



**FALKLAND ISLANDS NATIONAL PLAN OF ACTION  
FOR REDUCING INCIDENTAL CATCH OF SEABIRDS IN  
TRAWL FISHERIES, 2019  
(FI NPOA-S-T-2019)**

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**Falkland Islands Fisheries Department**

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### **Acknowledgements**

Based on the three previous FI NPOA-S-Ts which are referred to:  
- 2004 by Ben Sullivan (Seabirds at Sea Team, Falklands Conservation);  
- 2009 by Esther Sancho (Albatross and Petrel Program, Falklands Conservation);  
- 2014 by Marine Quintin and Joost Pompert (Falkland Islands Fisheries Department)

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## **EXECUTIVE SUMMARY**

Globally, there is a strong resolution to reduce the incidental mortality of seabirds associated with fishing activities. The commitment of the Falkland Islands Government (FIG) to addressing the issue is reflected in fisheries policy and licence conditions, and the development and implementation of a National Plan of Action for reducing the incidental catch of seabirds (NPOA-S). To this extent, the Falkland Islands fishing Industry has been working pro-actively and collaboratively with the Falkland Islands Fisheries Department (FIFD), with individual companies having invested considerably to assist the research and development of improved mitigation measures.

Whilst the Falkland Islands fishery has been playing a leading role in seabird-bycatch mitigation globally, the Islands' trawl fleet continues to incur incidental catches of seabirds. In line with obligations related to local and international policies, laws and conventions, a precautionary approach to management is warranted, in order to improve the conservation status of vulnerable populations, and to buffer the seabird populations against future environmental changes.

The Falkland Islands National Plan of Action for reducing incidental catch of seabirds in trawlers (FI NPOA-S-T)-2019 outlines a four-year strategy with the overall objective to reduce or, if practicably possible, eliminate the mortality of seabirds resulting incidentally from trawling activities, and to help achieve and maintain a favourable conservation status of Falkland Islands breeding seabirds.

In order to deliver the overall aim of the FI NPOA-S-T-2019, a suit of objectives have been developed. Following FAO guidelines and previous versions of the FI NPOA-S-T, the objectives will encompass the following interconnected components: (i) observer programmes / coverage; (ii) research, development and implementation of mitigation measures; (iii) bycatch reduction objectives, and (iv) education, training and outreach.

The overall accountability for achieving the objectives of the FI NPOA-S-T-2019 lies with the FIG through the FIFD. However, this does not mean that all components of the Plan need to be carried out by the FIFD. The Falkland Islands Seabird Bycatch Advisory Committee (SBC) has the task to regularly evaluate and review progress made, identify any gaps in performance, and provide annual work priorities in an adaptive manner. The SBC is composed of representatives from FIG, Industry, Falklands Conservation (FC) and the Agreement on the Conservation of Albatrosses and Petrels (ACAP) Coordinator for the UK Overseas Territories (Joint Nature Conservation Committee (JNCC)).

In adopting the FI NPOA-S-T-2019, the Falkland Islands will ensure compliance with domestic and international polices and conventions and will continue to build on its reputation for responsible and sustainable management of its fishery.

This report consists of two parts:

### **Part I – Rationale for the FI NPOA-S-T-2019**

### **Part II – Falkland Islands National Plan of Action-Trawling-2019**

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## GLOSSARY

### Terms

- Bycatch:* the unintentional catch of non-target species (including fish, marine mammals and seabirds) within a specific fishery. Unless otherwise stated, bycatch in this document refers to, and is synonymous to, incidental mortality of seabirds. Bycatch in relation to fish species is taken to mean the capture of non-commercial species, undersized fish or damaged fish that are not processed to a commercial product.
- Discards:* includes all discarded bycatch fish species and offal resulting from the processing of the catch on board.
- Seabirds:* refers to bird species that have adapted to life within the marine environment.
- Trawling:* refers here specifically to stern trawling where vessels deploy and retrieve a net and associated fishing gear from the stern of the vessel. This can be further sub-divided into demersal trawl fishing at the seabed and semi-pelagic/pelagic trawl fishing in the water column.

### Acronyms

ACAP	Agreement on the Conservation of Albatrosses and Petrels
APP	Albatross and Petrel Programme
BSL	Bird Scaring Lines
BPTG	Best Practice Technical Guidelines
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
COFI	Committee of Fisheries
FAA	Fixed Aerial Array
FAO	Food and Agricultural Organization
FC	Falklands Conservation
FCZ	Falkland Conservation Zones (FICZ & FOCZ)
FI	Falkland Islands
FICZ	Falkland Islands Interim Fishery Conservation and Management Zone
FIFCA	Falkland Islands Fishing Companies Association
FIFD	Falkland Islands Fisheries Department
FIG	Falkland Islands Government
FOCZ	Falkland Islands Outer Conservation Zone
IPOA-S	International Plan of Action – Seabirds
JNCC	Joint Nature Conservation Committee
ITQ	Individual Transferable Quota
IUCN	International Union for the Conservation of Nature
NPOA-S	Falkland Islands National Plan of Action – Seabirds
NPOA-S-T	National Plan of Action for Reducing Incidental Catch of Seabirds in Trawlers
RFMO	Regional Fisheries Management Organisation
SAST	Seabirds At-Sea Team
SBC	Falkland Islands Seabird Bycatch Advisory Committee
SBWG	ACAP Seabird Bycatch Working Group
UKOT	United Kingdom Overseas Territories

## **1. INTRODUCTION**

### **A. International Plan of Action for reducing incidental catch of seabirds (IPOA-S)**

- 1.1. Incidental mortality of seabirds in fisheries has been an issue of international concern since the 1980s (e.g. Brothers, 1991; Gales, 1998; Weimerskirch and Jouventin, 1987), and has been linked to declines in some species and populations, particularly of albatrosses and petrels (Huin, 2001; Phillips et al., 2016).
- 1.2. In 1999, in response to an increased awareness and concern related to the incidental catch of seabirds in fisheries, the United Nations Food and Agricultural Organization Committee of Fisheries (FAO-COFI) developed an [International Plan of Action for reducing incidental catch of seabirds](#) (IPOA-S) (FAO, 1999).
- 1.3. The IPOA–S is a hortatory instrument within the framework of the FAO [Code of Conduct for Responsible Fisheries](#) that outlines principles and international standards of behaviour for responsible fishing practices. The IPOA-S stipulates that countries with responsibility for managing fisheries in their own waters, or a fleet that fishes elsewhere, should assess the nature and extent of potential seabird interaction with their fishery, and if a problem exists, adopt a National Plan of Action for reducing the incidental catch of seabirds (NPOA-S). The IPOA-S focused initially on longline fisheries; however, the scope was extended to other relevant fisheries such as trawlers as part of the [Best Practice Technical Guidelines](#) (BPTG) (FAO, 2009). The guidelines emphasise the importance of a cyclical framework of data collection, research and monitoring to quantify and reduce bycatch of seabirds in an adaptive manner.

### **B. Falkland Islands National Plan of Action for reducing incidental catch of seabirds in trawlers (FI NPOA-S-T)**

- 1.4. The nutrient rich waters surrounding the Falkland Islands support an important commercial fishery and an abundant marine life, including significant populations of seabirds (Arkhipkin et al., 2013; Croxall and Wood, 2002; White et al., 2002). Work conducted by Falkland Conservation’s Seabirds At-Sea Team (SAST) in the early 2000s revealed the issue of incidental catches of seabirds in the Falkland Islands trawl fishery (Sullivan and Reid, 2003), and highlighted its significantly increased magnitude compared to that posed by longline activities in the Falklands. In response, the first Falkland Islands National Plan of Action for reducing incidental catch of seabirds in Trawlers (FI NPOA-S-T) was adopted by the FIFD in 2004 (Sullivan, 2004).
- 1.5. The FI NPOA-S-T has since been updated in 2009 (Sancho, 2009) and in 2014 (Quintin and Pompert, 2014), in line with recommendations by FAO (FAO, 1999, 2009). This 4-year review process is also consistent with the requirements for biennial reporting to FAO-COFI on progress with the assessment, development and implementation of NPOA-S (paragraph 21 in FAO, 1999).

### **C. Scope and structure**

- 1.6. The current document forms the revised version of the FI NPOA-S-T-2014 (Quintin and Pompert, 2014). As with previous versions, it can be considered in context with the Falkland Islands National Plan of Action–Seabirds (FI NPOA-S) or as a stand-

alone document. The longline and jigging fleet and associated action plans are not considered in this document.

1.7. This document consists of two main sections:

**Part I – Rationale for the FI NPOA-S-T-2019**

This section forms the basis of the decision-making process that results in the development of the FI NPOA-S-T-2019. It details the technical and legislative background of the relevant fisheries and the associated issue of incidental bycatch, reviews available information on the nature and extent of the problem, and summarises progress made through the FI NPOA-S-T-2014.

**Part II – Falkland Islands National Plan of Action-Trawling-2019**

Part II forms the FI NPOA-S-T-2019. This section details the scope and objectives of the four-year plan, and lists the provisional actions to be undertaken in the period of January 2019 to December 2022. It further outlines the process for implementation and review of the FI NPOA-S-T-2019.

## PART I

### RATIONALE FOR THE FI NPOA-S-T-2019

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#### 2. POLICY & LEGISLATION

- 2.1. There are currently a range of policies and legislation related to seabird conservation matters in the Falkland Islands, which are linked to domestic, UK and international policies, laws and conventions. The most relevant to the FI NPOA-S-T are the following:
- 2.2. [Conservation of Wildlife and Nature Ordinance 1999](#), which concerns the conservation of nature and the protection of wildlife in the Falkland Islands. Amongst others, this Ordinance provides the national legislative framework that prohibits the deliberate harm to seabirds.
- 2.3. [Fisheries \(Conservation and Management\) Ordinance 2005](#), which concerns fisheries resources and fisheries management, control and conservation. Amongst others, this Ordinance provides the national legislative framework for sustainable fishing practices, including through policy formulation for bycatch mitigation measures and an observer programme.
- 2.4. [Agreement on the Conservation of Albatrosses and Petrels \(ACAP\)](#), which is a multilateral agreement to which the UK and its Overseas Territories are a Party to. It aims to achieve and maintain a favourable conservation status for albatrosses and petrels. Signatories to the Agreement are to develop and implement measures to prevent, remove, minimise or mitigate the adverse effects of activities that may influence the conservation status of albatrosses and petrels. Amongst others, the Parties must take appropriate operational, management and other measures to reduce or eliminate the mortality of albatrosses and petrels resulting incidentally from fishing activities.

#### 3. FALKLAND ISLANDS TRAWL FISHERY

##### A. Operational characteristics

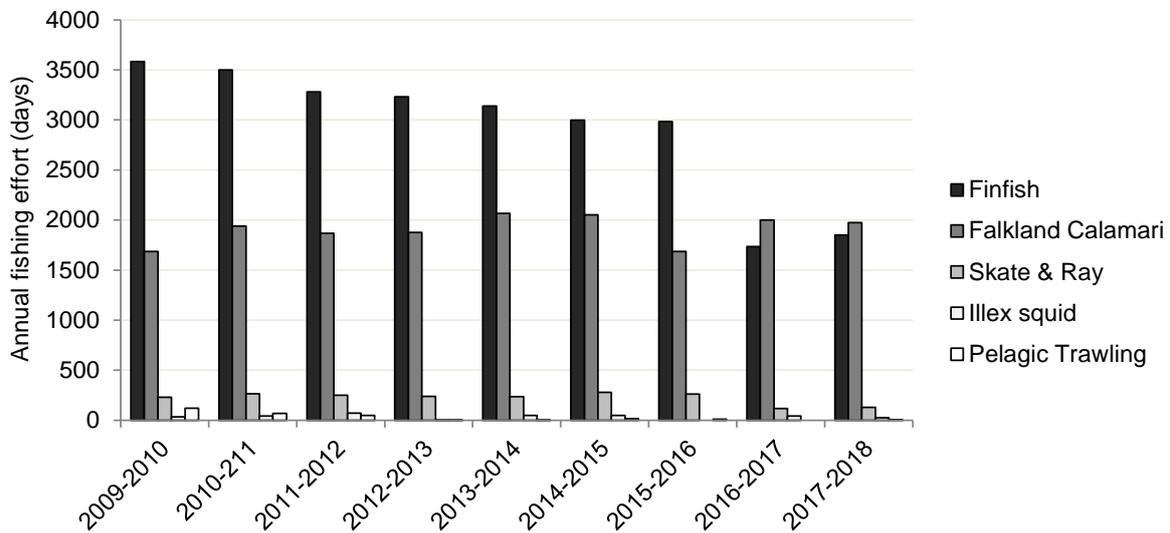
- 3.1. The Falkland Islands trawl fleet consists of circa 37 demersal freezer factory stern trawlers operating within the Falkland Conservation Zones (FCZ). The fleet operates under an Individual Transferable Quota (ITQ) system, targeting Falkland calamari (*Doryteuthis gahi*) (Licences C, X), mixed finfish (Licences A, G, W), skate (Licence F), and Argentine shortfin squid (*Illex argentines*) (Table 1). Furthermore, a restricted finfish-pelagic fleet typically operates on a few days a year (Licence S), targeting stocks of Southern blue whiting (*Micromesistius australis*) and hoki (*Macruronus magellanicus*) (Falkland Islands Government, 2018).
- 3.2. Annual effort in finfish trawling has been gradually decreasing over the years, with current fishing effort lying at approximately 50 % of 2009 levels (FIFD unpubl. data).

The fishing effort in the Falkland Calamari fleet has remained constant, and, for the first time since the start of the fishery, surpassed the finfish fishing effort in 2016 (Figure 1).

3.3. The finfish and skate fishing vessels, and to a lesser extent the Falkland Calamari fleet, discharge discards comprising non-commercial/unwanted whole fish and offal from processing of commercial catch (hereafter referred to as ‘discards’). The discharge of discards is the key factor resulting in seabird-vessel interactions and incidental catch in trawlers (ACAP, 2017; Kuepfer et al., 2016; Kuepfer and Pompert, 2017; Phillips et al., 2016; Pierre et al., 2010; Sullivan et al., 2006).

**Table 1** Typical breakdown of licences for trawlers operating in the FCZ (Falkland Islands Government 2018). Typical annual licence numbers are an average of available data from the past five years (2013–2017). Note that individual vessels may operate in more than one fishery.

Licence type	Licence name	Period	Typical licence numbers
Unrestricted Finfish	A	All year	27
Restricted Finfish	W	All year	26
Restricted Finfish + Illex	G	All year	22
Falkland Calamari	C; X	Mar/April; Aug/Sept	15; 16
Skate & Ray	F	All year	8
Illex squid	B	February - May	1
Restricted finfish (pelagic)	S	All year	1



**Figure 1** Annual commercial trawl fishing effort in the FZC 2009-2018 (Annual fishing effort is calculated from 1 July to 30 June (Falkland Islands Government, 2018)).

## **B. Current seabird mitigation measures**

- 3.4. In response to the obligations related to the policies, laws and conventions listed in Section 2, a series of seabird bycatch mitigation measures have been included in the licence conditions by the FIFD (*see details in Appendix A*).
- 3.5. Since 2004, it is a licence condition for all finfish trawlers operating in the FCZ, and Falkland Islands-flagged vessels operating in the High Seas, to deploy Bird Scaring Lines (BSLs), also known as tori-lines, during trawling operations. In 2006, the obligatory use of BSLs was extended to all trawl vessels. Since 2011, trawlers are not allowed to discharge discards while fishing gear is in the water, unless the BSLs are deployed. In addition, licence conditions request for nets to be cleaned of all material that could result in attracting birds to the net. Pelagic trawlers are further required to use special net bindings, which limit the time and area the net spends at the surface during shooting.
- 3.6. Since 2015, following ACAP best practice guidelines (*see details in Appendix B*) and the FI NPOA-S-T (*see Section 6*), a number of vessels have voluntarily implemented additional and/or improved alternative mitigation measures aimed at reducing warp-related mortalities. These include discard management systems in the form of a discard storage tank, as well as permanent bird scaring line structures, known as the Fixed Aerial Array (FAA).
- 3.7. The fishery protection vessel, *Protegat*, is chartered by FIG to deter illegal fishing and to conduct inspections of fishing vessels to monitor compliance of licence conditions. Vessels are instructed to rectify any non-compliant mitigation measures in line with licence conditions, and the Captain receives a written warning. In serious or repeated cases, this could result in prosecution. The latter has been the case on three occasions since 2004: once in 2005, and twice in 2017.

## **4. INCIDENTAL CATCH OF SEABIRDS IN THE FALKLAND ISLANDS TRAWL FISHERY**

### **A. Seabirds at risk of incidental catch in the Falkland Islands trawl fishery**

- 4.1. At least 82 species of seabirds have been recorded in the FCZ, with 22 known to breed in the islands (White et al., 2002; Woods and Woods, 2006). For several species, including the black-browed albatross (*Thalassarche melanophris*) and southern giant petrel (*Macronectes giganteus*), the Falkland Islands population represents significant proportions of the global population: circa 70 % of the black-browed albatross and 43 % of the southern giant petrel (Stanworth and Crofts, 2018).
- 4.2. Interactions between the Falkland Islands trawl fishery and seabirds have been well documented, and are primarily a consequence of the feeding opportunities provided through discards (Kuepfer, 2017a; Sullivan et al., 2006). Records from 1995 to 2018 indicate that at least 20 seabird species have been incidentally caught by trawl fishing gear in the Falkland Islands fleet (*see Appendix C, Table C1*).

- 4.3. The species most susceptible to this threat in the FCZ is the ACAP-listed black-browed albatross (IUCN status *Least Concern*), which on average accounts for 80% (50 – 93%) of observed annual mortalities (Black, 2010; Kuepfer, 2015, 2016, 2017a; Lopez Gutierrez, 2013; Parker, 2011, 2012; Quintin, 2014). Other ACAP-listed species regularly caught as bycatch in the Falkland Islands trawl fleet are southern giant petrels (IUCN status *Least Concern*) and white-chinned petrels *Procellaria aequinoctialis* (IUCN status *Vulnerable*).
- 4.4. In the period of 2014 to 2018, the first incidental mortalities of grey-headed albatross (*Thalassarche chrysostoma*) and Atlantic petrel (*Pterodroma incerta*) were recorded. The grey-headed albatross is also an ACAP-listed species, and both species are listed as *Endangered* under the IUCN Red List of Threatened Species (IUCN, 2018).
- 4.5. Incidental mortality in fisheries is the predominant anthropogenic threat posed to ACAP-listed species breeding in the Falkland Islands (Wolfaardt et al., 2013). Despite the presence of non-native mammalian predators at some breeding sites (e.g. rodents, cats), black-browed albatross and Southern giant petrel colonies do not appear to be adversely impacted by these alien species (Wolfaardt et al., 2013).

**B. Current information sources for, and assessment of, the extent of seabird mortality in the Falkland Islands trawl fisheries**

- 4.6. The FIFD has conducted annual assessments of the nature and extent of incidental seabird catches in the trawl fishery operating inside the FCZ since 2009<sup>1</sup>. Reports are accessible on the [FIG website](#). Annual mortality estimates are derived using a stratified ratio extrapolation approach, with data stratified by fishery, season and area (Sullivan et al., 2006; Wienecke and Robertson, 2002).
- 4.7. The information sources for the annual assessments include (i) FIFD and external observers<sup>2</sup> recording direct observations of incidental mortality of seabirds on trawl vessels operating in the FCZ, as well as on Falklands-flagged trawl vessels operating on the High Seas, providing spatial and temporal distribution of observed mortalities; and (ii) commercial fishers reporting spatial and temporal distribution of fishing effort.
- 4.8. Between 2009 and 2017, seabird observations covered on average 2.7% (2.1 - 3.6%) of commercial fishing days for the entire Falkland Islands trawl fleet. Historically, the finfish fleet received higher levels of observer coverage and actual observer effort (in terms of hours of observations conducted) compared to the Falkland Calamari fleet. However, since September 2017, the Falkland Calamari fleet has received 100% observer coverage as a result of external observers assisting with pinniped interaction observations (see also *Appendix C, Table C2*).

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<sup>1</sup> Prior to 2009, annual mortality assessments were conducted by Falklands Conservation.

<sup>2</sup> FIFD observers are those employed year-round by FIG. Since 2010, there has typically been one Seabird Observer (who focuses solely on seabird monitoring) and six Fisheries Observers (who conduct seabird observations on one in four days across the fleet). External observers are those employed by MRAG (Marine Resource Assessment Group) and CapMarine (Capricorn Marine Environmental). Since August 2017, as a result of unprecedented levels of pinniped interactions, external observers are funded by Industry to provide 100% observer coverage exclusively in the *Falkland Calamari* fleet.

- 4.9. The first incidental seabird mortality assessment for the Falkland Islands demersal trawl fishery in 2002/2003 estimated a minimum of 1,529 seabirds being killed at a daily rate of 0.47 (Sullivan et al., 2006). Estimates inferred these were exclusively warp-related mortalities of hauled birds.
- 4.10. Between 2004 and 2018, a minimum estimated annual average of 652 mortalities (173.9 – 976.11) occurred in the Falkland Islands trawl fleet at a daily average rate of 0.11 (see *Appendix C, Table C3*). Previously, mortalities were primarily related to interactions with the warp cables (Black, 2010; Kuepfer, 2015, 2016, 2017a; Lopez Gutierrez, 2013; Parker, 2011, 2012; Quintin, 2014), although net-related mortalities represented 76.8% of all observed mortalities in the period of 2017 to 2018 (43 out of 56 observed mortalities).
- 4.11. The annual mortality estimates should be considered with caution. They do not include mortalities opportunistically recorded on days not dedicated to seabird observations, nor do they include cryptic mortalities (observed interactions that resulted in unknown fates, and therefore possible mortalities, or mortalities that went entirely undetected), which may be as high as 38% (Parker et al., 2013). The robustness of estimates also reflects observer effort and can be compromised during relatively low levels of observer coverage or where observer focus is on trials of new mitigation methods.

### **C. Potential impact of incidental catches on local seabird populations**

- 4.12. The Falkland Islands support seabird populations that are of global importance, both numerically and in terms of conservation status. Accordingly, fluctuations in local populations may substantially affect the global conservation status of these species (Crofts and Stanworth, 2017; Wolfaardt, 2012).
- 4.13. Since the early 1990's seabird populations have been monitored and their global conservation status regularly assessed in the Falkland Islands. In the last decade both the Falkland Islands' populations of black-browed albatross and southern giant petrel have shown increasing to stable trends resulting in their IUCN statuses being reevaluated to *Least Concern* (IUCN, 2018). This reflects incremental and positive population changes for black-browed albatross from *Endangered* in 2003, and for southern giant petrel from *Vulnerable* in 2000 (Crofts and Stanworth, 2017; Huin, 2001; Wolfaardt, 2012)<sup>3</sup>.
- 4.14. The positive population trend of black-browed albatross, the most commonly bycaught species in the Falkland Islands, suggests that current levels of incidental catches of these species are not to the detriment of the local population. It has even been speculated that the positive population trend is linked to the availability of discards from trawlers in addition to improved mitigation measures (e.g. McInnes et al., 2017; Wolfaardt, 2012). However, this hypothesis has not been quantified or analysed with consideration to other influencing factors such as environmental conditions and

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<sup>3</sup> Data from the island-wide census of breeding black-browed albatross conducted in November 2017 are in preparation at the time of this report, and should be used to compare to the census results from 2000.

interaction with international fisheries (see e.g. Phillips et al., 2016; Quintana et al., 2006; Wolfaardt, 2012).

- 4.15. Phillips et al. (2016) highlight that it is not necessarily the most frequently-captured species that suffers the most severe population-level consequences, and that very low catches of a threatened species may eventually contribute to its extinction (see e.g. Jiménez et al., 2012). As such, the impact on populations of species less regularly caught in the Falkland Islands trawl fishery (e.g. grey-headed albatross) should not automatically be assumed negligible.

## 5. FI NPOA-S-T-2014: REVIEW OF PROGRESS

- 5.1. The primary objective of the FI NPOA-S-T-2014 was to strive towards the elimination of incidental seabird mortality due to interactions with trawlers. Nine specific objectives were detailed, and a Seabird Interaction Management Strategy was laid out to facilitate the implementation of the plan. Detailed annual progress reviews of the FI NPOA-S-T-2014 were conducted by the FIFD Scientific Seabird Observer in collaboration with the SBC (FIFD unpubl. reports). This section provides a brief summary of the progress made with respect to each objective, and notes where or how improvements could be made.

- 5.2. **Objective 1: Maintain a suitable level of observer coverage that enables the calculation of a robust annual estimate of seabird mortality in all trawl fisheries.** The recommended minimum level of 3% observer coverage to assess seabird mortality rates was achieved in all trawl fisheries for the first time in the period of July 2016 to June 2017 (Kuepfer, 2017a). However, the majority of interaction monitoring increasingly focussed on the research and assessment of mitigation measures. It was recommended that the use of a smaller time unit of observer effort be investigated (e.g. hours of observations instead of days during discarding).

**Objective 2: Further evaluate the use of a robust mortality proxy such as “heavy contacts” and their application in the estimation of seabird mortality and assessment of mitigation measures performances.** Research and analyses related to robust mortality estimates was not progressed for reasons of practicality and resource constraints. Priority was given to objectives that focused on reducing bycatch levels through improved mitigation.

**Objective 3: Continue to investigate the development of alternative, safe, cost-effective and practical mitigation measures to reduce trawler-related incidental seabird mortality.** Significant progress was made with the Fixed Aerial Array (FAA), with a total of nine Falkland Calamari vessels being fitted with the device as of October 2018. Design challenges were persistent, and a collaborative effort between the companies, vessel crew and the FIFD was critical to improve the system. A comparative study of the effectiveness of FAAs vs tori-lines was commenced. The FAA specifics are still in development, and specific measurements for deployment were not included within the licence conditions for this period.

**Objective 4: Further investigation and trial of discard management measures appropriate for the existing and upcoming fleet.** Following successful trials of discard management systems in 2015 and 2017 (Kuepfer et al., 2016; Kuepfer and Pompert, 2017), a fleet-wide study into the feasibility of installing discard management systems across the fleet was completed in June 2017. This was followed by a Discussion Document compiled for the Fisheries Committee (Kuepfer, 2017b), outlining the practical, financial and ecological implications of discard management. A consultation on the proposed policy specifics ran from December 2017 to April 2018 (Kuepfer and Barton, 2017), and a draft discard management policy paper was produced and discussed with the Fisheries Committee in June 2018 (Kuepfer and Barton, 2018). The policy will come into effect in January 2021. Close collaboration with the Industry and vessel crew for discard storage tank installation, assessment and refinement will be critical to maximise the benefits of this mitigation measure.

**Objective 5: Evaluate and adopt a process whereby realistic annual indicative bycatch targets are set, based on robust mortality indices and thereafter achieve an annual reduction in trawler-related mortalities to meet these targets.** Research and analyses related to robust mortality estimates had not progressed for reasons of practicality and resource constraints. Priority was given to objectives that focused on reducing bycatch levels through improved mitigation.

**Objective 6: Recognizing the experience and knowledge of fishermen, encourage their involvement in the modification and development of mitigation measures including discard management implementation.** FIFD observers routinely liaised with fishermen whilst on board vessels, with discussions and actions aimed at refining the practicality and effectiveness of seabird bycatch mitigation. It was highlighted that bycatch mitigation work could potentially further benefit from knowledge of the crew on vessels that not recently had on-board observers.

**Objective 7: Continue international awareness of mitigation of trawling-related mortality in the fishing industry and community at large.** The work conducted in the Falkland Islands trawl fleet in relation to seabird bycatch mitigation was presented at the 7<sup>th</sup> and 8<sup>th</sup> meeting of the ACAP Seabird Bycatch Working Group (SBWG) (Kuepfer, 2017c; Kuepfer et al., 2016; Kuepfer and Pompert, 2017). Increased engagement with ACAP and other relevant international fora would provide greater visibility of the positive seabird bycatch mitigation research and practices conducted in the Falkland Islands, and subsequently, could help to encourage uptake by other fisheries.

**Objective 8: Ensure the dissemination of information and training opportunities for fishermen and other stakeholders to work towards the practical implementation of the FI NPOA-S-T-2014 and the further development of a seabird conservation culture in fishing companies operating in the Falkland Islands.** Over the period of the NPOA-S-T-2014, the FIFD and Industry collaborated closely in relation to vessel-specific mitigation measures. An increased effort was also made to disseminate information locally via media reports and through public presentations, such as that at World Oceans Day 2018. In the face of new mitigation

implementation, a strategic approach will be necessary to disseminate targeted information and educational material to fishermen.

- 5.3. **Objective 9: Aim to establish collaborative projects between the Falkland Islands and nations where Falkland Island breeding seabirds migrate to, and/or encourage these nations to investigate the scale of seabird mortality caused by their factory trawler fleets.** The FIFD has benefitted from networking opportunities and exchange of information at the 7<sup>th</sup> and 8<sup>th</sup> meeting of the ACAP SBWG where representatives from Argentina, Brazil, Chile, and Uruguay attended. Furthermore, the 24<sup>th</sup> meeting of the Scientific Sub Committee of the South Atlantic Fisheries Commission (a bilateral commission involving Argentina and the UK) was attended by FIG representatives as part of the UK delegation. An agreement was reached on an annual exchange of information from the various commercial fleets' on-board observers, as well as on the exchange of information on mechanisms for mitigating incidental mortality of seabirds (South Atlantic Fisheries Commission SSC 2018). Further resources and efforts are required to progress collaborative work with neighbouring countries.

## 6. KEY POINTS AND IMPLICATIONS FOR THE FI NPOA-S-T-2019

- 6.1. The FIFD and Falkland Islands fishing industry have been committed to the reduction of incidental catches of seabirds by the trawl fleet since 2004. Implementation of mitigation measures have resulted in the reduction of interaction and mortality levels, although more detailed analyses would be necessary to determine the true scale of impact this has had.
- 6.2. Despite the efforts made, the Falkland Islands trawl fleet continues to incur incidental catches of seabirds, including of species listed on Annex 1 of the ACAP Agreement, and species listed on the IUCN Red List as *Endangered*, *Vulnerable* and *Near Threatened*. In the absence of detailed knowledge on the various factors influencing the affected species and their populations on a long-term basis, a precautionary and ecosystem-based approach to management is warranted, in order to buffer the seabird populations against future environmental changes and pressures from anthropogenic activities; as well as to improve the conservation status of vulnerable populations.
- 6.3. The FI NPOA-S-T-2019 presents a framework for continued and focused work towards reducing the incidental catch of seabird in the Falkland Islands trawl fleet. Furthermore, it encourages collaborative relationships with countries whose fleets interact with Falkland Islands breeding seabirds outside the FCZ. The FI NPOA-S-T-2019 builds on previous versions of the FI NPOA-S-T but takes into account emerging priorities, resource availability and lessons learned. In adopting the FI NPOA-S-T-2019, the Falkland Islands will ensure compliance with its domestic and international polices and conventions and will continue to build on its reputation for responsible and sustainable management of its fishery.

## PART II

### THE FI NPOA-S-T-2019

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#### 7. SCOPE

- 7.1. The FI NPOA-S-T-2019 applies to all trawl fishing conducted in the FCZ and that conducted by Falklands-flagged trawlers on the High Seas. It further provides a framework for establishing collaborative relationships between the Falkland Islands and nations whose fisheries interact with Falkland Islands breeding seabirds beyond the FCZ.

#### 8. OBJECTIVES

##### A. Introduction

- 8.1. FAO's BPTG recommend that states and Regional Fisheries Management Organisations (RFMOs) establish achievable objectives with clear rationales, timelines, and outputs that lead to the ongoing reduction in incidental catch of seabirds.
- 8.2. Accordingly, the FI NPOA-S-T-2019 includes an overarching, long-term goal which is supported by a suite of specific objectives that aim to guide the development and implementation of actions that are required if the long-term goal is to be achieved.
- 8.3. Following FAO guidelines, specific objectives encompass the following interconnected components: (i) observer programmes / coverage; (ii) research, development and implementation of mitigation measures; (iii) bycatch reduction objectives, and (iv) education, training and outreach.

##### B. Overarching goal

- 8.4. The overarching goal of the FI NPOA-S-T is to reduce or, if practicably possible, eliminate incidental mortality of seabirds from trawling activities, and to help achieve and maintain a favourable conservation status for Falkland Islands breeding seabirds. It further aims to support an ecosystem-based approach to fisheries management in the Falkland Islands, and to demonstrate best practice for seabird and fisheries management.

##### C. Specific objectives

- 8.5. The specific objectives of the NPOA-S-T-2019 are as follows. Their respective rationales are detailed in Appendix D.

**Objective 1:** *Through the use of at-sea observers on fishing vessels or through other appropriate methods, continue to collect reliable data to enable the accurate estimation of the nature and extent of seabird interactions with all trawl fisheries.*

**Objective 2:** *Continue to provide annual estimates of the nature and extent of seabird interactions with all trawl fisheries to assess the performance of mitigation measures.*

**Objective 3:** *Continue to monitor, assess and refine discard management and associated policies and regulation to reduce trawler-related incidental mortality of seabirds.*

**Objective 4:** *Alongside discard management, continue to develop, assess and refine other additional, safe, cost-effective and practical mitigation measures, together with associated policies and regulation to reduce trawler-related incidental mortality of seabirds.*

**Objective 5:** *Continue to take appropriate actions to encourage and ensure fleet-wide compliance relating to seabird bycatch mitigation.*

**Objective 6:** *Disseminate information and training material for local fishermen and regulators as well as other local stakeholders to assist with the practical implementation of the FI NPOA-S-T, and further the development of a pro-active seabird conservation culture across the fishing industry.*

**Objective 7:** *Continue to disseminate scientific and technical information on research, monitoring and management for the purpose of exchanging knowledge, skills and techniques to international governmental, scientific and conservation bodies, as well as to international fishing communities.*

**Objective 8:** *Encourage and establish collaborative relationships between the Falkland Islands and territories where Falkland Islands breeding seabirds migrate to, promoting the exchange of information on the scale and nature of seabird mortality, and advocating effective mitigation measure.*

**Objective 9:** *Identify and seek to secure additional resources from a range of sources, as and when deemed necessary, to further support the implementation and review of the NPOA-S-T 2019.*

## **9. IMPLEMENTATION**

### **A. Time-Frame**

9.1. Implementation of the FI NPOA-S-T-2019 will take four years, from January 2019 to December 2022. The FI NPOA-S-T-2019 will then remain in effect until succeeded by a further revision.

### **B. Collaboration**

9.2. The implementation of the FI NPOA-S-T represents the interests of all stakeholders, and a collaborative effort is required to achieve the objectives. Stakeholders, their roles and responsibilities include, but are not limited to the following:

- (i) the **FIG FIFD** who will be leading and coordinating the implementation of the FI NPOA-S-T-2019 including licensing enforcement;

- (ii) the **FIG Policy and Economic Development Unit** who are responsible for the alignment of the FI NPOA-T-2019 with relevant national and governmental policies, and who will provide advice on policy implementation and development related to the plan of action;
- (iii) the **fishing industry and fishing crew**, who will support the research and monitoring of seabird-vessel interaction and mitigation measures, and who will encourage and implement these measures using best practice behaviour;
- (iv) the **SBC**, with representatives from FIG, FC, UKOT ACAP Coordinator and Industry, who serves as a review body and engaging mechanism for seabird bycatch and mitigation in general (*See Appendix E for SBC Terms of reference*);
- (v) **any other environmental groups, researchers, or other interested organisations or members of the public** may carry out actions that support the implementation of the FI NPOA-S-T-2019, such as through on-ground engagement with research, education and awareness programmes.

### C. Provisional Actions

- 9.3. Provisional actions aimed at delivering the specific objectives are outlined in Table 2. Responsible parties referred to in Table 2 are as follows:

<b>ACAP</b>	UKOT ACAP Coordinator (JNCC)
<b>DoNR</b>	Director of Natural Resources (FIFD)
<b>EO</b>	Environmental Officer (Policy Unit)
<b>ExO</b>	External Observers (e.g. MRAG, CapMarine)
<b>FC</b>	Falklands Conservation
<b>FIFCA</b>	Falkland Islands Fishing Companies Association
<b>FIFD</b>	Falkland Islands Fisheries Department
<b>FO</b>	Fisheries Observers (FIFD)
<b>FishOps</b>	Fishery Operations Officers (FIFD)
<b>IR</b>	Independent Researcher
<b>LO</b>	Licencing Officer (FIFD)
<b>OC</b>	Observer Coordinator (FIFD)
<b>SBC</b>	Falkland Islands Seabird Bycatch Advisory Committee
<b>SO</b>	Scientific Officer (FIFD)
<b>VC</b>	Vessel Crew

**Table 2** Provisional table of actions to address the FI NPOA-T-2019 Objectives. CR = Critical, H = High, M = Medium, L = Low. Note that actions and priority levels may change based on review and assessment outcomes. Lead responsible party(s) are denoted in **bold**.

Action	Responsible party(s)	Priority level	Time frame	Important Assumptions	Output	Measure of success
<i><b>Objective 1:</b> Through the use of at-sea observers on fishing vessels or through other appropriate methods, continue to collect reliable data to enable the accurate estimation of the nature and extent of seabird interactions with all trawl fisheries</i>						
1.1. Through review and analysis of available data, determine a suitable unit of observer effort (such as hours of observations during discarding) and determine a suitable level of observer coverage	<b>SO</b>	H	By Q2 2020	Availability of the necessary data and statistical skills for analysis	Scientific report	New observer coverage target established
1.2. Through coordination and deployment of at-sea observers, maintain a suitable level of observer effort (as guided by outputs from 1.1.) to enable robust calculations of annual mortality estimates	<b>OC, SO, FO</b>	H	2020-2023	Sufficient resources (observer s)	Feed into the annual mortality estimates report	The observer coverage target is achieved for all trawl fleets
1.3. Maintain relevant seabird-vessel interactions and mitigation assessment protocols. Depending on mitigation trials or research studies, protocols may need to be reviewed to reflect data requirements	<b>SO</b>	H	2019-2023, as and when necessary	N/A	Up-to-date protocols	Data collected are consistent and the quality appropriate for analysis and scientific publication
1.4. Provide the necessary training via one-to-one meetings and group discussions to FIFD and external observers to ensure data consistency and quality.	<b>SO, FO, ExO</b>	CR	2019-2023, upon arrival of new observers	N/A	Suitably trained and experienced observers	Quality Assurance/Quality Control procedures are implemented; observer data are consistent and the quality appropriate for analysis and scientific publication

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Action	Responsible party(s)	Priority level	Time frame	Important Assumptions	Output	Measure of success
1.5. Through the use of appropriate databases, ensure suitable storage and management of seabird interaction and mitigation data	SO, OC	CR	2019-2023	Overhaul of the FIFD Observer Database	Populated database	Data are safely stored and accessible
1.6. Maintain an awareness of progress and development of alternative data collection techniques, such as through attendance of relevant meetings and conferences, keeping up-to-date with relevant literature, and participating in relevant discussion and working groups	SO, ACAP	M	2019-2023	N/A	Any progress developments are updated in annual FI NPOA-S-T review	At least one relevant meeting per year is attended and an active dialogue with experts is established and maintained
<b>Objective 2:</b> Continue to provide annual estimates of the nature and extent of seabird interactions with all trawl fisheries to assess the performance of mitigation measures.						
2.1. Through analyses of existing data, review and recommend the most appropriate approach for data stratification for calculation of annual mortality estimates	SO / IR (if available)	H	By Q4 2019	N/A	Scientific report; possibility of a scientific publication	The FIFD has access to an appropriate analytical guideline for calculation of annual mortality estimates
2.2. Through use of available data, calculate an annual mortality estimate for each trawl fleet. Estimates must include metrics on incidental catches of seabirds on the High Seas by Falkland-flagged vessels.	SO	H	Annually Q3,Q4	N/A	Annual mortality estimates reports	Annual seabird mortality estimates are available to fulfil national and international reporting obligations, and for the purpose of long-term monitoring
2.3. Through review and analyses of available data, evaluate and report on the use of a suitable mortality proxy such as "heavy contact" and its application in the estimation of mortality (e.g. after Maree et al., 2014)	SO / IR (if available)	H	2019 / 2020	Availability of appropriate resources (staff time)	Scientific report; possibility of a scientific publication	An appropriate mortality proxy which provides a higher sample size for more robust analyses

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Action	Responsible party(s)	Priority level	Time frame	Important Assumptions	Output	Measure of success
2.4. Continue to liaise with other nations and their institutions to maintain an awareness of / facilitate the development of research techniques to assess the level of cryptic mortality	SO, ACAP, IR (if available)	H	2019 - 2023	N/A	Progress update in annual FI NPOA-S-T review	At least one relevant meeting per year is attended and an active dialogue with experts is established and maintained
2.5. Through review and analyses of available data, conduct a multi-annual incidental mortality review to assess the performance of mitigation implementation since 2004	SO / IR (if available)	H	By Q4 2020	Availability of appropriate resources (staff time)	Scientific report; possibility of a scientific publication	The FIFD has access to improved long-term mortality estimates, which can be used to accurately assess the long-term effectiveness of implemented mitigation measures
<b>Objective 3:</b> Continue to monitor, assess and refine discard management and associated policies and regulation to reduce trawler-related incidental mortality of seabirds.						
3.1. Through consultation with Industry, finalise and adopt the Discard Management Policy.	DoNR, FIFCA, ITQ holders	H	Q1 2019	N/A	Discard Management Policy Paper; local & international news item	Discard Management Policy Paper adopted by the Fisheries Committee and the FIG and appropriate legislation implemented by the FIFD and the Falkland Islands fishing industry.
3.2. Using a collaborative approach, maintain an active dialogue with Industry to support the installation of effective discard management systems, encouraging discussions for vessel-specific installations.	SO, ITQ holders	CR	Q1 2019 to Q4 2020	Continued mutual collaborative efforts	Progress update in annual FI NPOA-S-T review	All trawl vessels operating in the Falkland Islands have a functional and effective discard management system by January 2021

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Action	Responsible party(s)	Priority level	Time frame	Important Assumptions	Output	Measure of success
3.3. Through active discussions, draw on the experience and knowledge of fishermen, and encourage their involvement in the development and refinement of batch discard tanks to enable ongoing review and improved design and performance	SO, FO, ExO, VC	CR	2019-2021	Mutual collaboration and two-way information exchange with fishermen; access to all vessels	FIFD Observer reports	All trawl vessels operating in the Falkland Islands have a functional and effective discard management system by January 2021
3.4. Utilising FIFD and/or external observers, monitor and assesses the performance of discard tanks in regards to the practical feasibility against interactions with seabirds to enable ongoing review and improved design and performance	SO, FI, ExO,	CR	2019-2023	Sufficient resources (observers); the FIFD will have access to sufficient data to assess the performance of vessel-specific discard management tanks	Seabird-vessel interaction data; FIFD Observer reports	Improved design and performance of vessel discard management tanks

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Action	Responsible party(s)	Priority level	Time frame	Important Assumptions	Output	Measure of success
3.5. In line with the specifics of the Discard Management policy, amend the licencing conditions for trawl fisheries, and ensure any changes are clearly communicated with ITQ holders, Captains and crew	DoNR, SO, ITQ holders, LO, FishOps	CR	Q1 2021	N/A	Updated licensing condition documentation; all parties affected by the Discard Management Policy have a clear, written record and acknowledged understanding of the new licencing conditions.	New licencing conditions implemented and regulated.
<b>Objective 4:</b> <i>Alongside discard management, continue to develop, assess and refine other additional, safe, cost-effective and practical mitigation and associated policies and regulation to reduce trawler-related incidental mortality of seabirds.</i>						
4.1. Through analyses of available data, assess the comparative effectiveness and performance of the FAA and the tori-line in reducing seabird interactions.	SO	H	Q2 2019	Access to appropriate data and information that will guide policy decisions related to the FAA	Scientific report; guidelines and/or policy advice on FAA and tori line design and installation; local and international news item	Guidelines on the use and installation of effective FAAs and/or tori lines established, resulting in decreased seabird interactions.
4.2. Through active discussions, draw on the experience and knowledge of fishermen, and encourage their involvement in the development and refinement of additional mitigation measures (e.g. the FAA) to enable the ongoing review and improved performance	SO, FO, ExO, VC	H	2019-2021	Mutual collaboration and two-way information exchange with fishermen; access to all vessels	FIFD Observer reports	By 2023, where vessels have additional mitigation measures, the measures are practical for crew and are effectively reducing seabird interactions.

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Action	Responsible party(s)	Priority level	Time frame	Important Assumptions	Output	Measure of success
4.2. Using a collaborative approach, maintain an active dialogue with Industry to guide the installation of FAAs, build on lessons learned, and ensure that all FAAs are designed in accordance with FIFD Guidelines / policy.	SO, ITQ holders	H	2019-2021	Mutual collaborative efforts	Progress update in annual FI NPOA-S-T review	By 2023, where vessels have additional mitigation measures, the measures are practical for crew and are effectively reducing seabird interactions.
4.3. Using the established assessment protocol, monitor and assess the performance of newly installed or amended FAA devices in regards to their practical feasibility against reducing incidental interaction with seabirds	SO, FO, ExO	H	2019-2023	Sufficient resources (observers); access to sufficient data to assess the performance of the FAA as a mitigation measure	Seabird-vessel interaction data	FAA effectiveness assessment protocol implemented on as many vessels as practically feasible
4.4. Through active incorporation of best available information, review and update the FAA Guidelines as seen necessary	SO	H	2019, 2020	Access to any additional available information	Updated FAA Guidelines	Up-to-date FAA Guidelines supporting the installation of effective FAAs used by FIFD and Industry.
4.5. In line with the specifics of the FAA Guidelines, amend the licencing conditions for trawl fisheries, and ensure any changes are clearly communicated with ITQ holders, the Captains/officers, and crew	DoNR, SO, ITQ holders, LO, FishOps	H	By Q1 2022	Available and supportive results from Action 4.1 and 4.4.; Consultation with Industry	Updated licensing condition documentation; all parties affected by the FAA Policy have a clear, written record and acknowledged understanding of associated licencing conditions.	New licencing conditions implemented and regulated.

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Action	Responsible party(s)	Priority level	Time frame	Important Assumptions	Output	Measure of success
4.6. Through analysis and review of existing data, assess the effectiveness of the tori-line net-sock at reducing seabird entanglements.	SO, FO	M	By Q4 2019	Availability of sufficient data & resources (staff time)	Research report; policy advice	The FIFD will have access to information that will guide policy decisions in relation to tori-line specifics
4.7. In line with results from Action 4.6., amend the licencing conditions for trawl fisheries, and ensure any changes are clearly communicated with ITQ holders, the Captains, and crew	DoNR, SO, ITQ holders, LO, FishOps	M	By Q2 2020	Available and supportive results from Action 4.6.; Consultation with Industry	Updated licensing condition documentation; all parties affected by the tori-line policy have a clear, written record and acknowledged understanding of associated licencing conditions.	New licencing conditions implemented and regulated.
4.8. Through active discussions and engagement, liaise with crew and other nations and their institutions to progress and facilitate the development of suitable net-related mitigation techniques	SO, ACAP, FO, ExO, VC	H	2019-2023	Identification of suitable mitigation options	Progress update in annual FI NPOA-S-T review	The FIFD is aware of possible options available for net-related mitigation measures

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Action	Responsible party(s)	Priority level	Time frame	Important Assumptions	Output	Measure of success
<b>Objective 5:</b> Continue to take appropriate actions to encourage and ensure fleet-wide compliance relating to seabird bycatch mitigation.						
<p>5.1. Using the licence briefings as an opportunity for information dissemination, make available the following information to fishing crew:</p> <ul style="list-style-type: none"> <li>- The issue of seabird bycatch globally and in the Falkland Islands, with focus on trawler-related incidental seabird mortality;</li> <li>- Introduction to and instruction on new mitigation measures and associated legislation, including best at-sea work practices;</li> <li>- Progress on reducing the issue of incidental catches; work in progress, and the important role played by the fishing crew.</li> </ul>	SO, ACAP, FO, LO, VC	CR	Q1 2019-2023	Q1 2019: sufficient resources (staff time, Spanish translator)	Information leaflet and newsletter (in Spanish)	At least one information source will be disseminated to fishermen annually. Subsequently, fishing crews operating in the Falkland Islands trawl fleet will have an improved understanding and awareness of the issue of incidental catches of seabirds, the impact of their actions, and how they can assist to reduce seabird bycatch. This will reflect positively in best practice behaviour and compliance.
5.2 Through active research and liaison with other fishing operators and regulators, investigate incentive options such as Eco-labels that would promote and reward good practice behaviour	FIFCA, SO, ACAP	M	2019-2023	Availability of suitable schemes and options; a desire to implement such options within Industry / FIG	Policy advice report	The FIFD and Industry are aware of possible options available related to eco-labelling and other options for incentives for good practice behaviour; if deemed beneficial, such options are implemented.

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Action	Responsible party(s)	Priority level	Time frame	Important Assumptions	Output	Measure of success
5.3. Through effective legislation and monitoring, maintain a process where the risk and cost of non-compliance, is sufficiently high to outweigh the benefits of non-compliance.	<b>DoNR, FishOps, LO</b>	H	2019-2023	Adequate methods and sufficient resources for effective regulation	Licence conditions	The Falkland Islands trawl fleet will see a reduction in official warnings and zero prosecutions.
<b>Objective 6:</b> <i>Ensure the dissemination of information and training material for local fishers and regulators as well as other local stakeholders to assist with the practical implementation of the FI NPOA-S-T, and further the development of a pro-active seabird conservation culture across the fishing industry.</i>						
6.1. As per Action 5.1.	<b>SO, ACAP, FO, LO, VC</b>	CR	During pre-season briefings 2019-2023	Q1 2019 – sufficient resources (staff time)	Guidelines; information leaflet / newsletter (in Spanish); possibly video/ PowerPoint presentations	At least one information source will be disseminated to fishermen annually. Subsequently, the fishing crew operating in the Falkland Islands trawl fleet will have an improved understanding and awareness of the issue of incidental catches of seabirds, the impact of their actions, and how they can assist to reduce seabird bycatch. This will reflect positively in best practice behaviour and effective implementation of mitigation measures.
6.2. Through active collaboration with ITQ holders and FIFCA, identify and utilise practical and efficient systems for dissemination of information to fishing crew	<b>SO, ACAP, FIFCA, ITQ holders,</b>	M	2019-2023	N/A	Progress update in annual FI NPOA-S-T review	The FIFD have an efficient and effective system in place that provides easy access for (two-way) information exchange with fishing crew

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Action	Responsible party(s)	Priority level	Time frame	Important Assumptions	Output	Measure of success
<p>6.3. Through meetings, presentations, emails, or otherwise, pro-actively share the following information with the fishing industry</p> <ul style="list-style-type: none"> <li>- progress made with FI NPOA-S-T-2019 objectives, including new technical and scientific information on seabird bycatch mitigation work and mortality estimates;</li> <li>- progress made in other countries in relation to reducing incidental catch of seabirds</li> </ul>	<p><b>SO, ACAP, FIFCA</b></p>	<p>H</p>	<p>Regularly as new information emerges</p>	<p>N/A</p>	<p>Technical/scientific reports; PowerPoint presentation; circulation of news articles.</p>	<p>The Falkland Islands fishing industry have a sustained awareness of the work being conducted and progress made, both locally and internationally, with regards to seabird bycatch mitigation</p>
<p>6.4. Through meetings, presentations, emails, or otherwise, pro-actively share and discuss with decision-makers and regulators (including FIFD managers and FishOps) new scientific and technical information related to the FI NPOA-S-T-2019 objectives and potential implications on policy</p>	<p><b>SO, DoNR, FishOps, LO</b></p>	<p>H</p>	<p>Regularly as new information emerges</p>	<p>N/A</p>	<p>Technical reports; PowerPoint presentation, circulation of news articles.</p>	<p>FIG / FIFD decision-makers and regulators have a sustained awareness of the work being conducted and progress made with regards to seabird bycatch mitigation and the FI NPOA-S-T</p>
<p>6.5. Through local media, presentations, emails, or otherwise, pro-actively share and discuss with other relevant stakeholders (local scientific and conservation organisations, general public) new scientific and technical information related to the FI NPOA-S-T-2019 objectives</p>	<p><b>SO, ACAP</b></p>	<p>M</p>	<p>Regularly as new information emerges</p>	<p>N/A</p>	<p>Penguin news articles / radio / public presentations.</p>	<p>At least two news articles and one radio appearance will be provided annually. At least two public presentations will be held between 2019 and 2023.</p>

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Action	Responsible party(s)	Priority level	Time frame	Important Assumptions	Output	Measure of success
<b>Objective 7:</b> Continue to disseminate scientific and technical information on research, monitoring and management for the purpose of exchanging knowledge, skills and techniques to international governmental, scientific and conservation bodies, as well as to international fishing communities.						
7.1. Produce at least two peer-reviewed publications on Falkland Islands seabird fisheries interactions and/or seabird mitigation measures (options include discard management; multi-annual review on bycatch estimates; comparative study of FAAs vs tori-lines)	SO / IR (if available)	H	2019 - 2023	Sufficient resources (staff time)	Peer-reviewed scientific paper	At least two new peer reviewed publications will be produced by 2023, which will provide the international scientific, environmental conservation and fishing communities with cutting-edge information on reducing incidental catches of seabirds in trawlers.
7.2. Actively contribute to the work of the ACAP SBWG through submission of Information Papers, highlighting new research or progress (e.g. NPOA-S-T-2019, mitigation research, etc.)	SO, ACAP	H	Ses-quiennial meeting: Submit by March 2019; by July 2020; by Mar 2022	Sufficient resources (staff time)	ACAP SBWG Information Paper(s)	A minimum of one Information Paper will be submitted per ACAP SBWG meeting
7.3. Attend the ACAP SBWG meetings to actively demonstrate and discuss the efforts made in the Falkland Islands, and to maximise opportunities for networking and collaboration with international experts	SO, ACAP	H	Ses-quiennial meeting: Submit by March 2019; by July 2020; by Mar 2022	Sufficient resources (staff time)	Meeting feedback to colleagues and relevant stakeholders; local news item	The SBWG meetings will be attended by at least one representative from the FIFD

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Action	Responsible party(s)	Priority level	Time frame	Important Assumptions	Output	Measure of success
7.4. Attend other relevant meetings, conferences and/or workshops (including e.g. RFMO meetings) to actively demonstrate and discuss the efforts made in the Falkland Islands, and to maximise opportunities for networking and collaboration with international experts	<b>SO, ACAP</b>	H	As and when an opportunity arises	Sufficient resources (staff time)	Meeting feedback to colleagues and relevant stakeholders; local news item	At least one relevant meeting will be attended annually by at least one Falkland Islands representative
7.5. Using available data and information, conduct regular external reporting of progress made in relation to the FI NPOA-S-T-2019 (e.g. to FAO, ACAP, Birdlife International, or similar)	<b>ACAP</b>	H	Annual (ACAP); biennial (FAO) 2019-2023	N/A	External reports	Relevant external bodies will receive regular and up-to-date information related to the Falkland Islands seabird bycatch issue and progress made with the FI NPOA-S-T-2019
7.8. Through use of designated platforms (e.g. ACAP newfeed; Birdlife International news feed), actively share new scientific and technical information with the international scientific and conservation community	<b>ACAP, SO</b>	H	Regularly as new information emerges	Appropriate news items available	News feeds/articles	At least two news articles are disseminated on international platforms annually.

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Action	Responsible party(s)	Priority level	Time frame	Important Assumptions	Output	Measure of success
<b>Objective 8:</b> Encourage and establish collaborative relationships between the Falkland Islands and territories where Falkland Islands breeding seabirds migrate to, promoting the exchange of information on the scale and nature of seabird mortality, and advocating effective mitigation measure.						
8.1. Through active engagement with relevant institutions, seek collaboration with appropriate nations (Argentina, Brazil, Chile, Uruguay), exchanging information regarding the scale and nature of seabird bycatch, implementation and regulation of best practice mitigation, and interactions monitoring	ACAP, FC, SO	M	2019-2023	Mutual collaborative interest	ACAP newsfeed; progress update in annual FI NPOA-S-T review	FIG and neighbouring countries have access to each other's information on bycatch estimates and mitigation measures which can be used for collaborative and/or comparative purposes
8.2. Collaborate with the Government of South Georgia and South Sandwich Islands (GSGSSI) to streamline resources related to action 8.1.	ACAP	M	2019-2023	Mutual collaborative interest	Progress update in annual FI NPOA-S-T review	FIG and neighbouring countries have access to each other's information on bycatch estimates and mitigation measures which can be used for collaborative and/or comparative purposes
<b>Objective 9:</b> Identify and seek to secure additional resources from a range of sources as and when deemed necessary to further support the implementation and review of the NPOA-S-T 2019.						
9.1. Identify available resources (staff, financial and technical) to develop a human resource and budget plan related to the implementation of the FI NPOA-S-T-2019	EO, ACAP, SO, FC, FIFCA	CR	By Q2 2019	Available resources (staff time)	Human resource and budget plan	FIG / FIFD have an improved understanding of the resources available for implementation of the FI NPOA-S-T-2019, as well as further resources potentially required

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<b>Action</b>	<b>Responsible party(s)</b>	<b>Priority level</b>	<b>Time frame</b>	<b>Important Assumptions</b>	<b>Output</b>	<b>Measure of success</b>
9.2. Through desk-based research, identify potential sources for additional human/ financial resourcing which would help to progress and deliver objectives 1 to 8 of the FI NPOA-S-T-2019	<b>EO, ACAP</b> SO, FC, FIFCA	CR	By Q3 2019	Action 9.1. identifies the need for additional resources	Internal report	FIG / FIFD have an improved understanding of the options available for enhanced resources, should these be required
9.3. Secure further resources as necessary (e.g. additional funding from ACAP, FIG (e.g. through ExCo paper, post-graduate projects, Darwin Initiative, etc.)	FIFD, ACAP	CR	2019- 2023	Considered necessary and possible - pending Actions 9.1 & 9.2.	Funding application / ExCo Paper	Application(s) for additional resourcing is submitted, or the opportunity of a post-graduate project pursued
9.4. Regularly meet with the SBC for interim discussions on progress, opportunities and issues related to the FI NPOA-S-T-2019	<b>SO, SBC</b>	H	Bi- annually	H	SBC meeting minutes	The SBC meet at least twice a year to remain informed about progress, issues and opportunities related to the FI NPOA-S-T-2019
9.5. Consolidating information from various reports and discussions held throughout the year, conduct an annual review of the FI NPOA-S-T-2019 implementation, considering progress made, and new issues and opportunities identified.	<b>SO, SBC</b>	H	Annually, Q1	H	Annual FI NPO-S-T review	The FIFD and relevant stakeholders have access to an accurate audit-trail of progress made in relation to FI NPOA-S-T-2019, and this supports prioritisation and review of future actions

## **10. EVALUATION AND REVIEW**

- 10.1. FAO (1999) encourages states and RFMOs to report on the progress of the assessment, development and implementation of their NPOA-S as part of their biennial reporting to FAO on the Code of Conduct for Responsible Fisheries.
- 10.2. It is intended that on the basis of continuous progress the specific objectives are translated into updated actions as new information, technology and collaborative opportunities arise. An annual review, conducted by the SBC and in consultation with relevant stakeholders, will help monitor the progress and success of actions and recommendations, and will ensure the plan remains current, pragmatic and functional. It will also ensure that fishing industry members, relevant government officials and non-governmental parties continue to have significant input into achieving the long-term objective of the FI NPOA-S-T-2019. The annual summary should contain, but need not be limited to:
- (i) An estimate of seabird mortality within the trawl fisheries;
  - (ii) an assessment of the level and utility of observer coverage/effort;
  - (iii) an audit of performance of objectives of the FI NPOA-S-T-2019;
  - (iv) recommendations for amendments to objectives and actions.
- 10.3. In line with FAO's BPTG No.10, the FI NPOA-S-T-2019 will be reassessed four years after implementation, at which time the scope and contents of the plan will be re-evaluated, and objectives revised. Consultation with key stakeholders will be central to the review.

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## APPENDICES

### Appendix A: Falkland Islands Licence Part 2 C - Mitigation of Seabird Mortalities

#### Mitigation of Seabird Mortalities

C1. In order to minimise seabird interactions with trawl warps:

a) **Discards from the ship of unwanted whole fish, offal and waste must cease when trawl warps are in the water and the Bird Scaring Lines are not deployed** (i.e. net hauling, door and net retrieval, net and door deployments, and paying out of warp cable).

b) In order to reduce incidental seabird mortalities through warp strikes, all trawlers **must deploy two Bird Scaring Lines**. One Bird Scaring Line must be deployed on each side of the ship outboard of the trawl warps.

c) Bird Scaring Lines must be deployed as soon as the trawl doors are submerged, throughout the trawl, until hauling operations commence. **If the Bird Scaring Lines are not deployed during shooting or hauling then factory processing and discarding must cease.**

d) Bird Scaring Lines must be fixed at stern of the vessel from attachment points higher than the trawl blocks and **no more than 2 metres horizontally** from the trawl blocks. Extension pieces may need to be fabricated to allow correct positioning of the Bird Scaring Lines. Fisheries Officers may advise of correct fixing points during inspections.

e) The first Bird Scaring Lines streamer must be positioned at 1 metre distance from the stern of the vessel, **as measured at the waterline.**

f) A third spare Bird Scaring Lines must be available for immediate deployment in the event of a mishap with either of the two Bird Scaring Lines in use.

C2. All vessels must conform to the following design of Bird Scaring Lines as shown in figures 1a and 1b. This design has been tested and shown to significantly reduce the number of seabirds hitting the trawl warps whilst foraging astern of fishing vessels, reducing bird entanglements and improving durability.

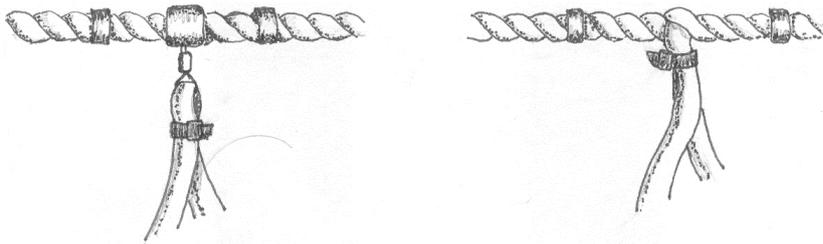
a) The lines must be made from **8-10 millimetre floating line**, either laid or pleated. The recommended total length of the line astern the vessel is **30 metres**. Depending on the distance between the stern of the vessel and the warp/water interface, the total Bird Scaring Line length **may vary between 27 metres and 33 metres**. This variation in length can only be adjusted for between the last streamer and the buoy.

b) Six double streamers are to be attached at intervals indicated in Fig 1. Attachment may be by light weight swivels (less than 50 grams) with stoppers or directly into the lay of the rope (Fig 1a). Streamer lengths range from 2 × 8 metre streamers closest to the stern to 2 × 3 metre streamers nearest the buoy. The length of the first set of streamers (2 x 8 metre and 2 x 7 metre) may be adjusted to optimise mobility and reduce drag (Fig 1b). The length of these two sets may vary between 2 x 7.5 - 8.5 metres and 2 x 6.5 - 7.5 metres for the first and second respectively (Fig 1a).

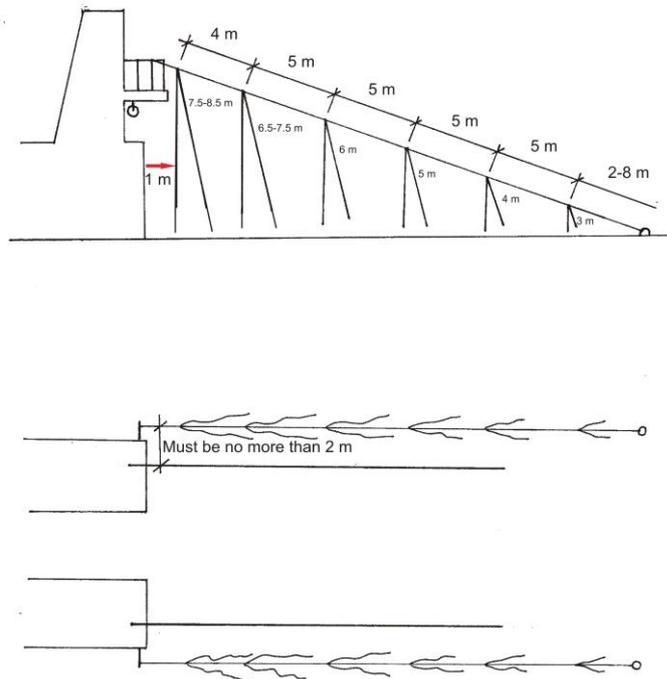
c) It is required that the streamers be made from semi-flexible tubing of high visibility (red, orange or yellow). The recommended tubing is **Red Mazzerpur 10 millimetre** polyurethane tubing. Polythene and materials such as fire hose; old waterproofs, nylon covered rope, and dark coloured tubing are NOT ACCEPTABLE.

d) The drag buoy is a net covered 300 millimetre diameter HDP moulded fishing float attached by a swivel. Any other buoys are NOT ACCEPTABLE.

e) Nets MUST be cleaned prior to shooting to remove items that might attract birds.



**Fig 1a.** Design of Approved Bird Scaring Lines



**Fig 1b.** Bird Scaring Line specifications

## Appendix B: ACAP Best Practice Advice for Reducing the Impact of Pelagic and Demersal Trawl Fisheries on Seabirds

**Table B1:** Summary table of ACAP Best Practice Measures for reducing incidental catches of seabirds in trawl fisheries (ACAP, 2017) – only measures have been included which are recommended by ACAP, or which are relevant to the Falkland Islands trawl fleet.

Mitigation Measure	Description	Objective of mitigation	Recommendation
<b>Offal discharge and fish discard management</b>			
Full retention	Storage of all fish discard and offal for processing or controlled release when cables are out of the water	Reduce general attractiveness of vessel to seabirds	Recommended as a standalone method
Mealing	Converting offal and discards to fish meal, significantly reducing the quantity of discards discharged	Reduce general attractiveness of vessel to seabirds	Recommended as a standalone method
Batching	The temporary storage and periodic and controlled release of discards during trawling	Reduce general attractiveness of vessel to seabirds	Recommended in combination with other mitigation method
<b>Reducing interactions with trawl cables</b>			
Bird Scaring Lines (BSL)	Attachment of a BSL to both the port and starboard sides of a vessel, above and outside of the warp-blocks	Reduce the access of birds to the danger zone where warps enter the water	Recommended in combination with offal/discard management
Snatch block <sup>1</sup>	Placed on the stern of a vessel to draw the third-wire close to the water to reduce its aerial extent	Reduced aerial extent should reduce the risk of seabird strikes with these cables	Recommended in combination with offal/discard management and BSL
Bird bafflers <sup>2</sup>	Four booms are attached to the stern of a vessel, two of which extend backwards from the vessel, and two of which extend out from the sides of the vessel. Dropper lines are attached to the booms to create a curtain around the warp-water interface	Reduce the access of birds to the danger zone where warps enter the water	Not recommended as they generally don't extend beyond the warp-water interface area, hence leaving the most dangerous part of the warp exposed
<b>Reducing net entanglements</b>			
Net binding	Bindings are tied to the net to prevent it from lofting and the mesh opening as the tension is lost during shooting. The bindings snap open once the net has sunk beyond diving depth of seabirds	Minimise the risk of birds becoming entangled in the net during shooting	Recommended for pelagic trawlers only, and in combination with net weights and net cleaning and discard retention
Net weighting	Net weighting on or near the cod end increases the angle of ascent of the net, thus reducing the time the net is on the water's surface	Minimise the risk of birds becoming entangled in the net during shooting and hauling	Recommended in combination with net binding (for pelagic trawlers) net cleaning and discard retention
<b>General measures</b>			
Time-area closure	Avoiding fishing at peak areas and during periods of intense foraging activity	Avoid overlap of seabirds and fisheries in peak areas and/or periods	Recommended with caveat: Displacement of fishing effort could displace the issue to elsewhere

<sup>1</sup> The snatch block is not relevant for the Falkland Islands trawl fleet due to prohibition of use of the third-wire.

<sup>2</sup> The Fixed Aerial Array (FAA) currently developed in the Falkland Islands is based on the baffler system, with attention given to maximise warp protection.

### Appendix C: Interactions monitoring in Falkland Islands trawl fishery

**Table C1** Incidental mortalities of seabirds reported by observers on Falkland Islands trawlers, 1995-2018 (<sup>1</sup>FIFD unpubl. data, <sup>2</sup>SAST unpubl. data, <sup>3</sup>APP unpubl. data, <sup>4</sup>FIFD published data (Black, 2010; Kuepfer, 2015, 2016, 2017a; Lopez Gutierrez, 2013; Parker, 2011, 2012; Quintin, 2014)). IUCN Red List status: LC = *Least Concern*; NT = *Near Threatened*; VU = *Vulnerable*; EN = *Endangered* (IUCN, 2018). Note that the values are to indicate the number of mortality of individual species observed as part of various observer programmes, and are not directly comparable between columns. Data represent observations from both targeted seabird observations as well as from opportunistic seabird observations made during days not dedicated to seabird monitoring.

Common names	Scientific name	IUCN RL status	ACAP spp.	Jan 1995 - June 2009 <sup>1</sup>	Jan 2002 - Dec 2003 <sup>2</sup>	Jan 2004 - Dec 2008 <sup>3</sup>	July 2009 - June 2018 <sup>4</sup>
King penguin	<i>Aptenodytes patagonicus</i>	LC	NO	2			
Gentoo penguin	<i>Pygoscelis papua</i>	LC	NO	6			2
Magellanic penguin	<i>Spheniscus magellanicus</i>	NT	NO	8			
Albatross spp.				2		1	
Wandering albatross	<i>Diomedea exulans</i>	VU	YES	2			
Southern royal albatross	<i>Diomedea epomophora</i>	VU	YES	2			
Black-browed albatross	<i>Thalassarche melanophris</i>	LC	YES	180	118	105	272
Grey-headed albatross	<i>Thalassarche chrysostoma</i>	EN	YES				7
Giant petrel spp.	<i>Macronectes</i> spp.			7		1	13
Southern giant petrel	<i>Macronectes giganteus</i>	LC	YES	5	5	1	1
Northern giant petrel	<i>Macronectes halli</i>	LC	YES			1	
White-chinned petrel	<i>Procellaria aequinoctialis</i>	VU	YES	6	3		2
Cape petrel	<i>Daption capense</i>	LC	NO	13		1	5
Southern fulmar	<i>Fulmarus glacialisoides</i>	LC	NO	1			
Sooty shearwater	<i>Ardenna grisea</i>	NT	NO				22
Thin-billed prion	<i>Pachyptila belcheri</i>	LC	NO				1
Imperial shag	<i>Phalacrocorax atriceps</i>	LC	NO	2			
Rock shag	<i>Phalacrocorax magellanicus</i>	LC	NO	1			
Storm petrel species	<i>Oceanitidae</i> spp.						1
Atlantic petrel	<i>Pterodroma incerta</i>	EN	NO				1

**Table C2:** Percentage observer effort (number of fishing days observed and dedicated to seabird interactions monitoring) for the period of 2009 to 2018. Annual observer effort is calculated from 1 July to 30 June.

<b>Trawl Fleet</b>	<b>2009-2010</b>	<b>2010-2011</b>	<b>2011-2012</b>	<b>2012-2013</b>	<b>2013-2014</b>	<b>2014-2015</b>	<b>2015-2016</b>	<b>2016-2017</b>	<b>2017-2018</b>
Finfish (Licence A / G / W )	2.5	2.9	4.1	2.8	1.9	3.3	3.6	4	1.8
Falkland Calamari (Licence C / X)	2.4	2	2	2.2	1.6	2	2.5	3.2	73.0 <sup>2</sup>
Skate & Ray (Licence F)	2.6	1.5	1.6	2.5	0.9	0.7	5	5.1	3.1
Illex squid (Licence B)	0	4.7	2.8	0	0	4.3	N/A	0	0
Pelagic (Licence S)	6.7	7.2	14.3	33.3	33.3	13.3	10	N/A	0
International (Licence O)	0.4	0	5	1.4	5.7	4.8	0.6	2.3	1.4
Experimental trawling (Licence E) <sup>1</sup>	0.0	0.0	0.0	8.9	0.0	1.1	22.6	0.0	0.0
% observed of all trawling operations	2.3	2.3	3.5	2.6	2.1	2.8	3.1	3.3	33.6
% observed of commercial fishing only	2.3	2.3	3.6	2.5	2.1	2.8	2.9	3.4	34.1

<sup>1</sup> Experimental trawling relates to fish-stock related research; the standard seabird monitoring protocol is applied.

<sup>2</sup> Additional observer coverage achieved through external observers.

**Table C3** Summary of observed number and rate of seabird mortalities for the period of 2009 to 2018 during dedicated seabird observation days (where at least one haul is observed). Mortalities recorded opportunistically on days that were not dedicated to seabird observations have not been included here. Annual values are calculated from 1 July to 30 June. Rate of observed mortality represents the number of observed mortality per observed fishing day, with values stratified by season and area and average for the year. Extrapolated mortality represents the sum of spatially and temporally stratified extrapolated mortality. See e.g. Kuepfer, 2017 for more information regarding the data stratification method applied.

**(a) High-risk species only (species listed in the Annex 1 of the ACAP Agreement)**

Trawl Fleet	High risk species only	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Finfish	n(observed mortality)	4	37	28	27	1	32	9	29	2
	rate(obs. mort. / obs. day)	0.05	0.39	0.30	0.16	0.03	0.22	0.13	0.55	0.08
	n(extrapolated mortality)	89.27	1121.54	622.60	431.28	9.67	845.37	195.20	487.53	117.67
Falkland Calamari	n(observed mortality)	0	0	0	0	1	1	12	8	38
	rate(obs. mort. / obs. day)	0.00	0.00	0.00	0.00	0.02	0.02	0.27	0.11	0.03
	n(extrapolated mortality)	0.00	0.00	0.00	0.00	48.25	52.78	403.66	276.54	44.26
Skate & Ray	n(observed mortality)	0	0	0	0	0	0	1	1	0
	rate(obs. mort. / obs. day)	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.00
	n(extrapolated mortality)	0.00	0.00	0.00	0.00	0.00	0.00	9.00	8.60	0.00
Illex squid	n(observed mortality)	NA	0	0	NA	NA	0	NA	NA	NA
	rate(obs. mort. / obs. day)	NA	0.00	0.00	NA	NA	0.00	NA	NA	NA
	n(extrapolated mortality)	NA	0.00	0.00	NA	NA	0.00	NA	NA	NA
Pelagic Trawling	n(observed mortality)	0	0	0	0	0	0	0	NA	NA
	rate(obs. mort. / obs. day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA
	n(extrapolated mortality)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA
International	n(observed mortality)	1	NA	0	0	0	0	0	0	0
	rate(obs. mort. / obs. day)	0.50	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	n(extrapolated mortality)	210.50	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Experimental <sup>1</sup>	n(observed mortality)	NA	NA	NA	5	NA	0	15	NA	NA
	rate(obs. mort. / obs. day)	NA	NA	NA	0.58	NA	0.00	0.58	NA	NA
	n(extrapolated mortality)	NA	NA	NA	11.00	NA	0.00	17.31	NA	NA
All Combined	TOTAL n(obs. mortality)	5	37	28	32	2	33	37	38	40
	MEAN rate(obs. mort. / obs. day)	0.11	0.08	0.05	0.12	0.01	0.03	0.18	0.19	0.03
	TOTAL n(extrap. mortality)	299.77	1121.54	622.60	442.28	57.92	898.15	625.17	772.67	161.93

<sup>1</sup> Experimental trawling relates to fish-stock related research; the standard seabird monitoring protocol is applied.

Falkland Islands National Plan of Action for Reducing Incidental Catch of Seabirds in Trawl Fisheries 2019

**(b) All species**

<b>Trawl Fleet</b>	<b>All species</b>	<b>2009-2010</b>	<b>2010-2011</b>	<b>2011-2012</b>	<b>2012-2013</b>	<b>2013-2014</b>	<b>2014-2015</b>	<b>2015-2016</b>	<b>2016-2017</b>	<b>2017-2018</b>
Finfish	n(observed mortality)	6	37	28	27	1	33	9	30	2
	rate(obs. mort. / obs. day)	0.07	0.39	0.30	0.16	0.03	0.23	0.13	0.57	0.08
	n(extrapolated mortality)	116.38	1121.54	622.60	431.28	9.67	870.55	195.20	509.53	117.67
Falkland Calamari	n(observed mortality)	0	0	0	0	4	2	12	9	50
	rate(obs. mort. / obs. day)	0.00	0.00	0.00	0.00	0.20	0.04	0.27	0.12	0.05
	n(extrapolated mortality)	0.00	0.00	0.00	0.00	381.25	105.56	403.66	313.98	56.26
Skate & Ray	n(observed mortality)	0	0	0	0	0	0	1	1	0
	rate(obs. mort. / obs. day)	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.00
	n(extrapolated mortality)	0.00	0.00	0.00	0.00	0.00	0.00	9.00	8.60	0.00
Illex squid	n(observed mortality)	NA	0	0	NA	NA	0	NA	NA	NA
	rate(obs. mort. / obs. day)	NA	0.00	0.00	NA	NA	0.00	NA	NA	NA
	n(extrapolated mortality)	NA	0.00	0.00	NA	NA	0.00	NA	NA	NA
Pelagic Trawling	n(observed mortality)	0	0	0	0	0	0	0	NA	NA
	rate(obs. mort. / obs. day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA
	n(extrapolated mortality)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA
International	n(observed mortality)	1	NA	0	0	0	0	0	0	0
	rate(obs. mort. / obs. day)	0.50	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	n(extrapolated mortality)	210.50	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Experimental <sup>1</sup>	n(observed mortality)	NA	NA	NA	5	NA	0	16	NA	NA
	rate(obs. mort. / obs. day)	NA	NA	NA	0.58	NA	0.00	0.62	NA	NA
	n(extrapolated mortality)	NA	NA	NA	11.00	NA	0.00	18.46	NA	NA
Combined	TOTAL n(obs. mortality)	7	37	28	32	5	35	38	40	52
	MEAN rate(obs. mort. / obs. day)	0.11	0.08	0.05	0.12	0.05	0.04	0.19	0.20	0.03
	TOTAL n(extrap. mortality)	326.88	1121.54	622.60	442.28	390.92	976.11	626.32	832.11	173.93

<sup>1</sup> Experimental trawling relates to fish-stock related research; the standard seabird monitoring protocol is applied.

## **Appendix D: FI NPOA-S-T-2019: Review of Rationale of Specific Objectives**

***Objective 1: Through the use of at-sea observers on fishing vessels or through other appropriate methods, continue to collect reliable data to enable the accurate estimation of the nature and extent of seabird interactions with all trawl fisheries;***

**Rational:** The FAO BPTGs emphasise the importance of a cyclical framework of data collection, research and monitoring to quantify and reduce bycatch of seabirds in an adaptive manner. Continued, accurate and sufficient data collection is necessary to monitor progress and to identify outstanding issues. The proportion of fishing events monitored by observers, the spread of observer coverage across vessels in a fleet, and the geographical and temporal spread of observer coverage across the fishing effort all have direct bearing on the robustness of any resultant data and understanding of bycatch patterns, including estimates of the extent of bycatch (see Cryer et al (2018) for information on observer coverage to monitor seabird captures in fisheries). The 4-year review of the FI NPOA-S-T-2014 identified a potential issue with the current unit of observer effort (days of observations in relation to days of fishing) with regards to accurate interaction estimation. A more refined unit should be investigated, and, if found practical, applied.

***Objective 2: Continue to provide annual estimates of the nature and extent of seabird interactions with all trawl fisheries to assess the performance of mitigation measures.***

**Rationale:** Annual estimates of the extent and nature of seabird interaction provide an important monitoring system and allow FIG to fulfil their reporting obligations to ACAP, amongst others. The four-year review of the FI NPOA-S-T-2014 identified a need to obtain more accurate estimates, with consideration given to seabird abundance and environmental conditions. See Wolfaardt et al. (2018) for guidance on data needs and methodological approaches relating to mortality estimates.

***Objective 3: Continue to monitor, assess and refine discard management and associated policies and regulation to reduce trawler-related incidental mortality of seabirds.***

**Rationale:** Adequate discard management is the most effective seabird bycatch mitigation measure for trawlers (e.g. ACAP, 2017). With the discard management policy due to come into effect in January 2021, a collaborative approach between the FIFD and the fishing industry is critical to ensure that vessel-specific installations are effective, safe and practical, and that crew are provided with the necessary education and training (see Objective 6).

***Objective 4: Alongside discard management, continue to develop, assess and refine other additional, safe, cost-effective and practical mitigation and associated policies and regulation to reduce trawler-related incidental mortality of seabirds.***

**Rationale:** As many vessels will not be able to store discards for the duration of a trawl, it is important that additional mitigation measures continue to be developed and refined. Much progress has been made with the FAA, but a collaborative approach is required to maximise the potential of the device. For vessels that are unable to use a FAA, continued refinement work of the tori-line will help make this measure more practical and effective. Discard

management and good deck practice are likely to provide some mitigation of net-related interaction, but additional net-related mitigation may be necessary.

***Objective 5: Continue to take other appropriate actions to encourage and safeguard fleet-wide compliance relating to seabird bycatch mitigation measures.***

**Rational:** Regulation and compliance form a critical part of achieving the overall aim of the FI NPOA-S-T-2019. This objective is highly dependent on a collaborative approach between the FIFD, industry and the fishermen, and should be encouraged as much as possible through adequate education, but also through incentives that encourages good behavior, and deterrents which discourage non-compliance.

***Objective 6: Ensure the dissemination of information and training material for local fishers and regulators and other local stakeholders to assist with the practical implementation of the FI NPOA-S-T-2019, and the further development of a seabird conservation culture across the fishing industry.***

**Rationale:** The effective implementation of mitigation measures relies on a collaborative approach and an awareness of the issue and solution by all parties involved. The timely provision of relevant information, training and education to relevant audiences is therefore critical to maximise the potential of mitigation measures such as discard management and FAAs. A two-way information exchange should be encouraged to help understand potential issues and opportunities and to facilitate adoption and regulation of mitigation measures.

***Objective 7: Continue to disseminate scientific and technical information on research, monitoring and management for the purpose of exchanging knowledge, skills and techniques to international governmental, scientific and conservation bodies, as well as to international fishing communities.***

**Rationale:** In line with ACAP obligations, and in order to help reduce the pressure of incidental catch of Falkland Islands breeding seabirds in the high seas and in other national jurisdictional waters, the dissemination of scientific and technical information related to seabird monitoring and mitigation measure is critical.

***Objective 8: Encourage and establish collaborative relationships between the Falkland Islands and territories where Falkland Islands breeding seabirds migrate to, promoting the exchange of information on the scale and nature of seabird mortality, and advocating effective mitigation measures.***

**Rationale:** In order to help reduce the pressure of incidental catch of Falkland Islands breeding seabirds in the high seas and in other national jurisdictional waters, it is important to encourage cooperation and collaboration within responsible nations to take adequate actions. International collaboration will help to maximise the efforts made within the FCZ by the local fishing industry.

***Objective 9: Identify and seek to secure additional resources from a range of sources as and when deemed necessary to further support the implementation and review of the NPOA-S-T 2019.***

**Rational:** The 4-year review of the NPOA-S-T-2014 revealed an urgent need to identify and secure additional resources to support the implementation of the FI NPOA-S-T. In particular, work-related to the provision of accurate estimates of mortalities has suffered as a result of a lack of financial and staff resources.

### **Appendix E: Terms of Reference for the Falkland Islands Seabird Bycatch Advisory Committee; Reviewed in October 2018**

The Falkland Islands Seabird Bycatch Advisory Committee (SBC) was established in 2012. The Committee serves as a review body and engaging mechanism for seabird bycatch and mitigation generally, and conducts regular (annual) reviews of the NPOA-S (longline and trawl fisheries). It is made up of representatives from the FIG Fisheries and Policy Unit, the fishing industry, and relevant Non-Government Organisations with expertise in seabird bycatch and related work. The Committee, which is chaired by the FIG Scientific Officer (Seabirds & Marine Mammals), meets twice a year, or additionally as required, and is responsible for advising and providing recommendations to the Directorate of Natural Resources and the Policy Unit for onward consideration within FIG.

#### *Terms of Reference for the Falkland Islands Seabird Bycatch Advisory Committee*

1. The National Plans of Action for Reducing Incidental Catch of Seabirds (NPOA-S) recommended the establishment of a Seabird Bycatch Advisory Committee. This recommendation was supported by the Falkland Islands Biodiversity Strategy Workshop (2011) and is supported through the Falkland Islands Biodiversity Framework 2016-2030.
2. The Seabird Bycatch Advisory Committee is made up of representatives from the FIG (Directorate of Natural Resources and the Policy Unit), the fishing industry, and relevant Non-Government Organisations with expertise in seabird bycatch and related work.
3. The Committee has no executive power and does not represent an alternative to any legal authority. The role of the Committee is to advise and make recommendations to the Directorate of Natural Resources and the Policy Unit for onward consideration within FIG.
4. The Committee will provide a means for structured, formal and informal consultation on monitoring and reporting of information about seabird bycatch to enable ongoing review and improved performance with respect to bycatch mitigation. As such the Committee will serve as a review body and mechanism for considering seabird bycatch and mitigation generally.
5. The Committee will conduct regular (annual) reviews of the NPOA-S (longline and trawl fisheries).
6. The Committee will strive to make all decisions, agreements and recommendations on a consensus basis. Where this is not possible a minute will be taken of individual views on the issue.

7. The Forum will meet two times per year or additionally as required. All meetings will be formally recorded and minutes circulated to all parties.
8. Meetings will be held in private. Members of the public will not be able to attend meetings. The public may submit questions for Forum discussion in advance of the meeting. A synopsis of the discussion of each meeting will be made publicly available.
9. The Committee is at present (2018)  
Scientific Officer (Seabirds & Marine Mammals) – Directorate of Natural Resources  
UKOT ACAP Coordinator – JNCC  
Conservation Officer – Falklands Conservation  
FIFCA Representative – FIFCA  
Environmental Officer and Policy Advisor – Policy and Economic Development Unit