

Conservation Action Plan for Grey-headed Albatrosses at South Georgia (2016-2020)



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LIST OF ACRONYMS

ACAP	Agreement on the Conservation of Albatrosses and Petrels
BAS	British Antarctic Survey
CAMLR	Convention on the Conservation of Antarctic Marine Living Resources
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CEMP	CCAMLR Ecosystem Monitoring Programme
Defra	Department for Environment, Food & Rural Affairs (UK)
EEZ	Exclusive Economic Zone
FAO	Food and Agriculture Organization of the United Nations
FCO	Foreign & Commonwealth Office (UK)
FIG	Falkland Islands Government
GSGSSI	Government of South Georgia & the South Sandwich Islands
IAATO	International Association of Antarctic Tour Operators
IATTC	Inter-American-Tropical-Tuna-Commission
ICCAT	International Commission for the Conservation of Atlantic Tunas
JNCC	Joint Nature Conservation Committee
RFMO	Regional Fisheries Management Organisation
RSPB	Royal Society for the Protection of Birds
SC-CAMLR	Scientific Committee of CAMLR
SEAFO	South East Atlantic Fisheries Organisation
SGS	South Georgia Surveys
SGSSI	South Georgia & the South Sandwich Islands

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EXECUTIVE SUMMARY

South Georgia is a globally important breeding site for Grey-headed Albatrosses *Thalassarche chrysostoma*, supporting approximately half of the global population. The species is currently listed globally as Endangered by the IUCN. This poor conservation status is due in a large part to the ongoing decline of the South Georgia population. The Grey-headed Albatross is included in Annex 1 of the multi-lateral Agreement on the Conservation of Albatrosses and Petrels (ACAP), which the United Kingdom ratified in 2004, and extended to the relevant Overseas Territories, including South Georgia and the South Sandwich Islands. The persistent decline of the South Georgia population of Grey-headed Albatrosses led to it being added to the list of ACAP high priority populations in 2016. In order to strengthen and co-ordinate efforts to improve the conservation status of South Georgia Grey-headed Albatrosses, the Government of South Georgia and the South Sandwich Islands (GSGSSI) has developed this Conservation Action Plan.

The primary threat to the South Georgia population of Grey-headed Albatrosses is considered to be incidental fisheries mortality (bycatch). Grey-headed Albatrosses formed a relatively small proportion of the historical bycatch recorded for fisheries operating within the South Georgia Maritime Zone. Furthermore, levels of seabird bycatch have been reduced to negligible levels in these fisheries. Consequently, the main risk to South Georgia Grey-headed Albatrosses is considered to be associated with fisheries outside of this area. Their circumpolar distribution and propensity to forage at oceanic frontal zones brings Grey-headed Albatrosses into potential conflict with a wide range of pelagic longline fisheries managed by Regional Fisheries Management Organisations (RFMOs) - intergovernmental organisations through which States collaborate on fishery conservation and management measures relating to the high seas and migratory fish stocks and associated species. The International Commission for the Conservation of Atlantic Tunas (ICCAT) the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) and the Indian Ocean Tuna Commission (IOTC) likely represent the main bycatch-related risk to South Georgia Grey-headed Albatrosses, especially during the non-breeding period. Reducing seabird bycatch within these fisheries is therefore critical to improve the conservation status of Grey-headed Albatrosses from South Georgia.

Although Grey-headed Albatrosses are not currently considered to be threatened by any land-based processes at South Georgia, a number of potential threats are considered in this plan to determine if these factors warrant further investigation and action.

The overall goal of this Conservation Action Plan is to ensure the recovery and long-term survival of Grey-headed Albatrosses at South Georgia by understanding the nature and extent of the threats they face, and by implementing, facilitating or promoting priority conservation actions to reduce or eliminate these threats. The aim of the Plan is that by 2020, the decline of Grey-headed Albatrosses at South Georgia will have ceased. The plan serves as a framework to facilitate a co-ordinated, collaborative and proactive approach to the conservation of South Georgia Grey-headed Albatrosses. It outlines briefly the current state of knowledge relating to the ecology, distribution, and population dynamics of South Georgia Grey-headed

Albatrosses, and the threatening processes impacting the population. It also includes information on the suite of national and international policies, plans and legislation relevant to the conservation of Grey-headed Albatrosses at South Georgia. Following and informed by these introductory sections, the plan then presents a Framework for Action, in which the goal and the recommended actions are described. In order to highlight the most urgent actions, the Plan distinguishes between *Priority Actions* and *Associated Activities*. The former are those that are required to create the step-changes needed to achieve the goal of this plan. These actions and activities fall into in eight areas of work, or components of the Conservation Action Plan, that are outlined below, in no order of importance::

1. Long-term monitoring of Grey-headed Albatross population dynamics at South Georgia.
2. Long-term monitoring of the foraging ecology and diet of Grey-headed Albatrosses at South Georgia.
3. Monitoring and management of potential land-based threats to Grey-headed Albatrosses breeding at South Georgia.
4. Understanding marine-based threats to South Georgia Grey-headed Albatrosses in order to implement and promote best practice management approaches within and outside SGSSI waters to address these.
5. Understanding the potential impacts of climate change on the ecology and population dynamics of South Georgia Grey-headed Albatrosses.
6. Raising awareness of the plight of Grey-headed Albatrosses at South Georgia, and the actions that are required and being undertaken to improve their conservation status.
7. Participating in international conservation and fisheries fora to promote actions that will help support the conservation of Grey-headed Albatrosses from South Georgia.
8. Reviewing the Conservation Action Plan to evaluate accomplishments and update information on priority needs.

For each of these components, a brief summary of previous or current research, monitoring and management initiatives is provided, which together with the introductory sections on the current state of knowledge, serves to inform and underpin the actions that are specified. A summary of the actions pertaining to each objective, their relative priority rating and the key partner organisations, is provided in Tables 1 and 2.

It is important to note that there are a number of actions included in the implementation framework that are not, or will not be, implemented directly by GSGSSI, but by partner organisations. It is not the intention of GSGSSI to prescribe these actions to external agencies, but rather to recognize that they form a vital component of the conservation framework, and to help facilitate their implementation through engaging with and supporting as appropriate the external agencies in carrying them out.

The implementation period for this Conservation Action Plan is 2016-2020, which is set to coincide with the time frame for the Biodiversity Action Plan for South Georgia & the South Sandwich Islands and the overarching South Georgia & the South Sandwich Islands Strategy. However, given the long-term nature of the overall goal,

it is anticipated that the Conservation Action Plan will need to be extended beyond this five-year period. Routine reviews of performance against the stated objectives and actions, and an overall assessment at the end of the implementation period, will be used as the basis for drafting a revised Action Plan for the following five-year period.

1. INTRODUCTION

1.1 Background

South Georgia is a globally important breeding site for Grey-headed Albatrosses *Thalassarche chrysostoma*. The archipelago hosts approximately 50% of the world population, considerably more than any other island group (Agreement on the Conservation of Albatrosses and Petrels 2009). Due largely to the long-term and persistent decline of the population at South Georgia the species is currently listed as Endangered by the International Union for Conservation of Nature's (IUCN). In order to bolster efforts to better understand the factors contributing to the long-term decline in numbers of Grey-headed Albatrosses at South Georgia, and to address these threats, the Government of South Georgia and the South Sandwich Islands (GSGSSI) has identified the need for a dedicated Conservation Action Plan for this species at South Georgia.

GSGSSI has recently adopted *The Biodiversity Action Plan for South Georgia & the South Sandwich Islands (2016-2020)*, which serves to guide the management and protection of the Territory's environment and biodiversity. The Vision of the Biodiversity Action Plan is '*To work in partnership with experts and stakeholders in the UK and the rest of the world to conserve the biodiversity and ecosystem function of the South Georgia & the South Sandwich Islands' environment for the benefit of all human kind, and to facilitate responsible access, ensuring that the Territory remains at the forefront of cutting-edge environmental management best practice.*' The Biodiversity Action Plan seeks to ensure that species and habitats receive adequate protection, and outlines a number of objectives to achieve this goal. In light of on-going population declines at South Georgia, one of the tasks identified in the Biodiversity Action Plan is to develop Conservation Action Plans for the globally important populations of Wandering *Diomedea exulans* Black-browed *Thalassarche melanophris*, and Grey-headed Albatrosses (Activity 3.2.4).

This Conservation Action Plan is intended to serve as a framework to guide, in an informed, prioritised and co-ordinated manner, actions required to improve the conservation status of Grey-headed Albatrosses at South Georgia, and globally. The scope of the Conservation Action Plan is limited to the South Georgia population of Grey-headed Albatrosses (i.e. the actions identified are targeted specifically at this population, for which GSGSSI have responsibility). However, given the global importance of the South Georgia population, improvements in the conservation status of this population will positively influence the overall conservation status of the species. Furthermore, given their wide-ranging nature, the ultimate responsibility for addressing threats to South Georgia Grey-headed Albatrosses varies. This Conservation Action Plan includes measures that are the direct responsibility of GSGSSI, but importantly also includes 'external' actions that involve other nations and organisations. In these latter cases, GSGSSI aims through outreach, collaboration and diplomatic engagement to promote and assist where possible the management of these 'external' threats to Grey-headed Albatrosses that breed at South Georgia.

The Conservation Action Plan provides a summary of the current state of knowledge of the population and conservation status of Grey-headed Albatrosses at South

Georgia, threats that they face, and identifies priority actions required to improve their conservation status. It is not a legally binding document, and is not intended to be a comprehensive review of all available information, but rather a tool to guide and facilitate effective conservation action.

1.2 Goal

To ensure the recovery and long-term survival of Grey-headed Albatrosses at South Georgia by understanding the nature and extent of the threats they face, and importantly to reduce or eliminate these threats by implementing or promoting the required conservation research and management actions.

1.3 Aim

By 2020 the decline of Grey-headed Albatrosses breeding at South Georgia will have ceased.

2. CURRENT STATE OF KNOWLEDGE

2.1 Breeding distribution, population trend and conservation status

The Grey-headed Albatross has a circumpolar distribution, breeding at six island groups or archipelagos in the subantarctic: South Georgia, in the South Atlantic, Crozet, Kerguelen and the Prince Edward Islands in the southern Indian Ocean, Macquarie and Campbell islands in the South Pacific, and Diego Ramirez and Ildefonso in southern Chile (Agreement on the Conservation of Albatrosses and Petrels 2009). Approximately half of the global population breeds at South Georgia.

At South Georgia, Grey-headed Albatrosses breed at nine locations, sometimes in mixed colonies with Black-browed Albatrosses (Fig. 1). All of these breeding sites are located in the northwest of the archipelago, with the largest colonies on Bird Island, the Willis Islands and Paryadin Peninsula (Fig. 1). Colonies are typically located on steep coastal slopes and cliffs covered in tussock grass (*Poa flabellata*).

The Grey-headed Albatross is a biennially breeding species; the majority of successful pairs breed only once every second year, although a very small percentage (1%) of successful breeders attempt to breed annually (Ryan et al. 2007). The total breeding season lasts about nine months. Adults return to colonies in early September. Incubation extends from October to early January, the brood period from late December to late January, and post-brood chick rearing from February to May (Tickell and Pinder 1975; Cobley et al. 1998; Brooke 2004). Immature birds start returning to land from three years of age, but most commonly when they are 6-7 years old (Prince et al. 1993). At South Georgia, the average age of first breeding is 12 years (Prince et al. 1994).

Annual monitoring by the British Antarctic Survey (BAS) of Grey-headed Albatross study colonies at Bird Island indicates a long-term and ongoing decline in breeding numbers since the mid-1970s (Fig. 2). Annual counts of eleven colonies at Bird

Island (c. 62% of the total Bird Island population) indicate a decline in breeding numbers from 4644 pairs in 1994/95 to 2248 pairs in 2014/15, an average decrease of 3.6% per year over the 20 year period (Phillips et al. 2016b). Archipelago-wide surveys conducted in 2003 (Poncet et al. 2006) and 2014 (Poncet et al. in press), the latter including only a subset of locations (amounting to c. 70% of the total South Georgia population), show that numbers of Grey-headed Albatrosses at all surveyed locations combined declined by 5.1% per year over this 11 year period (Poncet et al. in press). Decreases were recorded at every breeding location surveyed, with some variation in the magnitude of the declines across sites. The average rate of decline between 2003 and 2014 (5.1%) represents an acceleration of the negative trend estimated between 1985/86 and 2003/04 (1.1% for single species colonies and 2.2% for mixed colonies, which included both Grey-headed and Black-browed Albatrosses, Poncet et al. 2006). However, it should be noted that the trend between the mid-1980s and 2003 should be interpreted cautiously because of differences in survey methodologies and the limited number of colonies surveyed in both years.

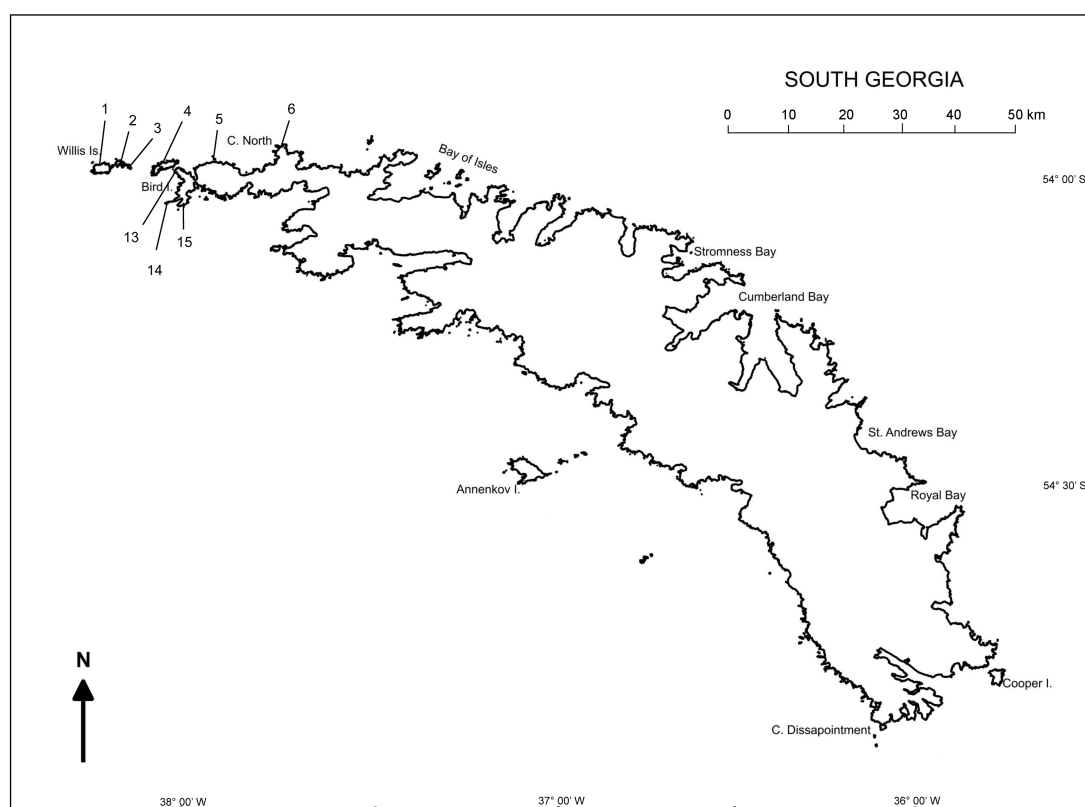


Figure. 1. Breeding locations of Grey-headed Albatrosses at South Georgia. Numbers refer to the locations listed in Appendix 1. Note that the Location Numbers are consistent with the numbers that have been used in previous counts and publications (e.g. Poncet et al. 2006; in press) of Grey-headed and Black-browed Albatrosses at South Georgia. The missing numbers (7-12) refer to locations at which Black-browed Albatrosses breed, but not Grey-headed Albatrosses.

In addition to annual counts of nesting birds, BAS has conducted annual demographic monitoring of banded Grey-headed Albatrosses at Bird Island from

1975/76 onwards to determine and monitor *inter alia* juvenile (0-3 years), immature (from first return to first breeding, 3 to 12 years of age) and adult survival rates and individual reproductive success. Survival rates of juvenile, immature and adult birds do not appear to show a consistent long-term trend; however, there is some indication that annual survival rates of immature and adult birds decreased slightly in the late 2000s (Phillips et al. 2016b). Breeding success is highly variable, which may be linked to changes in the availability of their preferred prey. Breeding probability and breeding success of Grey-headed Albatrosses at Marion Island is appreciably greater than at South Georgia, suggesting more favourable environmental conditions at the former (Ryan et al. 2007).

The marked decline of Grey-headed Albatrosses at South Georgia is in contrast with major populations elsewhere. At Diego Ramirez in southern Chile, which supports the second largest population of Grey-headed Albatross after South Georgia (c. 18% of the world population), numbers remained stable between 2002 and 2011 (Robertson et al. 2014), and increased by 29% between 2011 and 2014 (Robertson et al. 2016). The reasons for this recent increase are not clear, and Robertson et al. (2016) suggest that until the factors contributing to the recent trend are better understood, the observed increase in numbers should be interpreted cautiously. From 2001 to 2008, numbers of Grey-headed Albatrosses at Marion Island remained stable, but appear to have decreased at neighbouring Prince Edward Island, possibly due to higher temperatures and consequent heat stress, as the latter site is located at the northern extent of the species' breeding range (Ryan et al. 2009).

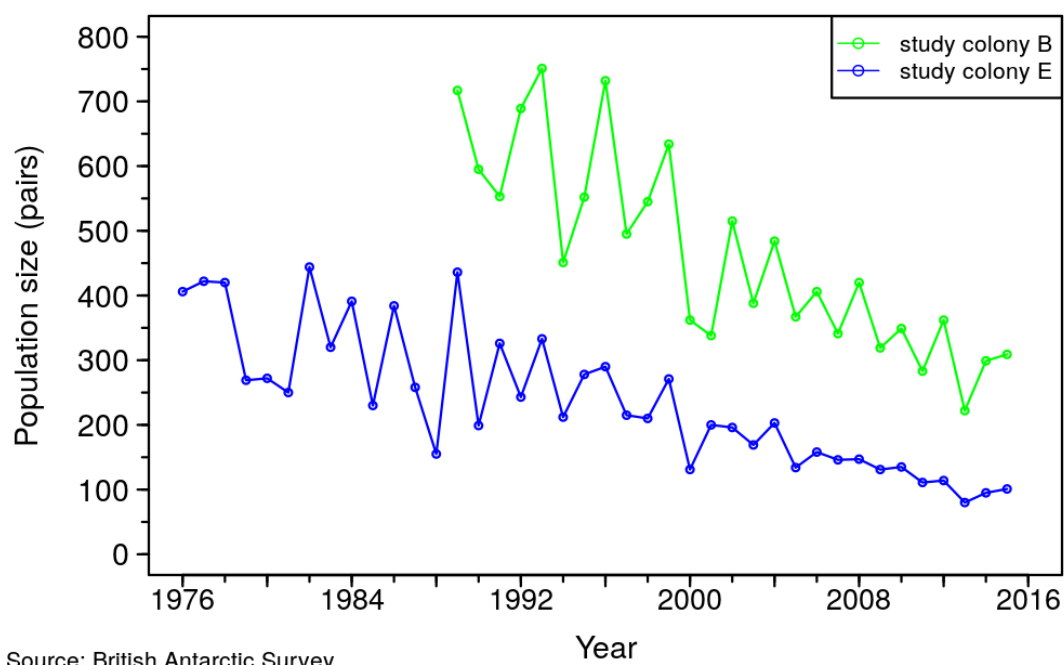


Figure. 2. Population trends of Grey-headed Albatross at two colonies monitored at Bird Island, South Georgia, for which the longest time-series are available. Data provided by British Antarctic Survey (BAS)

The Grey-headed Albatross is listed on Annex 1 of the Agreement on the Conservation of Albatrosses and Petrels (ACAP). The species is currently listed as **Endangered** by the IUCN. From 2000 to 2012 it was listed as **Vulnerable**. However due largely to the persistent decline of the globally important population at South Georgia, the threat status was raised in 2013 from Vulnerable to Endangered (BirdLife International 2016). The poor conservation status of the South Georgia population of Grey-headed Albatrosses led to it being added to the list of ACAP high priority populations in 2016 (see below).

2.2 Marine distribution and diet

The Grey-headed Albatross is primarily an oceanic forager, targeting frontal zones and associated upwellings and eddies. Extensive data on the distribution of Grey-headed Albatrosses from South Georgia are available from tracking work conducted by BAS at Bird Island since the early 1990s. These data have been collected through the deployment of satellite-transmitters and GPS loggers on breeding adults and GLS loggers (geolocators) on non-breeding birds (Prince et al. 1998; Phillips et al. 2004; Croxall et al. 2005).

The tracking data have revealed important insights on the distribution of South Georgia Grey-headed Albatrosses, including their overlap and potential interaction with fisheries (see below). Both breeding and non-breeding birds have extensive foraging ranges that vary according to age, life-history category, breeding stage and sex. During the breeding season, breeding adults forage largely around and to the south of the Antarctic Polar Front, towards the southern boundary of the Scotia Sea (Phillips et al. 2004; Fig. 3). During incubation (late October to late December), males and females tend to forage in different areas. Males are much more widely dispersed, travelling south and west of the colony, towards the Antarctic Peninsula, Drake Passage and South Pacific, whereas females forage in a much smaller area immediately to the north of South Georgia (Phillips et al. 2004). During brood-guard, the distribution of males and females is similar, and concentrated closer to the colony; during the subsequent post-guard period of chick-rearing, both sexes are more widely dispersed, but remain largely at or south of the Antarctic Polar Frontal Zone, and show little overlap with fishing effort due to the time-area closure of the South Georgia Patagonian Toothfish *Dissostichus eleginoides* fishery (Phillips et al. 2004).

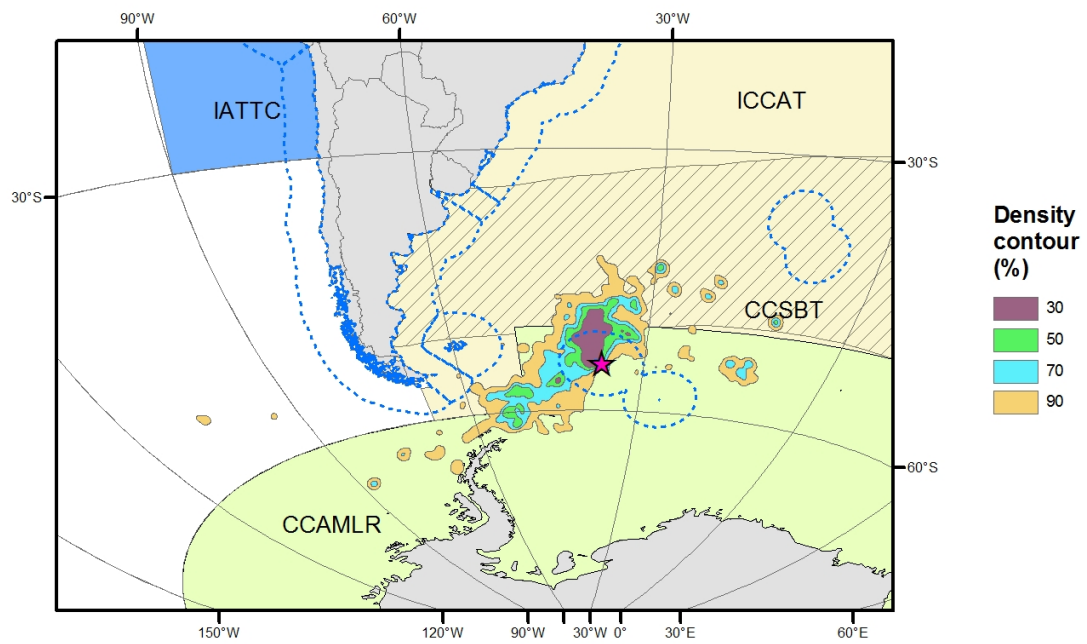


Figure 3: Density distribution of Grey-headed Albatrosses from Bird Island, South Georgia, during the breeding season in relation to the main RFMO and other fisheries management areas with which they overlap. The blue dotted lines outline areas of national jurisdiction. The 30% contour indicates areas of highest concentration, within which breeding birds spend 30% of their time. The 90% contour encompasses 90% of their breeding distribution. Data provided by BAS.

During the non-breeding period, Grey-headed Albatrosses from South Georgia disperse widely across the Southern Ocean, where they overlap with a number of major pelagic longline fisheries, including those targeting tuna and similar species (Fig. 4). Some birds remain in the southwest Atlantic, extending their breeding season home range to include an area that extends from the Patagonian shelf to c. 15°W (Croxall et al. 2005). Others migrate to winter in specific areas of the southern Indian Ocean, and a third strategy involves birds, especially males, making one or more complete circumpolar migrations in an easterly direction, staging in specific areas of the Atlantic, Indian and Pacific Oceans along the way (Croxall et al. 2005).

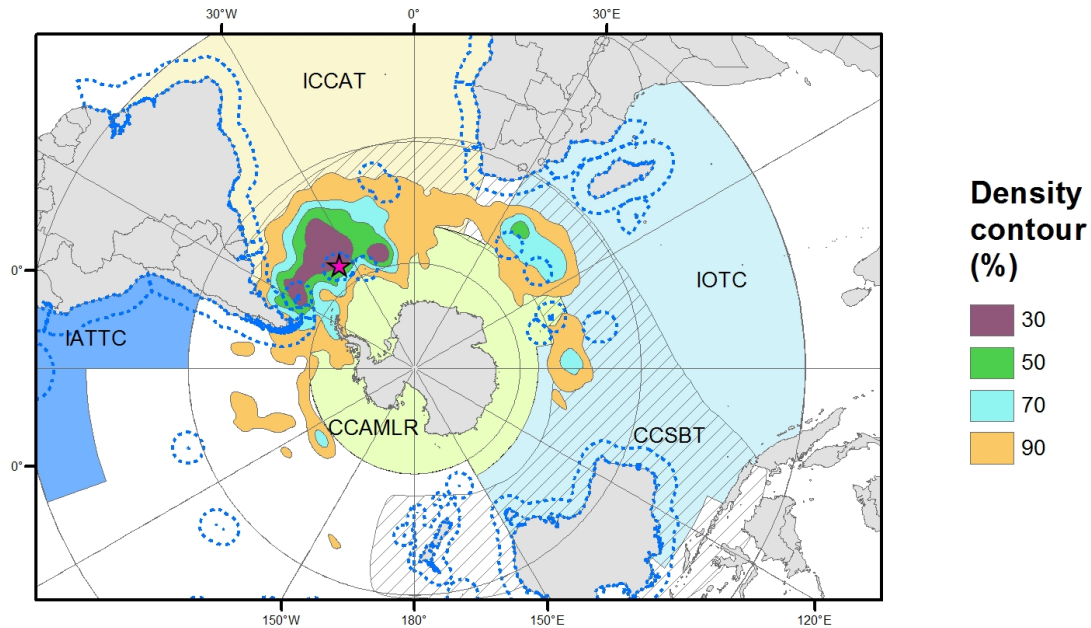


Figure 4: Density distribution of Grey-headed Albatrosses from Bird Island, South Georgia during the non-breeding period in relation to the main RFMO and other fisheries management areas with which they overlap. The blue dotted lines outline areas of national jurisdiction. The 30% contour indicates areas of highest concentration, within which breeding birds spend 30% of their time. The 90% contour encompasses 90% of their non-breeding distribution. Data provided by BAS.

The diet of Grey-headed Albatrosses at South Georgia has been studied extensively by BAS through long-term monitoring initiatives at Bird Island using both morphological analysis to identify prey remains from physical attributes and biochemical analysis of tissue samples. The former approach, which has been used on Grey-headed and Black-browed Albatrosses, involves inducing chicks to regurgitate immediately after they have been fed, and was found not to have any deleterious effects on subsequent survival or fledging mass of sampled chicks (Phillips 2006). Cephalopods form the major component of the chick-rearing diet in most years; *Martialia hyadesi* is usually the most important cephalopod, but is occasionally replaced by *Kondakovia longimana* and *Galiteuthis glacialis* (Reid et al. 1996; Catry et al. 2004). Cephalopods also form an important component of the diet during the nonbreeding period (Alvito et al. 2015). In some years, fish and crustaceans can comprise large proportions of prey items. For example, in 1994, fish made up 60% of the total mass of the diet, with *Champscephalus gunnari*, *Magnisudis prionosa*, *Muraenolepis microps*, *Pseudochaenichthys georgianus* and lanternfish dominating the samples (Reid et al. 1996). During the chick-rearing period of 2000, when sea surface temperatures close to South Georgia were much warmer than usual, crustaceans made up 61-76% of the mass of the diet of Grey-headed Albatrosses (Xavier et al. 2003). Antarctic Krill *Euphausia superba* is the most important crustacean component in all years (Reid et al. 1996; Xavier et al. 2003).

2.3 Threats

Albatrosses face numerous threats both on land (at their breeding colonies) and at sea. ACAP has established a set of criteria to assess the scope (proportion of population affected) and severity (intensity) of threats at each breeding site and for each breeding population. A factor or process is only considered a threat if it has been documented in some way at the island group in question, and is likely to have a negative impact (contributing to a population decline in the next decade) on the species or population. Potential or suspected threats are thus not included in the ACAP threat assessment process.

Given the lack of evidence for any land-based threats (such as human disturbance and introduced predators) or disease, the observed decline of Grey-headed Albatrosses at South Georgia has been attributed to factors affecting birds at-sea, and in particular bycatch associated with commercial fishing operations (Agreement on the Conservation of Albatrosses and Petrels 2009; Poncet et al. 2006; in press).

The following section summarises known threats to Grey-headed Albatrosses at South Georgia. In addition, potential threats, or factors that may limit the population in some way and thus require further investigation, are also included.

2.3.1 Land-based threats

There is no evidence of any substantial land-based threats to Grey-headed Albatrosses breeding at South Georgia. However, it is considered useful and important to learn more about potential threats on land, especially disease, and to maintain management actions that serve to protect albatross breeding sites at South Georgia.

Initiatives to eradicate Norway Rats *Rattus norvegicus*, House Mice *Mus musculus* and Reindeer *Rangifer tarandus* have recently (2015) been completed, with post eradication monitoring currently underway. Although there is no evidence that any of these introduced mammals were a threat to Grey-headed Albatrosses at South Georgia, their eradication is a significantly positive contribution to the conservation of the terrestrial ecosystems of South Georgia.

The remote nature of their breeding sites and their highly pelagic marine distributions likely afford some protection to albatrosses from contact with pathogens. However, information on the prevalence and potential impacts of pathogens on seabirds, including Grey-headed Albatrosses, at South Georgia is limited. During the 2004/05 breeding season several hundred adult Chinstrap Penguins *Pygoscelis antarctica* were found dead in the colony at Cooper Bay. Subsequent analyses of tissue material confirmed avian cholera, caused by the bacterium *Pasteurella multocida*, to be the cause of death. Large numbers of Chinstrap Penguins were reported dead in the colony again in 2010, and it is suspected that that these deaths were also the result of an outbreak of avian cholera. Consequently, the site has remained closed to visitors ever since. There have been no recorded incidents of disease affecting Grey-headed Albatrosses at South Georgia. However, avian cholera is responsible for mortality events in several species in Antarctica (Leotta et al. 2001, 2003), and is likely to be the major cause of the decline in the closely related Indian Yellow-nosed

Albatross *Thalassarche carteri* population at Amsterdam Island, where it is also considered a risk for the Amsterdam *Diomedea amsterdamensis* and Sooty Albatross *Phoebastria fusca* (Weimerskirch 2004), highlighting the potential for diseases to impact albatrosses on remote sub-Antarctic islands. Also of interest is an incident in the Falkland Islands, where approximately 1000 adult Black-browed Albatrosses were found dead in the breeding colony at Steeple Jason Island in November 2010. Although biological samples were examined, the analysis of these by a specialist laboratory was inconclusive and the cause of death was recorded as acute septicemia (Agreement on the Conservation of Albatrosses and Petrels 2011). It is likely that most albatrosses are immunologically naïve to infectious diseases, rendering them susceptible to opportunistic pathogens. Climate change may lead to increases in pathogen transmission and disease, which could act synergistically with other (current) threats such as fisheries mortality (see below).

2.3.2 At-sea threats

2.3.2.1 Incidental mortality associated with fisheries (seabird bycatch)

Incidental mortality of seabirds in fisheries (hereafter “bycatch”), particularly of albatrosses and petrels, became a major conservation concern in the late 1980s (Brothers 1991). Initial evidence came from numerous recoveries in longline fisheries of Wandering Albatrosses ringed at South Georgia (Croxall and Prince 1990) and estimates of very high levels of seabird bycatch from the Japanese tuna fishery off Australia (Brothers 1991). As a predominantly oceanic forager, the Grey-headed Albatross is more likely to encounter pelagic fisheries than those operating in shelf waters. However, birds have been recorded killed in vessels fishing in shelf seas, including around South Georgia.

In South Georgia waters the fishery for Patagonian Toothfish was initiated in the late 1980s and expanded rapidly during the early 1990s, when there was considerable illegal, unregulated and unreported (IUU) fishing (Government of South Georgia and the South Sandwich Islands 2013). Seabird bycatch rates in the Patagonian Toothfish fishery around South Georgia have since been reduced from very high levels in the mid 1990s (an estimated 5755 seabirds were killed in Subarea 48.3 in 1997 alone) to zero in 2006 and 2007. These figures, and those provided in the remainder of the paragraph, are from the annual reports of the Scientific Committee for the Conservation of Antarctic Marine Living Resources, and have also been summarised in other key documents (SC-CAMLR, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006; Croxall 2008, Varty et al. 2008). Grey-headed Albatrosses comprised a small proportion of the total bycatch. Between 1996 and 2006, 23 birds were reported killed in the South Georgia Patagonian Toothfish fishery (2.2% of total bycatch), a figure that was subsequently (from 2000 to 2006) reduced to only two individuals. No Grey-headed Albatrosses have been caught in this fishery since 2010. This achievement is due largely to the prescription by CCAMLR of a range of mandatory technical and operational bycatch mitigation methods that have been implemented, and in some cases strengthened, by the GSGSSI, with co-operation and support from the fishing industry. These mitigation measures include the closure of CCAMLR Subarea 48.3 for fishing between September and mid-April each year (which coincides with the breeding season of

Grey-headed Albatrosses at South Georgia), a suite of prescribed technical bycatch mitigation measures, and an international scheme of independent on-board scientific observers. Moreover, there is little evidence of IUU fishing within South Georgia waters in recent years. Although IUU fishing has been largely combatted within CCAMLR waters more broadly, there is evidence to suggest that a degree of IUU fishing may still be taking place within some CCAMLR areas, including potentially in Subarea 48.2, just south of South Georgia, the extent of which is difficult to determine. Small numbers of Grey-headed Albatrosses have also been recorded killed in the pelagic trawl fishery for Mackerel Icefish *Champsocephalus gunnari* around South Georgia. Between 1999 and 2006, eight Grey-headed Albatrosses were recorded as bycatch. This level of bycatch, which is clearly insufficient to have contributed to the decline of Grey-headed Albatrosses at South Georgia, has been progressively reduced through the use of mitigation measures such as net-binding (Varty et al. 2008).

In spite of these ongoing successes in reducing bycatch of seabirds within fisheries operating in South Georgia and CCAMLR waters, the Grey-headed Albatross population at South Georgia continues to decline, and remains in a highly threatened state. This suggests that at least some of the other ('external') fisheries they encounter remain a threat, that other factors are affecting the population, or a combination thereof.

During the breeding season, Grey-headed Albatross breeders forage predominantly in and to the south of the Antarctic Polar Frontal Zone, where they exhibit little overlap with fisheries due to the time-area closure of the South Georgia Patagonian Toothfish fishery (Phillips et al., 2004; 2016b). Nevertheless, their foraging distribution during the breeding season does extend out of this area and into the area managed by the International Commission for the Conservation of Atlantic Tunas (ICCAT), particularly during incubation (Tancell et al. 2016), where they overlap with pelagic longline vessels targeting tuna and tuna-like species. However, it is during the non-breeding period that birds are likely to face the greatest bycatch risk. During this period, birds are widely dispersed across the Southern Oceans, with clusters of high-density use in the southwest Atlantic, southwest and central south Indian Ocean (Fig. 4; Phillips et al. 2016b). Their circumpolar distribution and propensity to forage at oceanic frontal zones, also targeted by fishers, brings Grey-headed Albatrosses into potential conflict with a wide range of pelagic longline fisheries, including those managed by ICCAT and the other tuna Regional Fisheries Management Organisations (RFMOs) - intergovernmental organisations through which States collaborate on fishery conservation and management measures relating to the high seas and migratory fish stocks and associated species.

Information obtained from ring recoveries of South Georgia Grey-headed Albatrosses provide some insight into fisheries in which they have been caught. The distribution of these recoveries show that birds have been killed in demersal longline fisheries in the southwest Atlantic and pelagic longline fisheries in both the southeast Atlantic and southeast Indian Ocean (Phillips et al. 2016b; Fig. 5). Data from observer programmes indicate that Grey-headed Albatrosses (not necessarily from South Georgia) were previously caught as bycatch in demersal longline fisheries for Toothfish around Crozet, Kerguelen and the Prince Edward Islands in the South

Indian Ocean, but that this has now been substantially reduced due to a combination of decreased fishing effort and the use of mitigation measures (Nel et al. 2002; Delord et al. 2005). Pelagic longline fisheries off South Africa (Ryan et al. 1998; Petersen et al. 2009) and Australia (Gales et al. 1998; Trebilco et al. 2010) have also recorded bycatch of Grey-headed Albatrosses. Between 1992 and 1996, Japanese observers reported a total of 84 Grey-headed Albatrosses as bycatch in tuna fisheries off South Africa (Ryan & Boix-Hinzen 1998). Subsequent assessments of seabird bycatch in pelagic longline fisheries off South Africa have reported negligible (Petersen et al. 2009) or no (Rollinson et al. in prep.) bycatch of Grey-headed Albatrosses. Of particular interest and importance is a recent report of several thousand seabirds reported as bycatch by Japanese pelagic longline vessels from 1992 to 2010, of which the most common species caught was the Grey-headed Albatross (Phillips et al. 2016b). These bycatch records were clustered in two main regions, one extending from the southeast Atlantic to southwest Indian oceans, and the other in the southeast Indian Ocean, which closely match the distribution of ring recoveries shown in Fig. 5 (Phillips et al. 2016b). More recently, information from the Japanese Observer Programme indicate that from 2010 to 2015, bycatch of seabirds in the central south east Atlantic was dominated by Grey-headed Albatrosses (Katsumata et al. 2016). Although recent reports of Grey-headed Albatross bycatch from other pelagic longline fisheries are lacking, this may well be due to low levels of observer coverage and reporting, or birds not being correctly identified to species level, rather than reflecting the actual levels of bycatch.

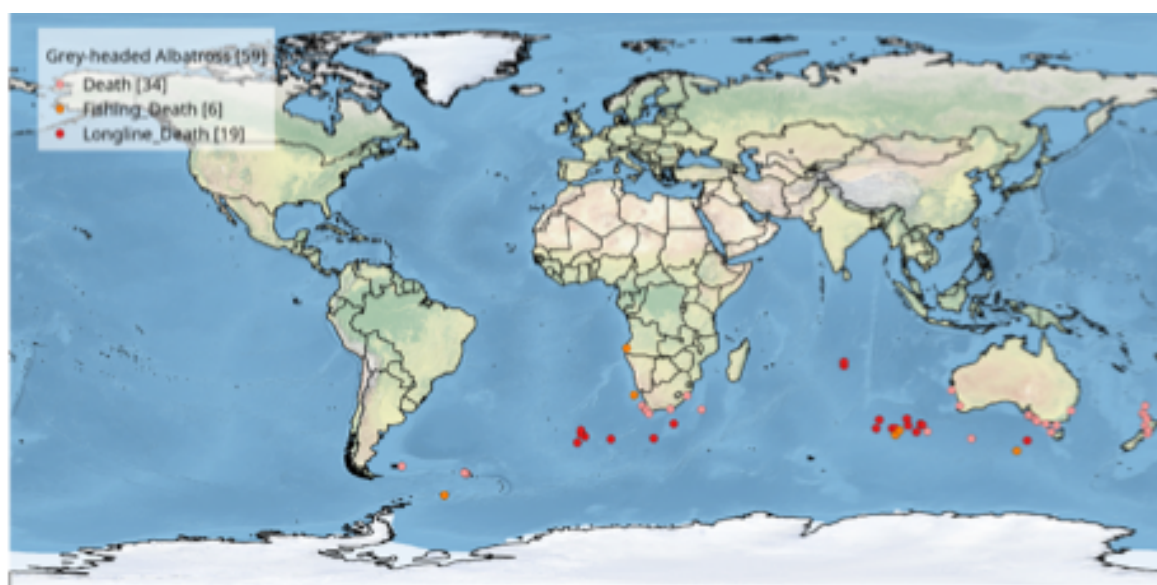


Figure 5: Distribution of Grey-headed Albatrosses ringed at Bird Island, South Georgia, that were reported dead at sea since the 1960s. Orange=dead recovery, cause unknown; Brown=killed in fishery (unspecified); red=killed on longline. Figure from Phillips et al. (2016b).

Overall, the available data on foraging distribution and bycatch (including ring recoveries of South Georgia birds), suggest that the extensive pelagic longline fisheries operating within the waters managed by ICCAT, the Commission for the

Conservation of Southern Bluefin Tuna (CCSBT) and the Indian Ocean Tuna Commission (IOTC), likely represent the main bycatch-related risk to South Georgia Grey-headed Albatrosses, especially during the non-breeding period.

During the last decade there has been a concerted international effort to address the high level of seabird bycatch in fisheries, both within EEZs and on the High Seas. This has led to a range of recent policy instruments, including the development and adoption of ACAP, and the relatively recent adoption (within the last five years) of seabird conservation measures (bycatch mitigation measures) by the tuna RFMOs, including ICCAT, CCSBT and IOTC. This progress has been achieved through a collaborative and evidence-based approach to engaging with RFMOs by BirdLife International, ACAP and a number of active member states, involving inputs and collaboration from many scientists. Coincident and linked with these policy developments, has been an increasing effort to quantify the extent of seabird bycatch in fisheries, design and test technical and operational mitigation measures to reduce bycatch and implement management actions to mitigate known threats to seabird populations. These efforts, best illustrated by the CCAMLR example, have shown that by properly implementing an appropriate suite of fishery-specific mitigation measures, supported by an effective observer programme, seabird bycatch can be progressively reduced, and virtually eliminated.

Although the RFMOs responsible for managing tuna fisheries on the high seas have recently adopted seabird bycatch mitigation measures informed by ACAP best practice advice, the extent of use and effectiveness of these measures has yet to be properly assessed. One of the key challenges now is to ensure that the adoption of policies requiring the use of seabird conservation measures by these and other fisheries management organisations is being translated into effective action on the decks of fishing vessels. In order to address this challenge, there is a need for improved data collection through at-sea observer programmes to provide much better information on bycatch rates, the effectiveness of bycatch mitigation measures and levels of compliance.

2.3.2.2 Ingestion of fishing hooks

Monitoring of marine debris and fishing gear associated with seabirds has been carried out annually by BAS at Bird Island since 1993/1994. A recent analysis of these data revealed that very little fishing gear was found in nests or colonies of Grey-headed Albatrosses (Phillips et al. 2010). Most of the gear recorded in association with Grey-headed Albatrosses was incomplete squid jigs. These were likely transported by currents away from the fishing areas on the Patagonian Shelf and subsequently mistaken as prey items and ingested by birds foraging in the Antarctic Polar Frontal Zone, rather than through direct interaction with squid jigging fleets (Phillips et al. 2010).

2.3.2.3 Oil contamination

Seabirds are generally the most conspicuous victims of oil spill events. However, due largely to differences in foraging ecology, species vary in their susceptibility to oil

pollution. Albatrosses tend to be less susceptible to oil contamination than diving species, such as penguins, and there has been no documented evidence that oil pollution has had anything more than a minor effect on Grey-headed Albatrosses. Small numbers of oil-contaminated albatrosses have been recorded around the Falkland Islands and South Georgia, mostly Black-browed and Wandering Albatrosses. The causes of contamination incidents are often not identified, and in the absence of known spills are generally considered to be due to oil discharged illegally or accidentally from vessels or from old wrecks. Given the current and planned oil development activities in the Falkland Islands, and their overlap with waters around the Falkland Islands during the non-breeding period, South Georgia Grey-headed Albatrosses could be at risk from oil spill events that may occur as a result of these activities (Premier Oil Exploration & Production Limited 2015).

2.3.3 Climate change

Climate change is emerging as a potentially important issue for Southern Ocean seabirds, but its impacts are complex, difficult to predict, and even more difficult to mitigate. Potential impacts include changes to annual sea surface temperature and marine productivity, and changes in wind, rainfall patterns and ambient temperature that could lead to increased exposure of nesting birds and chicks (Barbraud et al. 2012, Phillips et al. 2016a). Through changes to marine and terrestrial environments, climate change may lead to modifications in the distribution, phenology, demography and population dynamics of seabirds, including Grey-headed Albatrosses. The long-term decline in Grey-headed Albatrosses from Campbell Island is thought to be influenced by rising sea-surface temperatures and associated impacts on feeding conditions (Waugh et al. 1999). Climate change may also influence the scale and severity of other threats. For example, changes in the distributions of fish species may, in addition to influencing the composition and availability of their prey, lead to modifications in fishing methods and the spatial and the temporal distribution of fishing effort, which may influence the extent to which these fisheries interact directly with birds. An increasing number of studies have documented combined impacts of both fisheries mortality and climate on albatross populations, which can interact in a complex manner (Rolland et al. 2008; Rolland et al. 2009a; 2009b; 2010; Barbraud et al. 2012). Warming conditions might also lead to a potential increase in the risk of disease transmission because of greater environmental stress in infected birds, and increased opportunities for the establishment of new vectors (Phillips et al. 2016a).

3. POLICIES, PLANS AND LEGISLATION RELEVANT FOR MANAGEMENT

3.1 National instruments

All of South Georgia is formally protected, and all visits to and activities within the archipelago are managed by means of a permit system. The main activities conducted within South Georgia, including its Maritime Zone, are commercial fishing, tourism and science. The Wildlife and Protected Areas Ordinance (2011) provides a legal basis for the environmental policies of GSGSSI. The legislation affords

complete protection for indigenous flora and fauna of South Georgia (and the South Sandwich Islands), including Grey-headed Albatrosses. The Ordinance establishes powers to designate and manage Specially Protected Species and Habitats (although none have yet been established), Specially Protected Areas (the process to establish these is currently underway) and Marine Protected Areas (see below).

Fisheries within the jurisdictional waters of South Georgia and the South Sandwich Islands are managed to the highest international standards, including the use and monitoring of progressive seabird conservation and management measures. The Fisheries (Conservation and Management) Ordinance (2000), and subsequent amendments, provides a framework for the issuing of fishing licences, enforcement and penalties.

The South Georgia and South Sandwich Islands Marine Protected Area (MPA) was declared in 2012. The aim of this MPA, which covers an area of 1.07 million km², and includes large no-take zones in all coastal areas, is to ensure the protection and conservation of the regions marine biodiversity and ecological processes, whilst allowing sustainable and carefully managed fisheries. Details of the MPA, including management prescriptions and provisions for surveillance and monitoring, are included in the South Georgia and the South Sandwich Islands Marine Protected Area Management Plan (Government of South Georgia and the South Sandwich Islands 2013).

The Biodiversity Action Plan for South Georgia and the South Sandwich Islands (2016-2020) provides a framework for environmental management of the Territory, outlining a range of environmental commitments and activities and how these will be implemented over the five year period: 2016-2020 (Government of South Georgia & the South Sandwich Islands 2016). This Conservation Action Plan for Grey-headed Albatrosses at South Georgia responds to one of the tasks (3.2.4) listed in the Biodiversity Action Plan.

3.2 International instruments

3.2.1 Agreement on the Conservation of Albatrosses and Petrels (ACAP)

The management of South Georgia and its biodiversity is also informed by a number of International Treaties or Agreements. Chief amongst these in relation to Grey-headed Albatrosses is ACAP. The United Kingdom (UK) was Party to the negotiation of the Agreement and ratified it in 2004, soon after it came into force, and this ratification has been formally extended to the relevant Overseas Territories, including South Georgia and the South Sandwich Islands. ACAP was developed under the broad auspices of the Convention on the Conservation of Migratory Species of Wild Animals (CMS), but is an international instrument in its own right. ACAP seeks to achieve and maintain a favourable conservation status for albatrosses and petrels globally. This objective is pursued through a framework for undertaking and coordinating international activity to mitigate known threats to populations of affected species listed in Annex 1 of the Agreement.

ACAP is the leading forum for technical advice and primary source of information on best practice approaches to eliminate or minimise seabird bycatch during fishing operations, with this information now used extensively by international organisations, and ACAP Parties and non-Party Range States, in the adoption and implementation of effective seabird conservation measures in their fisheries. A plan outlining guidelines for the implementation of ACAP at South Georgia and the South Sandwich Islands was published in 2010 (Wolfaardt and Christie 2010), and is in the process of being revised. This Conservation Action Plan for Grey-headed Albatrosses at South Georgia is intended to complement and not replace the ACAP Plan for South Georgia and the South Sandwich Islands.

3.2.1.1 ACAP Priority Populations

At the sixth meeting of ACAP's Advisory Committee (AC6) in 2011, a number of high priority populations (of ACAP species) were identified based on rates of decline and levels of threat. The aim of identifying the highest priority ACAP populations is to help target collaborative conservation efforts at the most threatened populations, especially when resources are scarce. The main criteria for determining ACAP high priority populations are that the population is declining by more than 3% per annum, represents more than 10% of the global population, and for which a major underlying cause of the decline is incidental mortality in fisheries. Initially, five priority populations were identified, including Wandering and Black-browed Albatrosses at South Georgia. On the basis of long-term and ongoing population declines, the Grey-headed Albatross population from South Georgia was added to the list of ACAP high priority populations at AC9 in 2016.

Parties responsible for these high priority populations are expected to develop a list of prioritised research and conservation management actions, and report to each ACAP Advisory Committee meeting on progress in implementing those actions. This Conservation Action Plan for Grey-headed Albatrosses at South Georgia serves *inter alia* as the framework for prioritising research and management actions and reporting routinely to ACAP on progress.

3.2.2 The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)

CCAMLR regulates fisheries activities in the Southern Ocean waters, including around South Georgia, by means of Conservation Measures and resolutions. These include the prescription, management and monitoring of seabird bycatch mitigation measures, for which CCAMLR has achieved considerable success, and is recognised as having set the gold standard. The Fisheries (Conservation and Management) Ordinance (2000) and subsequent amendments give effect to the GSGSSI's obligations under CCAMLR.

4. MONITORING AND RESEARCH

The great majority of monitoring and research on Grey-headed Albatrosses at South Georgia has been carried out by BAS at Bird Island, on the northwest tip of the archipelago. This research was initiated by Lance Tickell in the late 1950s (Tickell and Pinder 1975), and has been continued by BAS from the early 1970s to the present day. Demographic monitoring of ringed birds has been conducted in a number of study plots annually since 1975. This is complemented by annual counts of the number of breeding pairs in eleven colonies, which comprise c. 62% of the total Bird Island population, and represents one of the longest and most comprehensive studies of albatrosses. This long-term monitoring has been used to assess the trend in the numbers of Grey-headed Albatrosses breeding at Bird Island (see Fig. 2) and the demographic processes and mechanisms (e.g. survival, recruitment and breeding success) associated with the observed trend (Croxall et al. 1990, 1998, Prince et al. 1994, 1998). These data have been crucial for demonstrating the linkages between the observed decline in numbers of birds at South Georgia and bycatch, and thus leveraging support for the adoption of seabird conservation measures (Prince et al. 1998, Croxall 2008, Waugh et al. 2008, Tuck et al. 2011). In addition to the annual monitoring conducted in the study colonies, BAS initiated a programme in 1976/77 to census all nesting Grey-headed Albatrosses at Bird Island once a decade. These counts have been repeated at roughly ten year intervals ever since, and serve to complement the more detailed annual monitoring efforts, thus enabling an accurate assessment of the population trend of Grey-headed Albatrosses at Bird Island.

The first complete (archipelago-wide) survey of Grey-headed Albatrosses breeding at South Georgia was conducted in 1985/86 (Prince et al. 1994), with a subsequent survey conducted in 2003/04 (Poncet et al. 2006). The most recent survey was conducted in 2014/15, and although not a complete survey, included c. 70% of the total South Georgia population (Poncet et al. in press).

BAS has been at the forefront of the development and implementation of a diverse range of foraging ecology research (tracking of at-sea distribution and activity, provisioning rates, diet assessment by conventional means and through analysis of stable isotopes) conducted at Bird Island. This work has been carried out on a number of species at Bird Island, including Grey-headed Albatrosses, tracking individuals throughout the year using the latest tracking and logging technology. These data have formed essential components of risk assessments of seabird-fisheries interactions, based on spatio-temporal overlap between seabird species susceptible to bycatch and effort data for fisheries likely to catch them (see Component 4 of the Framework for Action for further details).

5. FRAMEWORK FOR ACTION

This Plan is intended to serve as a tool to guide and prioritise conservation action for South Georgia Grey-headed Albatrosses. It takes advantage of knowledge gained from extensive research and monitoring, and represents our best collective understanding of their current conservation needs. It is important to note that there are a number of important actions included in the implementation framework that are

not, or will not be, implemented directly by GSGSSI, but by partner organisations, such as BAS. It is not the intention of GSGSSI to prescribe these actions to external agencies, but rather to recognize that they form a vital component of the conservation framework, and to help facilitate their implementation and support as appropriate the external agencies in carrying them out.

This plan seeks to achieve and maintain a favourable conservation status for Grey-headed Albatrosses at South Georgia, and in so doing contribute towards their improved conservation status globally.

Components of the Conservation Action Plan

In order to achieve the goal of this plan, a number of priority actions and associated activities have been identified that fall into the following eight components, in no order of importance:

1. *Long-term monitoring of Grey-headed Albatross population dynamics at South Georgia.*
2. *Long-term monitoring of the foraging ecology and diet of Grey-headed Albatrosses at South Georgia.*
3. *Monitoring and management of potential land-based threats to Grey-headed Albatrosses breeding at South Georgia.*
4. *Understanding marine-based threats to South Georgia Grey-headed Albatrosses in order to implement and promote best practice management approaches within and outside SGSSI waters to address these.*
5. *Understanding the potential impacts of climate change on the ecology and population dynamics of South Georgia Grey-headed Albatrosses.*
6. *Raising awareness of the plight of Grey-headed Albatrosses at South Georgia, and the actions that are required and being undertaken to improve their conservation status.*
7. *Participating in international conservation and fisheries fora to promote actions that will help support the conservation of Grey-headed Albatrosses from South Georgia.*
8. *Reviewing the Conservation Action Plan to evaluate accomplishments and update information on priority needs.*

Implementation

The implementation period for this Conservation Action Plan is 2016-2020, which has been set to coincide with the time frame for the Biodiversity Action Plan for South Georgia & the South Sandwich Islands and the overarching South Georgia & the South Sandwich Islands Strategy. However, given the long-term nature of the overall goal, it is anticipated that the Conservation Action Plan will need to be extended beyond this five-year period. As the nature of threats to Grey-headed Albatrosses at South Georgia is dynamic, an adaptive and flexible approach is required, that incorporates information collection and assessment, feedback and re-assessment.

Routine reviews of performance against the stated objectives and actions, and an overall assessment at the end of the implementation period, will be used as the basis for drafting a revised Action Plan for the following five-year period.

Given their vast foraging ranges, and consequently the wide-ranging nature of threats to South Georgia Grey-headed Albatrosses, their conservation is a matter of international concern and shared responsibility. GSGSSI will not be able to realise the goal of this Plan alone because many of the threats to South Georgia Grey-headed Albatrosses occur outside of GSGSSI's area of jurisdiction. Even within GSGSSI's area of jurisdiction, a collaborative approach is required as a variety of stakeholders play key roles in the conservation and protection of Grey-headed Albatrosses at sea and on land.

Whereas threats or management actions within the jurisdiction of GSGSSI will involve dedicated management or mitigation strategies, those that involve other nations will require a different approach, in which GSGSSI will need to engage with those nations (and other organisations), and through multi-lateral agreements such as ACAP, to promote and assist seabird conservation measures. This is particularly the case for mitigating the threat of bycatch, which will only be properly addressed through a concerted international effort, especially on the High Seas (Areas Beyond National Jurisdiction).

There are a number of international conservation initiatives currently underway that are working to address seabird bycatch on the High Seas and in other areas considered to be a risk for albatrosses and petrels (see Component 4 for further details). Although the scope of these initiatives includes all seabirds caught as bycatch, South Georgia Grey-headed Albatrosses constitute one of the key components. Indeed, bycatch associated with pelagic longline fisheries operating on the High Seas is considered to be the primary threat to the South Georgia population of Grey-headed Albatrosses. Consequently, these initiatives are reflected in the Framework for Action, even if GSGSSI are not a lead or formal partner organisation, to highlight opportunities for collaboration and synergies. The successful implementation of this Plan requires a coordinated partnership approach both within South Georgia and internationally.

Prioritisation

There are a number of important conservation and management actions already in place, and these should continue. However, in order to improve the conservation status of Grey-headed Albatrosses at South Georgia, there is a need to go beyond what is currently being done, and to identify the highest priority actions that will create the step-changes needed to achieve the goal of this plan. The step-change actions that will most likely promote improvements to their conservation status are those that help enhance our understanding of the nature and extent of at-sea (fisheries) threats, and on the basis of this improved understanding adopt a targeted approach to addressing these threats. Actions which meet these criteria have been identified as **Priority Actions**, and have been treated separately from the remaining actions, which are called **Associated Activities** in this Plan. A summary of the Priority Actions is provided in Table 1. The Associated Activities are summarised in

Table 2, in which the relative importance of each in relation to improving the conservation status of Grey-headed Albatrosses from South Georgia is scored as **High**, **Medium** or **Low**.

It is important to note that there are some activities, such as those that relate to biosecurity, which are not considered to be a high priority for improving the conservation status of Grey-headed Albatrosses at South Georgia, but are important for South Georgia generally.

Component 1: Long-term monitoring of Grey-headed Albatross population dynamics at South Georgia

The breeding population of Grey-headed Albatrosses has been monitored annually at Bird Island since the 1970s, and is one of the most comprehensively studied albatross populations globally. These data have been instrumental in demonstrating the long-term population decline at South Georgia, determining the demographic mechanisms for the decline, and identifying bycatch as one of the likely drivers of the ongoing decline. In establishing the link between the population decline and bycatch in fisheries, these data have been crucial in leveraging support for the adoption of bycatch mitigation measures in a range of fisheries. The majority of the current population monitoring takes place at Bird Island. Wider population censuses have taken place on three occasions since the mid 1980s, the most recent of which was conducted in 2014/15.

Accurate estimation of population size is critical for monitoring conservation status, and for identifying the key factors influencing changes in population size and demography of South Georgia Grey-headed Albatrosses. It is therefore important that the established long-term monitoring initiatives are maintained so that the population trend of Grey-headed Albatrosses at South Georgia can continue to be robustly monitored, and the factors influencing the trend understood. The population monitoring strategy at South Georgia includes a combination of annual monitoring of breeding numbers and breeding success, comprehensive demographic studies at a sample of study colonies at Bird Island to assess adult and juvenile survival, recruitment and other demographic parameters that help identify the underlying causes of population trends, and archipelago-wide censuses much less frequently (about once a decade).

The population trend of Grey-headed Albatrosses at Bird Island is roughly similar to that recorded for the rest of the archipelago (Poncet et al. 2006, in press), although there is some indication that the rate of decline between 2003/04 and 2014/15 is particularly rapid at a couple of locations, notably the Sorn and Bern coast and Cape North (see Fig. 1 and Appendix 1). It is important to note that different census methodologies are used to monitor population trends at Bird Island and for the wider archipelago surveys. The colonies at Bird Island are surveyed annually by direct ground counts, and numbers adjusted for breeding failure using data from study colonies that are visited regularly. The error associated with these counts is therefore considered to be very low. The archipelago-wide surveys are conducted using

vessel-based photography, and although this method is considered optimal for sites outside of Bird Island, it has been found to underestimate the number of Grey-headed Albatrosses by about 9% (Poncet et al. in press). In order to improve the representativeness of the monitoring strategy for Grey-headed Albatrosses at South Georgia, it would be useful to initiate more regular (annual) counts at additional sites (i.e. away from Bird Island), to monitor numbers of birds breeding and breeding success. The expansion of the annual monitoring programme will also help facilitate a better interpretation of the results of the decadal archipelago-wide surveys.

Associated Activities

- 1.1 Encourage and support as appropriate BAS to continue long-term population and demographic monitoring of Grey-headed Albatrosses at Bird Island (at established study colonies).
- 1.2 Encourage and support as appropriate the continuation of decadal counts by BAS of the number of Grey-headed Albatrosses breeding at Bird Island (whole island).
- 1.3 Develop and implement photo-survey monitoring of population trends and breeding success of Grey-headed Albatrosses at additional sites away from Bird Island. Investigate the involvement of cruise-ship expedition staff and passengers at one site (Elsehul within the Paryadin Peninsula North breeding location; Location No. 13 in Fig. 1 and Appendix 1), and the use of the FPV *Pharos SG* to conduct similar photo-survey monitoring at selected colonies at Paryadin Peninsula South (Location No. 15) and along the Sorn and Bernt Coast (Location No. 5) and/or Cape North (Location No. 6). Protocols will need to be developed, including defining the colonies, providing reference photographs and GPS co-ordinates (both of the colonies and the vessel's positions from which the photographs are to be taken – information which is available from the two previous photo-surveys in 2003/04 and 2014/15), and systems set up to curate the photographs and conduct counts. In order to monitor population trends, photos of incubating birds should be taken in November of each year. Repeat photos taken of the colony in early April can be used to calculate and monitor breeding success. Grey-headed Albatrosses are biennial breeders, so photo-counts of these colonies should be conducted annually to account for interannual variation in numbers.
- 1.4 Conduct a census of Grey-headed Albatrosses breeding at South Georgia once every 10 years, using the same methodology and timing as previous surveys, and data from Bird Island to develop correction factors. The level of coverage should as a minimum be based on the same sites surveyed in 2014/15, which represents approximately 70% of the South Georgia population.
- 1.5 Ensure that all population status and trend data are routinely incorporated into the GSGSSI GIS and database, and submitted to ACAP.
- 1.6 Formally submit and present the paper on the 2014/15 survey of Wandering, Black-browed and Grey-headed Albatrosses at South Georgia (Poncet et al.

in press) to the next meeting of ACAP's Population and Conservation Status Working Group, scheduled to take place in September 2017 in New Zealand.

Component 2: Long-term monitoring of the foraging ecology and diet of Grey-headed Albatrosses at South Georgia

Based on extensive tracking and associated research undertaken by BAS at Bird Island, the at-sea distribution, foraging ecology and diet of South Georgia Grey-headed Albatrosses, is relatively well known. These data have formed essential components of risk assessments of seabird-fisheries interactions, based on spatio-temporal overlap between seabird species susceptible to bycatch and effort data for fisheries likely to catch them. In this context the BirdLife Global Procellariiform Tracking Database (BirdLife International 2004), which serves as a repository for all albatross and petrel tracking data, has been a crucial tool for identifying actual and potential bycatch 'hotspots' in coastal waters and on the High Seas.

Although most age-classes and life-cycle phases of South Georgia Grey-headed Albatrosses have been tracked at some point, the distribution of non-breeding birds (including juveniles, pre-breeders/immatures and sabbatical adult birds) is not as well known as breeding birds. This is due to a combination of sample sizes (limited numbers of birds that have been tracked, and the number of years for which data exists) and the resolution of the tracking data collected (based on the type of device used – non-breeding birds have generally been tracked with geolocators which are accurate to c. 200km). The priority actions for further tracking work should be based on filling gaps to expand and improve overlap analyses of albatross distribution with fishing effort, and thus advance knowledge of potential interactions between fisheries and Grey-headed Albatrosses from South Georgia.

Given that all tracking of Grey-headed Albatrosses has been conducted from Bird Island, efforts should be directed to tracking birds from additional sites, especially sites at which the decreases in numbers of birds breeding are particularly rapid. Colonies at Cape North would be good candidate sites in this respect. Tracking from sites away from Bird Island should be focused largely on non-breeding birds, as it is likely that breeding birds remain south of the Antarctic Polar Frontal Zone, where and during which time they show little overlap with fisheries. These priority actions are outlined in greater detail under Objective 4 dealing with marine-based threats.

The diet of South Georgia Grey-headed Albatrosses is monitored by BAS at Bird Island as part of the long-term CCAMLR Ecosystem Monitoring Programme, through induced regurgitation of chicks. Knowledge of diet is important to understand possible changes in prey composition and implications for breeding and survival parameters. The Grey-headed Albatross diet monitoring programme at Bird Island is one of the longest running diet studies on albatrosses, and it is important to maintain this long-term research to enable detection of dietary shifts, to understand the possible reasons for these shifts, and identify links between prey abundance and demographic parameters of Grey-headed Albatrosses. In a recent review of methods used to analyse albatross diets, Bird Island was identified as one of the Key Dietary Monitoring Sites (KDMS) for Grey-headed, Black-browed and Wandering Albatrosses (McInnes et al. 2016). It is important to note that diet samples obtained

through induced regurgitation provide information for one component of the breeding period (chick-rearing), and there remains a need to obtain dietary information for other parts of the breeding season, as well as from non-breeding birds using forensic techniques (e.g. stable isotope mixing models, fatty acids).

Associated Activities

- 2.1 Evaluate at-sea distribution data for South Georgia Grey-headed Albatrosses with respect to gaps and limitations in sample size, and likely overlap with high risk fisheries, and on this basis identify priority age and life-cycle phases for which further tracking data are required. Systematically update and fill data gaps in a prioritized manner. See Priority Action 4.1 and Associated Activity 4.7 for further details.
- 2.2 Consider tracking non-breeding Grey-headed Albatrosses from colonies at Cape North, which have experienced amongst the most rapid declines in the archipelago, to investigate if their distribution differs from birds tracked at Bird Island, and thus determine if the non-breeding distribution shows some variation across the archipelago. Satellite-linked GPS devices would need to be used if there was a single visit, whereas use of GLS loggers would require multiple visits in successive years.
- 2.3 Ensure all tracking data are routinely submitted to the Global Procellariiform Tracking Database so that they can be used in future seabird-fisheries risk assessments.
- 2.4 Encourage and support as appropriate the continued implementation of the long-term diet monitoring programme of Grey-headed Albatrosses at Bird Island using existing methods (Phillips 2006).
- 2.5 Investigate methods to collect dietary information outside of the chick-rearing period, and from non-breeding birds.

Component 3: Monitoring and management of potential land-based threats to Grey-headed Albatrosses breeding at South Georgia

There is no evidence that any land-based threats are currently affecting Grey-headed Albatrosses at South Georgia. Visits to, and activities within, the archipelago are strictly managed by GSGSSI so as to ensure effective site protection, while at the same time encouraging responsible tourism and research.

One of the main objectives of the Biodiversity Action Plan for South Georgia and the South Sandwich Islands is to implement best practice biosecurity protocols, pre- and post-border monitoring and emergency response measures, especially since the completion of projects to eradicate rodents and reindeer from the island. A number of actions contained within the Biodiversity Action Plan are designed to support this biosecurity objective and thus reduce the risk of introducing non-native species and transmitting pathogens and diseases to South Georgia.

At least one, and probably two, outbreaks of avian cholera have occurred at South Georgia. In both cases, the outbreaks appear to have been restricted to Cooper Bay, where Chinstrap Penguins were the main victims. Although there have been no reported incidents of diseases impacting Grey-headed Albatrosses at South Georgia, avian cholera has impacted albatrosses at other island groups, so it is important to screen birds at South Georgia to establish baseline levels of these (or other) pathogens.

Effective protection and management of the terrestrial environment of South Georgia, and activities within it, has helped ensure that land-based activities and processes are not currently threatening Grey-headed Albatrosses. It is important that the stringent protection of breeding sites and management of human activities is maintained, and that knowledge regarding baseline levels of pathogens and disease in South Georgia Grey-headed Albatrosses is improved.

A range of Specially Protected Areas were identified in the 2006 South Georgia Plan for Progress (Pasteur and Walton 2006), but have not been established in law. One of the priority actions of the Biodiversity Action Plan for South Georgia and the South Sandwich Islands is to work with stakeholders to identify locations that should be declared as Protected Areas under the Wildlife and Protected Areas Ordinance (2011). It is envisaged that a range of different Protected Area categories will be established, with the entire terrestrial environment of South Georgia being afforded some form of legal protection (Government of South Georgia and the South Sandwich Islands 2016). Grey-headed Albatross breeding sites will be incorporated into this Protected Area planning process.

Associated Activities

- 3.1 Continue to support and manage responsible tourism activities at South Georgia.
- 3.2 Ensure that the South Georgia biosecurity protocols described within the Biosecurity Handbook (2016) are properly implemented, regularly reviewed, and improved where possible.
- 3.3 Implement all biosecurity activities listed under Objective 6 of the Biodiversity Action Plan for South Georgia and the South Sandwich Islands.
- 3.4 Determine baseline levels of pathogens and disease in Grey-headed Albatrosses at South Georgia, and subject to the findings of this investigation develop and implement a long-term disease surveillance and response programme (see also 3.5). The sampling strategy should ideally include both Bird Island (visited by humans since the 1960s), and a colony that has experienced very little human visitation (e.g. Cape North, Paryadin Peninsula South). ACAP is in the process of developing guidelines for sampling that should be used to inform protocols at South Georgia.
- 3.5 Develop and implement a contingency that sets out rapid response remedial actions that should be implemented in the event of a disease outbreak and is based on best practice principles.

- 3.6 Ensure that the Grey-headed Albatross breeding sites are included in the SGSSI Protected Areas planning process, and that these sites are optimally incorporated into the Protected Area Framework that is developed.

Component 4: Understanding marine-based threats to South Georgia Grey-headed Albatrosses in order to implement and promote best practice management approaches within and outside SGSSI waters to address these

The main threat to Grey-headed Albatrosses at South Georgia is considered to be bycatch associated with pelagic longline fisheries. Bycatch of Grey-headed Albatrosses and other seabirds has been reduced to negligible levels within the jurisdictional waters of South Georgia and the South Sandwich Islands, and in CCAMLR waters more broadly. There is some evidence to suggest that IUU fishing may be taking place in some CCAMLR areas, including potentially in Subarea 48.2, just south of South Georgia, although the extent is hard to quantify. Nevertheless, all evidence indicates that the continued decline of Grey-headed Albatross population at South Georgia is likely due, at least in part, to bycatch of birds associated with fisheries operating outside of South Georgia and CCAMLR waters, and particularly pelagic longline fisheries targeting tuna and similar species on the High Seas. The conservation of South Georgia Grey-headed Albatrosses is therefore dependent on the continued management of bycatch within South Georgia and CCAMLR waters (where breeding birds spend the majority of their time), and urgent efforts to reduce seabird bycatch in fisheries outside of this area.

It is thus important that GSGSSI and the UK government complement national policy and actions (to maintain and improve seabird bycatch reduction efforts) with actions at an international level. This is best done by engaging, including through ACAP, the relevant RFMOs, and through bilateral and multilateral approaches with other nations, to promote and assist with the reduction of seabird bycatch in their waters. This is indeed one of the key objectives of ACAP, which requires Parties to take measures both individually and collectively, to achieve and maintain a favourable conservation status for albatrosses and petrels (Article II).

Tracking and bycatch data, including recoveries of birds that have been ringed at South Georgia, suggest that pelagic longline vessels operating in the southern Atlantic and Indian oceans, managed by ICCAT, IOTC and CCSBT, represent particularly important risks for Grey-headed Albatrosses, and that bycatch in these fisheries have likely contributed to the long-term decline of the population at South Georgia.

Effective action to reduce seabird bycatch involves five key steps: a) recognising and understanding the spatio-temporal nature of the problem, b) setting requirements for mitigation measures ensuring these are based on or informed by best-practice advice, c) collecting bycatch and associated data, d) establishing systems to monitor compliance, and e) evaluating the effectiveness of mitigation measures, and based on this evaluation refining the requirements if necessary.

All five tuna RFMOs, including ICCAT, IOTC and CCSBT, have over the last five years adopted conservation and management measures that require the application of bycatch mitigation measures by vessels in areas overlapping with albatrosses and petrels. While this represents significant progress, the extent to which these policies have translated into effective action within fisheries managed by the RFMOs, is largely unknown. There is therefore a need to ensure that data on bycatch are adequately collected and reported, that monitoring and surveillance efforts are sufficient to assess compliance, and to evaluate the effectiveness of the prescribed mitigation measures.

There are a number of international initiatives underway that are working towards improved seabird bycatch mitigation within RFMOs, and more broadly, and which are relevant to South Georgia Grey-headed Albatrosses. The ACAP RFMO engagement strategy seeks to promote, through collaboration with Parties and other organisations such as BirdLife International, the adoption and implementation of best-practice seabird bycatch mitigation measures in all five tuna RFMOs, and the monitoring of their effectiveness. The main broad priority areas for ACAP engagement with RFMOs comprise the following:

- a) Participate in RFMO reviews of seabird conservation measures (ICCAT and IOTC will initiate reviews of their seabird conservation measures in September 2016).
- b) Promote the strengthening of seabird conservation measures within RFMOs (including advocating ACAP's recently (2016) revised best practice guidelines for mitigating seabird bycatch in pelagic longline fisheries).
- c) Work to strengthen RFMO bycatch data collection and reporting requirements, and the inclusion of appropriate seabird bycatch mitigation elements within RFMO compliance monitoring.

BirdLife International, through its local partner BirdLife South Africa, is leading the seabird bycatch component of an international project (*'Common Oceans Tuna Project'*) focusing on sustainable fisheries management and biodiversity conservation in tuna fisheries beyond Areas of National Jurisdiction. The project is currently underway, and is scheduled to continue until late 2018. The overall aims of the seabird bycatch component of the project are to enhance uptake of best practice seabird bycatch mitigation measures by pelagic longline fleets in the Atlantic and Indian Oceans (the main risk areas identified for South Georgia Grey-headed Albatrosses), to strengthen the capacity of national institutions to manage and conduct analyses of seabird bycatch data, and to facilitate an assessment of the combined impacts of all tuna RFMOs on seabirds. The target audience of the project and related work includes all of the main fishing nations that overlap with albatrosses and petrels in the Atlantic and Indian oceans. The aims of the project are being pursued through a series of workshops and related activities focusing on seabird bycatch mitigation. These include: national awareness and observer training workshops, a pilot study in Cape Town, South Africa (used by many distant water fleets), to investigate the use of port-based outreach to support and monitor compliance in the use of seabird bycatch mitigation, and joint tuna RFMO seabird bycatch assessment workshops in 2016-2018, leading to the first ever global assessment of seabird bycatch in tuna fisheries. This programme of work, while

broad in scope, is directly relevant to, and important for, the conservation of South Georgia Grey-headed Albatrosses.

Monitoring by BAS of marine debris and fishing gear associated with seabird nests and colonies at Bird Island has shown that Grey-headed Albatrosses are not currently adversely affected by discarded fishing gear. However, continued monitoring is considered useful to identify emerging issues such as changes in gear type or fishing practices that may impact seabirds. The discarding of hooks is prohibited in SGSSI fisheries and since 2011 all longline vessels operating in South Georgia waters are required to use uniquely marked hooks that can be traced back to the vessel. Monitoring the incidence of hooks associated with albatross nests provides a useful mechanism to assess compliance with this requirement. However, it is important to note that hooks may come from fisheries which do not require vessels to use marked hooks, and thus not be as easily identifiable.

Although South Georgia Grey-headed Albatrosses have not been significantly impacted by oil pollution and contamination, ongoing monitoring and reporting of pollution and contamination incidents is required, especially given the current and planned development of hydrocarbon activities around the Falkland Islands.

Priority Actions

- 4.1 Conduct a detailed analysis of Grey-headed Albatross overlap with fisheries.** Adopt a similar approach to that used for South Georgia Wandering Albatrosses and pelagic longline fisheries (Jiménez et al. 2015). This approach used a combination of GLS, PTT and GPS tracking data (accurate to c. 200km, c. 10km and c. 10m, respectively) and data on fishing effort at a resolution of 5 x 5 degree grid square (the best available for many fisheries). The outputs of this work have already been very helpful in identifying high-risk areas and fisheries for South Georgia Wandering Albatrosses, and would be similarly useful for Grey-headed Albatrosses. Use existing PTT and GPS data from breeders, and GLS data from non-breeding (sabbatical) Grey-headed albatrosses to examine year-round overlap with all pelagic longline fisheries. The main aim of this analysis would be to get a much better understanding of the spatial and temporal (both seasonal and annual) overlap of birds with fishing fleets. This information will help identify more specifically those fleets that overlap with Grey-headed Albatrosses from South Georgia, as well as the areas and seasons of highest bycatch risk, and thus inform a more focussed approach to engaging with these fleets to better understand and address bycatch impacts.
- 4.2 Report and disseminate results of any overlap analyses to ACAP, BirdLife International and relevant RFMOs so that they can be used to conduct or update seabird-fisheries risk assessments, and help inform targeted engagement with fleets that overlap with South Georgia Grey-headed Albatrosses.**
- 4.3 Develop and implement collaborative strategies for mitigating fisheries bycatch, including via the provision of data, updates and outreach materials arising from activities in the Conservation Action Plans.**

Engage in and support efforts to promote effective seabird conservation approaches in external fisheries through international fora and direct engagement with fleets that overlap with Grey-headed Albatrosses from South Georgia. This includes promoting the use of best practice bycatch mitigation measures, and monitoring and surveillance systems to ensure compliance with, and to evaluate the effectiveness of, the prescribed measures. Some of the key fleets that have been identified in this Plan, such as the Japanese, are not currently ACAP Parties, and should be engaged through the ACAP RFMO strategy (see 4.4) and other means (see 4.5). Outputs from the analysis of the overlap between South Georgia Grey-headed Albatrosses and fishing effort outlined in Priority Action 4.1 will serve as key inputs to this process.

- 4.4** Through the ACAP RFMO engagement strategy, **strengthen the application of seabird bycatch mitigation measures within RFMOs and encourage better monitoring of compliance and effectiveness** (see Annex 5 of the 2016 ACAP SBWG report [AC9 Doc Rev 1](#) for detailed actions of the engagement strategy). ICCAT, IOTC and CCSBT are of particular importance for South Georgia Grey-headed Albatrosses. In 2016, ICCAT and IOTC will initiate processes to evaluate the effectiveness of their seabird conservation measures. Although GSGSSI is not a member of ICCAT, the UKOT is a member as is the UK (currently through the EU), and through support from FCO and Defra, have helped progress and support the adoption of seabird conservation measures by ICCAT. Outputs from the analysis of the overlap of South Georgia Grey-headed Albatrosses and fishing effort outlined in Priority Action 4.1 will serve as key inputs to this process
- 4.5** **Engage with those fleets that overlap most with Grey-headed Albatrosses from South Georgia to improve their use of bycatch mitigation.** Information currently available indicates that Grey-headed Albatrosses are caught as bycatch by the Japanese fleet operating in the southeast Atlantic Ocean and the southwest and southeast Indian Ocean. The overlap analysis outlined in Priority Action 4.1 will help clarify and update the identification of key fleets, areas and seasons associated with high bycatch risk. Investigate the best mechanisms and opportunities for direct engagement with key fleets, such as the work being progressed by the seabird bycatch component of the FAO Common Oceans Tuna project (Action 4.11).

Associated Activities

- 4.6** Continue to manage national fisheries to reduce or eliminate seabird bycatch.
- 4.6.1** Continue to manage all SGSSI fisheries in a risk-averse manner, to the highest international standards, in line with and where appropriate exceeding all CCAMLR requirements, especially in relation to seabird bycatch mitigation.
- 4.6.2** Ensure that the seabird bycatch reporting requirements of ACAP are met (new protocols are currently being developed). Determine the most efficient

method of obtaining the relevant data from CCAMLR (where all SGSSI bycatch and observer data are held) for ACAP reporting purposes.

- 4.6.3 Encourage and support as appropriate the the continued implementation by BAS of monitoring programmes at Bird Island recording the incidence of fishing hooks and other marine debris associated with nests of Grey-headed Albatrosses and other seabirds. Items should be fully described and documented in the standard CCAMLR form (available at <https://www.ccamlr.org/en/node/75831>), and ideally archived or photographed for later analysis of provenance.
- 4.7 Encourage and support further tracking studies and spatio-temporal overlap analyses of South Georgia Grey-headed Albatrosses and fishing effort that identifies more accurately and at a higher resolution, fleets and vessels that are likely contributing to the bycatch of birds. Priority Action 4.1 is the first step in this process. The actions listed below represent further step-wise improvements in the resolution of data and outputs that will help identify more accurately the fleets and vessels responsible for bycatch of South Georgia Grey-headed Albatrosses and thus help inform more targeted engagement with these fleets.
 - 4.7.1a Conduct fine-scale analyses of overlap of Grey-headed Albatrosses with fisheries using new GPS data combined with Automatic Identification System (AIS) data to determine overlap with specific vessels in real time. Given the expense, and because breeding adults show less overlap with fisheries, this initiative should be restricted to deploying satellite-linked GPS devices on adult Grey-headed Albatrosses during the non-breeding season (and, if funds are available, juveniles and older pre-breeders/immatures).
 - 4.7.1b The comparison of GPS and AIS data could be usefully expanded to include analysis of satellite imagery to identify overlap (at an intermediate scale) with IUU vessels that have turned off their AIS. This latter component would add significant costs to the work.
- 4.8 In order to strengthen the ACAP RFMO engagement strategy, investigate mechanisms to progress seabird conservation objectives within ICCAT, CCSBT and IOTC through the EU, as appropriate; the EU is a member of all these RFMOs. The UK is also member of IOTC, on behalf of the British Indian Ocean Territory (BIOT).
- 4.9 Seek to work with other ACAP Parties that are EU members, as appropriate, to encourage and support the effective implementation of the European Commission (2012) Action Plan for Reducing Incidental Catches of Seabirds in Fishing Gears, which applies both to fishing vessels fishing in the EU, and EU flagged vessels fishing elsewhere.
- 4.10 Work with fishing companies that operate in SGSSI and CCAMLR waters to ensure that successful mitigation of seabird bycatch by their vessels in these waters is complemented by the same measures when these vessels operate in other areas where there are risks of seabird bycatch.

- 4.11 Investigate opportunities to support and help facilitate the seabird bycatch component of the FAO Common Oceans Tuna project being led by BirdLife South Africa.
- 4.12 Establish a simple template to collate observations of oil-contaminated birds, both in colonies and at sea (currently done by BAS at Bird Island). Disseminate these forms to researchers working in colonies, scientific fisheries observers and tourist expedition leaders, and request that they use them to record any relevant observations and return them to GSGSSI for later analysis. Ensure that the collated information is submitted routinely to relevant organisations and authorities, including CCAMLR, ACAP and the Falkland Islands Government.

Component 5: Understanding the potential impacts of climate change on the ecology and population dynamics of South Georgia Grey-headed Albatrosses

An increasing number of studies have been conducted to investigate the potential impacts of climate change on Southern Ocean seabirds, including albatrosses. Climate variables can affect seabirds directly, or indirectly, through changes in foraging or breeding habitat, which in turn affect foraging strategies, distribution and phenology. Climate change may also impact seabirds by affecting the transmission of diseases and the distribution of fish species and consequently fisheries effort.

Using long-term data from Bird Island, BAS are currently investigating the respective roles of climate and fisheries variables in driving the decline in numbers of Grey-headed Albatrosses (and Wandering and Black-browed Albatrosses) at South Georgia, and other demographic parameters. Preliminary results of these analyses indicate that climatic (and fisheries) covariates had an influence on some of the demographic trends, but the total variability explained was quite low (Phillips et al. 2014).

Actions relating to the potential effects of climate change on Grey-headed Albatrosses at South Georgia focus on progressing research and monitoring initiatives to detect and measure effects of climate change, and identifying information gaps and areas that require further investigation.

Associated Activities

- 5.1 Once completed, engage with and support BAS to use the results from their research project investigating the influence of climate and fisheries variables on Grey-headed Albatross demography to synthesise information on the potential impacts of climate change, and identify strategies to fill information gaps and develop appropriate monitoring strategies to better understand and track these impacts. The continued collection of demographic and foraging ecology data will be crucial in this respect (see Actions 1.1 and 2.1).

Component 6: Raising awareness of the plight of Grey-headed Albatrosses at South Georgia, and the actions that are required and being undertaken to improve their conservation status

Public support of Grey-headed Albatross conservation will provide benefits for all of the actions that are conducted as part of this Plan. Dissemination of information and targeted outreach and awareness-raising initiatives are crucial to promote and support the objectives of this Plan. There are a number of opportunities to raise awareness and understanding of the plight of South Georgia's Grey-headed Albatrosses and the actions that are required and are being taken to conserve them. It is important to recognise that there is a range of different target audiences, including policy makers, fishery managers, fishers, scientists, tourists and the general public, each of whom will often require different outreach approaches. The GSGSSI website includes sections dealing with the environment and wildlife that are regularly updated. Staff members of GSGSSI deliver annual presentations to the International Association of Antarctic Tour Operators (IAATO) on tourist management policies and activities, and also hold annual fisheries science meetings with industry representatives. These initiatives provide good opportunities for targeted engagement with the tourism and fisheries sectors, respectively.

Approximately 8,000 tourists visit South Georgia each year, and the wildlife and environment constitute an important component of the tourists' experience. Tourism activities contribute significantly to raising awareness and the profile of several conservation issues on the island, including by encouraging those who have visited the island to act as advocates for the conservation of the island and its biodiversity. Given that a large proportion of the tourists to South Georgia have a strong interest in wildlife, there is also an opportunity to involve visitors more directly in conservation work through a citizen science approach. 'Citizen'-based contributions to mainstream scientific investigations are becoming increasingly useful and important, both in terms of enhancing data collection, and thus increasing the range and depth of data available for analysis and research, and also to engage the public more meaningfully in important conservation initiatives. One of the ways in which tourists could contribute usefully to the monitoring of Grey-headed Albatrosses (and Black-browed Albatrosses) is to take standardised photographs of a defined colony during the incubation period (November) and shortly before chicks fledge (early April). Counts of these photos will enable estimates to be derived annually of the number of birds attempting to breed, and their breeding success, which could be compared with and used to complement the estimates from Bird Island. Elsewhere within Paryadin Peninsula North (Location No. 13 in Fig. 1 and Appendix 1), which is regularly visited by cruise ships, and has colonies of both Grey-headed and Black-browed Albatrosses, would be an optimal site for such an initiative (refer to Action 1.3).

Although relatively large numbers of tourists visit South Georgia each year, the opportunity to experience albatrosses in their natural habitat is out of reach for most members of the public. Webcams and other interpretive tools can bring this experience into the homes and classrooms of a much larger target audience. Bird Island would be an optimal venue for such an initiative to link the imagery with the

long-term studies of Grey-headed Albatrosses being undertaken there, and make use of infrastructure that is already established.

Internationally, awareness of albatross and petrel conservation is promoted through a range of different media, including scientific and popular publications and via websites of key organisations, such as ACAP, BirdLife International and IAATO. The 'Latest News' section of the ACAP website, which features new stories most days, and the ACAP Facebook page, have proven to be popular and useful mechanisms to disseminate information regarding albatross and petrel conservation to the general public.

This Plan itself provides an opportunity for increasing awareness of issues affecting the conservation of Grey-headed Albatrosses at South Georgia, and what is being done to address these. Indeed, to be fully effective, it is important that the objectives and actions contained in the plan are fully understood, and that progress or lack of progress in reaching the objectives is communicated, not only to those involved in progressing these actions, but to the wider ACAP community. This latter component is important because it provides an opportunity to discuss the implementation needs of the plan, many of which are reliant on international cooperation.

Associated Activities

- 6.1 Formally present this Conservation Action Plan for Grey-headed Albatrosses to the next meeting of ACAP's Working Groups and Advisory Committee, scheduled to take place in New Zealand in September 2017. At each of the subsequent meetings, present formal feedback on progress achieved against the objectives and actions outlined in the Plan.
- 6.2 Make this Conservation Action Plan (and updates) available on the GSGSSI (and ACAP) websites, and circulate information about its existence.
- 6.3 Produce a summary document of the annual reviews of the plan (see Action 8.1) that can be used to disseminate updates and progress to a range of target audiences, including the annual IAATO and SGSSI fisheries science meetings.
- 6.4 Investigate and use opportunities to disseminate information and stories regarding Grey-headed Albatross conservation at South Georgia. Drafting short news pieces for the Latest News section of the ACAP website provides one such opportunity. Other mechanisms include making available a summarised version of the South Georgia Conservation Action Plans at the South Georgia Post Office, and the South Georgia Museum.
- 6.5 GSGSSI staff with environmental and fisheries responsibilities will be encouraged to attend ACAP meetings to present and promote work being undertaken to conserve South Georgia Grey-headed Albatrosses, to participate in wider discussions regarding albatross and petrel conservation, and remain informed of initiatives and opportunities relevant to the goal of this plan.

- 6.6 Ensure information relevant to albatross conservation is delivered to visitors and South Georgia Museum staff through Government Officer presentations.
- 6.7 Investigate the installation and management of a Webcam at one or more Grey-headed Albatross colonies that can be linked to an interactive website for public awareness and school education.
- 6.8 Develop a stamp issue to promote albatross conservation with opportunities for links and collaboration with project partners.
- 6.9 Update this list of actions with any additional recommendations relating to Grey-headed Albatrosses arising from the SGSSI Outreach Strategy, scheduled for 2017.
- 6.10 Improve knowledge of the markets associated with fisheries that overlap with Grey-headed Albatrosses from South Georgia, and investigate mechanisms to increase awareness amongst consumers of products from these fisheries of the importance of implementing effective seabird bycatch mitigation strategies.

Component 7: Participating in international conservation and fisheries fora to promote actions that will help support the conservation of Grey-headed Albatrosses from South Georgia

Incidental mortality in external fisheries, for which GSGSSI does not have responsibility, is considered to be the main threat to the South Georgia Grey-headed Albatross population. Consequently, the successful implementation of this Plan, and the conservation status of South Georgia Grey-headed Albatrosses, is dependent on the involvement and contributions of other nations and organisations. This also requires GSGSSI and the UK government to participate actively in relevant international conservation and fishing fora in order to encourage and support actions required for the conservation of Grey-headed Albatrosses from South Georgia. ACAP is the primary mechanism to achieve this objective, and a number of actions outlined in this Plan are of an international and cooperative nature.

Any intergovernmental collaboration between the UK (and GSGSSI) and other relevant countries should be based on the principle of shared interest and responsibility for albatross and petrel conservation. Such collaboration has many potential benefits. It will help all parties remain informed about the status of seabird bycatch mitigation policy and implementation in the different countries, understand the range of challenges, and thus ensure that the UK can optimally respond to priority issues and needs as they arise. A collaborative approach will facilitate the exchange of expertise and information and assist in the integration of seabird bycatch data across jurisdictions. By establishing constructive working relationships with these other countries, the benefits could extend to matters of seabird bycatch on the High Seas of the South Atlantic, through fishing industry, joint venture and RFMO links.

Associated Activities

There are a number of actions and associated activities throughout this Plan, especially under Component 4, that contribute towards meeting this objective.

Component 8: Reviewing the Conservation Action Plan to evaluate accomplishments and update information on priority needs

The Plan should be reviewed annually to measure progress against the goal, aim, actions and associated activities. This will allow the Plan to be updated in response to review results, and for further refinement of actions and priorities, thus ensuring an adaptive management approach. In addition to formally reviewing the progress of the Plan, the annual review process will also be used for different parties to provide feedback on actions to which they have contributed. Ideally, the review process should take place prior to ACAP Advisory Committee meetings, allowing enough time to collate the necessary information so that it can be included as part of the national reporting process, and presented to the relevant ACAP Working Groups. Although progress against each of the actions should be assessed, assessing progress toward the desired goal for South Georgia Grey-headed Albatrosses will be accomplished primarily by tracking population trends and demographic parameters.

There are a number of actions included in the implementation framework that are not, or will not be, implemented directly by GSGSSI, but by partner organisations. It is not the intention of GSGSSI to prescribe these actions to external agencies, but rather to recognize that they are a vital part of the conservation framework, and to help facilitate their implementation through engaging with and supporting as appropriate the external agencies in carrying them out. A small steering group will be established to help facilitate a co-ordinated, collaborative and proactive approach to the goal, priority actions and associated activities outlined in this Plan.

Associated Activities

- 8.1 Develop a standardized template for the annual review of the Plan, and conduct succinct annual reviews.
- 8.2 Establish a small steering group to discuss and co-ordinate the implementation of the Plan, and identify opportunities for collaboration that would help meet the objectives of the Plan.

Table 1. Summary of the **Priority Actions** identified in the Conservation Action Plan for Grey-headed Albatrosses at South Georgia.

Lead & partner organisations:

BAS: British Antarctic Survey

BirdLife International and BirdLife South Africa

Defra: Department for Environment, Food & Rural Affairs

FIG: Falkland Islands Government

FCO: Foreign & Commonwealth Office (UK)

GSGSSI: Government of South Georgia & the South Sandwich Islands

IAATO: International Association of Antarctic Tour Operators

JNCC: Joint Nature Conservation Committee

RSPB: Royal Society for the Protection of Birds

	Action	Timeframe	Lead and Partner organisations
Component 4: <i>Understanding marine-based threats to South Georgia Grey-headed Albatrosses in order to implement and promote best practice management approaches within and outside SGSSI waters to address these.</i>			
4.1	Conduct a detailed analysis of Grey-headed Albatross overlap with fisheries. Adopt a similar approach to that used for South Georgia Wandering Albatrosses and pelagic longline fisheries (Jiménez et al. 2015). This approach used a combination of GLS, PTT and GPS tracking data (accurate to c. 200km, c. 10km and c. 10m, respectively) and data on fishing effort at a resolution of 5 x 5 degree grid square (the best available for many fisheries). The outputs of this work have already been very helpful in identifying high-risk areas and fisheries for South Georgia Wandering Albatrosses, and would be similarly useful for Grey-headed Albatrosses. Using existing PTT and GPS data from breeders, and GLS data from non-breeding (sabbatical) Grey-headed albatrosses to examine year-round overlap with all pelagic longline fisheries. The main aim of this analysis would be to get a much better understanding of the spatial and temporal (both seasonal and annual) overlap of birds with fishing fleets. This information will help identify more specifically those fleets that overlap with Grey-headed Albatrosses from South Georgia, as well as the areas and seasons of highest bycatch risk, and thus inform a more focussed approach to engaging with these fleets to better understand and address bycatch impacts.	2016-2017	BAS, GSGSSI, BirdLife International
4.2	Report and disseminate results of any overlap analyses to ACAP, BirdLife International and relevant RFMOs so that they can be used to conduct or update seabird-fisheries risk assessments, and help inform targeted engagement with fleets that overlap with South Georgia Grey-headed Albatrosses.	As required	BAS, BirdLife International, GSGSSI, JNCC

	Action	Timeframe	Lead and Partner organisations
4.3	Develop and implement collaborative strategies for avoiding fisheries bycatch, including via the provision of data, updates and outreach materials arising from activities in the Conservation Action Plans. Engage in and support efforts to promote effective seabird conservation approaches in external fisheries through international fora and direct engagement with fleets that overlap with Grey-headed Albatrosses from South Georgia. This includes promoting the use of best practice bycatch mitigation measures, and monitoring and surveillance systems to ensure compliance with, and to evaluate the effectiveness of, the prescribed measures. Some of the key fleets that have been identified in this Plan, such as the Japanese, are not currently ACAP Parties, and should be engaged through the ACAP RFMO strategy (see 4.4) and other means (see 4.5). Outputs from the analysis of the overlap between South Georgia Grey-headed Albatrosses and fishing effort outlined in Priority Action 4.1 will serve as key inputs to this process.	Ongoing	GSGSSI, FCO, Defra, JNCC, ACAP, BirdLife International
4.4	Through the ACAP RFMO engagement strategy, strengthen the application of seabird bycatch mitigation measures within RFMOs and encourage better monitoring of compliance and effectiveness (see Annex 5 of the 2016 ACAP SBWG report AC9 Doc Rev 1 for detailed actions of the engagement strategy). ICCAT, IOTC and CCSBT are of particular importance for South Georgia Grey-headed Albatrosses. In 2016, ICCAT and IOTC will initiate processes to evaluate the effectiveness of their seabird conservation measures. Although GSGSSI is not a member of ICCAT, the UKOT is a member as is the UK (currently through the EU), and through support from FCO and Defra, have helped progress and support the adoption of seabird conservation measures by ICCAT. Outputs from the analysis of the overlap of South Georgia Grey-headed Albatrosses and fishing effort outlined in Priority Action 4.1 will serve as key inputs to this process.	Ongoing	GSGSSI, FCO, Defra, JNCC, ACAP, BirdLife International

	Action	Timeframe	Lead and Partner organisations
4.5	<p>Engage with those fleets that overlap most with Grey-headed Albatrosses from South Georgia to improve their use of bycatch mitigation. Information currently available indicates that Grey-headed Albatrosses are caught as bycatch by the Japanese fleet operating in the southeast Atlantic Ocean and the southwest and southeast Indian Ocean. The overlap analysis outlined in Priority Action 4.1 will help clarify and update the identification of key fleets, areas and seasons associated with high bycatch risk. Investigate the best mechanisms and opportunities for direct engagement with key fleets, such as the work being progressed by the seabird bycatch component of the FAO Common Oceans Tuna project (Action 4.11).</p>	Ongoing	GSGSSI, FCO, Defra, JNCC, ACAP, BirdLife International and BirdLife South Africa

Table 2. Summary of associated activities that contribute to the goal of this Conservation Action Plan. The table serves to prioritise activities, and facilitate the review of progress against each.

Activities already underway and/or with resources allocated by GSGSSI				
Activities already being implemented by partner organisations				
Activities that will be partly/wholly implemented/funded by GSGSSI with other partners collaborating/contributing as appropriate, but which have not yet been started				
Activities that remain dependent on obtaining funds or capacity				
	Activity	Importance	Timeframe	Lead & partner organisations
Component 1: Long-term monitoring of Grey-headed Albatross population dynamics at South Georgi				
1.1	Encourage and support as appropriate BAS to continue long-term population and demographic monitoring of Grey-headed Albatrosses at Bird Island (at established study colonies)	High	Annual	BAS, GSGSSI
1.2	Encourage and support as appropriate the continuation of decadal counts by BAS of the number of Grey-headed Albatrosses breeding at Bird Island (whole island).	High	Decadal	BAS, GSGSSI
1.3	Develop and implement photo-survey monitoring of population trends and breeding success of Grey-headed Albatrosses at additional sites away from Bird Island. Investigate the involvement of cruise-ship expedition staff and passengers at one site (Elsehul within the Paryadin Peninsula North breeding location; Location No. 13 in Fig. 1 and Appendix 1), and the use of FPV <i>Pharos</i> SG to conduct similar photo-survey monitoring at selected colonies along the Sorn and Bern Coast (Location No. 5) and/or Cape North (Location No. 6) and Paryadin Peninsula South (Location No. 15). Protocols will need to be developed, including defining the colonies, providing reference photographs and GPS co-ordinates (both of the colonies and the vessels positions from which the photographs are to be taken – information which is available from the two previous photo-surveys in 2003/04 and 2014/15), and systems set up to curate the photographs and conduct counts. Photos of incubating birds should be taken in November of each year. Repeat photos of the colony in early April can be used to monitor breeding success. Grey-headed Albatrosses are biennial breeders, so photo-counts of these colonies should be conducted annually to account for interannual variation in numbers.	Medium	Annual (preferably), or every 2-5 years	GSGSSI, IAATO, BAS (for use of correction factors)

	Activity	Importance	Timeframe	Lead & partner organisations
1.4	Conduct a census of Grey-headed Albatrosses breeding at South Georgia once every 10 years, using the same methodology and timing as previous surveys, and data from Bird Island to develop correction factors. The level of coverage should as a minimum be based on the same sites surveyed in 2014/15, which represents approximately 70% of the South Georgia population.	High	Every 10 years. Next census 2024/25	GSGSSI, BAS, SGS
1.5	Ensure that all population status and trend data are routinely incorporated into the GSGSSI GIS and database, and submitted to ACAP.	High	Annual	GSGSSI, BAS, JNCC
1.6	Formally submit and present the paper on the 2014/15 survey of Wandering, Black-browed and Grey-headed Albatrosses at South Georgia (Poncet et al. submitted) to the next meeting of ACAP's Population and Conservation Status Working Group, scheduled to take place in September 2017 in New Zealand.	Medium	2017	GSGSSI
Component 2: Long-term monitoring of the foraging ecology and diet of Grey-headed Albatrosses at South Georgia				
2.1	Evaluate at-sea distribution data for South Georgia Grey-headed Albatrosses with respect to gaps and limitations in sample size, and likely overlap with high-risk fisheries, and on this basis identify priority age and life-cycle phases for which further tracking data are required. Systematically update and fill data gaps in a prioritized manner. See Action 4.2 for further details.	High	Ongoing	BAS
2.2	Consider tracking non-breeding Grey-headed Albatrosses from colonies at Cape North, which have experienced amongst the most rapid declines in the archipelago, to investigate if their distribution differs from birds tracked at Bird Island, and thus determine if the non-breeding distribution shows some variation across the archipelago. Satellite-linked GPS devices would need to be used if there was a single visit, whereas use of GLS loggers would require multiple visits in successive years.	Medium	2016-2018	BAS, GSGSSI
2.3	Ensure all tracking data are routinely submitted to the Global Procellariiform Tracking Database so that they can be used in future seabird-fisheries risk assessments.	High	Ongoing	BAS, GSGSSI
2.4	Encourage and support as appropriate the continued implementation of the long-term diet monitoring programme of Grey-headed Albatrosses at Bird Island using existing methods (Phillips 2006).	Medium	Ongoing	BAS, GSGSSI

	Activity	Importance	Timeframe	Lead & partner organisations
2.5	Investigate methods to collect dietary information outside of the chick-rearing period, and from non-breeding birds.	Low	2016-2018	BAS, GSGSSI
Component 3: Monitoring and management of potential land-based threats to Grey-headed Albatrosses breeding at South Georgia.				
3.1	Continue to support and manage responsible tourism activities at South Georgia.	Medium	Ongoing	GSGSSI, IAATO
3.2	Ensure that the South Georgia biosecurity protocols described within the Biosecurity Handbook (2016) are properly implemented, regularly reviewed, and improved where possible.	Medium	Ongoing	GSGSSI
3.3	Implement all biosecurity activities listed under Objective 6 of the Biodiversity Action Plan for South Georgia and the South Sandwich Islands.	Medium	Refer to Biodiversity Action Plan	GSGSSI
3.4	Determine baseline levels of pathogens and disease in Grey-headed Albatrosses at South Georgia, and subject to the findings of this investigation develop and implement a long-term disease surveillance and response programme (see also 3.5). The sampling strategy should ideally include both Bird Island (visited by humans since the 1960s), and a colony that has experienced very little human visitation (e.g. Cape North, Paryadin Peninsula South). ACAP is in the process of developing guidelines for sampling that should be used to inform protocols at South Georgia.	Medium	2016-2018	GSGSSI, BAS (A potential PhD student has submitted a project proposal to investigate this issue at Bird Island)
3.5	Develop and implement a contingency that sets out rapid response remedial actions that should be implemented in the event of a disease outbreak and is based on best practice principles. The Unusual Animal Mortality Response Plan developed by the Australian Antarctic Division to provide guidance on what to do if sick or dead animals are discovered in unusually high numbers or with signs that suggest disease, could serve as the basis for a dedicated plan for South Georgia.	Medium	2016-2018	GSGSSI
3.6	Ensure that the Grey-headed Albatross breeding locations are included in the SGSSI Protected Areas planning process, and that these sites are optimally incorporated into the Protected Area Framework that is developed.	Low	2016-2020	GSGSSI

	Activity	Importance	Timeframe	Lead & partner organisations
Component 4: Understanding marine-based threats to South Georgia Grey-headed Albatrosses in order to implement and promote best practice management approaches within and outside SGSSI waters to address these				
4.1-4.5	See Priority Actions in Table 1.			
4.6	Continue to manage national fisheries to reduce or eliminate seabird bycatch			
4.6.1	Continue to manage all SGSSI fisheries in a risk-averse manner, to the highest international standards, in line with and where appropriate exceeding all CCAMLR requirements, especially in relation to seabird bycatch mitigation.	High	Ongoing (annual review)	GSGSSI
4.6.2	Ensure that the seabird bycatch reporting requirements of ACAP are met (new protocols are currently being developed). Determine the most efficient method of obtaining the relevant data from CCAMLR (where all SGSSI bycatch and observer data are held) for ACAP reporting purposes	High	Ongoing (annual review)	GSGSSI, JNCC
4.6.3	Encourage and support as appropriate the continued implementation by BAS of monitoring programmes at Bird Island recording the incidence of fishing hooks and other marine debris associated with nests of Grey-headed Albatrosses and other seabirds. Items should be fully described and documented in the standard CCAMLR form (available at https://www.ccamlr.org/en/node/75831), and ideally archived or photographed for later analysis of provenance	Medium	Ongoing, annual reporting to CCAMLR	GSGSSI, BAS
4.7	Encourage and support further tracking studies and spatio-temporal overlap analyses of South Georgia Grey-headed Albatrosses and fishing effort that identifies more accurately and at a higher resolution, fleets and vessels that are likely contributing to the bycatch of birds. Priority Action 4.1 is the first step in this process. The actions listed below represent further step-wise improvements in the resolution of data and outputs that will help identify more accurately the fleets and vessels responsible for bycatch of South Georgia Grey-headed Albatrosses and thus help inform more targeted engagement with these fleets.			
4.7.1a	Conduct fine-scale analyses of overlap of Grey-headed Albatrosses with fisheries using new GPS data combined with Automatic Identification System (AIS) data to determine overlap with specific vessels in real time. Given the expense, and because breeding adults show less overlap with fisheries, this initiative should be restricted to deploying satellite-linked GPS devices on adult Grey-headed Albatrosses during the non-breeding season (and, if funds are available, juveniles and older pre-breeders/immatures).	Medium	2016-2019	BAS, BirdLife International, GSGSSI

	Activity	Importance	Timeframe	Lead & partner organisations
4.7.1b	The comparison of GPS and AIS data could be usefully expanded to include analysis of satellite imagery to identify overlap (at an intermediate scale) with IUU vessels that have turned off their AIS. This latter component would add significant costs to the work.	Medium	2016-2019	BAS, BirdLife International, GSGSSI
4.8	In order to strengthen the ACAP RFMO engagement strategy, investigate mechanisms to progress seabird conservation objectives within ICCAT, CCSBT and IOTC through the EU, as appropriate; the EU is a member of all these RFMOs. The UK is also member of IOTC, on behalf of the British Indian Ocean Territory (BIOT).	Medium	Ongoing	GSGSSI, FCO, Defra, JNCC, ACAP
4.9	Seek to work with other ACAP Parties that are EU members, as appropriate, to encourage and support the effective implementation of the European Commission (2012) Action Plan for Reducing Incidental Catches of Seabirds in Fishing Gears, which applies both to fishing vessels fishing in the EU, and EU flagged vessels fishing elsewhere.	Medium	Ongoing	GSGSSI, FCO, Defra, JNCC
4.10	Work with fishing companies that operate in SGSSI and CCAMLR waters to ensure that successful mitigation of seabird bycatch by their vessels in these waters is complemented by the same measures when these vessels operate in other areas where there are risks of seabird bycatch	Medium	Ongoing	GSGSSI, FCO, Defra
4.11	Investigate opportunities to support and help facilitate the seabird bycatch component of the FAO Common Oceans Tuna project being led by BirdLife South Africa.	High	2016-2018	GSGSSI, BirdLife South Africa, BirdLife International
4.12	Establish a simple template to collate observations of oil-contaminated birds, both in colonies and at sea (currently done by BAS at Bird Island). Disseminate these forms to researchers working in colonies, scientific fisheries observers and tourist expedition leaders, and request that they use them to record any relevant observations and return them to GSGSSI for later analysis. Ensure that the collated information is submitted routinely to relevant organisations and authorities, including CCAMLR, ACAP and the Falkland Islands Government.	Low	As required	GSGSSI, CCAMLR

	Activity	Importance	Timeframe	Lead & partner organisations
Component 5: Understanding the potential impacts of climate change on the ecology and population dynamics of South Georgia Grey-headed Albatrosses				
5.1	Once completed, engage with and support BAS to use the results from their research project investigating the influence of climate and fisheries variables on Grey-headed Albatross demography to synthesise information on the potential impacts of climate change, and identify strategies to fill information gaps and develop appropriate monitoring strategies to better understand and track these impacts. The continued collection of demographic and foraging ecology data will be crucial in this respect (see Actions 1.1 and 2.1).	Medium	2016-2020	BAS, GSGSSI
Component 6: Raising awareness of the plight of Grey-headed Albatrosses at South Georgia, and the actions that are required and being undertaken to improve their conservation status				
6.1	Present this Conservation Action Plan for Grey-headed Albatrosses to the next meeting of ACAP's Working Groups and Advisory Committee, scheduled to take place in New Zealand in September 2017. At each of the subsequent meetings, present formal feedback on progress achieved against the objectives and actions outlined in the Plan.	High	2017	GSGSSI, JNCC
6.2	Make this Conservation Action Plan (and updates) available on the GSGSSI (and ACAP) websites, and circulate information about its existence.	High	2016 and ongoing	GSGSSI
6.3	Produce a summary document of the annual reviews of the plan (see Action 8.1) that can be used to disseminate updates and progress to a range of target audiences, including the annual IAATO and SGSSI fisheries science meetings.	High	2017 and ongoing	GSGSSI, JNCC
6.4	Investigate and use opportunities to disseminate information and stories regarding Grey-headed Albatross conservation at South Georgia. Drafting short news pieces for the Latest News section of the ACAP website, and indeed making information available on other relevant websites, provides one such opportunity. Other mechanisms include making available a summarised version of the South Georgia Conservation Action Plans at the South Georgia Post Office, and the South Georgia Museum.	Medium	Ongoing	GSGSSI, JNCC

	Activity	Importance	Timeframe	Lead & partner organisations
6.5	GSGSSI staff with environmental and fisheries responsibilities will be encouraged to attend ACAP meetings to present and promote work being undertaken to conserve South Georgia Grey-headed Albatrosses, to participate in wider discussions regarding albatross and petrel conservation, and remain informed of initiatives and opportunities relevant to the goal of this plan.	Medium	As required	GSGSSI
6.6	Ensure information relevant to albatross conservation is delivered to visitors and South Georgia Museum staff through Government Officer presentations.	Medium	Ongoing	GSGSSI
6.7	Investigate the installation and management of a Webcam at one or more Grey-headed Albatross colonies that can be linked to an interactive website for public awareness and school education	Medium	2016 and ongoing	GSGSSI, BAS, RSPB, FIG (to involve schools in the Falkland Islands)
6.8	Develop a stamp issue to promote albatross conservation with opportunities for links and collaboration with project partners	Medium	2016-2017	GSGSSI
6.9	Update this list of actions with any additional recommendations relating to Grey-headed Albatrosses arising from the SGSSI Outreach Strategy, scheduled for 2017	Low	2017	GSGSSI
6.10	Improve knowledge of the markets associated with fisheries that overlap with Grey-headed Albatrosses from South Georgia, and investigate mechanisms to increase awareness amongst consumers of products from these fisheries of the importance of implementing effective seabird bycatch mitigation strategies.	Medium	2016-2020	GSGSSI, FCO
Component 7: Participating in international conservation and fisheries fora to promote actions that will help support the conservation of Grey-headed Albatrosses from South Georgia				
Component 8: Reviewing the Conservation Action Plan to evaluate accomplishments and update information on priority needs				
8.1	Develop a standardized template for the annual review of the Plan, and conduct succinct annual reviews.	High	Annually	GSGSSI
8.2	Establish a small steering group to discuss and co-ordinate the implementation of the Plan, and identify opportunities for collaboration that would help meet the objectives of the Plan.	High	2016-2017, then ongoing	GSGSSI, and partner organisations

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Appendix 1: Grey-headed Albatross breeding sites at South Georgia (see Fig. 1)

Location No. (Fig. 1)	Location Name
1	Main Island, Willis Island
2	Trinity Island, Willis Island
3	[Hall Island, Willis Island]
4	Bird Island
5	Sorn & Bern Coast
6	Cape North
13	Paryadin Peninsula North
14	[Jomfuene]
15	Paryadin Peninsula South

Note that the **Location Numbers** are consistent with the numbers that have been used in previous counts and publications (e.g. Poncet et al. 2006; in press) of Grey-headed and Black-browed Albatrosses at South Georgia. The missing numbers (7-12) refer to locations at which Black-browed Albatrosses breed, but not Grey-headed Albatrosses