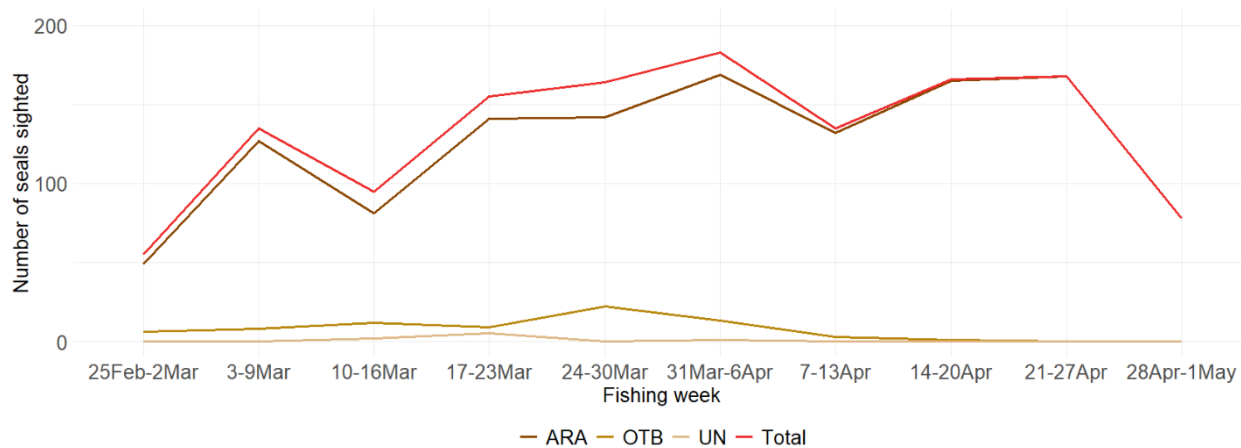


Fig.5. Cumulative pinniped sightings in monitored trawls per fishing week.

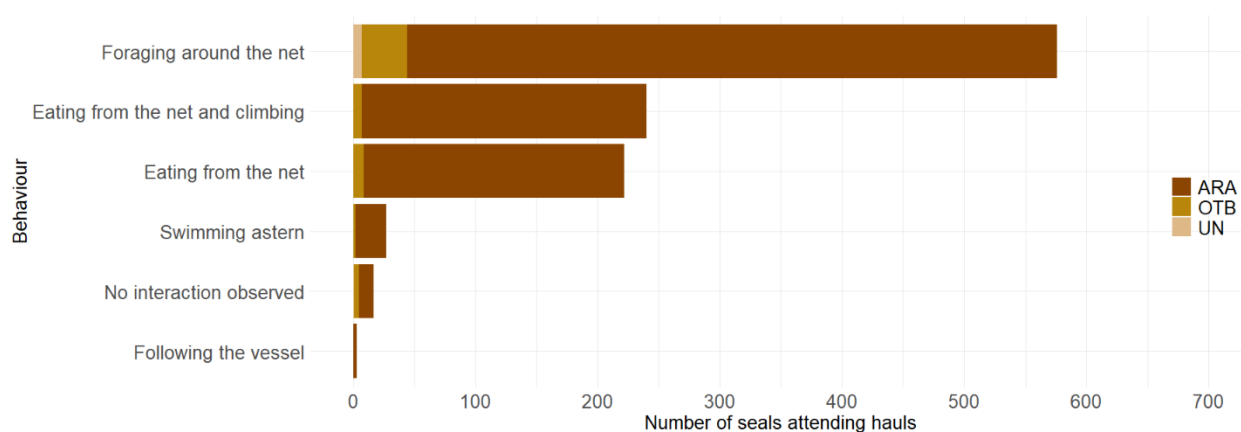


Fig.6. Pinniped abundance and behaviour exhibited during observed hauls.

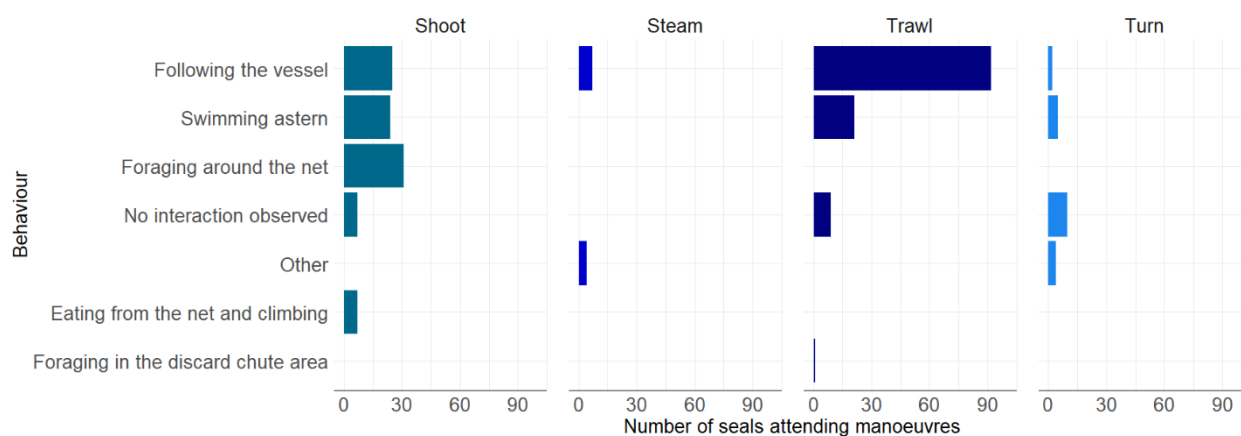


Fig.7. Pinniped abundance and behaviour exhibited during manoeuvres.

2.2.3 SED escapes and live deck releases

During hauling eight ARA were seen escaping from the trawl through the SED hatch. The

number of individuals that escaped when the SED was below the surface during both shooting and hauling remains unknown.

Regarding deck releases, 3 ARA were brought aboard inside the SED net extension, and were safely released from the deck after cutting the net.

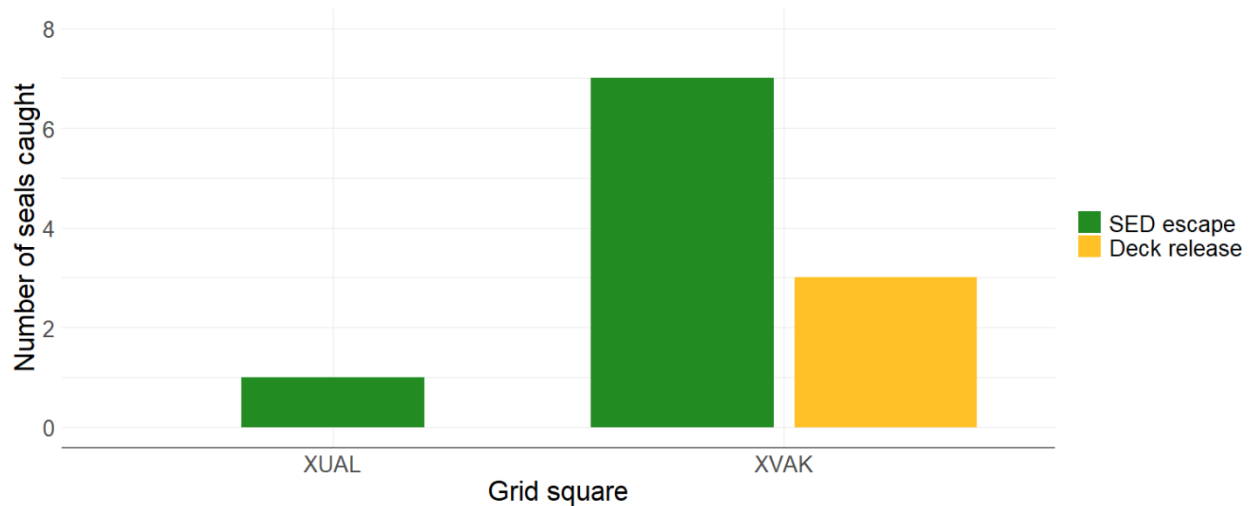


Fig.8. Observed pinniped bycatch per grid square.

2.3 Seabird bycatch

Seabird interactions involved the black-browed albatross (*Thalassarche melanophris*/DIM), the white-chinned petrel (*Procelaria aequinoctialis*/PRO), the imperial cormorant (*Leucocarbo atriceps*/COR) and a prion (*Pachyptila sp.*/PAX). A total of 26 seabird interactions were observed in the monitored stations, of which 54% comprised net entanglements, 15% entangled in the BSL, 15% landed on the vessel, 8% collided against the vessel, 4% interacted with the warp cable/door and 4% entered the SED (Fig. 9, Table 2). The outcome of these interactions was 13 (50%) live releases, three (12%) live escapes, and 10 (38%) mortalities (Fig. 9, Table 2).

Fifty-eight percent of the entanglements occurred in the net wings/mouth of the trawl south of 52° S (Table 2). Net plans with details on the commercial name of the twine and exact location of the entanglements were provided by the observers.

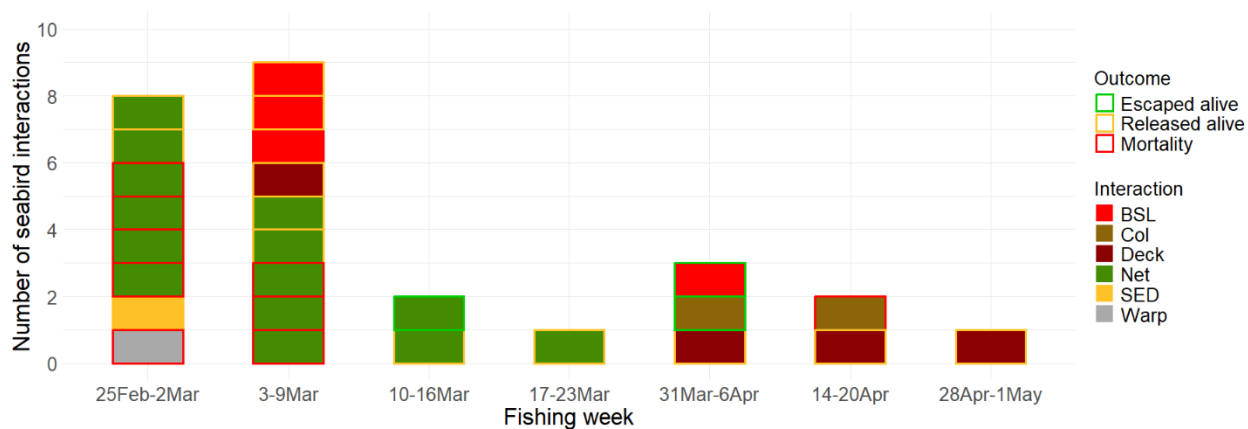


Fig.9. Number, type, and outcome of seabird interactions recorded per fishing week.

Table 2. Seabird observed interactions.

Date	Grid	Manoeuvre	Spp	Interaction	Location	Mesh (mm)	Outcome
25/02/24	XVAK	Haul	DIM	Net	SED	NA	Released alive
25/02/24	XVAH	Haul	DIM	Net	Mouth	200	Mortality
26/02/24	XVAH	Haul	DIM	Net	Headline	200	Mortality
29/02/24	XVAL	Haul	DIM	Net	Body	200	Released alive
29/02/24	XVAJ	Haul	DIM	Net	Body	140	Released alive
29/02/24	XVAL	Shoot	DIM	Net	Codend	Chafer	Mortality
01/03/24	XVAJ	Haul	DIM	Net	Body	120	Mortality
04/03/24	XVAK	Haul	DIM	Net	Wings	400	Mortality
05/03/24	XVAK	Haul	DIM	Net	Wings	400	Mortality
07/03/24	XVAL	Haul	DIM	BSL	Distal	NA	Mortality
07/03/24	XVAL	Haul	DIM	BSL	Distal	NA	Released alive
11/03/24	XPAP	Trawl	DIM	Landed	Bow	NA	Released alive
12/03/24	XVAL	Haul	COR	Net	Mouth	200	Released alive
14/03/24	XVAL	Haul	DIM	Net	Headline	200	Released alive
15/03/24	XVAJ	Haul	DIM	Net	Headline	400	Mortality
16/03/24	XUAH	Shoot	DIM	BSL	Lateral	NA	Released alive
18/03/24	XVAH	Haul	PRO	Net	Body	200	Released alive
23/03/24	XUAL	Haul	DIM	Net	Body	140	Escaped alive
24/03/24	XUAL	Haul	DIM	Net	Body	140	Released alive
31/03/24	XVAL	Haul	DIM	Landed	Gantry	NA	Released alive
03/04/24	XUAH	Haul	DIM	BSL	Distal	NA	Escaped alive
06/04/24	XMAQ	Haul	DIM	Collision	BSL	NA	Escaped alive
17/04/24	XVAK	Trawl	PAX	Collision	Vessel	NA	Mortality
20/04/24	XVAL	Haul	DIM	Landed	Deck	NA	Escaped alive
27/04/24	XVAK	Haul	DIM	Warp	Door	NA	Mortality
28/04/24	XVAL	Haul	DIM	Landed	Deck	NA	Released alive

3. Conclusions

- 3.2. Since 2018, 2024-C is the first fishing season in which MMO coverage was reduced to 50%.
- 3.3. In comparison to previous C seasons, no variations were seen in the pinniped bycatch numbers for the whole fleet.
- 3.4. As in previous C seasons, pinniped attendance to the vessels increased throughout the season.
- 3.5. In comparison to preceding C seasons, observed seabird interactions were less than previously recorded for the whole fleet.
- 3.6. As observed in previous C seasons, seabird interactions concentrated within the first two fishing weeks, whenever DIM chicks were fledging.
- 3.7. As described in preceding reports, most of the pinniped and seabird interactions took Place south of 52° S, specifically around Beauchêne Island (grid squares XVAK, XVAJ, XVAL), where megafauna concentrations are prevalent and also where fishing effort is higher.

