Important Bird Areas in Antarctica

Antarctic Peninsula
South Shetland Islands
South Orkney Islands

FINAL REPORT

Foreign & Commonwealth Office

BirdLife INTERNATIONAL

environmental research & assessment era

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Preface

This project has its origins in an initiative taken more than ten years ago by BirdLife International and the Bird Biology Sub-committee of the Scientific Committee on Antarctic Research (SCAR) to identify sites within the Antarctic region that meet the criteria defined by BirdLife for internationally Important Bird Areas (IBAs). This initiative consulted widely within the Antarctic scientific community and held several workshops, resulting in an initial list of sites meeting the criteria. A number of gaps remained in the analysis, for example because data were not available at the time for several species, and after a hiatus the project was re-initiated by BirdLife with a view to completing the list for the Antarctic.

As an important step towards that goal, this project has assembled the best available data to derive a list of Important Bird Areas for the Antarctic Peninsula, South Shetland Islands and South Orkney Islands region. In order to ensure that the list of IBAs for this region was as robust and complete as possible, the project has updated data by researching the latest published literature and through consultations with scientific experts. Species for which data were available with regional coverage were Emperor (*Aptenodytes* forsteri), Adélie (*Pygoscelis adeliae*), Chinstrap (*Pygoscelis antarctica*), Gentoo (*Pygoscelis papua*), and Macaroni (*Eudyptes chrysolophus*) penguins, and Southern Giant Petrel (*Macronectes giganteus*), Snow Petrel (*Pagodroma nivea*) and Imperial (Antarctic) Shag (*Phalacrocorax* [atriceps] *bransfieldensis*). Data on other species were more patchy, although where available were included for the species Cape Petrel (*Daption capense*), Wilson's Storm-petrel (*Oceanites oceanicus*), Black-bellied Storm-petrel (*Fregetta tropica*), Antarctic Prion (*Pachyptila desolata*), Greater Sheathbill (*Chionis alba*), Brown Skua (*Catharacta* [antarctica] *lonnbergi*), South Polar Skua (*Catharacta maccormicki*), Southern Fulmar (*Fulmarus glacialoides*), Light-mantled Sooty Albatross (*Phoebetria palpebrata*), Kelp Gull (*Larus dominicanus*) and Antarctic Tern (*Sterna vittata*). Antarctic Petrel (*Thalassoica Antarctica*) are not known to breed within the region covered by this report.

It was considered necessary to develop a clear and repeatable methodology for IBA identification in order to ensure that sites were not omitted or included without an explicit justification. Considerable effort was therefore invested in establishing the site identification methodology, and the rationale for the approach taken. Our goal has been to develop a method that defines the criteria used explicitly, allowing the exercise to be repeated in the future when new data become available. This is particularly important in an environment that is changing rapidly in response to regional and global warming, with its implications and biological consequences. Alternative methods are possible: for example, larger units of spatial aggregation could be defined and these could be applied to the data if these were considered preferable.

In the course of this project, two separate reports were prepared to address methodological aspects relating to site selection. These reports are included in this Final Report under their respective titles of 'IBA Identification Analysis' and 'Defining Model Bird Foraging Areas'. The Final Report then proceeds to define the adopted 'IBA Selection Criteria' that were then used to analyse the data. The results of the analysis are then presented in tabular form, which identifies 101 Important Bird Areas throughout the region. Brief accounts have been prepared to describe the identified sites, detailing the information currently available on species and numbers breeding, as well as the broad characteristics of the habitat at these locations. Inevitably, some accounts are more detailed than others as a result of data availability, which is strongly influenced by their accessibility and the extent to which scientific research has been conducted at the sites.

In the course of this project a derived list of IBAs was distributed to a wide range of individuals in the Antarctic ornithological research community who were offered the opportunity to comment. Updates were made to the data as a result of comments received, and further refinements were made to the analysis. The circulation of the results was facilitated in particular by Dr Richard Phillips (British Antarctic Survey), the Convenor for the Working Group on Breeding Sites for the Agreement on Conservation of Antarctic Petrels. The list of individuals to whom the draft list was distributed is included in Appendix A at the end of this report.

Acknowledgements

ERA gratefully acknowledges the input, data and advice received from numerous individuals and organisations in the course of preparing this report. In particular, ERA wishes to acknowledge funding provided by BirdLife International and the Polar Regions Unit of the Foreign & Commonwealth Office (UK) to complete the work. At BirdLife, John Croxall, Lincoln Fishpool and Ben Lascelles have played a key role in the project, while at the Polar Regions Unit Jane Rumble and Rob Bowman have been most supportive.

ERA wishes to acknowledge the excellent work put in by the SCAR Bird Biology Sub-committee that laid the foundation for the original results on which this project has further built, in particular John Cooper, Jan van Franeker, Yves le Maho and Eric Woehler, and the participants in the workshops organised by SCAR on the topic. SCAR is also thanked for kind permission to use the Antarctic Digital Database as the map base for the site maps included within this report.

The Secretariat of the Agreement on Conservation of Petrels was most helpful in reviewing results compiled for petrels, in particular Warren Papworth and Wiesława Misiak.

Richard Phillips and Norman Ratcliffe from the British Antarctic Survey provided valuable feedback on the methodological aspects and critical comments on the data and results. Other commentators and contributors included: Nestor Coria, Ruben Fijn, Bill Fraser, Mike Goebel, Heather Lynch, Ron Naveen and Donna Patterson-Fraser.

Special thanks to Sally Poncet for allowing continued access to data she and Jérôme Poncet collected on Imperial (Antarctic) Shags (*Phalacrocorax* [atriceps] *bransfieldensis*) and Southern Fulmars (*Fulmarus glacialoides*), which were also used in the FCO Wildlife Awareness Manual for the region.

Finally, it should be remembered that numerous researchers from many countries have spent countless hours over many years tirelessly documenting and cataloguing the wildlife records on which this assessment is based: without their efforts this analysis and report would be impossible, and we all owe a great debt of gratitude for their dedication and to the programs that supported their work.

Colin Harris
Cambridge
June 2011

Identification of Important Bird Areas in the Antarctic

Analysis to inform IBA project for BirdLife International and the United Kingdom Foreign & Commonwealth Office

Antarctic Shag, South Orkney Islands (C.Harris)

Environmental Research & Assessment

Foreign & Commonwealth Office

BirdLife INTERNATIONAL

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Preface

ERA has assessed the initial list of Important Bird Areas compiled by BirdLife International and the Scientific Committee on Antarctic Research. It was noted that some bird colonies that appear to satisfy IBA selection criteria were not included in the existing list of IBA sites. Moreover, it also appeared that some sites on the list no longer meet the IBA selection criteria.

ERA has noted that there are no definitive rules to determine the spatial extent of each IBA. As such, the existing list contains sites of variable size, some of which are single colonies while others are areas that group a number of colonies together into one IBA. The exact criteria by which colonies are grouped are not explicit, raising a specific methodological difficulty known as the Modifiable Areal Unit Problem (MAUP).

MAUP is a recognised difficulty in spatial analysis, and arises when "the areal units … used in … geographical studies are arbitrary, modifiable, and subject to the whims and fancies of whoever is doing, or did, the aggregating." (Openshaw, 1984). That is, results can be skewed by the particular choice of spatial unit used.

The Modifiable Areal Unit Problem (MAUP) in the context of Antarctic IBAs is pertinent because the choice of IBA boundaries is being made on the basis of aggregations that are not based on an explicit methodology that takes into account the spatial component. This affects the number, size and distribution of IBAs selected, and also which sites become included within the spatial partitions (thus, the 'areal units' are 'modifiable'). Moreover, this method of selection / aggregation is not objective and repeatable such that the results can be verified independently.

The method used to select the IBAs is of fundamental concern because it forms the basis for identification of which areas are considered important, and if the method is not robust then there is a danger that sites identified, and their size, can be criticised as being arbitrary. For example, it is entirely possible to define the entire Antarctic Peninsula as an IBA, or King George Island, or a particular colony on King George Island, depending on which level of spatial aggregation is selected. From the point of view of long-term management, and considering in time some of these sites might be chosen as protected areas, there is a need to ensure the final list of IBAs is defensible and stands up to scrutiny.

With this in mind, we have attempted to undertake an objective analysis of the most recent bird colony data on the Peninsula in order to supplement the existing list of IBAs and ensure the final IBA network is as comprehensive and robust as possible.

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Important Bird Areas in the Antarctic

Introduction

Experts from SCAR and BirdLife International identified a list of suggested Antarctic Important Bird Areas (IBAs) in 2002 based on knowledge of bird concentrations across the Antarctic and following a well-established set of IBA designation criteria (Table 1). Whilst many important bird breeding sites are included in this list, new species data has since become available and a preliminary analysis showed this has affected the distribution of sites qualifying for IBA status in the Peninsula region. In addition, the IUCN Red List category for Southern Giant Petrels (*Macronectes giganteus*) has recently been downgraded from Vulnerable to Least Concern, removing this species from the list of birds to which IBA criteria A1 (threatened and near-threatened bird species) applies. As a result, a number of sites based on the A1 criterion in the SCAR / BirdLife list no longer qualify for IBA status.

IBA site boundaries are usually determined based on environmental, administrative, and practical factors (Fishpool & Evans, 2001). As such, there are no definitive rules to determine the spatial extent of each IBA site, and therefore no clear guidelines on how to aggregate breeding sites to determine whether an area meets the IBA selection criteria. The spatial unit used to define an IBA site can theoretically be chosen at any size and clearly the larger the area included, the more likely the population thresholds for IBA site designation will be reached.

High-quality species data are available for seven of the approximately 20 bird species breeding in the Antarctic Peninsula region. Location centroids and population numbers are available for these seven species in a GIS database. For the remaining 13 species, locations and censuses are approximate, aggregated and / or unavailable in GIS format.

In Part I of this report, we propose a method for selecting IBAs based on the high-quality species data available for the Antarctic Peninsula region. Spatial units of varying size, ranging from point-level (individual colony centroids) to 1 km, 2 km, 5 km and 10 km grid cells, are overlaid on colony centroids for each of the seven species for which GIS data are available to ERA. Data within each spatial unit are analysed to determine whether one or more of the IBA criteria are satisfied. IBAs derived from the grid-based approach are compared against the original IBA list to assess the effect of using the different IBA-selection methods. All IBAs derived from census data representing individual breeding sites are included in a list of suggested 'Confirmed IBAs'[1]. All other grid-derived IBAs are included in a list of suggested 'Potential IBAs'.

Part II of this report identifies additional IBA sites based on a review of published sources covering 20 bird species breeding in the Antarctic Peninsula region. Individual breeding sites at which species numbers are known or thought to exceed A1, A4i or A4ii population thresholds are suggested as Confirmed IBAs. Sites at which census data are available but it is unclear whether or not population thresholds for IBA criteria A1, A4i or A4ii are exceeded at individual breeding sites are suggested as 'Potential IBAs'.

In addition, sites satisfying solely criteria A4iii for seabirds are suggested as Potential IBAs.

Part III synthesises the results of Part I and II in an attempt to derive a draft comprehensive list of Confirmed and Potential IBA sites. The Confirmed IBA list includes sites identified by BirdLife / SCAR, supplemented by results from the present report, and this could be used as the core basis of the Antarctic Peninsula IBA network. It is suggested that sites in the Potential IBA list will be put forward for consultation with experts to establish which of these are justified for inclusion on the Confirmed IBA list.

[1] The term 'Confirmed IBA' is used to indicate a site found to satisfy the IBA criteria in this report. Use of this term does not necessarily indicate the site will be accepted for inclusion in the final Antarctic IBA network, which remains a decision for BirdLife and others as appropriate.

Definitions of IBA selection criteria

The global (Level A) IBA criteria are used to identify IBAs in this report. There criteria were standardised for global application following extensive consultation amongst experts in the BirdLife International Partnership and related fields (Fishpool & Evans, 2001). It is intended that supplementary criteria based on regional sites of ornithological importance may be nested within the global IBA criteria.

The following definitions of the IBA selection criteria are extracted from Fishpool & Evans (2001):

A1: Globally threatened species.
"The site regularly holds significant numbers of a globally threatened species or other species of global concern." This includes species classified on the IUCN red list as 'Critical', 'Endangered' and 'Vulnerable'

A2: Restricted range species.
"The site is known or thought to hold a significant component of a group of species whose breeding distributions define an Endemic Bird Area (EBA) or a Secondary Area."

A3: Biome-restricted assemblages.
"The site is known or thought to hold a significant component of the group of species whose distributions are largely or wholly confined to one biome."

A4: Globally important congregations.

A4i: "The site is known or thought to hold, on a regular basis, 1% or more of a biogeographic population of a congregatory waterbird species."

A4ii: "The site is known or thought to hold, on a regular basis, 1% or more of the global population of a congregatory seabird or terrestrial species."

A4iii: "The site is known or thought to hold, on a regular basis, at least 20,000 waterbirds, or at least 10,000 pairs of seabirds, of one or more species."

A4iv: "The site is known or thought to be a bottleneck site where at least 20,000 pelicans and / or storks and / or raptors and/ or cranes pass regularly during spring and / or autumn migration."

Table 1: Antarctic Peninsula breeding birds: population thresholds required for IBA site designation

Name	Latin Name	Red List Status	IBA Criteria	Pop Threshold (pairs)[2]
Emperor Penguin	*Aptenodytes forsteri*	LC	A4ii	1350
Adélie Penguin	*Pygoscelis adeliae*	LC	A4ii	20,000
Chinstrap Penguin	*Pygoscelis antarctica*	LC	A4ii	40,000
Gentoo Penguin	*Pygoscelis papua*	NT	A1	3000
Macaroni Penguin	*Eudyptes chrysolophus*	VU	A1	1500
Southern Giant Petrel	*Macronectes giganteus*	LC	A4ii	485
Antarctic Petrel	*Thalassoica antarctica*	LC	A4ii	150,000
Cape Petrel	*Daption capense*	LC	A4ii	6700
Snow Petrel	*Pagodroma nivea*	LC	A4ii	13,000
Wilson's Storm Petrel	*Oceanites oceanicus*	LC	A4ii	70,000
Black-bellied Storm Petrel	*Fregetta tropica*	LC	A4ii	1600
Antarctic Prion	*Pachyptila desolata*	LC	A4ii	166,000
Greater Sheathbill	*Chionis alba*	LC	A4ii	100
Brown Skua	*Catharacta* [antarctica] *lonnbergi*	LC	A4ii	75
South Polar Skua	*Catharacta maccormicki*	LC	A4ii	50
Southern Fulmar	*Fulmarus glacialoides*	LC	A4ii	10,000
Light-mantled Sooty Albatross	*Phoebetria palpebrata*	NT	A1	10
Imperial (Antarctic) Shag	*Phalacrocorax* [atriceps] *bransfieldensis*	LC	A4i	133
Kelp Gull	*Larus dominicanus*	LC	A4i	150
Antarctic Tern	*Sterna vittata*	LC	A4i	336
Seabirds (including all species of penguin, petrel, fulmar, sheathbill and skua)			A4iii	10,000
Waterbirds (including all species of cormorant, gull and tern)			A4iii	10,000

[2] Population thresholds for each species vary according to which IBA selection criteria is being applied. Table 1 shows the minimum population threshold needed to satisfy one of the IBA criteria for each species, excluding the thresholds required to satisfy criterion A4iii. If criterion A4iii were considered, the threshold for species of Chinstrap and Adélie penguin, Snow petrel, Wilson's storm petrel, Antarctic petrel and Antarctic prion would fall to 10,000 pairs.

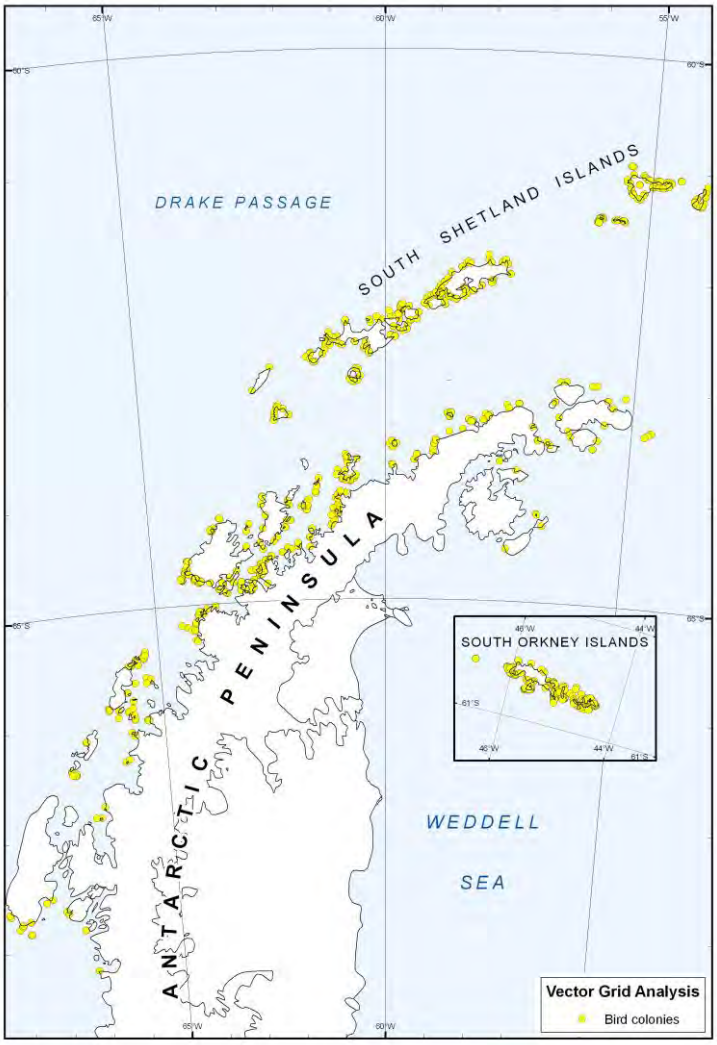
PART I: Grid-analysis to derive Antarctic IBAs

Objectives

The objectives of Part I are to:

- Assess the effect of using different spatial units to identify sites across the Antarctic Peninsula region satisfying the Important Bird Area site-designation criteria for the seven species where GIS data are available to ERA;
- To use the results to update the suggested IBA list compiled by SCAR and BirdLife International in 2002.

Map A shows bird breeding colonies across the Antarctic Peninsula region for which ERA has data and therefore over which the analysis in Part I was applied.



Map A: Distribution of bird breeding sites across the Antarctic Peninsula region for species included in Part I of this report.

Methods

Bird census data in a GIS-compatible format are available for Emperor (*Aptenodytes forsteri*), Adélie (*Pygoscelis adeliae*), Chinstrap (*Pygoscelis antarctica*), Gentoo (*Pygoscelis papua*) and Macaroni (*Eudyptes chrysolophus*) penguins, Antarctic Shag (*Phalacrocorax* [atriceps] *bransfieldensis*) and Southern Giant Petrel (*Macronectes giganteus*) in the Antarctic Peninsula region. These data are compiled as counts aggregated into 'colonies', the location of which are defined as point entities in ERA's spatial database. The species counts are based on censuses published prior to 2007.

A grid overlay method was developed to analyse concentrations of birds across the Antarctic Peninsula region. A pre-defined regular grid was overlaid onto colony centroids for each bird species, and the numbers of breeding pairs located within each grid cell was calculated using the point-in-polygon tool in ArcGIS. The results were used to identify grid cells within which the number of nesting birds exceeded the IBA criteria population threshold. The analysis was repeated using four different grid cell sizes to test the sensitivity of the results to cell-size variations (1 x 1 km, 2 x 2 km, 5 x 5 km and 10 x 10 km).

The specific method used to identify IBAs was as follows:

1. A vector grid with a regular cell size (1km x 1km) was created over the Antarctic Peninsula;
2. This grid was overlaid on point data showing the approximate location of bird colony centroids for:
   i. each bird species (Adélie, Chinstrap, Emperor, Gentoo and Macaroni penguins, Southern Giant Petrel, Antarctic Shag);
   ii. all seabirds (Adélie, Chinstrap, Emperor, Gentoo and Macaroni penguins, and Southern Giant Petrel).

   Note: Waterbirds were not analysed as a separate category because only one Antarctic species for which data are available is classified as a waterbird (i.e. Imperial (or Antarctic) Shag (*Phalacrocorax* [atriceps] *bransfieldensis*), and all IBA sites triggered solely by this species were identified in part (2i) above;
3. A point in polygon test was conducted to identify which points were situated within each grid cell;
4. The total number of breeding pairs for individual bird species and for all seabirds were calculated for each grid cell;
5. The results of part (4) were analysed against IBA bird population thresholds (see Table 1) to identify those grid cells containing populations exceeding the criteria;
6. The total number of IBAs derived from part (5) were recorded for each bird species and for all seabirds (see *Results*). In addition, tables were compiled showing the geographic location, bird population, previous IBA site number (if applicable) and grid cell size for each IBA. This information is separated into IBA sites already on the SCAR / BirdLife IBA list and newly identified sites (see Annexes A, B and D);
7. Steps 1-6 were repeated for different grid sizes (2k x 2km, 5km x 5km, 10km x 10km).

In addition, the point file showing approximate colony centroids and individual species counts was analysed to assess where bird populations at each point satisfy one or more of the IBA site designation criteria.

Results

Table 2 illustrates the effect of increasing grid cell size on the number of individual bird colonies that are contained within a grid cell. For each bird species, the table shows the number of breeding colonies (points) present within each grid cell. As the number of colonies per spatial unit increases, the population threshold for IBA site designation is more likely to be met.

Table 2: Maximum number of points meeting IBA site designation criteria per bird species per grid:

	Maximum number of bird colonies (points) in one grid cell				
	Point	1km Grid	2km Grid	5km Grid	10km Grid
Adélie Penguin	1	2	4	8	8
Chinstrap Penguin	1	4	8	10	23
Emperor Penguin	1	1	1	1	1
Gentoo Penguin	1	2	4	4	4
Macaroni Penguin	1	1	1	2	3
Antarctic Shag	1	2	3	3	4
Southern Giant Petrel	1	6	10	16	29
Seabirds	1	7	12	20	35

Table 3 displays the key results of the analysis, showing the number of sites satisfying the IBA site designation criteria for each grid cell size. More detailed information on the list of derived IBAs (inc. location, species present, and whether or not the site is already included in the SCAR / BirdLife IBA site list) are presented in Annexes A to C.

Table 3: Number of IBA sites identified per bird species per grid:

	Number of sites satisfying the IBA site designation criteria (Total number of grid cells containing colonies of each species)				
	Point	1km Grid	2km Grid	5km Grid	10km Grid
Adélie Penguin	12 (109)	12 (100)	11 (87)	12 (86)	11 (76)
Chinstrap Penguin	11 (402)	11 (357)	11 (301)	14 (223)	15 (151)
Emperor Penguin	1 (2)	1 (2)	1 (2)	1 (2)	1 (2)
Gentoo Penguin	9 (87)	8 (82)	8 (78)	8 (70)	9 (57)
Macaroni Penguin	2 (13)	2 (13)	2 (13)	3 (12)	3 (11)
Antarctic Shag	23 (198)	24 (190)	24 (182)	26 (168)	33 (136)
Southern Giant Petrel	3 (128)	4 (92)	4 (77)	4 (61)	7 (44)
Seabirds	61 (741)	68 (558)	76 (461)	73 (337)	67 (225)

For most species of penguin, with the exception of the Chinstrap, the number of IBA sites triggered is similar irrespective of the cell size used to aggregate data. For Chinstrap Penguins, more IBA sites are identified

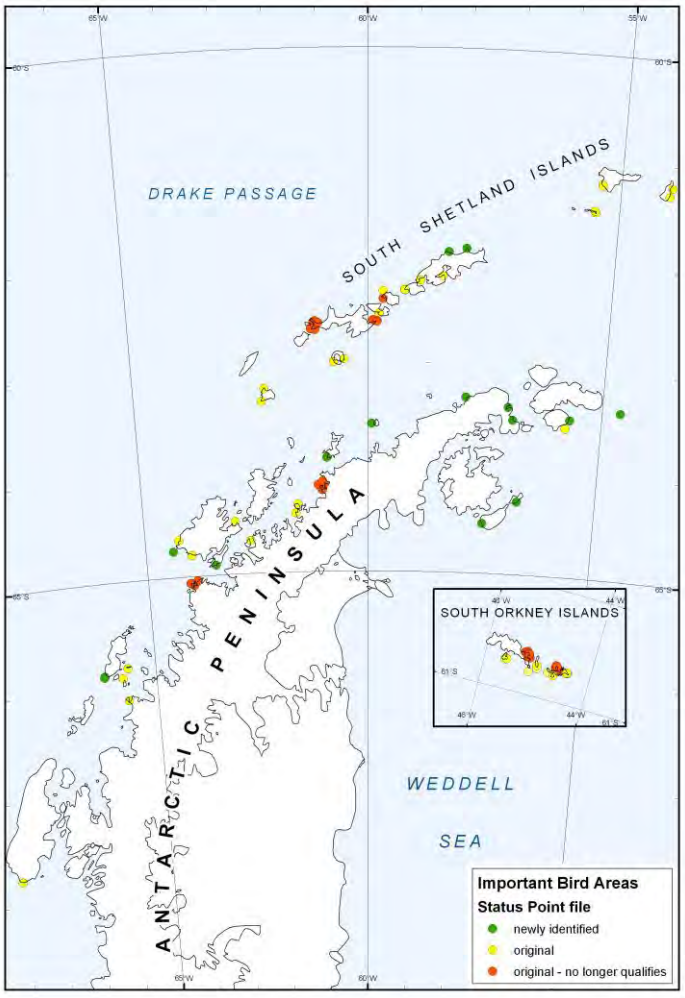
when data are aggregated into grid cells of 5 or 10 km. Similarly, the number of IBAs identified increases with grid cell size for the two other bird species (Antarctic Shag and Southern Giant Petrel). For seabirds, the number of IBAs identified increases slightly as grid cell size is increased.

Analysis of IBAs for Individual Bird Species

For individual points

A total of 43 IBAs were identified on analysis of the point data. In six of these IBAs, more than one bird species was present. The majority of the IBAs were triggered by populations of Antarctic Shags exceeding the A4i criteria population threshold (>133 pairs). In total, 23 IBAs triggered by Antarctic Shags were identified. Three sites were triggered by the presence of Southern Giant Petrels satisfying the A4ii criteria (> 485 pairs present). A further 12 IBAs were triggered by Adélie Penguins, 11 by Chinstrap Penguins, eight by Gentoo Penguins, two by Macaroni Penguins and one by Emperor Penguins, meeting either the A1 or A4ii criterion.

Map B shows how these sites compare to the SCAR / BirdLife IBA site list. In total, 28 of the original IBA sites were in the same location as sites derived using the point data, whilst eight sites no longer meet the IBA criteria. Significantly, 15 new IBA sites were identified.

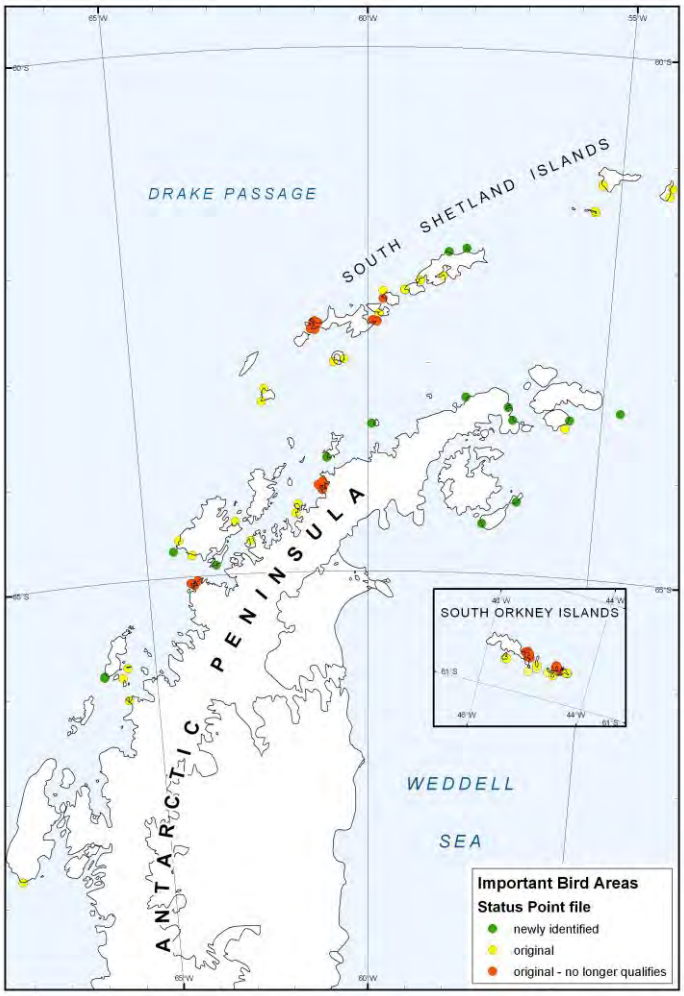


Map B: Point analysis

For a grid cell size of 1km^2

A total of 44 IBAs were identified using a grid cell size of 1 x 1 km. In six of these IBAs more than one bird species was present. The majority of the IBAs were triggered by populations of Antarctic Shags exceeding the A4i criteria population threshold (133 pairs). In total, 24 IBAs triggered by Antarctic Shags emerge using the 1km grid. Four locations were triggered by the presence of Southern Giant Petrels satisfying the A4ii criteria (485 pairs). Regarding penguin populations, 12 IBAs were triggered by Adélie Penguins, 11 by Chinstrap Penguins, eight by Gentoo Penguins two by Macaroni Penguins and one by Emperor Penguins, meeting either the A1 or A4ii criterion.

Map C shows how these sites compare to the original IBA site list. In total 28 of the original IBA sites matched the sites derived using 1 km^2 grid cells, eight sites no longer satisfied the IBA criteria, and 16 new sites were identified.

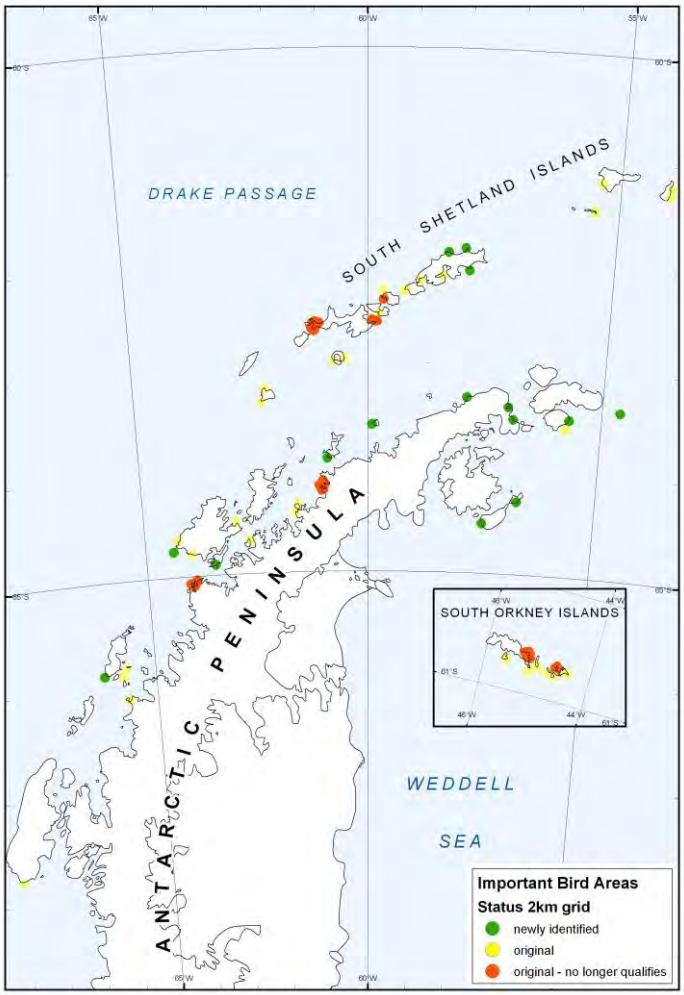


Map C: 1 km grid analysis

For a grid cell size of 2km^2

Increasing the grid cell size to 2 x 2 km resulted in no substantial differences. Again, a total of 44 IBAs were identified with seven locations containing more than one bird species. The only difference observed was in sites triggered by Adélie Penguins, which diminished by one, down to 11 sites. Using grid cells of 1km^2, two IBA sites were identified on the northern and southern part of Ferrier Peninsula, Laurie Island. These two sites were merged into one site, triggered by Adélie Penguins, using the grid with 2 km^2 cells.

Map D shows how the grid-derived IBA sites compare to the SCAR / BirdLife IBA site list. In total 28 of the original IBA sites were identified as IBAs using grid cells of 2 km^2, eight were not, and 16 new sites emerged.



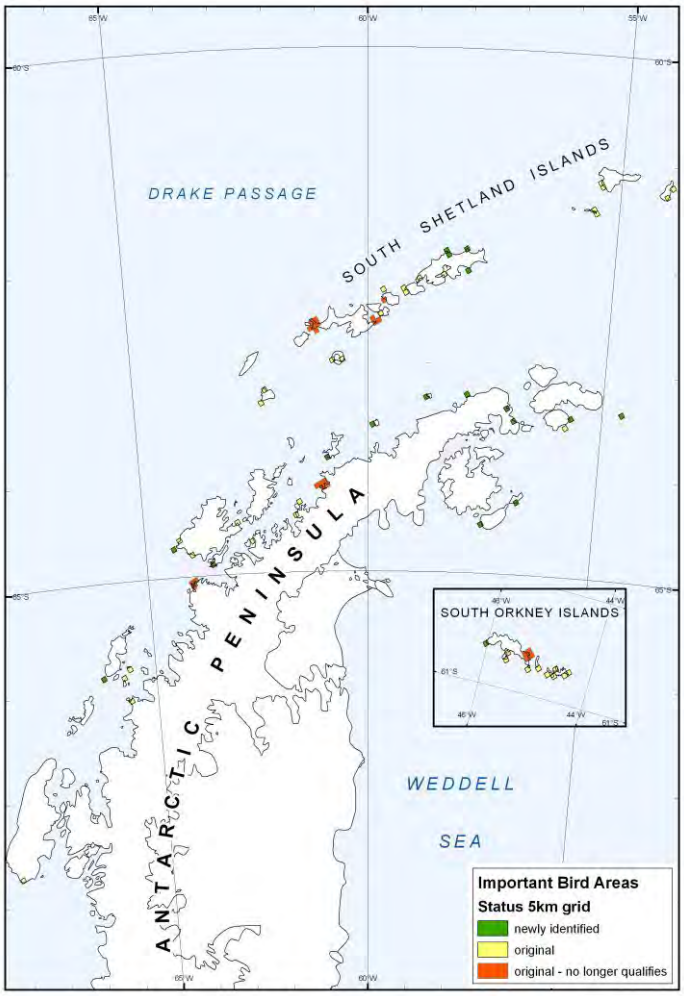
Map D: 2 km grid analysis

For a grid cell size of 5km^2

With a grid cell of 5 x 5 km the total number of IBAs identified increased to 48. In nine of these locations, more than one bird species was present. Populations of Antarctic Shag exceeding the A4i criteria were the trigger for 26 of the IBA sites. This represents an increase of two locations triggered by Antarctic Shags, compared to the 1km and 2km grids. For sites triggered by populations of Southern Giant Petrel, the number of locations remained at four. For the penguins, slight changes could be observed for sites triggered by populations of Chinstrap and Macaroni penguins.

The Adélie Penguins trigger IBA sites at 12 locations, as with the 1km^2 grid cells. The number of sites triggered by Chinstrap penguins increased to 14 when the 5 km x 5 km grid overlay was used, representing an increase of three sites compared to the 1km and 2km grid cells. For the Emperor and Gentoo penguins the total numbers of sites were the same as when the 1km^2 and 2km^2 grid cells were used. The number of sites triggered by populations of Macaroni Penguins increased by one compared to the 1km and 2km grid.

Map E shows how these sites compare to the original IBA site list. In total 29 of the SCAR / BirdLife IBA sites were derived using 5 km^2 grid cells, seven sites did not qualify for IBA status, and 19 new sites were identified.

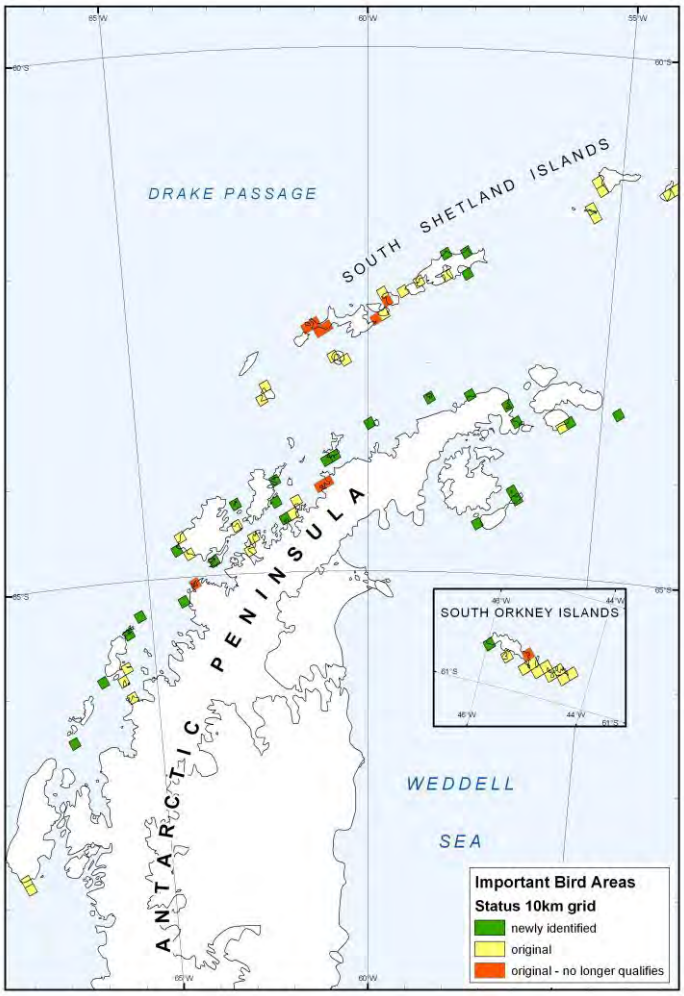


Map E: 5 km grid analysis

For a grid cell size of 10km^2

A total of 54 IBAs were identified using a grid cell size of 10 x 10 km. In 15 of these IBAs, more than one bird species was present. The sites triggered by Antarctic Shags increased from 26 to 33 sites. The sites triggered by Southern Giant Petrels almost doubled from four to seven locations. For sites derived by Chinstrap Penguins, an increase of one IBA is observed on comparison to the 5km grid, and by four compared to the 1km and 2km grids. The number of sites triggered by Emperor Penguins is stable throughout the analysis with only one site emerging, triggered by populations exceeding the A4ii threshold (1350 pairs). The number of sites triggered by Gentoo Penguins rises from eight to nine compared to grids with smaller cell sizes. For the Macaroni Penguins, no change can be observed between the 5 and 10 km grid squares, with the same three sites emerging.

Map F shows how these sites compare to the original IBA site list. In total 29 of the original IBA sites were identified using the 10 km grid square, seven sites on the original list were not identified, and 25 new sites emerged.

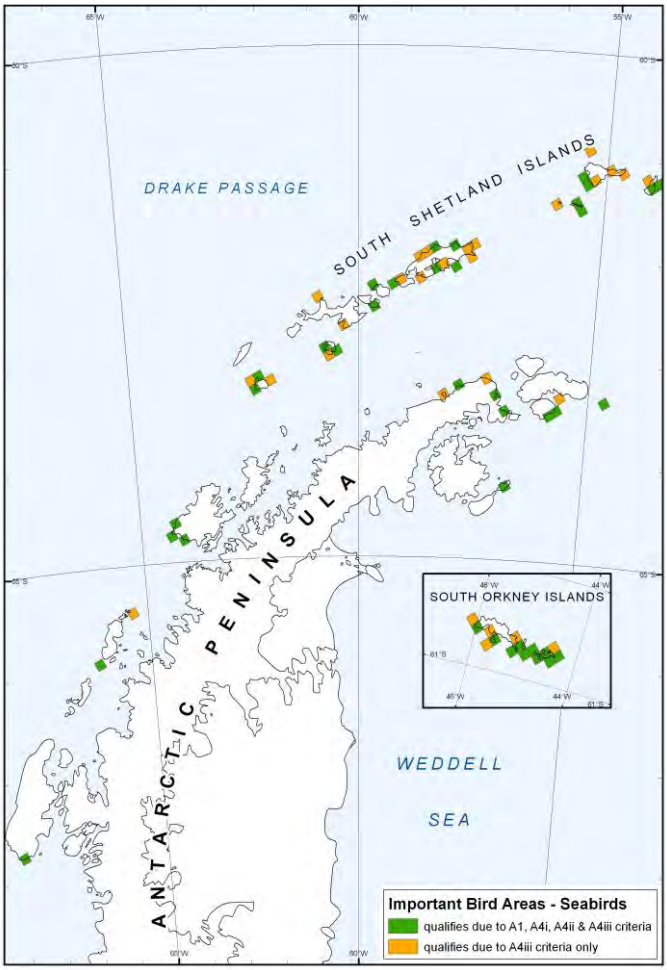


Map F: 10 km grid analysis

Analysis of IBAs derived from concentrations of seabirds

The analysis of seabirds meeting the IBA A4iii criterion population threshold (>10,000 pairs) resulted in 56 IBAs being identified at the highest level of data aggregation (i.e. aggregating over 10 km^2 grid cells). Thirty-eight of these IBAs correspond with the ones found in the analysis of individual bird species, whilst 28 sites qualify solely due to the A4iii criterion. A full list of IBA sites triggered by seabirds meeting the A4iii criterion at different grid cell sizes is provided in Annex B.

Map G shows the distribution of the 56 sites triggered by the A4iii criteria for seabirds (>10,000 pairs), derived using 10km^2 grid cells. A distinction is made between sites triggered solely by the A4iii criterion, and sites triggered by the A1, A4I or A4ii criteria in addition to A4iii.



Map G: Sites qualifying due to the A4iii criteria for seabirds

PART II: IBAs derived from a review of bird species census data

Objectives

The aims of Part II are to analyse published datasets for all bird species breeding in the Antarctic Peninsula region to identify:

1. Breeding sites known or thought to meet the IBA criteria based on census data for the 13 species not analysed in Part I of this report;
2. Updates to bird species census data published since 2007 resulting in changes to the IBAs identified in Part I;
3. Breeding sites at which the IBA criteria may be satisfied but census data are in a form that makes it difficult to be sure this is the case.

Methods

Breeding localities and census data for 20 bird species breeding in the Antarctic Peninsula region were retrieved by conducting a thorough review of published literature. Updates on the census data for the seven species included in Part I, and census data for the other 13 species considered in this report, were compiled and compared against the IBA selection criteria species population thresholds. Individual breeding sites for which census data are available and bird populations exceed thresholds for IBA selection criteria A1, A4i or A4ii were designated as suggested Confirmed IBAs. Sites at which it is unclear whether or not IBA thresholds are exceeded but it is possible that they are, or for which bird populations exceed the IBA selection criteria thresholds only when data are aggregated between breeding sites, were denoted Potential IBAs. This includes:

- census study areas containing several breeding sites, for which the species count across the whole census area exceeds IBA selection criteria thresholds, but it is not known whether individual breeding sites within the area exceed IBA selection criteria thresholds;
- breeding populations exceeding IBA thresholds only if the maximum count of a min / max estimate of the bird population is used;
- sites where census data between two or more species are combined and together exceed the IBA selection criteria threshold for at least one of the species, but individual species data are unavailable.

In addition, sites qualifying solely due to the A4iii criterion were included in the list of Potential IBAs.

Results

A substantial number of confirmed and potential IBA sites emerged from the literature review. The table in **Annex D** shows adjustments to IBA sites resulting from census updates for all species considered in Part I of this report. Significant results were:

- A decrease in breeding numbers of Adélie Penguins (*Pygoscelis adeliae*) at Tay Head (Antarctic Peninsula) resulted in this site no longer meeting the IBA criterion. This site was removed from the list of Confirmed IBAs;
- New data on Adélie Penguins breeding at D'Urville Monument (Antarctic Peninsula) and at Marshall Bay (Antarctic Peninsula) resulted in these two sites exceeding the threshold for the A4iii criterion, but falling below the A4ii criterion threshold. Therefore these sites were added to the list of Potential IBAs;
- New data on Antarctic Shags (*Phalacrocorax atriceps*) resulted in Stonington Island (Antarctic Peninsula) satisfying IBA criterion A4i. Stonington Island was added to the list of Confirmed IBAs.

Annex E indicates sites at which bird breeding populations exceed the IBA thresholds for each of 12 additional species breeding across the Antarctic Peninsula, South Shetland Islands and South Orkney Islands. Key results were:

- One new Confirmed IBA site was identified in the northeast of Half Moon Island;

- 23 Potential IBAs were identified. Of these, 10 sites had already been identified as Confirmed IBAs in the grid analysis of Part I, so that at these locations the analysis of Part II identified new probable trigger species rather than new Potential IBAs. Two of the 23 Potential IBA sites – Fildes Peninsula and Elephant Island – each have smaller grid-derived Confirmed and Potential IBAs contained within them. Some of these sites would be merged if IBA boundaries were delineated around the whole of Fildes Peninsula and the whole of Elephant Island. Finally, 11 of the 23 Potential IBA sites were not included in the list of sites on the gird-derived Confirmed IBA list. These 11 sites were: Inaccessible Islands, Byers Peninsula, Cierva Point, Sandefjord Bay, Argentine Islands, Astrolabe Island, Pourquoi Pas Island, NW coast of Anvers Island, Davis Island, Otter Rock (off Trinity Peninsula), and Admiralty Bay (excluding the western shoreline, which is a designated protected area). However, Astrolabe Island and Davis Island were also identified as Potential IBAs in Part I.

PART III: Confirmed and Potential IBAs

Objectives

The aim of this section is to compile lists of suggested Confirmed and Potential IBAs based on sites identified in Part I and Part II of this report.

Methods

IBA sites identified using the lowest level of data aggregation (i.e. point level) in Part I were added to a list of Confirmed IBAs (Table 6). Where two points are close together and both qualify for IBA status, they are listed as separate sites in Table 6. This differs from the way in which points representing IBA sites are displayed in Part I, where sites close together have been combined within an IBA in Annex A.

Where a site was previously included in the BirdLife / SCAR IBA list, the original IBA number is listed in Table 6. The trigger species and IBA criteria satisfied at each site is also shown alongside the data source[3].

Sites derived only at higher levels of aggregation (i.e. using 1 km^2, 2 km^2, 5 km^2 or 10 km^2 grid cells) in Part I were added to the Potential IBA list.

Potential and Confirmed IBAs derived in Part II were added to the appropriate IBA list. For any site in the Potential IBA list, a note is provided explaining why experts should be consulted prior to including the site in the Antarctic IBA network.

In addition, sites qualifying solely due to the A4iii criterion for seabirds in either Part I or Part II are added to the Potential IBA list. This follows BirdLife Policy that 'where quantitative data are good enough to permit the application of A4i or A4ii, the use of [criterion A4iii] is discouraged (http://www.birdlife.org/datazone/sites/global_criteria.html; accessed 22/04/2010).

Results

Confirmed IBAs

The table below shows the list of Confirmed IBAs emerging from the analysis conducted in Part I and II of this report. Accordingly, this list contains only those locations at which census data for individual breeding sites are available and bird populations at these sites satisfy the A1, A4i or A4ii IBA criteria.

In total, the list contains 42 sites: 30 of which are on the Antarctic Peninsula or offshore islands, eight in the South Shetland Islands, and four in the South Orkney Islands.

[3] Incomplete due to time constrains; data sources for individual censuses are available from ERA on request.

Table 6: Confirmed IBAs

Antarctic Peninsula

Location	Trigger species (breeding pairs)	IBA criteria	Data source	Original IBA number	Notes
Avian Island	Adélie Penguin (35,600), Antarctic Shag (670), South Polar Skua (880), Southern Giant Petrel (197)	A4i, A4ii, A4iii	South Polar Skua: count in 2004; W. Fraser pers comm in Ritz et al. (2005). Southern Giant Petrel: counted in 1979 on Avian Island, Patterson et al. (2008). Adélie Penguins: counted in 1978, Woehler (1993).	Part of Ant04	
Dion Islands	Adélie Penguin (700), Antarctic Shag (500)	A4i	Antarctic Shag: 1980s, S & J Poncet pers comm. Adélie Penguins: counted in 1983, Woehler (1993).	Part of Ant04	
Ginger Island	Adélie Penguin (3000), Antarctic Shag (275)	A4i	Antarctic Shag: 1980s, S & J Poncet pers comm.	Part of Ant04	
Dodman Island North	Antarctic Shag (183)	A4i	Antarctic Shag: counted 1984, S & J Poncet unpub.	Ant06	
Cape Evensen	Antarctic Shag (180)	A4i	Antarctic Shag: counted 1990, S & J Poncet unpub.	Ant07	
Bates Island	Antarctic Shag (150)	A4i	Antarctic Shag: counted 1986, S & J Poncet unpub.	Ant08	
Point south of Gerlache Island	Gentoo Penguin (3000)	A1	Gentoo Penguin: count made in 1987, in Woehler (1993).	Ant09	Would be incorporated in 'Gerlache Island and area to the south' IBA if the latter is designated as an IBA (see Potential IBA list)
Cormorant Island, north coast (Palmer area)	Antarctic Shag (729)	A4i	Antarctic Shag: count on Cormorant Island from 1985, Morton & Heimark pers. comm.	Part of Ant10	
Guepratte Island	Antarctic Shag (220)	A4i	Antarctic Shag: counted 1987, S & J Poncet unpub.	Ant12	
Cuverville Island	Gentoo Penguin (4818)	A1, A4ii	Gentoo Penguin: Count made in 1994, recorded by A. Nimon	Part of Ant13	

Location	Trigger species (breeding pairs)	IBA criteria	Data source	Original IBA number	Notes
Beneden Head	Antarctic Shag (180)	A4i, A4ii	Antarctic Shag: 20 pairs at Beneden Head counted on 30/12/1989 in Lynch et al. (2008); 160 pairs counted on 22/11/2006 in S & J Poncet unpub.	Part of Ant13	
Eckener Point	Antarctic Shag (180)	A4i	Antarctic Shag: counted 1987, S & J Poncet unpub.	Ant15	
Murray Island	Antarctic Shag (180)	A4i	Antarctic Shag: counted 1989; S & J Poncet unpub.	Ant16	
Paulet Island	Adélie Penguin (95,000 at 3 colonies), Antarctic Shag (465)	A4i, A4ii, A4iii	Antarctic Shag: counted on 18/02/2007 in Lynch et al. (2008).	Ant28	
Snow Hill Island	Emperor Penguin (4200)	A4ii	Emperor Penguin: Count made in 2004, in Todd et al. (2004)		
Duroch Islands	Gentoo Penguin (3500), Chinstrap Penguin (9400 at c.10 colonies), Adélie Penguin (800)	A1, A4ii, A4iii	Penguins: S & J Poncet pers comm.		Gentoo are located on diff island to other penguins. Only inlude Chinstraps and Adélies as trigger species if all islands are grouped.
Cockburn Island	Antarctic Shag (800)	A4i	Antarctic Shag: counted 19/11/2006 in Lynch et al. (2008).		
Penguin Point, Seymour Island	Adélie Penguin (26,400)	A4ii, A4iii	Adélies: 26,400 pairs (N4) counted on 22/12/2006 in Lynch et al. (2008).		
Northern islet of Joubin Islands	Antarctic Shag (250 in two groups on north coast of an islet)	A4i	Antarctic Shag: counted 1987, S & J Poncet, unpub.		
Trundle Island	Antarctic Shag (140)	A4i	Antarctic Shag: counted 1989, S & J Poncet, unpub.		
Uruguay Island	Antarctic Shag (203)	A4i	Antarctic Shag: counted 1986, S & J Poncet, unpub.		
Pearl Rocks	Antarctic Shag (310)	A4i	Antarctic Shag: counted 1987, S & J Poncet, unpub.		
Trinity Island	Antarctic Shag (218 in 3	A4i	Antarctic Shag: counted 1986, S & J		

Location	Trigger species (breeding pairs)	IBA criteria	Data source	Original IBA number	Notes
southwest	colonies with 145, 50 and 23 pairs each)		Poncet, unpub.		
Pursuit Point, Wiencke Island	Antarctic Shag (140)	A4i	Antarctic Shag: 140 pairs recorded on 06/02/1987 by Poncet & Poncet (unpub.)		
Hope Bay	Adélie Penguin (123,850)	A4ii, A4iii	Adelies: counted in 1985, in Woehler (1993)		
Brown Bluff	Adélie Penguin (20,000), Gentoo Penguin (483)	A4ii, A4iii	Adélies and Gentoos: 1996 (?) in Naveen (2003).		
Armstrong Reef	Adélie Penguin (12,800), Antarctic Shag (633)	A4i, A4iii	Adélies: 1984 in Woehler (1993); Antarctic Shag: 1989-90 in S & J Poncet (unpub).		
Eden Rocks (off E coast of Dundee Island)	Adélie Penguin (44,249 – 49,460)	A4ii, A4iii	Naveen (2003)		
Heroina Island, Danger Islands	Adélie Penguin (~295,000)	A4ii, A4iii	Adélies: btw 285,115 and 305,165 pairs recorded in 1996 in Naveen (2003).		
Stonington Island	Antarctic Shag (135)	A4i	Antarctic Shag: 135 pairs recorded in 06/02/2007 by Lynch et al. (2008)		

South Shetland Islands

Location	Trigger species (breeding pairs)	IBA criteria	Data source	Original IBA number	Notes
Penguin Island	Southern Giant Petrel (634)	A4ii	Southern Giant Petrel: counted Dec 1999, in Naveen (2000)		
Yankee Harbour, Greenwich Island	Gentoo Penguin (4918)	A1, A4ii	Gentoo Penguins counted in 2003, Lynch et al. (2008)	Ant22	
Heywood Island	Chinstrap Penguin (90,000), seabirds (>10,000)	A4ii, A4iii	Chinstraps: counted 1987, Poncet & Poncet unpub.	Ant23	
False Round Point, King George Island	Chinstrap Penguin (49,870),	A4ii, A4iii	Chinstraps: in Woehler (1993)	Part of Ant26	
Pottinger Point, King George Island	Chinstrap Penguin (55,861), seabirds (>10,000)	A4ii, A4iii	Chinstraps: counted 1980 in Woehler (1993).	Part of Ant26	
Clarence Island (Fur Seal Point)	Chinstrap Penguin (57,500)	A4ii, A4iii	Croxall & Kirkwood (1979).	Part of Ant32	
Clarence Island (Pink Pool Pt)	Chinstrap Penguin (58,500)	A4ii, A4iii	Croxall & Kirkwood (1979).	Part of Ant32	
Half Moon Island (NE)	South Polar Skua (51)	A4ii	51 pairs recorded in NE, 103 pairs on whole island, in 1995/96 by Garcia Esponda (2000).	Part of Ant21	

South Orkney Islands

Location	Trigger species (breeding pairs)	IBA criteria	Data source	Original IBA number	Notes
Shagnasty Islet, Signy Island	Antarctic Shag (729)	A4i	WAM data - Rootes (1988) (?)	Part of Ant33	Would be incorporated in Signy Island IBA if whole island is designated as an IBA (see Potential IBA list)
Atriceps Island, Robertson Islands	Antarctic Shag (524)	A4i, A4iii	WAM data – ref 62.	Ant35	
Cape Davidson, Laurie Island	Antarctic Shag (225)	A4i	Antarctic Shag: counted 1983, S & J Poncet unpub.	Part of Ant40	
Graptolite Island (Laurie Island)	Adélie Penguin (30,000)	A4ii, A4iii	Woehler (1993).	Ant41, part of Ant40	

Potential IBAs

A sizeable number of sites in the analysis emerged as Potential IBAs and are documented in the table below. In total, the list of Potential IBAs contains 61 sites: 24 of which are on the Antarctic Peninsula or offshore islands, 23 in the South Shetland Islands, and 14 in the South Orkney Islands.

Table 7: Potential IBAs

Antarctic Peninsula

Location	Trigger species (breeding pairs)	Potential IBA criteria	Data source	Reason for consultation
Wiencke Island (inc. Damoy Point, Goudier Island and Pursuit Point) & Doumer Island	Gentoo Penguin (4032), Antarctic Shag (174)	A1, A4i	Gentoo Penguins: 1684 pairs at Port Lockroy counted 2007 and recorded in Lynch et al. (2008); 648 pairs recorded on Goudier Island in 2004 by Dowling, Port Lockroy wildlife report 2004-05; 1500 pairs recorded at Doumer Island and 200 pairs at Pursuit Point in 1983 in Woehler (1993). Antarctic Shag: 26 pairs at Jougla Point / Port Lockroy recorded in 2007 and 8 pairs on Priest Island recorded in 2001 in Lynch et al. (2008); 140 pairs recorded at Pursuit Point in 1987 in Poncet & Poncet (unpub.).	Large area: criteria satisfied only if species numbers are aggregated over 10 km x 10 km area. Note: Pursuit Point is already an IBA and would be absorbed into this IBA. Note: Port Lockroy Station (GB) lies in this area.
Davis Island, Harry Island	Antarctic Shag (150), Southern Fulmar (c. 5000 with estimate min 1000, max 10,000 pairs)	A4i, A4ii, A4iii	Southern Fulmar: Poncet & Poncet unpub. in Cuewels et al. (2007)	Antarctic Shag species satisfy A4i criteria only if aggregated over 10 km x 10 km area. Southern Fulmar data satisfies A4ii criteria only if max count estimate used.
Bell Island, Hunt Island	Antarctic Shag (162)	A4i		Criteria satisfied only if species numbers are aggregated over 10 km x 10 km area
Gaston Islands, Jaques Peaks	Antarctic Shag (246)	A4i		Criteria satisfied only if species numbers are aggregated over 10 km x 10 km area
Barcroft Islands	Antarctic Shag (145)	A4i		Criteria satisfied only if species numbers are aggregated over 5 km x 5 km area

Location	Trigger species (breeding pairs)	Potential IBA criteria	Data source	Reason for consultation
Argentine Islands (Vernadsky)	South Polar Skua (50)	A4ii	50 pairs recorded in 2003 by V. Bezrukov pers comm in Ritz et al. (2005)	Posn of breeding site(s) not given. Consult experts to decide whether to include Argentine Islands in IBA list.
Gerlache Island and area to the south	Antarctic Shag (148), Gentoo Penguin (4500), Chinstrap Penguin (7000), Adélie Penguin (171)	A1, A4i, A4ii, A4iii	Antarctic Shag: counted 1987, S & J Poncet unpub.. Penguins: Woehler (1993).	Data aggregated over 10 km area. Note: Incorporates 'Point south of Gerlache Island' IBA.
Astrolabe Island	Antarctic Shag (154), Southern Fulmar (c. 5000 with estimate of min 1000, max 10,000 pairs)	A4i, A4ii, A4iii	Southern Fulmar: Poncet & Poncet unpub. in Creuwels et al. (2007)	Criteria satisfied for Antarctic Shag only if species numbers are aggregated over 5 km x 5 km area. Criteria satisfied for southern fulmar only if max estimate used.
Pickwick Island, Patrick Island	Antarctic Shag (172)	A4i		Criteria satisfied only if species numbers are aggregated over 10 km x 10 km area
Tetrad Island, Chionis Island (very close to Trinity Island southwest)	Antarctic Shag (222)	A4i		Criteria satisfied only if species numbers are aggregated over 10 km x 10 km area
Melchior Islands	Antarctic Shag (135)	A4i		Criteria satisfied only if species numbers are aggregated over 10 km x 10 km area
Tupinier Islands	Chinstrap Penguin (12,750)	A4iii		Satisfied for A4iii criterion only. Criteria satisfied only if species numbers are aggregated over 10 km x 10 km area

Location	Trigger species (breeding pairs)	Potential IBA criteria	Data source	Reason for consultation
Pitt Islands	Adélie Penguin (15,600)	A4iii		Criteria satisfied only if species numbers are aggregated over 10 km x 10 km area
Litchfield Island (Palmer area)	South Polar Skua (up to 50 pairs)	A4ii	South polar skua: up to 50 pairs breeding according to ASPA No. 113 management plan (with confirmation on estimates given by Fraser, pers comm. 2009), although 'the number of breeding pairs fluctuates widely from year to year'.	Count is total for whole island – counts for individual breeding sites unknown. Note: Part of Ant10.
Palmer Station area, Anvers Island	Antarctic Shag (729 on Cormorant Island and 18 on Christine Island), Southern Giant Petrel (499 – total for multiple islands), seabirds (>10,000 if data aggregated over 5 km^2), South Polar Skua (Litchfield Island, up to 50 pairs)	A4i, A4ii, A4iii	South Polar Skua: up to 50 pairs breeding according to ASPA No. 113 management plan. Antarctic Shag: count on Cormorant Island from 1985, S & J Poncet unpub. in Morton & Heimark pers. comm; count from Christine Island made in 1985, S Poncet pers. comm. (2005).	Whole area only meets IBA criteria if multiple islands are grouped across 8km x 4km area. Note: originally Ant10.
Pourquoi Pas Island	Southern Fulmar (c.7500)	A4ii, A4iii	Southern Fulmar: c.7500 listed Poncet & Poncet unpub. in Creuwels (2007) with estimates of between 5000 and 10,000 pairs.	Criteria satisfied only if max count estimate used and data aggregated over whole island.
NW coast Anvers Island, c.15km NE of Rosenthal Islands	Southern Fulmar (c.7500)	A4ii, A4iii	Southern Fulmar: c.5000 recorded (Poncet & Poncet unpub. in Creuwels (2007)) with estimates of btw 1000 and 10,000 pairs.	Criteria satisfied only if max count estimate used.

Location	Trigger species (breeding pairs)	Potential IBA criteria	Data source	Reason for consultation
D'Urville Point, Joinville Island	Adélie Penguins (~ 10,000)	A4iii	Adélie Penguin: 10,000 pairs estimated on 24/01/2006 in Lynch et al. (2008)	Count approximate. Single species satisfying A4iii criterion only.
Otter Rock, north of Notter Point on Trinity Peninsula	Southern Fulmar (c.5000)	A4ii, A4iii	Southern Fulmar: c.5000 pairs recorded (Poncet & Poncet, unpub. in Cruewels et al. (2007)) with estimates of btw 1000 and 10,000 pairs.	Criteria satisfied only if max count estimate used.
Trinity Island	Southern Fulmar (10,000 with min 2000 and max 20,000)	A4ii, A4iii	Southern Fulmar: recorded in1987 by Poncet & Poncet unpub., listed in Creuwels (2007) with estimates of btw 2000 and 20,000 pairs.).	Data aggregated over whole island. Note: southwest Trinity Island already on Confirmed IBA list.
Cierva Point	South Polar Skua (93)	A4ii	93 pairs recorded in 1996 in Quintana et al. (2000)	Data aggregated over Cierva Point. Counts for individual breeding sites unknown but locations given in more detail in Quintana et al. (2000) (not point level). Note: originally Ant19.
Heroina Island, Danger Islands	Adélie Penguin (285,115)	A4ii, A4iii	Adélie Penguin: counted in 2006, in Naveen (2003)	Data may be for Heroina Island or may be aggregated over Danger Islands group.
Gourdin Island (off Trinity Peninsula)	Adélie Penguin (14,334), Chinstrap Gentoo Penguins (568)	A4iii	Naveen (2003)	Satisfied for A4iii criterion only if data are aggregated over island.

South Shetland Islands

Location	Trigger species (breeding pairs)	Potential IBA criteria	Data source	Reason for consultation
Admiralty Bay (excluding western shore of Admiralty Bay)	South Polar Skua & Brown Skua (total 338)	A4ii	338 pairs of *Catharacta maccormicki, C. antarctica lonnbergi* and hybrids combined, breeding in Ezcurra Inlet, MacKellar Inlet, Martel Inlet and on Vaureal Peak, i.e. north and east Admiralty Bay, Sanders et al. (2005))	Criteria met only if data aggregated over 15 km x 15 km area. Note: could merge with western shore of Admiralty Bay IBA.
Cape Shirreff	Chinstrap Penguin (10,400), Gentoo Penguin (300)	A4iii	Chinstraps and Gentoos: counted in 1987 in Woehler (1993).	Satisfied for A4iii criterion only and if data are aggregated over peninsula at Cape Shirreff. Note: part of Ant26.
Seal Islands	Chinstrap Penguin (~20,000), Macaroni Penguin (194), Southern Giant Petrel (25), Antarctic Shag (40)	A4iii	Chinstraps, Macaroni Penguins: 1988-89, Bengtson pers comm. Southern Giant Petrel: counted 1971 in Patterson et al. (2008). Antarctic Shag: counted 1971 in Bruce & Furse (1973)	Satisfied for A4iii criterion only.
Lions Rump, King George Island	Chinstrap Penguin (10), Gentoo Penguin (1105), Adélie Penguin (12,345)	A4iii	Woehler (1993)	Satisfied for A4iii criterion only. Note: part of Ant26.
Milosz Point, Emerald Cove, King George Island	Chinstrap Penguin (17,150)	A4iii	Woehler (1993)	Satisfied for A4iii criterion only. Note: part of Ant26.
North Foreland, Taylor Point, King George Island	Chinstrap Penguin (23,286), Southern Giant Petrel (248)	A4iii	Chinstrap: Woehler (1993). Southern giant petrel: counted in 1966, in Patterson et al. (2008).	Satisfied for A4iii criterion only. Note: part of Ant26.
Stigant Point, King George	Adélie Penguin (10,893)	A4iii	Adélie Penguin: count in 1980 in Woehler (1993).	Satisfied for A4iii criterion only. Note: part of Ant26.

Location	Trigger species (breeding pairs)	Potential IBA criteria	Data source	Reason for consultation
Island				
Stranger Point, Potter Peninsula, King George Island	Adélie Penguin (14,554), Gentoo Penguin (2584), Chinstrap Penguin (259), South Polar Skua (63 on Potter Peninsula)	4ii, A4iii	South Polar Skua: count from 2002 in Ritz et al. (2005). Penguins: data from Woehler (1993).	Note: Part of Ant26. Penguins all breeding at Stranger Point. Posn of breeding sites for South Polar skua unknown – only list as trigger species if all of Potter Peninsula is designated an IBA.
Western Shore of Admiralty Bay	Gentoo Penguin (1510 at Llano Pt, 623 at Point Thomas), Southern Giant Petrel (567 if data aggregated over 10 km^2), seabirds (>10,000),	A1, A4ii, A4iii	Penguins: Woehler (1993), Gentoo penguins: 2287 counted in 1994/1995 taken from ASPA No. 128 management plan	Note: Ant27, part of Ant26
Davey Point, King George Island	Chinstrap Penguin (19,690), Antarctic Shag (7)	A4iii	Chinstraps: Woehler (1993). Antarctic Shag: counted in 1988, in Shuford & Spear (1989).	Satisfied for A4iii criterion only. Note: part of Ant26.
Cape Melville, King George Island	Chinstrap Penguin (16,278)	A4iii	Chinstrap: count in 1980 in Woehler (1993)	Criteria satisfied only if species numbers are aggregated over 5 km x 5 km area
Byers Peninsula, Livingston Island	Antarctic Tern (1760), Kelp Gull (449)	A4i	Antarctic Tern: 1760 pairs recorded at Byers Peninsula in 1965 (White (1965) in Croxall – BAS Internal Records – in ASPA No. 126 management plan). Kelp Ggull: 449 pairs recorded at Byers Peninsula in 1965 (White (1965) in Croxall – BAS Internal Records – in ASPA No. 126 management plan)	Data aggregated over Byers Peninsula. Individual breeding site data may be available in original publication – check White (1965) prior to consultation. Note: originally Ant17.
Barnard Point, Miers Bluff, Livingston Island	Chinstrap Penguin (12,500), Gentoo Penguin (600), Southern Giant Petrel (30)	A4iii	Penguins: count in 1987, S & J Poncet, pers comm. SGP: count in 1986, Patterson et al. (2008).	Satisfied for A4iii criterion only.

Location	Trigger species (breeding pairs)	Potential IBA criteria	Data source	Reason for consultation
Gibbs Island site 1	Seabirds (Chinstrap & Macaroni Penguins) (14672), Southern Fulmar (18,830 over whole island)	A1, A4ii, A4iii	Southern Fulmar: Gibbs Island (18,830 pairs counted in 1977 by Furse, (1978) listed in Creuwels (2007)). Macaroni and Chinstrap Penguins: Croxall & Kirkwood (1979).	Note: originally Ant30. Data aggregated over central Gibbs Island. Southern Fulmar data aggregated over whole of Gibbs Island. Original data may contain individual breeding site censuses - check. If not, consult experts to determine whether to include Ssouthern Fulmar as trigger species (A4ii and A4iii) at Gibbs Island.
Gibbs Island site 2	Macaroni Penguin (1672 most at 2 colonies with 502 and 1150 birds each), seabirds (Chinstrap & Macaroni Penguins) (29,362), Southern Fulmar (18,830 over whole island)	A1, A4ii, A4iii	Southern Fulmar: Gibbs Island (18,830 pairs counted in 1977 by Furse, (1978) listed in Creuwels (2007)). Macaroni and Chinstrap Penguins: count from 1977 in Croxall & Kirkwood (1979).	Note: originally Ant30. Data aggregated over east of Gibbs Island. Southern fulmar data aggregated over whole of Gibbs Island. Original data may contain individual breeding site censuses - check. If not, consult experts to determine whether to include southern fulmar as trigger species (A4ii and A4iii) at Gibbs Island. Macaroni Penguins breed at several sites on island with 2 largest sites c. 2 km apart. Count for each site falls below IBA thresholds.
Aspland Island, Eadie Island & O'Brian Island	Chinstrap Penguin (8650 on Aspland, 5150 on Eadie Island, 21,400 on O'Brian), Macaroni Penguin (21 on Aspland), Southern Fulmar (c.9800 on Aspland, c.8500 on Eadie, c.7880 on O'Brian)	A4ii, A4iii	Southern Fulmar: count made in 1977; Furse (1978) in Creuwels et al. (2007). Penguins: count from 1977 in Croxall & Kirkwood (1979).	Site covers three islands which are 1 – 2km apart. Each island does not meet IBA criteria on its own (except for A4iii criterion, which is satisfied when data are aggregated over each island).

Location	Trigger species (breeding pairs)	Potential IBA criteria	Data source	Reason for consultation
Clarence Island (all of island)	Chinstrap Penguin (194,320), Macaroni Penguin (3350 if data aggregated over 5 km^2), seabirds (>10,000 **at 3 sites < 10km apart**), Southern Fulmar (25,475)	A1, A4ii, A4iii	Fulmars: recorded in Furse (1978). Penguins: Croxall & Kirkwood (1979).	Data aggregated over whole island. Site qualifies for A4iii criterion at three locations (SW, Pink Pool Pt & Fur Seal Pt). Note: originally Ant32.
Fildes Peninsula, King George Island	Gentoo Penguin (3410), Southern Giant Petrel (246 if data aggregated over 10 km^2), South Polar Skua (176), Brown Skua (76)	A1, A4ii	South Polar Skua: count from 2001 in Ritz et al. (2005).	Data aggregated over whole of Fildes Peninsula. Ant29, part of Ant26
Ardley Island (near Fildes Peninsula)	Gentoo Penguin (3410)	A1, A4ii	Gentoos: from 1987-88, J. Valencia pers comm.	Data aggregated over whole island.
Low Island	Chinstrap Penguin (260,000), seabirds (>10,000 **at 4 separate sites < 10 km apart**)	A4ii, A4iii		Note: originally Ant14. Four separate sites on Low Island qualify for IBA status due to A4iii criterion.
Deception Island	Chinstrap Penguin (175,000), seabirds (>10,000 **at 3 separate sites < 10km apart**)	A4ii, A4iii		Note: originally Ant20. Three sites on Deception Island qualify for IBA status due to A4iii criterion. Split site?

Location	Trigger species (breeding pairs)	Potential IBA criteria	Data source	Reason for consultation
Harmony Point, Nelson Island	Chinstrap Penguin (89,685), Gentoo Penguin (3347), Southern Giant Petrel, seabirds (>10,000 **at 2 separate sites < 5km apart)**	A1, A4ii, A4iii		Ant25. Two sites on Harmony Point qualify for IBA status due to A4iii criterion. Split site?
Elephant Island	Chinstrap Penguin (~123,070 split btw numerous sites), Southern Giant Petrel (845 over whole island), seabirds (Chinstrap Penguin, Gentoo Penguin, Southern Giant Petrel) (>10,000 **at 5 sites < 50 km apart**), Brown Skua (190), Gentoo Penguin (3913 split btw 3 sites)	A4ii, A4iii	Chinstrap: C & K (1979) with updates for one area by Lynch et al. (2008). Southern Giant Petrel: Patterson et al. (2008). Brown Skua: count made in 1983 by M. Sanders; pers comm in Ritz et al. (2005).	Data aggregated over whole island. Site qualifies for A4iii criterion only at 5 sites (Cape Lookout, Cape Wild, Cape Belsham, Mount Elder, and Stinker Pt / Wordie Pt). Note: originally Ant31.

South Orkney Islands

Location	Trigger species (breeding pairs)	Potential IBA criteria	Data source	Reason for consultation
Pirie Peninsula (Laurie Island)	Chinstrap Penguin (14,277), Antarctic Shag (176)	A4i, A4iii		Criteria satisfied only if species numbers are aggregated over 5 km x 5 km area.
Ferrier Peninsula (Laurie Island)	Adélie Penguin (61,000 at 2 colonies)	A4ii, A4iii	Adélie Penguin: Poncet & Poncet (1985) in Woehler (1993).	Data aggregated over Ferrier Peninsula. Note: originally part of Ant40.
Point Martin (Laurie Island)	Adélie Penguin (26,038), Antarctic Shag (225), Chinstrap Penguin (13,394)	A4i, A4ii, A4iii	Penguins: N R Coria.	Note: originally part of Ant40
Watson Peninsula (Laurie Island)	Adélie Penguin (462), Chinstrap Penguin (10,893), Gentoo Penguin (10), Southern Giant Petrel (170)	A4iii	Penguins: count in 1994, from NR Coria.; posn from Poncet & Poncet 1985. SGP: count in 1995, in Patterson et al. (2008).	A4iii criterion only. Criteria satisfied only if species numbers are aggregated over 2 km x 2 km area. Note: if this site is explanded to include Cape Geddes, Fraser Point (c.5 km apart on either side of Watson Peninsula), Chinstraps > 40,000 (satisfying A4ii criterion). Note: part of Ant40.
Cape Bennett & Gibbon Bay, Coronation Island	Chinstrap Penguin (23,172)	A4iii		Criteria satisfied only if species numbers are aggregated over 10 km x 10 km area
Cape Robertson to Cape Davidson (Laurie Island)	Chinstrap Penguin (43,545), Antarctic Shag (225 at islet off Cape Davidson)	A4i, A4ii, A4iii		Criteria for this area satisfied only if species numbers are aggregated over 10 km x 10 km area. Note: criteria satisfied at point level at islet off of Cape Davidson – make this the IBA? Note: part of Ant40
Marshall Bay, Coronation	Adélie Penguin	A4iii	Adélies (13,381 pairs): counted on 17/12/2003 in Lynch et al. (2008)	Satisfied for A4iii criterion only.

Location	Trigger species (breeding pairs)	Potential IBA criteria	Data source	Reason for consultation
Island	(13,381)			
Christofferson & Fredriksen Island	Gentoo Penguin (8057), Antarctic Shag (144), seabirds (>10,000 **at 2 separate sites <5km apart**)	A1, A4i, A4ii, A4iii		Ant36/37. Two sites qualify for IBA status due to the A4iii criterion .
Larsen Islands, Monroe Island, Moreton Point, Return Pt, Cheal Pt (west Coronation Island)	Chinstrap Penguin (128,300 with 24,000 – 38,000 each at Monroe Island, Moreton Pt, Return Pt / Cheal Pt, and opposite Monroe Island), Southern Fulmar (c. 7500 with min 5000, max 10,000).	A4ii, A4iii	Chinstraps: Woehler (1993). Southern Fulmar: counted in 1984, recorded in Cruewels et al. (2007).	Total distance across IBA 8.5 km – data aggregated over c.10km^2 area. Includes marine areas. Monroe Island on its own, and a smaller area within this IBA, both meet IBA criteria A4ii if data aggregated over 5 km^2. Could split into 2 IBAs? Or could merge with Sandefjord Bay IBA (lies between Larsen Islands & west Coronation Island)?
Signy Island	Adélie Penguin (37,200), Chinstrap Penguin (64,626 if data aggregated over 5 km^2 inc. 10,964 pairs at Moe Island), Antarctic Shag (801), Southern Giant Petrel (1040), Wilson's Storm Petrel (~200,000), Brown Skua (>100)	A4i, A4ii, A4iii	Brown Skua: BAS unpublished data, count conducted in 2003-05, reported in Ritz et al. (2005). Wilson's Storm Petrel: 200,000 pairs estimated in 1968, recorded in Beck & Brown (1972), breeding in holes and btw boulders all around ice-free areas of island.	Data aggregated over Signy Island and Moe Island (ASPA No. 129). Note: originally Ant33.
Inaccessible Islands	Southern Fulmar (c.50,000)	A4ii, A4iii	Southern Fulmar: c.50,000 pairs recorded by Poncet & Poncet, upub. in Creuwels et al. (2007).	Data aggregated over whole of Inaccessible Islands.

Location	Trigger species (breeding pairs)	Potential IBA criteria	Data source	Reason for consultation
Sandefjord Bay, Coronation Island	Southern Fulmar (c.15,000 with min 10,000 and max 20,000)	A4ii, A4iii	c15,000 recorded by Poncet & Poncet, unpub. (Creuwels, 2007).	Data aggregated over whole of Sandefjord Bay.
Stene Point & Cape Vik, Coronation Island	Chinstrap Penguin (9040), Adélie Penguin (1500)	A4iii		Criteria satisfied only if species numbers are aggregated over 10 km x 10 km area.

Discussion

Grid analysis

It is evident from the result of the grid-analysis in Part I that an increase in grid cell size did not substantially alter the position and number of IBA sites triggered for some bird species whilst for other species the effect was more noticeable. Our results show that for the Adélie, Gentoo, Macaroni and Emperor penguin species, none of the grid cell sizes substantially affect the list of IBAs identified. For these species, IBA selection is less sensitive to aggregation effects (Part 1, Table 2). Therefore for the IBA selection method under discussion, using the point file to determine the number and locations of IBA sites for these species may be the most suitable approach, ensuring all areas important for these birds are likely to be included in at least one IBA.

For the Chinstrap Penguin, Southern Giant Petrel and the Antarctic Shag, our results indicate that aggregating colonies within larger spatial units has an influence over the number and locations of the resulting IBAs. This effect is more pronounced for Southern Giant Petrels and Antarctic Shags. The reason for this may be in part due to the breeding patterns of these birds, which differ from the breeding patterns of penguins. For example, Antarctic Shags tend to breed in small numbers on rocky outcrops or perhaps groups of small islands. Their breeding pattern and the low population threshold (Table 1) required for IBA criterion A4ii to be reached, may explain why a strong aggregation influence can be observed on the outcome of the analysis for these two bird species. These factors suggest there could be merit in selecting IBAs for these species based on aggregations within larger spatial units, although the selection of an optimal spatial unit would require specialist advice from those with knowledge of the breeding biology of these species.

Comparing the IBAs derived from the grid-approach to the original list of IBAs shows that:

- 15 new IBAs were identified from the analysis of point-level data
- a further one new IBA is identified at a grid cell size of 1 km^2;
- no additional IBAs are identified at a grid cell size of 2km^2;
- three additional IBAs are identified at a grid cell size of 5 km^2 ; and
- another six new IBAs are identified at a grid cell size of 10km^2.

Interestingly, the new IBAs emerging from the point, one and two km grids are triggered by a range of bird species, whereas the IBAs emerging from the five and ten km grids were triggered by Chinstrap Penguins and Antarctic Shags.

In addition, it should be noted that the method of compiling data for the point files is likely to have affected the results for some species. For the Southern Giant Petrel, the number of breeding pairs is usually aggregated across island groups and the colony centroid is placed in the centre of the area. However, in some instances this is not the case, e.g. in the Palmer Station area where colonies on distinct islands were not pre-aggregated. This impacts the likelihood of populations of Southern Giant Petrels meeting the IBA criteria. At Palmer Station, only the 10 km grid resulted in this area being identified as an IBA based on Southern Giant Petrel numbers.

Analysing census data for seven species using a grid-based approach resulted in the identification of only a partial list of IBAs for the Antarctic Peninsula region. Furthermore, the data used for the grid analysis were based on data published prior to 2007 and several subsequent species counts needed to be taken into account to complete the IBA list. These points were dealt with in Part II of the report.

Potential and confirmed IBAs

The list of suggested Confirmed IBAs presented in this report provides a comprehensive set of breeding sites meeting the global IBA criteria in the Antarctic Peninsula region. Sites considered for inclusion on this list are confined to those at which bird census data are available in published sources. The methodical approach to IBA selection, in both the grid-analysis and species by species census data review, should ensure no individual breeding sites satisfying IBA criteria A1, A4i or A4ii are omitted from the Antarctic Peninsula IBA network if the Confirmed IBA list is implemented.

In previous IBA networks, natural linear features have been used to help delineate the IBA boundary. In Antarctica, administrative boundaries, limits of infrastructure, land ownership and other linear features are not commonplace. Features potentially available to assist IBA boundary delineation in Antarctica include: breeding colony extents, coastlines, the limit of ice-free areas, contours and Protected Area boundaries. Using bird breeding colony extents to define each IBA boundary possibly represents the best of these options. This would ensure nesting areas for bird populations meeting the IBA criteria are recognised in the IBA network and the inclusion of extraneous regions is minimised. However, current bird breeding colony extents are not well-documented and would need to be derived using recent aerial imagery. Where no aerial imagery is available, other methods of IBA boundary delineation will need to be implemented.

The high number of sites on the Potential IBA list is partly due to the inclusion of sites satisfying solely the A4iii criterion for seabirds. Accepting sites qualifying solely due to the A4iii criteria (> 10,000 seabirds) into the Antarctic IBA network would lead to 17 additional IBAs. At nine of these sites, only one breeding bird species is present. Where this is the case, clearly the species count is lower than required to satisfy the threshold for criterion A4i or A4ii (individual species thresholds) and this implies the threshold of 10,000 pairs 'overrides' the individual species threshold. A decision needs to be made on whether to include none, some or all of these sites in the Antarctic IBA network.

The remaining sites on the Potential IBA list consist almost entirely of data aggregated over the area contained by grid cells in Part I or over the area within which census data are aggregated in published literature. Data aggregation represents a challenge for IBA boundary delineation. Where data are aggregated over several breeding sites it is often not possible not discern which breeding sites contain bird populations exceeding IBA criteria thresholds. Therefore, large areas may be designated as IBAs whilst the extent of the breeding site for birds triggering the IBA may be relatively small. The priority for creating an Antarctic IBA network is to highlight areas of ornithological importance. Designating large areas as IBAs might ensure more breeding sites satisfying the IBA criteria are included in at least one IBA. However, if large areas of little ornithological importance are included in the IBA network, this is somewhat misleading and could cause the IBA system to lose credibility. Sites on the Potential IBA list should perhaps best be considered on a site by site basis and, where informed discussion brings a consensus on where an IBA boundary should lie, the site could be included in the IBA network.

Conclusion

The grid analysis proved a promising method of selecting IBAs in the Antarctic context. Our results suggest that the methodical nature of the grid approach yields a comprehensive set of IBAs for the dataset analysed and reduces the chance of some IBA sites being overlooked. The number of IBAs identified in addition to those already included in the BirdLife / SCAR IBA list suggests there may be merit in applying a grid-based approach to future studies aimed at identifying IBAs, where individual species data are available.

However, there is limited material with which to build an argument for choosing one method of spatial data aggregation over another based on the results of the grid analysis. In addition, point level data representing breeding site centroids is not available for every bird breeding site in the Antarctic and estimating the position of the site centroids could produce misleading results in any subsequent analysis to derive IBAs. For this reason, our study indicates that a grid-based approach should not attempt to replace the process of expert consultation, but rather should be used as an initial building block from which to commence this consultation process.

Combining results of the species literature review and grid analysis indicates there are 42 sites qualifying for IBA status in the Antarctic Peninsula region, 30 of which are on the Antarctic Peninsula or offshore islands, eight in the South Shetland Islands, and four in the South Orkney Islands. These sites are suggested as Confirmed IBAs in Part III, Table 6. Each site satisfies at least one of criterion A1, A4i or A4ii. Some of these sites could be split or merged depending on how the boundary of each IBA is defined.

Four sites in the original IBA list should be considered for removal, as these sites do not presently meet the IBA selection criteria. Annex C lists the sites proposed for removal.

In addition, 61 sites were identified as Potential IBAs, 24 of which are on the Antarctic Peninsula or offshore islands, 23 in the South Shetland Islands and 14 in the South Orkney Islands. 17 of these sites qualify solely due to criterion A4iii for seabirds (>10,000 pairs), whilst the majority of sites meet the IBA criteria only when data are aggregated over several breeding sites. It is suggested that these sites are put forward as candidate IBAs and experts are consulted to assess the merit of including each site in the IBA network. It should be noted that some sites on the Confirmed IBA list would be contained within sites on the Potential IBA list if the latter are adopted as IBAs.

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Annex A: List of grid-derived IBAs based on criteria A1, A4i and A4ii

The following tables list the locations of IBA sites triggered by IBA criteria A1, A4i or A4ii in Part I of the present report. Where a site was also present in the BirdLife / SCAR IBA site list, the original IBA number is stated. The field 'Grid' states which grids (1km, 2km, 5km and 10km) have been used to identify each IBA.

Antarctic Peninsula

Location	Species	Breeding Pairs	IBA number	Grids
Avian, Ginger & Dion Islands	Adélie Penguin	35600	Ant04	all
	Antarctic Shag	1445	Ant04	all
Dodman Island North	Antarctic Shag	183	Ant06	all
Cape Evensen	Antarctic Shag	180	Ant07	all
Bates Island	Antarctic Shag	150	Ant08	all
Rosenthal Islands (Gerlache Island) & Island to the south of the coast	Gentoo Penguin	4500	Ant09	all
	Antarctic Shag	148	Ant09	2km / 5km / 10km
Palmer, Anvers Island	Antarctic Shag	747	Ant10	all
	Southern Giant Petrel	499	Ant10	10km
Guepratte Island	Antarctic Shag	220	Ant12	all
Cuverville Island, Beneden Head)	Gentoo Penguin	4818	Ant13	all
	Antarctic Shag	160	Ant13	10km
Eckener Point	Antarctic Shag	180	Ant15	all
Murray Island	Antarctic Shag	180	Ant16	all
Paulet Island	Adélie Penguin	95000	Ant28	all
	Antarctic Shag	260	Ant28	all
Eden Rocks	Adélie Penguin	44249		all
Hope Bay	Adélie Penguin	123850		all
Danger Islands	Adélie Penguin	285115		all
Snow Hill Island	Emperor Penguin	4200		all
Wiencke & Doumer Island	Gentoo Penguin	3904		10km
	Antarctic Shag	230		all
Duroch Islands	Gentoo Penguin	3500		all
Cockburn Island	Antarctic Shag	560		all
Armstrong Reef	Antarctic Shag	633		all

Location	Species	Breeding Pairs	IBA number	Grids
Brown Bluff	Adélie Penguin	20000		all
Penguin Point, Seymour Island	Adélie Penguin	21954		all
Davis Island, Harry Island	Antarctic Shag	150		10km
Joubin Islands	Antarctic Shag	251		all
Bell Island, Hunt Island	Antarctic Shag	162		10km
Gaston Islands, Jaques Peaks	Antarctic Shag	246		10km
Trundle Island	Antarctic Shag	140		1km / 2km / 5km / 10km
Uruguay Island	Antarctic Shag	203		all
Barcroft Islands	Antarctic Shag	145		5km / 10km
Pearl Rocks	Antarctic Shag	310		all
Trinity Island southwest	Antarctic Shag	218		all
Astrolabe Island	Antarctic Shag	154		5km / 10km
Pickwick Island, Patrick Island	Antarctic Shag	172		10km
Tetrad Island, Chionis Island (very close to Trinity Island southwest)	Antarctic Shag	222		10km
Melchior Islands	Antarctic Shag	135		10km

South Shetland Islands

Location	Species	Breeding Pairs	IBA number	Grids
Low Island	Chinstrap Penguin	260000	Ant14	all
Deception Island	Chinstrap Penguin	175000	Ant20	all
Yankee Harbor, Greenwich Island	Gentoo Penguin	9199	Ant22	all
Heywood Island	Chinstrap Penguin	93110	Ant23	all
Harmony Point, Nelson Island	Chinstrap Penguin	89685	Ant25	all
	Gentoo Penguin	3347	Ant25	all
	Southern Giant Petrel	746	Ant25	all
False Round Point	Chinstrap Penguin	50326	Part of Ant 26	all
Kellick Island, Tartar Island, Pottinger Point	Chinstrap Penguin	124796	Part of Ant 26	all
Western Shore of Admirality Bay				
	Southern Giant Petrel	567	Ant27, Part of Ant 26	10km
Fildes Peninsula	Gentoo Penguin	3410	Ant29, Part of Ant26	all
	Southern Giant Petrel	646	Ant29, Part of Ant26	10km
Gibbs Island (2 locations)	Macaroni Penguin	2344	Ant30	all
Elephant Island	Chinstrap Penguin	123070	Ant31	all
	Southern Giant Petrel	555	Ant31	all
Clarence Island	Chinstrap Penguin	194320	Ant32	all
	Macaroni Penguin	3105	Ant32	5km / 10km
Penguin Island	Southern Giant Petrel	849		all

South Orkney Islands

Location	Species	Breeding Pairs	IBA number	Grids
Signy Island	Adélie Penguin	37200	Ant33	all
	Chinstrap Penguin	64626	Ant33	5km / 10km
	Antarctic Shag	801	Ant33	all
	Southern Giant Petrel	1040	Ant33	all
Atriceps Island, Robertson Islands	Antarctic Shag	729	Ant35	all
Christofferson, Fredriksen Island	Gentoo Penguin	8057	Ant36/37	all
	Antarctic Shag	144	Ant36/37	all
Pirie Peninsula, Cape Mabel (Laurie Island)	Chinstrap Penguin	47892	Ant39, Part of Ant40	10km
	Antarctic Shag	176	Ant39, Part of Ant40	5km / 10km
Graptolite Island (Laurie Island)	Adélie Penguin	30000	Ant41, Part of Ant40	all
Point Martin (Laurie Island)	Adélie Penguin	26038	Part of Ant40	all
	Antarctic Shag	225	Part of Ant40	all
Ferrier Peninsula (Laurie Island)	Adélie Penguin	61000	Part of Ant40	all
Cape Robertson (Laurie Island)	Chinstrap Penguin	43545	Part of Ant40	10km
Larsen Island, Monroe Island, Moreton Point	Chinstrap Penguin	73058	5km / 10km	

Annex B: List of grid-derived IBAs based on criterion A4iii

The following tables list the locations of IBA sites triggered by IBA criterion A4iii for different grid sizes. Where a site was also present in the BirdLife / SCAR IBA site list, the original IBA number is stated. The field 'Grid' states which grids (1km, 2km, 5km and 10km) have been used to identify each IBA.

Antarctic Peninsula:

Location	Species	Breeding Pairs	IBA number	Grids
Avian & Ginger Islands	Adélie Penguin, Southern Giant Petrel	38795	Ant04	all
Gerlache Island	Adélie, Chinstrap, Gentoo Penguins, Southern Giant Petrel	11676	Ant09	10km
Palmer Station	Adélie, Macaroni Penguins, Southern Giant Petrel	14670	Ant10	5km / 10km
Paulet Island	Adélie Penguin	95000	Ant28	all
Joubin Island	Adélie, Chinstrap, Gentoo Penguins, Southern Giant Petrel	13033		all
Tupinier Islands	Chinstrap Penguin	12750		5km / 10km
Duroch Islands	Adélie, Chinstrap, Gentoo Penguins	13700		all
Gourdin Island	Adélie, Chinstrap, Gentoo Penguins,	18534		all
Hope Bay	Adélie Penguin	123850		all
Brown Bluff	Adélie, Gentoo Penguin	20716		all
Pitt Islands	Adélie Penguin	15600		5km / 10km
Armstrong Reef	Adélie Penguin, Antarctic Shag	12800		
Tay Head, Joinville Island	Adélie Penguin	15000		all
Eden Rocks	Adélie Penguin	44249		all
Heroina Island, Danger Islands	Adélie, Gentoo Penguins	285330		all
Penguin Point, Seymour Island	Adélie Penguin	21954		all

South Shetland Islands:

Location	Species	Breeding Pairs	IBA number	Grid
Low Island (site 1)	Chinstrap, Gentoo Penguins	150250	Ant14	all
Low Island (site 2)	Chinstrap Penguin	25000	Ant14	all
Low Island (site 3)	Chinstrap Penguin	110000	Ant14	all
Low Island (site 4)	Chinstrap Penguin	10000	Ant14	all
Deception Island (site 1)	Chinstrap Penguin	75000	Ant20	all
Deception Island (site 2)	Chinstrap Penguin	11500	Ant20	10km
Deception Island (site 3)	Chinstrap Penguin	100000	Ant20	all
Yankee Harbour, Fort Point, Greenwich Island	Chinstrap, Gentoo, Macaroni Penguins	10253	Ant22	10km
Heywood Island	Chinstrap Penguin, Southern Giant Petrel	93331	Ant23	all
Harmony Point	Chinstrap, Gentoo Penguins, Southern Giant Petrel	93778	Ant25	all
The Tor, part of ASPA133 Harmony Point	Chinstrap Penguin, Southern Giant Petrel	11124	Ant25	all
Stigant Point, KGI north coast	Chinstrap Penguin	11343	part of Ant26	all
Davey Point, KGI north	Chinstrap Penguin	19690	part of Ant26	all
False Round Point, KGI	Chinstrap Penguin	50326	part of Ant26	all
Stranger Pt, Barton Peninsula, Potter Peninsula	Adélie, Chinstrap, Gentoo Penguins, Southern Giant Petrel	24015	part of Ant26	all
Lions Rump (ASPA 151)	Adélie, Chinstrap, Gentoo Penguins,	13460	part of Ant26	all
Milosz Point, Emerald Cove, KGI	Chinstrap Penguin	17150	part of Ant26	all
North Foreland, Taylor Point, KGI	Chinstrap Penguin, Southern Giant Ppetrel	24132	part of Ant26	all
Cape Melville, KGI	Chinstrap Penguin	16278	part of Ant26	5km / 10km
western shore of Admiralty Bay	Adélie, Chinstrap, Gentoo Penguins, Southern Giant Petrel	29859	Ant27	all
Gibbs Island (site 1)	Chinstrap , Macaroni Penguins	29362	Ant30	all
Gibbs Island (site 2)	Chinstrap, Macaroni Penguins	14672	Ant30	all
Elephant Island (site 1)	Chinstrap, Gentoo,	124565	Ant31	all

Location	Species	Breeding Pairs	IBA number	Grid
	Macaroni Penguins, Southern Giant Petrel			
Elephant Island (site 2)	Chinstrap Penguin	37415	Ant31	all
Elephant Island (site 3)	Chinstrap Penguin	22610	Ant31	all
Elephant Island (site 4)	Chinstrap Penguin	37950	Ant31	2km / 5km 10km
Elephant Island (site 5)	Chinstrap Penguin, Southern Giant Petrel	13010	Ant31	all
Clarence Island (site 1)	Chinstrap, Macaroni Penguins	21521	Ant32	all
Clarence Island (site 2)	Adélie, Chinstrap, Macaroni Penguins,	127094	Ant32	all
Clarence Island (site 3)	Chinstrap, Macaroni Penguins	71485	Ant32	all
Cape Shirreff	Chinstrap, Gentoo Penguins	10700		all
Kellick & Tartar Island, Pottinger Point	Chinstrap Penguin	124796		all
Seal Island	Chinstrap, Macaroni Penguins, Southern Giant Petrel	20219		all
Barnard Point, Miers Bluff	Chinstrap, Gentoo Penguins, Southern Giant Petrels	15240		all
Penguin Island	Adélie, Chinstrap Penguins, Southern Giant Petrel	17541		2km / 5km / 10km
Aspland, Eadie, O'Brian islands	Chinstrap, Macaroni Penguins	34921		all

South Orkney Islands:

Location	Species	Breeding Pairs	IBA number	Grid
Signy Island	Adélie, Chinstrap, Gentoo, Macaroni Penguins, Southern Giant Petrel	130780	Ant33	all
Cape Bennet, Gibbon Bay	Chinstrap Penguin	23172	Ant34	10km
Robertson Islands	Chinstrap Penguin	13958	Ant35	2km / 5km / 10km
Christofferson & Fredrikson Island (site 1)	Adélie, Chinstrap, Gentoo Penguins, Southern Giant Petrel	51151	Ant36/37	2km / 5km / 10km
Christofferson & Fredrikson Island (site 2)	Chinstrap Penguins, Southern Giant Petrel	34294	Ant36/37	all
Pirie Peninsula, Watson Peninsula	Adélie, Chinstrap, Gentoo Penguins, Southern Giant Petrel	50512	Ant39, part of Ant40	2km / 5km / 10km
Cape Robertson, Laurie Island	Chinstrap Penguin	43545	part of Ant40	all
Point Martin, Laurie Island	Adélie, Chinstrap Penguins	41830	part of Ant40	all
Watson Peninsula, Fraser Point	Chinstrap Penguin, Southern Giant Petrel	39060	part of Ant40	all
Ferrier Peninsula	Adélie, Chinstrap, Gentoo Penguins,	76200	part of Ant40	all
Graptolite Island, South Coast Laurie Island	Adélie, Chinstrap, Gentoo Penguins	53580	Ant41, part of Ant40	all
Larsen Islands, Monroe Island	Chinstrap Penguin	37999		2km / 5km / 10km
Moreton Pt, Return Pt, Cheal Pt	Adélie, Chinstrap, Gentoo Penguins	81263		all
Stene Pt, Cape Vik	Adélie, Chinstrap Penguins	10540		10km
Moe Island	Chinstrap Penguin	14878		2km / 5km / 10km

Annex C: List of IBA sites proposed for removal from the BirdLife / SCAR IBA site list

The following tables list the locations of sites on the BirdLife / SCAR IBA list which have not met IBA criteria A1, A4i or A4ii in the present analysis. The original IBA site number is stated.

Antarctic Peninsula

Location	Species	Breeding Pairs	IBA number
Booth Island	Adélie Penguin	34	Ant11
	Chinstrap Penguin	24	Ant11
	Gentoo Penguin	377	Ant11
	Antarctic Shag	19	Ant11
Moss Island, Hughes Bay	Chinstrap Penguin	3600	Ant18
	Gentoo Penguin	450	Ant18
	Antarctic Shag	90	Ant18
	Southern Giant Petrel	135	Ant18

South Shetland Islands

Location	Species	Breeding Pairs	IBA number
“Triplet Hills”, Heywood Island	Southern Giant Petrel	20	Ant24

South Orkney Islands

Location	Species	Breeding Pairs	IBA number
Cape Bennet, Coronation Island	Chinstrap Penguin	9050	Ant34

Annex D: Adjustments to grid-derived IBA list based on updates to bird species data published since 2007

Table D-1: IBA list updates based on bird census data published since 2007 for the 7 species included in Part I of this report:

Species	Dataset	Confirmed IBAs	Potential IBAs	Sites no longer qualifying as IBAs	Action
Adélie Penguin (*Pygoscelis adeliae*)	ERA data included in grid analysis updated in 2007. Literature review conducted to update dataset to include data published between 2007-10.	None	D'Urville Monument, Joinville Island (10,000 pairs estimated on 24/01/2006 in Lynch et al. (2008))		Include D'Urville Monument in list of potential IBAs (A4iii)
				Tay Head, Joinville Island (6450 pairs counted on 21/12/2006 and recorded in Lynch et al. (2008) compared to 15,000-20,000 recorded in Naveen (2003))	Remove Tay Head from IBA list.
			Marshall Bay, Coronation Island (13,381 pairs (N3) counted on 17/12/2003 reported in Lynch et al. (2008)		Include Marshall Bay in list of potential IBAs (A4iii)
Chinstrap Penguin (*P. antarctica*)	ERA data included in grid analysis updated in 2007. Literature review conducted to include data published between 2007-10.	None	None	None	None
Gentoo Penguin (*P. papua*)	ERA data included in grid analysis updated in 2007. Literature review conducted to update dataset to include data published between 2007-10.	Yankee Harbour, Greenwich Island (4918 pairs recorded in Lynch et al. (2008) compared to 9199 pairs recorded previously in Naveen (2003) and Woehler (1993))	None	None	None; breeding site still meets IBA criteria A1 and A4ii.
Emperor Penguin (*Apenodytes fosteri*)	ERA data included in grid analysis updated in 2007. Literature review conducted	None	None	None	None

Species	Dataset	Confirmed IBAs	Potential IBAs	Sites no longer qualifying as IBAs	Action
	to update dataset to include data published between 2007-10.				
Macaroni Penguin (*Eudyptes chrysolophus*)	ERA data included in grid analysis updated in 2007. Literature review conducted to update dataset to include data published between 2007-10.	None	None	None	None
Antarctic Shag (*Phalacrocorax atriceps*)	ERA data included in grid analysis updated in 2007. Literature review conducted to update dataset to include data published between 2007-10.	Stonington Island (135 pairs recorded in 06/02/2007 by Lynch et al. (2008))			Include Stonington Island in IBA list (A4i)
Southern Giant Petrel (*Macronectes giganteus*)	ERA data included in grid analysis updated in 2007. Literature review conducted to update dataset to include data published between 2007-10.	None	None	None	None

Annex E: IBAs identified from a review of census data for an additional 12 bird species

Table E-1: IBA list updates based on the 12 species not analysed in Part I of this report

Species	Dataset	Confirmed IBAs	Potential IBAs	Action
Snow Petrel (*Pagodroma nivea*)	Available data in ERA database	None	None	None
Kelp Gull (*Larus dominicanus*)	Partial dataset at ERA database. Literature review conducted		449 pairs recorded at Byers Peninsula in 1965 (White (1965) in Croxall – BAS Internal Records – in ASPA No. 126 management plan).	Retrieve detailed breeding site data from original report if available. If unavailable, consult experts to determine whether whole of Byers Peninsula should be included in IBA list (for A4i criteria).
Antarctic Tern (*Sterna vittata*)	No dataset compiled at ERA to date. Literature review conducted		1760 pairs recorded at Byers Peninsula in 1965 (White (1965) in Croxall – BAS Internal Records – in ASPA No. 126 management plan)	Retrieve detailed breeding site data from original report if available. If unavailable, consult experts to determine whether whole of Byers Peninsula should be included in IBA list (for A4i criteria).
Southern Fulmar (*Fulmarus glacioloides*)	Partial dataset at ERA database. Literature review conducted		Astrolabe Island (c.5000 pairs estimated in 1987 by Poncet & Poncet (unpub.) recorded in Creuwels et al. (2007)) with estimate of min 1000, max 10,000 pairs)	Consult experts to determine whether Astrolabe Island should be include in the IBA list (A4ii and A4iii).
			Gibbs Island (18,830 pairs counted in 1977 by Furse, (1978) listed in Creuwels (2007))	Data aggregated over Gibbs Island. Consult experts to determine whether to include southern fulmar as trigger species (A4ii and A4iii) at Gibbs Island.

Species	Dataset	Confirmed IBAs	Potential IBAs	Action
			Aspland Island (9800 pairs counted in 1977 by Furse, (1978) listed in Creuwels, (2007))	Data aggregated over Aspland Island. Consult experts to determine whether to include Aspland Island on IBA list (A4ii, A4iii).
			Pourquoi Pas Island (c.7500 estimated in 1986 by Poncet & Poncet unpub., listed in Creuwels (2007) with estimates of between 5000 and 10,000 pairs.)	Data aggregated over Pourquoi Pas island. Consult experts to determine whether Pourquoi Pas Island should be included in IBA list.
			NW coast Anvers Island, c.15km NE of Rosenthal Islands (c.5000 recorded in 1987 by Poncet & Poncet unpub. listed in Creuwels (2007) with estimates of btw 1000 and 10,000 pairs.)	Consult experts to determine whether NW coast Anvers Island should be an IBA.
			Davis Island (c.5000 pairs recorded in 1987 by Poncet & Poncet unpub., listed in Creuwels (2007) with estimates of btw 1000 and 10,000 pairs)	Consult experts to determine whether to include Davis Island in IBA list. Note 150 pairs of Antarctic Shags present in area also (aggregating data over 10 km grid).
			Trinity Island (10,000 pairs recorded in1987 by Poncet & Poncet unpub., listed in Creuwels (2007) with estimates of btw 2000 and 20,000 pairs.)	Consult experts to determine whether to include fulmar as trigger species (A4ii and A4iii) at Trinity Island.
			Otter Rock, north of Notter Point on Trinity Peninsula (c.5000 pairs recorded in 1990 by Poncet & Poncet unpub., listed in Cruewels et al. (2007) with estimates of btw 1000 and 10,000 pairs.)	Consult experts to determine whether Otter Rock should be included in IBA list.
			Clarence Island (Furse, (1978) estimated 25,475 pairs in 1977)	Data aggregated over whole island. Consult experts to decide whether to include fulmars as trigger species (A4ii and A4iii) at Clarence Island.

Species	Dataset	Confirmed IBAs	Potential IBAs	Action
			Inaccessible Island (c.50,000 pairs recorded in 1987 by Poncet & Poncet, unpub., listed in Creuwels et al. (2007) with estimates of btw 10,000 and 100,000 pairs)	Data aggregated over whole island. Consult experts to decide whether to include Inaccessible Islands in IBA list (A4ii and A4iii).
			Monroe Island (c.7500 pairs recorded in 1984 by Poncet & Poncet unpub., listed in Creuwels et al. (2007) with estimates of btw 5000 and 10,000 pairs.)	Data aggregated over Monroe Island. Include fulmars as probable trigger species (A4ii and A4iii) if all of Monroe Island designated an IBA.
			Sandefjord Bay, Coronation Island (c.15,000 recorded in 1984 by Poncet & Poncet, unpub. (Creuwels, 2007) with estimates of btw 10,000 and 20,000 pairs)	Data aggregated over Sandefjord Bay. Consult experts to decide whether to include Sandefjord Bay in IBA list (for A4ii and A4iii criteria)
South Polar Skua (*Catharacta maccormicki*)	No dataset compiled at ERA to date. Literature review conducted	Half Moon Island (51 pairs in NE Half Moon Island, 103 pairs in total, recorded in 1995/96 by Garcia Esponda (2000).		Include NE Half Moon Island in IBA list (A4ii criterion met)
			Litchfield Island (up to 50 pairs breeding according to ASPA No. 113 management plan)	Data aggregated over whole of Litchfield Island. Consult experts to decide whether to include Litchfield Island as an IBA (A4ii)

Species	Dataset	Confirmed IBAs	Potential IBAs	Action
			Cierva Point (93 pairs recorded in 1996 in Quintana et al. (2000)). Note: "Most of the skuas' breeding sites were located in the large 'turf-moss' association areas with dominance of *Polytrichum alpestre*: 75.4% of the total observed nests were on extensive moss patches. For example, in habitat-type 4 (20 500 m2 of moss-turf area), an average of 29 skua nests was found (Table 1). Some skua nests, mainly of Subantarctic Skuas, were also found in small patches located on the edge of Gentoo Penguin nesting breeding areas."	Breeding sites dispersed across Cierva Point. Consult experts to decide whether to include Cierva Point in IBA list (A4ii criterion met).
			Potter Peninsula, King George Island (63 pairs recorded in 2002 in Ritz et al. (2005))	Data aggregated over Potter Peninsula. Include South Polar Skua as trigger species (A4ii) if all of Potter Peninsula designated an IBA.
			Fildes Peninsula, King George Island (176 pairs recorded in 2001 in Ritz et al. (2005))	Data aggregated over Fildes Peninsula. Include South Polar Skua as trigger species (A4ii) if all of Fildes Peninsula designated an IBA.
			Avian Island (880 pairs recorded in 2004 by W. Fraser pers comm in Ritz et al. (2005))	Data aggregated over all of Avian Island. Include South Polar Skuas as trigger species (A4ii) if whole of Avian Island designated an IBA.
			Argentine Islands at Verdansky Station (50 pairs recorded in 2003 by V. Bezrukov pers comm in Ritz et al. (2005))	Posn of breeding site(s) not given. Consult experts to decide whether to include Argentine Islands in IBA list.

Species	Dataset	Confirmed IBAs	Potential IBAs	Action
			Admiralty Bay (338 pairs of *Catharacta maccormicki, C. antarctica lonnbergi* and hybrids combined, breeding in Ezcurra Inlet, MacKellar Inlet, Martel Inlet and on Vaureal Peak, i.e. north and east Admiralty Bay, Sanders et al. (2005))	Area included in count is c.15 km across at widest point, consisting of 9 distinct breeding sites. Consult experts to determine whether whole of Admiralty Bay should be included in an IBA (instead of western shore only).
Antarctic Petrel (*Thalassoica antarctica*)	Database compiled at ERA updated in 2007 Literature review conducted to incorporate new data.	None	None	None
Cape Petrel (*Daption capense*)	No dataset compiled at ERA to date. Literature review conducted	None	None	None
Wilson's Storm Petrel (*Oceanites oceanicus*)	No dataset compiled at ERA to date. Literature review conducted	None	None	None
Black-bellied Storm Petrel (*Fregetta tropica*)	No dataset compiled at ERA to date. Literature review conducted	None	None	None
Brown Skua (*Catharacta lonnbergi*)	No dataset compiled at ERA to date. Literature review conducted		As above (for South Polar Skua entry): Admiralty Bay (338 pairs of *Catharacta maccormicki, C. antarctica lonnbergi* and hybrids combined, breeding in Ezcurra Inlet, MacKellar Inlet, Martel Inlet and on Vaureal Peak, i.e. north and east Admiralty Bay, (Sanders et al. (2005)).	As above (for South Polar Skua entry): Area included in count is c.15 km across at widest point, consisting of 9 distinct breeding sites. Consult experts to determine whether whole of Admiralty Bay should be included in an IBA (instead of western shore only).
			Signy Island (>100 pairs recorded in 2003-05 by BAS (unpublished data) in Ritz et al. (2005))	Data aggregated over all of Signy Island. Include brown skua as trigger species (A4ii) if whole of Signy Island designated an IBA.

Species	Dataset	Confirmed IBAs	Potential IBAs	Action
			Fildes Peninsula, King George Island (76 pairs recorded in 2001 by Ritz et al. (2005))	Data total for whole of Fildes Peninsula. If all of Fildes Peninsula designated an IBA, include Brown Skua as trigger species (A4ii).
			Elephant Island (190 pairs recorded in 1983 by M. Sanders; pers comm in Ritz et al. (2005))	Data aggregated over Elephant Island. If whole island designated as an IBA, include Brown Skua as trigger species (A4ii) at Elephant Island IBA.
Greater Sheathbill (*Chionis alba*)	No dataset compiled at ERA to date. Literature review conducted	None	None	None
Light-mantled Sooty Albatross (*Phoebetria palpebrata*)	No dataset compiled at ERA to date. Literature review conducted	None	None	Note: only record of this species breeding in Antarctica is on Fildes Peninsula, in Lisovski *et al.* (2009), where confirmed two nests and one possible nest were recorded.
Antarctic Prion (*Pachyptila desolata)*	No dataset compiled at ERA to date. Literature review conducted	None	None	None

Antarctic Important Bird Areas
Defining Model Bird Foraging Areas

Chinstrap penguins on Signy Island, C Harris

Environmental Research & Assessment
& BirdLife International

Foreign & Commonwealth Office

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Preface

Environmental Research & Assessment (ERA) is identifying and verifying a network of Important Bird Areas in the Antarctic Peninsula region on behalf of BirdLife International and the UK Foreign & Commonwealth Office. This project is building on earlier work initiated in coordination with the Scientific Committee on Antarctic Research, and draws on additional data and published research. The earlier work did not consider the regions within which breeding birds forage, although these are of ecological and conservation significance to the birds.

The current collaboration between ERA and BirdLife International therefore seeks to derive a method for defining bird foraging areas at Antarctic Important Bird Areas so that, where possible, these might be better taken into consideration.

Introduction

Defining the location and size of Antarctic IBAs, and associated areas that may be considered relevant, can be approached in a number of different ways, including as:

- Simple point locations with no explicit spatial extent;
- Point locations with a defined 'buffer' of some distance surrounding the point;
- Polygons defined around the perimeter of breeding sites;
- Ice-free areas surrounding breeding site locations;
- Islands or island groups on which the sites may be located;
- Existing protected areas, where these already include the IBA and have defined boundaries;
- Foraging ranges of birds breeding at IBAs.

The present paper focuses on the last of these approaches, and evaluates a method that can be applied to define a model of the spatial extent of bird-foraging areas, given available data. These model foraging areas may be designated as IBAs in their own right, may be treated as seaward extensions of terrestrial IBAs, or may be considered as associated 'dependency areas' for birds breeding at a terrestrial IBA. At this stage, we seek to define a method of defining model foraging areas that is as robust and scientifically sound as possible, without prejudgment of whether areas identified would become an integral part of any IBA. Marine areas defined, however, could be recognised at least as closely associated with specific terrestrial IBAs already identified.

The foraging range of a bird is an estimate of the distance from a breeding site the bird will travel in search of food. Data on foraging ranges for most bird species breeding in Antarctica are limited. Furthermore, those foraging range data that have been published use a variety of methods and formats, making it difficult to draw statistical comparisons. For example, data on foraging ranges are collected at different stages in the breeding season, and measured in different ways (e.g. estimates of mean or maximum foraging range).

This paper assesses the foraging range data available for bird species breeding within the Antarctic and presents a method for defining model marine foraging areas for those species for which data were considered sufficient to draw reliable conclusions.

Objective

To identify a robust approach for using bird foraging range data to define model bird foraging areas in the Antarctic IBA network.

Methods

BirdLife is compiling a database of seabird ecology and foraging ranges, and using this information to help identify marine Important Bird Areas, inform protected area designation and as input to marine spatial planning.

Of the bird species breeding in the Antarctic Peninsula region, foraging range data are available for Adélie (*Pygoscelis adeliae*), Gentoo (*P. papua*), Chinstrap (*P. antarctica*) and Macaroni (*Eudyptes chrysolophus*) penguins (90, 31, 17 and 18 estimates of foraging range respectively) as well as the Antarctic Shag (*Phalacrocorax atriceps*), Kelp Gull (*Larus dominicanus*) and Antarctic Tern (*Sterna vittata*) (seven, four and three estimates of foraging range respectively). For the latter three species, we consider data insufficient to draw reliable conclusions on foraging range trends. Therefore, only data on foraging ranges for Adélie, Gentoo, Chinstrap and Macaroni penguins are included in the present analysis.

Seabird foraging range estimates were grouped by BirdLife International according to the measure of foraging range each database entry represents (e.g. mean foraging range, maximum foraging

range). An estimate was then made of the percentage of birds likely to be found within each measure of foraging range. For example, values indicating the *mean* foraging range for a species from a breeding site were assigned '50 %', indicating 50 % of birds are likely to forage within the specified range. Estimates of foraging extents for *most* birds were assigned '65 %'; estimates of *mean maximum* foraging range were assigned '85 %'; whilst estimates of the *maximum* foraging range were assigned '95%'. Table 1 lists the percentage of birds estimated to forage as indicated by each measurement type. For each species, the greatest foraging distance recorded was used to specify the range at which 100 % of birds are expected to forage.

Table 1: Estimates of the percentage of birds referred to in different measurements of foraging range

Measurement type	Percentage of birds
Mean	50 %
Most	65 %
Mean maximum	85 %
Maximum	95 %
Greatest distance recorded	100 %

The mean of each measurement group was calculated to give the average foraging range for 50 %, 65 %, 85 % and 95 % of birds. Where specific percentages of birds foraging within a given area were noted in the database (e.g. 75% <10km) these were also used to create additional data points. These averages were plotted on a graph and joined to show the trend between 'percentage of birds' and 'distance from colony' for each species. Standard deviation error bars and curves were also plotted to indicate the variation in data along the foraging range curve.

The number of data entries available in each measurement group varies greatly. For the Chinstrap, Gentoo and Macaroni penguins, between 1 and 17 data entries were available in each of the four measurement groups (mean, most, mean maximum, maximum) used to calculate average foraging ranges. For the Adélie Penguin, between 3 and 57 data entries were available within each measurement group. Statistics derived from small sample sizes are more likely to contain errors and therefore it was recognised that, at the least, the value and variation in standard deviation along the foraging curves should be carefully considered.

Furthermore, it is noted that where only one data entry is available in a measurement group (e.g. for data on foraging ranges for 50 % or 85 % of Gentoo penguins at a breeding site), the standard deviation is 0 and consequently there is no error bar at such points on the graph. This implies the estimates of foraging range have a lower error at these points than is likely to be the case. The lack of data points, and the small number of data entries available in some of the measurement categories, explains the sharp changes in slope along the foraging range curves.

Extending foraging areas associated with an IBA to the maximum foraging range recorded would be a poor representation of the foraging area for the majority of birds, since these extremes apply to only a small percentage of birds. However, to use the available foraging range data to define the extent of model foraging areas, there is a need to select an appropriate cut-off point.

For each species considered, foraging range data entries are most abundant in the 'mean' foraging range category, with 57, 17, 9 and 7 estimates of mean foraging range for the Adélie, Chinstrap, Gentoo and Macaroni penguins respectively. For each species, using estimates of the mean foraging range to model bird foraging areas maximises the sample size and should reduce the error of statistical calculations on foraging range.

To use the data to define the extent of model bird foraging areas, we propose the following method:

- For each species, use the distance (d_m) calculated by averaging all estimates of the mean foraging range and add the standard deviation (s.d.) of d_m to this value. The resultant distance '$d = d_m$ + s.d.'[1] from a breeding site will be used to mark the limit of the area within which at least 50 % of birds are expected to forage.

This method can be further refined using the standard deviation curves on the graphs of '% of birds' / 'distance from colony' to read off the maximum percentage of birds expected to forage within *d* km of a breeding site. In this way, the percentage range of birds foraging within *d* km of a breeding site can be estimated for each species.

This methodology applies the law of diminishing returns, defining a model foraging area which includes the largest proportion of birds for the smallest area. Continuing to extend the model foraging area beyond the proposed distance would yield diminishing additional benefits, since it would include fewer and fewer additional birds.

[1] Rounded to the nearest integer.

Results

We present the most robust method identified to define the extent of model foraging areas for Adélie, Chinstrap, Gentoo and Macaroni penguin breeding sites in the Antarctic IBA network.

Figures 1 - 4 illustrate the nature of the foraging range data available for Adélie, Gentoo, Chinstrap and Macaroni penguins.

Figure 1a: Adélie foraging range estimates with standard deviation bars

Figure 1b: Adélie foraging range estimates with standard deviation curves

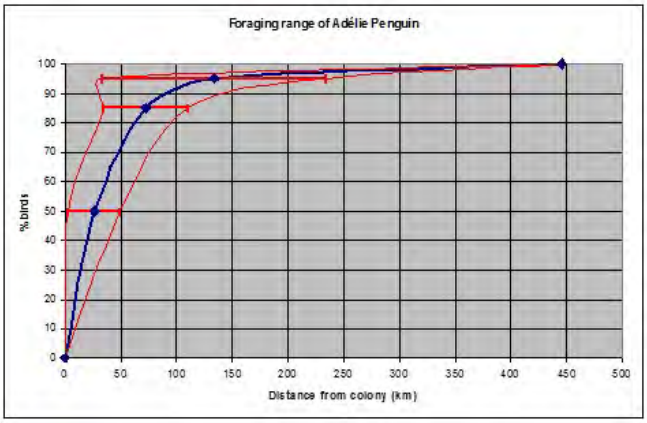


Figure 2a: Gentoo foraging range estimates with standard deviation bars

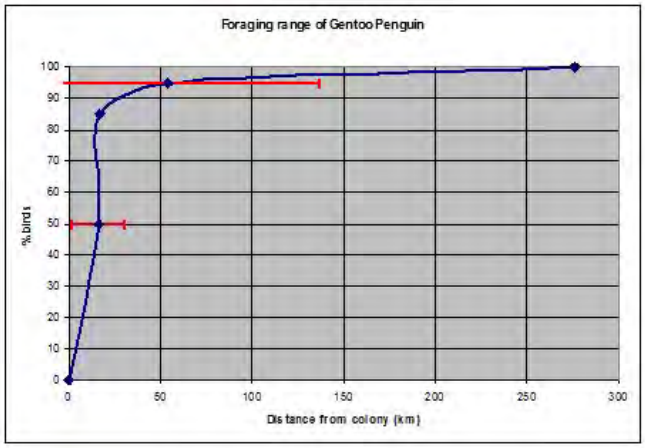


Figure 2b: Gentoo foraging range estimates with standard deviation curves

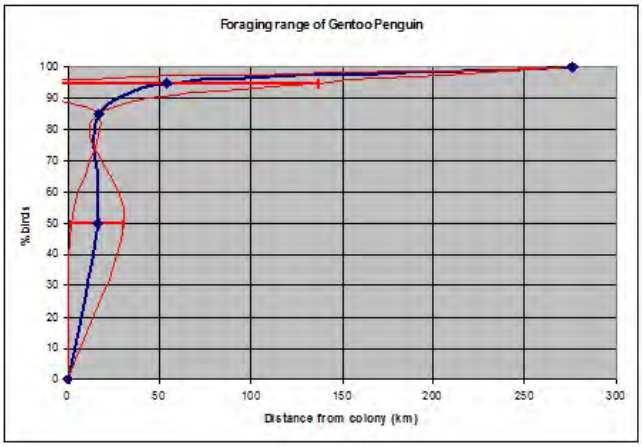


Figure 3a: Chinstrap foraging range estimates with standard deviation bars

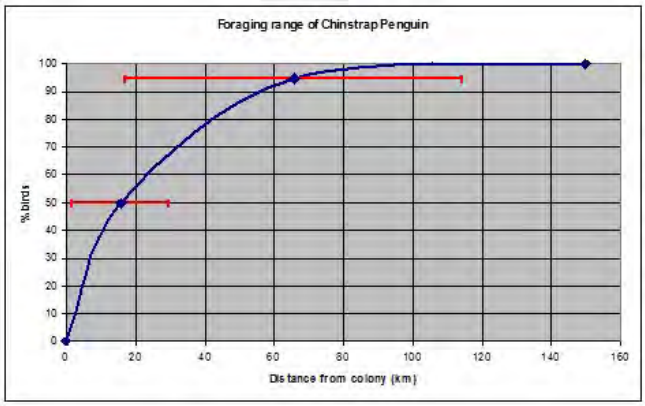


Figure 3b: Chinstrap foraging range estimates with deviation curves

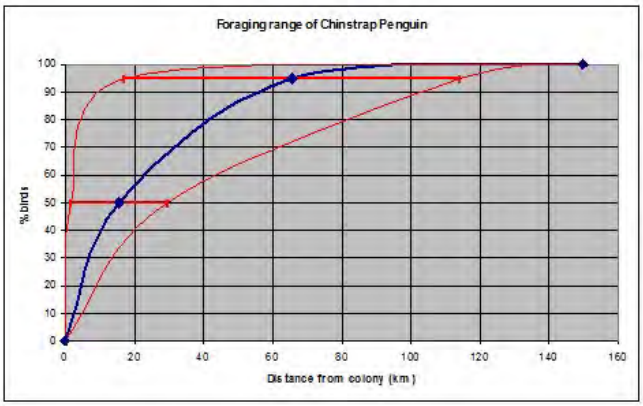


Figure 4a: Macaroni foraging range estimates with standard deviation bars

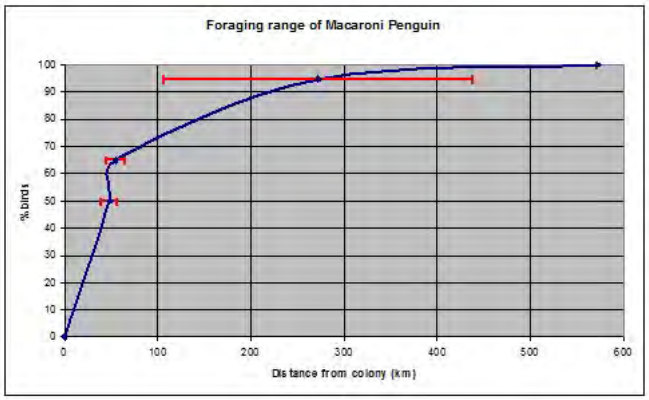
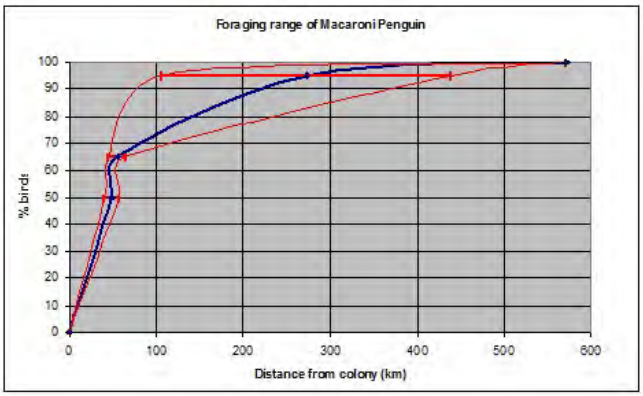


Figure 4b: Macaroni foraging range estimates with standard deviation curves



For each species, the proposed distance *d* in the table below indicates the limit of the model foraging area around a breeding site.

Table 2: Distances to define the extent of model foraging areas at IBA breeding sites.

Bird species	No. data entries on bird foraging range (total)	No. data entries on mean bird foraging range	Average of 'mean' foraging range values (distance d_m, km)	Standard deviation of d_m (km)	Proposed distance *d* to define limit of model foraging area from breeding site (km)	% of birds expected to forage within *d* km of breeding site
Adélie Penguin	90	57	26	23.5	50	50 – 95 %
Gentoo Penguin	31	17	16	14.7	31	50 – 97 %
Chinstrap Penguin	17	9	16	13.9	30	50 – 98 %
Macaroni Penguin	18	7	48	8.8	57	50 – 81 %

Discussion

The results displayed in Table 2 indicate that the data on foraging ranges for each species trigger wide variations in the estimates of birds foraging within the specified distances from a breeding site. This high level of uncertainty implies either:

- more data entries are needed, and / or;
- some of the underlying data are statistical outliers, and / or;
- the data have been combined in a way that increases the error of subsequent statistical comparisons, e.g. the data may be drawn from different stages in the breeding cycle.

To ensure the extent of model foraging areas is an accurate and reliable indicator of the foraging areas important to birds at a breeding site, it is important to take into account the variation in the underlying data. The approach put forward in this paper attempts to achieve this by adding the standard deviation to the mean foraging range for each species to derive a suggested limit for the model foraging areas.

An indication of the maximum possible extent a bird species may forage from a site could be given to ensure important foraging sites falling outside of the model foraging areas are not entirely overlooked. One approach might be to mark the area extending to proposed distance 'd' (see Table 2) from a breeding site and, from the limit of this area, show in a lighter shade the area extending to the maximum recorded foraging range for the bird species present.

Several factors relating to the collection of foraging range data should be considered when combining data for statistical comparisons. In particular, seasonal variations in the foraging distances of some bird species require consideration. Birds may forage to different distances during the pre-laying, incubation, brood-guard, crèche and pre-moult stages, and large differences between foraging range extents could induce a high variance in the foraging data for some species (Richard Phillips (BAS), pers. comm., 08/06/2010). If sufficient data were available, it might be possible to map foraging ranges to reflect variations in foraging patterns at different points in the breeding season. However, many publications do not specify the seasonal stage at which their data were collected and consequently there are only a small number of data entries that could be used for this purpose presently in the BirdLife database. Variations in foraging data also reflect the differences between bird foraging patterns at distinct breeding sites. Birds may regularly forage further afield at one site than at another depending on the availability of prey, differences in sea-ice extent, and other factors. In the context of the present paper, the standard deviation curves can be

thought to, at least partially, represent the variations in foraging ranges over a breeding cycle and at distinct colonies.

The accuracy of the percentage values assigned to measurements of the number of birds foraging within specified distances is unknown. These percentages were defined to help categorise and compare published foraging range data. However, the percentages selected may not accurately reflect foraging estimates extracted from studies where measurement types were poorly defined. This factor is likely to contribute to the degree of variation associated with average foraging range estimates for each measurement type.

Model foraging areas can indicate the regions significant to breeding birds around IBAs. It is not immediately clear whether it would be appropriate to include these foraging range areas within the area formally defined as an IBA, or identify them as a separate IBA, or designate them as an IBA 'dependency area'. However, it is important to have some appreciation of the likely regions on which IBAs depend, as these areas need to be taken into consideration when faced with key management decisions (e.g. on fishing quotas, oil spill management plans, shipping lanes, renewable energy projects etc). Therefore, it could be useful to develop an indicator of the approximate foraging areas associated with IBAs, even if these are not formally part of the designated sites. If portrayed appropriately, given the methodological limitations that exist, such marine components could help to guide management and encourage further research in order to define these areas with more certainty in the future.

For sites where more than one bird species is present, several different overlapping foraging areas may be identified. These could either be merged and displayed as one model foraging area for all species considered, or these could be displayed to show the model foraging areas pertaining to each species (overlapping foraging areas can be represented using transparent overlays). The best approach is likely to vary according to whether the marine area is being identified as an IBA, in which case the preferred BirdLife approach is that the species with the largest foraging range sets the boundary, or whether foraging areas are only indicative for each species, in which case concentric circles could be a better approach. In either case, retaining the species-specific foraging areas is likely to be prove beneficial in the event that management plans are developed, in which case it may be useful to identify the variation in distribution, threats and management needs for different species, e.g. to facilitate zoning of different activities within a site.

Conclusion

The present analysis puts forward an approach to defining model foraging areas for Adélie, Chinstrap, Gentoo and Macaroni penguins based on data compiled by BirdLife in a foraging range database. This approach uses estimates of the mean foraging range for each species to provide a percentage range of birds likely to forage within a specified distance of a breeding site. This method has limitations, such as providing only a broad percentage range of birds present within a foraging area. However, to date this represents the best method available to indicate the typical foraging ranges for the species considered within the limits of the data available.

Applying these results to the Antarctic IBA network would show the approximate foraging areas upon which breeding colonies of Adélie, Chinstrap, Gentoo or Macaroni penguins depend. At the least, this approach would help to identify the regions associated with IBAs where management should be particularly cognisant of the potential impact of human activities on birds.

Owing to budget and time limitations on this project, model foraging ranges have not yet been applied to the IBAs identified by the current analysis. This could be undertaken at a future stage should resources become available.

Identification of Important Bird Areas in the Antarctic

Final List of IBAs:
Antarctic Peninsula, South Shetland Islands, South Orkney Islands

Cape Petrel chick, Signy Island (C. Harris)

17 May 2011

Foreign & Commonwealth Office

BirdLife INTERNATIONAL

environmental research & assessment era

Criteria for deriving the Final IBA List

Final identification of the IBAs requires definition of two main factors:

1. the number of birds breeding at each site and whether these exceed the BirdLife designation criteria; and
2. the spatial extent, or boundary of the IBA.

Numerical Criteria for IBA Listing

An IBA was identified where:

1. The count at an individual colony meets or exceeds the population thresholds set by BirdLife International for any of the species present at a site for any of the global Level A IBA criteria;
2. The result of summing the count at an individual colony for one or more species contained within a 5 km^2 area, or breeding on a landmass ≤ 5 km^2, exceeds the species numbers threshold for global Level A criteria A4iii.
3. Individual colonies have been defined in accordance with the definitions given in the source data.

Note:
The count for each site is based on totals given in available source data for individual colonies. In some cases individual colonies are well-known and defined within a specific location, while in others both the numbers and the spatial delineation of the colony are only poorly known. In many cases the spatial extent of the colony is not known at all. Occasionally populations have been estimated over a number of colonies which may be widely separated (e.g. by up to several kilometres), although only a total for the area is given in the source data.

Thus, in many cases data on numbers have been pre-aggregated at source, and there is no means to disaggegate according to specific colonies. Moreover, where specific colony boundaries are unknown, it has been assumed that the colony may be breeding on any part of the ice-free land available at the locality where they have been reported (with the exception of Emperor Penguins, all Antarctic birds require ice-free land on which to breed).

In addition, in many cases the mapping of sites is poor and the specific location of an outcrop or small island on which birds are breeding is poorly described or uncharted. In these cases the location has to be estimated from available evidence, such as from reports, descriptions, maps and satellite images.

In view of these difficulties, there was a need to define criteria for estimating the breeding area of colonies, and hence the boundary of the IBA.

Criteria for defining the IBA boundary

Having identified IBAs based on population criteria, further criteria are need to define the spatial extent of the IBA boundary. Particular rules were defined for IBAs that coincide with existing protected areas because these are distinct, legally agreed areas that have management plans to regulate activities within their boundaries. In the case of Antarctic Specially Protected Areas (ASPAs), permits are required for entry. In most cases where an IBA has been identified within an ASPA, the site has been desginated at least in part because of its ornithological values.

If the IBA occurs within an Antarctic Specially Protected Area (ASPA):

1. The boundary of the ASPA is used to define the IBA boundary.

If the IBA occurs within an Antarctic Specially Managed Area (ASMA):

1. Where the IBA occurs within a management zone designated by the ASMA, the boundary of the management zone is used to define the IBA boundary. For example, a number of Restricted Zones within ASMA No. 7 Palmer Basin and SW Anvers Island are identified as IBAs and the zone boundaries are used to define the IBA boundary.
2. Where the IBA occurs on distinct islands and one or more islands are contained within designated management zones, the IBA boundary is defined by the boundary of the management zones joined using the shortest practical perimeter.

If the IBA occurs outside of an ASPA or management zone within an ASMA:

1. Where data for birds triggering an IBA have been pre-aggregated over distinct islands, ice-free areas or a combination of ice-free areas and offshore islands and rocks, covering a total land area of > 5 km^2, the IBA boundary will be drawn using the shortest perimeter such that all land areas over which data are aggregated are incorporated into the IBA, adjusting the perimeter where appropriate so that it is follows the land coastline and/or limit of the ice-free areas where these features fall inside the area bounded by the shortest perimeter.
2. Where a breeding site triggering an IBA is located on a landmass not present in the Antarctic Digital Database base map, a circular limit with a 1.26 km radius around the point marking the breeding site centroid will be used to define the IBA boundary (i.e. 5 km^2);
3. Where birds triggering an IBA are known or thought to breed on an island of ≤ 5 km^2, the island coastline will define the IBA boundary;
4. Where birds triggering an IBA are known or thought to breed on distinct islands within an island group and the island group covers a land area of ≤ 5 km^2, the IBA boundary will be drawn using the shortest perimeter such that all islands within the group are incorporated into the IBA, adjusting the perimeter where appropriate so that it follows the island coastline. Note: where birds triggering an IBA breed both within an island group and on land outside of the island group, and the total land area for the island group + outside islands containing breeding birds covers ≤ 5 km^2, the island group and the islands containing breeding birds outside the island group will be included in the IBA;
5. Where birds triggering an IBA are known or thought to breed on distinct ice-free areas with a contained geographic area and the ice-free areas covers a land area of ≤ 5 km^2, the IBA boundary will be drawn using the shortest perimeter such that all ice-free areas on which birds breed are incorporated into the IBA, adjusting the perimeter where appropriate so that it follows the coastline or limit of an ice-free area;
6. Where an IBA centroid is located on an ice-covered area on an island or other landmass that is > 5 km^2, the limit of a 1.26 km radius around the IBA centroid, clipped to both the land coastline and the limit of the ice-free area, will be used to define the IBA boundary.
7. Where two or more IBAs identified by the source data were less than 500 m in distance apart, these sites were assigned to belong within a single IBA comprising all sites.

It is recognised that the criteria used can result in clusters of IBAs within ‘close’ proximity. It would be entirely possible to vary the minimum separation distance between IBAs to obtain an alternative result, for example by merging those sites that are less than 1 km, or perhaps 10 or 20 km apart. Clearly, this would result in fewer, although larger IBAs.

It is acknowledged that the 500 m threshold used as a criteria for merging sites is arbitrary. The approach taken seeks to preserve as far as practicable the results offered given the resolution of the source data, and to minimise merging. However, where two or more IBAs had been identified less than 500 m apart, there seemed little practical benefit to designating the sites separately. Practical management of the sites, should it be required, would most likely need to consider such adjacent sites as a unit. Of course, this could be argued similarly for greater separation distances: our intention is to remain faithful to the data as it exists at source, while being pragmatic, although we recognise that other minimum separation distances could be used.

If evidence is brought to light which supports the case to merge identified IBAs into larger units based on alternative criteria, then the analysis could be re-run to reflect the best scientific case for appropriate spatial units. For example, evidence for merging IBAs may appear from new studies being conducted on the genetic similarities of spatially distributed populations of the same species (T. Hart, pers. comm., 2011), and further studies on foraging ranges and identified feeding grounds out to sea, as opposed to concentrating on breeding localities, may inform alternative spatial configurations for Antarctic IBAs in the future. For the moment, however, their remains insufficient data on which to base such alternative configurations, and there is a need for further research before a practical set of IBAs boundaries could be defined that take such factors into account.

Triggering Species at Each Site

Antarctic Peninsula

New IBA number	Location	Trigger species (breeding pairs)	IBA criteria satisfied	Data source
1	Stonington Island	Imperial Shag (135)	A4i	Imperial Shags: counted on 06/02/2007, Lynch et al. (2008)
2	Dion Islands	Imperial Shag (500)	A4i	Imperial Shag: counted in 1980s, S & J Poncet pers comm.
3	Avian Island	Adélie Penguin (35,600), Imperial Shag (670), South Polar Skua (880)	A4i, A4ii, A4iii	South Polar Skua: count in 2004; W. Fraser pers comm in Ritz et al. (2005). Adélie Penguins: counted in 1978, Woehler (1993).
4	Ginger Islands	Imperial Shag (275)	A4i	Imperial Shag: counted in 1980s, S & J Poncet pers comm.
5	Cape Evensen	Imperial Shag (180)	A4i	Imperial Shag: counted 1990, S & J Poncet unpub.
6	Island north of Dodman Island	Imperial Shag (183)	A4i	Imperial Shag: counted 1984, S & J Poncet unpub.
7	Armstrong Reef	Imperial Shag (525), Adélie Penguin (12,800)	Ai, A4iii	Imperial Shag: counted in 1989-90, S & J Poncet (unpub.). Adélie Penguins: counted in 1984, Woehler (1993)
8	Islet south of Bates Island	Imperial Shag (150)	A4i	Imperial Shag: counted 1986, S & J Poncet unpub.
9	Uruguay Island	Imperial Shag (203)	A4i	Imperial Shag: counted 1986, S & J Poncet, unpub.
10	Petermann Island	Gentoo Penguin (3020)	A1	Gentoo Penguins: based on N1 count made 14 Dec 2009, H. Lynch pers. comm. (2010).
11	Pursuit Point, Wiencke Island	Imperial Shag (140)	A4i	Imperial Shag: counted on 06/02/1987, Poncet & Poncet (unpub.)
12	Cormorant Island	Imperial Shag (729)	A4i	Imperial Shag: counted in 1985, Morton & Heimark pers. comm.
13	Northern Arthur Harbour area	Adélie Penguin (11,257)		Adélie Penguins: counted in 1984-85, Parmelee & Parmelee (1987) in Woehler (1993).
14	Litchfield Island	South Polar Skua (up to 50 pairs)	A4ii	South Polar Skua: up to 50 pairs breeding on Litchfield Island according to ASPA No. 113 Management Plan (with confirmation on estimates given by Fraser, pers comm. 2009), although 'the number of breeding pairs fluctuates widely from year to year'.
15	Joubin Islands	Imperial Shag (250)	A4i	Imperial Shag: counted in 1987, S & J Poncet, unpub.
16	Dream Island	Adélie Penguin (11,263),	A4iii	Adélie Penguins: counted in 1985, Parmelee & Parmelee (1987) in Woehler

New IBA number	Location	Trigger species (breeding pairs)	IBA criteria satisfied	Data source
		Chinstrap Penguin (200)		(1993). Chinstrap Penguins: counted in 1990, S & J Poncet pers. comm. in Woehler (1993).
17	Islet south of Gerlache Island	Gentoo Penguin (3000)	A1	Gentoo Penguins: counted in 1987, Woehler (1993).
18	Cuverville Island	Gentoo Penguin (6468)	A1, A4ii	Gentoo Penguins: counted 23 Dec 2009, Lynch pers. comm. (2010).
19	Islet east of Guépratte Island	Imperial Shag (220)	A4i	Imperial Shag: counted in 1987, S & J Poncet unpub.
20	Bluff Island	Imperial Shag (180)	A4i	Imperial Shag: counted in 1989; S & J Poncet unpub.
21	Cierva Point and offshore islands	South Polar Skua (93)	A4ii	South Polar Skua: counted in 1996, Quintana et al. (2000)
22	Trinity Island southwest	Imperial Shag (145)	A4i	Imperial Shag: counted in 1986, S & J Poncet, unpub.
23	Wollaston Point, Trinity Island	Southern Fulmar (10,000 with min 2000 and max 20,000)	A4ii, A4iii	Southern Fulmar: recorded in1987 by Poncet & Poncet (unpub.) breeding on NW corner of Trinity Island, listed in Creuwels et al. (2007) with estimates of btw 2000 and 20,000 pairs.).
24	Pearl Rocks	Imperial Shag (170)	A4i	Imperial Shag: counted in 1987, S & J Poncet, unpub.
25	Tupinier Islands	Chinstrap Penguin (14,130), Imperial Shag (34)	A4iii	Chinstrap Penguins and Imperial Shag: counted in 1990, S & J Poncet pers. comm.
26	Duroch Islands	Gentoo Penguin (3500)	A1, A4ii	Gentoo Penguins: counted in 1990, S & J Poncet pers comm.
27	Gourdin Island	Adélie Penguin (14,334)	A4iii	Adélie Penguins: counted in 1997, Naveen (2003)
28	Hope Bay	Adélie Penguin (123,850)	A4ii, A4iii	Adelie Penguins: counted in 1985, Woehler (1993)
29	Brown Bluff	Adélie Penguin (20,000)	A4ii, A4iii	Adélie Penguins: counted in 1996, R. Naveen pers. comm.
30	Snow Hill Island	Emperor Penguin (4200)	A4ii	Emperor Penguins: 4000-4200 estimated in 2004, Todd et al. (2004)
31	Penguin Point, Seymour Island	Adélie Penguin (16,015 +/- 10%)	A4iii	Adélie Penguins: counted on 21/12/2009, H. Lynch pers. comm. (2010).
32	Cockburn Island	Imperial Shag (800)	A4i	Imperial Shag: counted on 19/11/2006, Lynch et al. (2008).
33	Devil Island	Adélie Penguin (14,681 +/-	A4ii	Adélie Penguins: 14,681 nests counted on 12 Dec 2008, H. Lynch

New IBA number	Location	Trigger species (breeding pairs)	IBA criteria satisfied	Data source
		5%)		(Oceanites) pers. comm. (2010).
34	Paulet Island	Adélie Penguin (95,000 at 3 colonies), Imperial Shag (465)	A4i, A4ii, A4iii	Imperial Shag: counted on 18/02/2007 in Lynch et al. (2008); Adélie Penguins counted in 1999 by Naveen (2003)
35	Eden Rocks	Adélie Penguin (44,249 – 49,460)	A4ii, A4iii	Adélie Penguins: counted in 1996, Naveen (2003)
36	Danger Islands	Adélie Penguin (~295,000)	A4ii, A4iii	Adélie Penguins: c.295,000 counted on Heroina Island in 1996, Naveen (2003); unclear whether count is for Heroina Island or all of Danger Islands. Therefore, we include all of the Danger Islands (land area < 5 km^2).
37	D'Urville Monument, Joinville Island	Adélie Penguins (~ 10,000)	A4iii	Adélie Penguins: 10,000 pairs estimated on 24/01/2006 in Lynch et al. (2008)
38	Madder Cliffs	Adélie Penguin (~22,000)	A4ii	Adélie Penguin: counted on 21 Jan 2003, H. Lynch (Oceanites) pers. comm. (2010). "All we have is a very rough estimate of 22,000 nests."

South Shetland Islands

New IBA number	Location	Trigger species (breeding pairs)	IBA criteria satisfied	Data source
39	Cape Garry, Low Island	Chinstrap Penguin (110,000)	A4ii, A4iii	Chinstrap Penguins: counted in 1987, Shuford & Spear (1988) in Woehler (1993)
40	Jameson Pt, Low Island	Chinstrap Penguin (25,000)	A4iii	Chinstrap Penguins: counted in 1987, Shuford & Spear (1988) in Woehler (1993)
41	Cape Wallace, Low Island	Chinstrap Penguin (150,000)	A4ii, A4iii	Chinstrap Penguins: counted in 1987, Shuford & Spear (1988) in Woehler (1993)
42	Cape Hooker, Low Island	Chinstrap Penguin (10,000)	A4iii	Chinstrap Penguins: counted in 1987, Shuford & Spear (1988) in Woehler (1993)
43	Vapour Col, Deception Island	Chinstrap Penguin (75,000)	A4ii, A4iii	Chinstrap Penguin: counted in 1987, Shuford & Spear (1988)
44	Baily Head, Deception Island	Chinstrap Penguin (100,000)	A4ii, A4iii	Chinstrap Penguin: counted in 1989, S & J Poncet pers. comm.
45	Byers Peninsula, Livingston Island	Antarctic Tern (1760), Kelp Gull (449)	A4i	Antarctic Tern: 1760 pairs recorded at Byers Peninsula in 1965 (White (1965) in Croxall – BAS Internal Records – in ASPA No. 126 Management Plan). Kelp Gull: 449 pairs recorded at Byers Peninsula in 1965 (White (1965) in Croxall – BAS Internal Records – in ASPA No. 126 Management Plan)
46	Cape Shirreff, Livingston Island	Chinstrap Penguin (10,400)	A4iii	Chinstrap and Gentoo Penguins: counted in 1987, Shuford & Spear (1988) in Woehler (1993)
47	Barnard Point, Livingston Island	Chinstrap Penguin (13,000)	A4iii	Chinstrap Penguins: counted in 1987, S & J Poncet pers. comm. in Woehler (1993)
48	Half Moon Island	South Polar Skua (51)	A4ii	51 pairs recorded in 1995/96 by Garcia Esponda (2000).
49	Yankee Harbour, Greenwich Island	Gentoo Penguin (4918)	A1, A4ii	Gentoo Penguins: counted in 2003, Lynch et al. (2008)
50	Heywood Island	Chinstrap Penguin (90,000)	A4ii, A4iii	Chinstrap Penguins: counted in 1987, Poncet & Poncet unpub.
51	Harmony Point,	Chinstrap Penguin (100,685), Gentoo Penguin	A1, A4ii, A4iii	Gentoo Penguins & Greater Sheathbill counted in 1995-96, Silva et al. (1998). Southern Giant Petrels: Nester Coria unpub. (W. Papworth, pers.

New IBA number	Location	Trigger species (breeding pairs)	IBA criteria satisfied	Data source
	Nelson Island	(3347), Southern Giant Petrel (485), Greater Sheathbill (144)		comm., 2010). Chinstrap Penguins: 89,685 pairs counted in 1995-96 at Harmony Point, Silva et al. (1998) and 11,000 pairs counted in 1987 at The Tor, Shuford & Spear (1998) in Woehler (1993).
52	Potter Peninsula, King George Island	South Polar Skua (63), Adélie Penguin (14,554)	A4ii, A4iii	South Polar Skua: counted in 2002, Ritz et al. (2006). Adélie Penguins: counted 1987-89, Aguirre (1995).
53	Ardley Island, King George Island	Gentoo Penguin (3410)	A1	Gentoo Penguins: counted in 1986/7, J. Valencia pers. comm.
54	Stigant Point, King George Island	Chinstrap Penguin (10,893)	A4iii	Adélie Penguin: counted in 1980 in Woehler (1993).
55	Davey Point, King George Island	Chinstrap Penguin (19,690)	A4iii	Chinstrap Penguins: counted in 1980, Jablonski (1984) in Woehler (1993).
56	Tartar Island, King George Island	Chinstrap Penguin (18,640)	A4iii	Chinstrap Penguins: counted in 1980, Jablonski (1984) in Woehler (1993)
57	Kellick Island, King George Island	Chinstrap Penguin (26,890)	A4iii	Chinstrap Penguins: counted in 1980, Jablonski (1984) in Woehler (1993)
58	Owen Island, King George Island	Chinstrap Penguin (21,551)	A4iii	Chinstrap Penguins: counted in 1980, Jablonski (1984) in Woehler (1993)
59	Pottinger Point, King George Island	Chinstrap Penguin (55,861)	A4ii, A4iii	Chinstrap Penguins: counted in 1980, Jablonski (1984) in Woehler (1993).
60	False Round Point, King George Island	Chinstrap Penguin (49,870)	A4ii, A4iii	Chinstrap Penguins: counted in 1980, Jablonski (1984) in Woehler (1993)
61	Milosz Point, King George Island	Chinstrap Penguin (17,150)	A4iii	Chinstrap Penguins: counted in 1980, Jablonski (1984) in Woehler (1993)

New IBA number	Location	Trigger species (breeding pairs)	IBA criteria satisfied	Data source
62	North Foreland, King George Island	Chinstrap Penguin (23,286)	A4iii	Chinstrap Penguins: counted in 1980, Jablonski (1984) in Woehler (1993)
63	Cape Melville, King George Island	Chinstrap Penguin (16,278)	A4iii	Chinstrap Penguins: counted in 1980, Jablonski (1984) in Woehler (1993)
64	Penguin Island, King George Island	Southern Giant Petrel (634), Adélie Penguin (2441), Chinstrap Penguin (7581)	A4ii, A4iii	Southern Giant Petrels: counted Dec 1999, in Naveen (2000). Adélie Penguins: counted in 1997, Naveen (2003). Chinstrap Penguins: counted in 1980, Jablonski (1984) in Woehler (1993).
65	Lions Rump, King George Island	Adélie Penguin (12,345)	A4iii	Adélie Penguins: counted in 1980, Jablonski (1984) in Woehler (1993)
66	Western Shore of Admiralty Bay, King George Island	Adélie Penguin (15,151 nests)	A4iii	Adélie Penguins: counted in 1994-95, Management Plan for ASPA No. 128 (2000).
67	Aspland Island and Eadie Island	Chinstrap Penguin (8650), Chinstrap Penguin (5150), Southern Fulmar (c.9800) Southern Fulmar (c.8500)	A4iii	Southern Fulmar: count made in 1977; Furse (1978) in Creuwels et al. (2007). Chinstrap Penguins: counted in1977, Croxall & Kirkwood (1979).
68	O'Brien Island	Chinstrap Penguin (21,400), Southern Fulmar (c.7880)	A4iii	Southern Fulmar: count made in 1977; Furse (1978) in Creuwels et al. (2007). Chinstrap Penguins: counted in 1977, Croxall & Kirkwood (1979).
69	Gibbs Island East	Chinstrap Penguin (30,160), Macaroni Penguin (1672)	A1, A4iii	Chinstrap & Penguins: counted in 1977, Croxall & Kirkwood (1979).
70	Cape Lookout, Elephant Island	Chinstrap Penguin (11,755)	A4iii	Chinstrap Penguins: counted in 1971, Croxall & Kirkwood (1979)
71	Point Wordie, Elephant Island	Chinstrap Penguin (12,455)	A4iii	Chinstrap Penguins: counted in 1971, Croxall & Kirkwood (1979)
72	Saddleback Point, Elephant Island	Chinstrap Penguin (10,250)	A4iii	Chinstrap Penguins: counted in 1971, Croxall & Kirkwood (1979)

New IBA number	Location	Trigger species (breeding pairs)	IBA criteria satisfied	Data source
73	East of Nelly Point, Elephant Island	Chinstrap Penguin (24,430)	A4iii	Chinstrap Penguins: counted in 1971, Croxall & Kirkwood (1979)
74	Mount Elder, Elephant Island	Chinstrap Penguin (14,860)	A4iii	Chinstrap Penguins: counted in 1971, Croxall & Kirkwood (1979) (Shoreline to the east of Mount Elder)
75	Seal Islands	Chinstrap Penguin (20,000), Macaroni Penguin (194), Southern Giant Petrel (25), Imperial Shag (40)	A4iii	Chinstrap & Macaroni Penguins: counted in 1988-89, Bengtson pers comm. in Woehler (1993). Imperial Shag: counted in 1971, Bruce & Furse (1973). Southern Giant Petrel: counted in 1971, Patterson et al. (2008).
76	Cape Bowles, Clarence Island	Chinstrap Penguin (112,700)	A4ii, A4iii	Chinstrap Penguins: 33,000 counted at Cape Bowles, 58,500 at Pink Pool Point, 21,200 at Thunder Bay, in 1977, Croxall & Kirkwood (1979)
77	Craggy Point, Clarence Island	Southern Fulmar (> 10,000), Chinstrap Penguin (10,370), Macaroni Penguin (3350)	A1, A4ii, A4iii	Southern Fulmar: > 10,000 estimated to breed at Craggy Point in 1977, Furse (1978). Chinstrap & Macaroni Penguins: counted in 1977, Croxall & Kirkwood (1979).
78	Chinstrap Cove, Clarence Island	Chinstrap Penguin (20,701)	A4iii	Chinstrap Penguins: counted in 1977, Croxall & Kirkwood (1979)
79	Fur Seal Point, Clarence Island	Chinstrap Penguin (70,450), Southern Fulmar (> 10,000)	A4ii, A4iii	Chinstrap Penguins: counted in 1977, Croxall & Kirkwood (1979). Southern Fulmar: counted in 1977, Furse (1978).

South Orkney Islands

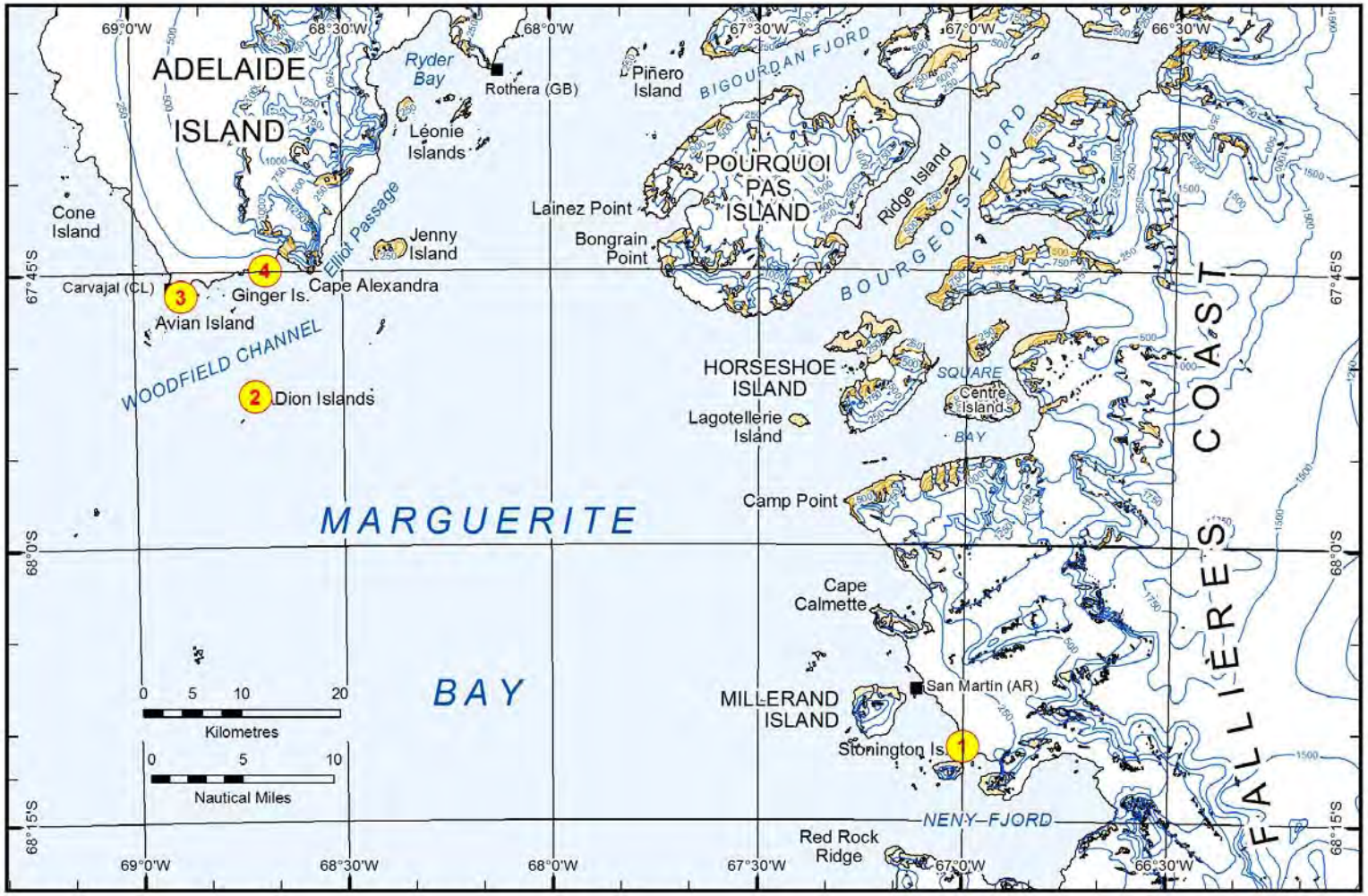
New IBA number	Location	Trigger species (breeding pairs)	IBA criteria	Data source
80	Cape Whitson, Laurie Island	Chinstrap Penguin (12,755)	A4iii	Chinstrap Penguins: counted in 1994, N. R. Coria pers. comm.
81	Point Martin, Laurie Island	Adélie Penguin (26,038), Chinstrap Penguin (13,394)	A4ii, A4iii	Chinstrap & Adélie Penguins: Adélie Penguins and Chinstrap Penguins counted in 1994, N. R. Coria pers. comm.
82	Islet SW of Cape Davidson, Laurie Island	Imperial Shag (225)	A4i	Imperial Shag: counted 1983, S & J Poncet unpub.
83	Eillium Island (off Laurie Island)	Chinstrap Penguin (21,400)	A4iii	Chinstrap Penguins: counted in 1983, Poncet & Poncet (1985) in Woehler (1993).
84	Cape Robertson, Laurie Island	Chinstrap Penguin (19,745)	A4iii	Chinstrap Penguins: counted in 1994, N. R. Coria pers. comm.
85	Pirie Peninsula, Laurie Island	Chinstrap Penguin (14,277)	A4iii	Chinstrap Penguins: counted in 1994, N. R. Coria pers. comm.
86	Ferguslie Peninsula, Laurie Island	Chinstrap Penguin (16,600)	A4iii	Chinstrap Penguins: counted in 1983, Poncet & Poncet (1985).
87	Watson Peninsula, Laurie Island	Chinstrap Penguin (10,893)	A4iii	Chinstrap Penguins: counted in 1994, N.R. Coria pers. comm.
88	Fraser Point, Laurie Island	Chinstrap Penguin (11,200)	A4iii	Chinstrap Penguins: counted in 1983, Poncet & Poncet (1985).
89	Buchanan Point, NE coast Laurie Island	Chinstrap Penguin (10,300)	A4iii	Chinstrap Penguins: counted in 1983, Poncet & Poncet (1985).
90	Ferrier Peninsula / Graptolite Island, Laurie Island	Adélie Penguin (61,000), Adélie Penguin (30,000), Chinstrap Penguins (14,200)	A4ii, A4iii	Penguins: counted in 1983, Poncet & Poncet (1985) in Woehler (1993).
91	Atriceps Island, Robertson Islands	Imperial Shag (524)	A4i	Imperial Shag: counted in 1988, ref 62 in WAM
92	Robertson Islands North	Chinstrap Penguin (34,870)	A4iii	Chinstrap Penguins: 14,750 pairs on Matthew I., 2100 on Coffers I., 11,500 on two islands South of Matthew I., 6520 on Steepholm Is & Skilling I. combined, counted in 1983, Poncet & Poncet (1985).
93	Southern Powell Island and adjacent islands	Gentoo Penguin (8057), Imperial Shag (144), Adélie Penguin (16,750), Chinstrap Penguin (28,105), Southern Giant	A1, A4i, A4ii, A4iii	Penguins: counted in 1983 in Poncet & Poncet (1985). Southern Giant Petrel: Patterson et al. (2008). Imperial Shag: counted in 1988, Rootes (1988) ? - ref 62 in WAM.

New IBA number	Location	Trigger species (breeding pairs)	IBA criteria	Data source
		Petrel (613)		
94	Moe Island	Chinstrap Penguins (10,964)	A4iii	Chinstrap Penguins: counted in 1978, Croxall et al. (1981) in Woehler (1993).
95	Signy Island	Adélie Penguin (16,900 total for several colonies), Chinstrap Penguin (19,530 total for c.14 breeding sites), Imperial Shag (801), Southern Giant Petrel (1093 total across Signy Island), Wilson's Storm Petrel (~200,000 across Signy Island), Brown Skua (>100 across Signy Island)	A4i, A4ii, A4iii	Brown Skua: BAS unpublished data, count conducted in 2003-05, reported in Ritz et al. (2005). Wilson's Storm Petrel: 200,000 pairs estimated in 1968, recorded in Beck & Brown (1972), breeding in holes and btw boulders all around ice-free areas of island. Adélie Penguins: BAS unpublished data, 2006, cited in Dunn et al (2010). Chinstrap Penguins: BAS unpublished data (2010). Imperial Shag: counted in 1988, Rootes (1988) ? – ref 60 in WAM. Southern Giant Petrels: Rootes 1988 in Patterson et al 2008.
96	Gibbon Bay, Coronation Island	Chinstrap Penguin (13,210)	A4iii	Chinstrap Penguins: counted in 1983, Poncet & Poncet (1985) in Woehler (1993)
97	Cape Hansen, Coronation Island	Adélie Penguin (13,381)	A4iii	Adélie Penguins: counted in 2003, Lynch et al. (2008).
98	Gosling Islands area, Coronation Island	Chinstrap Penguin (10,764)	A4iii	Chinstrap Penguins: counted in 1984, Poncet & Poncet (1985) in Woehler (1993)
99	Return Point & Cheal Point, Coronation Island	Chinstrap Penguin (38,100)	A4iii	Chinstrap Penguins: counted in 1984, Poncet & Poncet (1985) in Woehler (1993)
100	Moreton Point, Monroe Island and Larsen Islands.	Chinstrap Penguin (24,200) Chinstrap Penguin (38,000)	A4iii	Chinstrap Penguins: counted in 1984, Poncet & Poncet (1985) in Woehler (1993)
101	Inaccessible Islands	Southern Fulmar (c.50,000)	A4ii, A4iii	Southern Fulmar: c.50,000 pairs recorded by Poncet & Poncet, upub. in Creuwels et al. (2007).

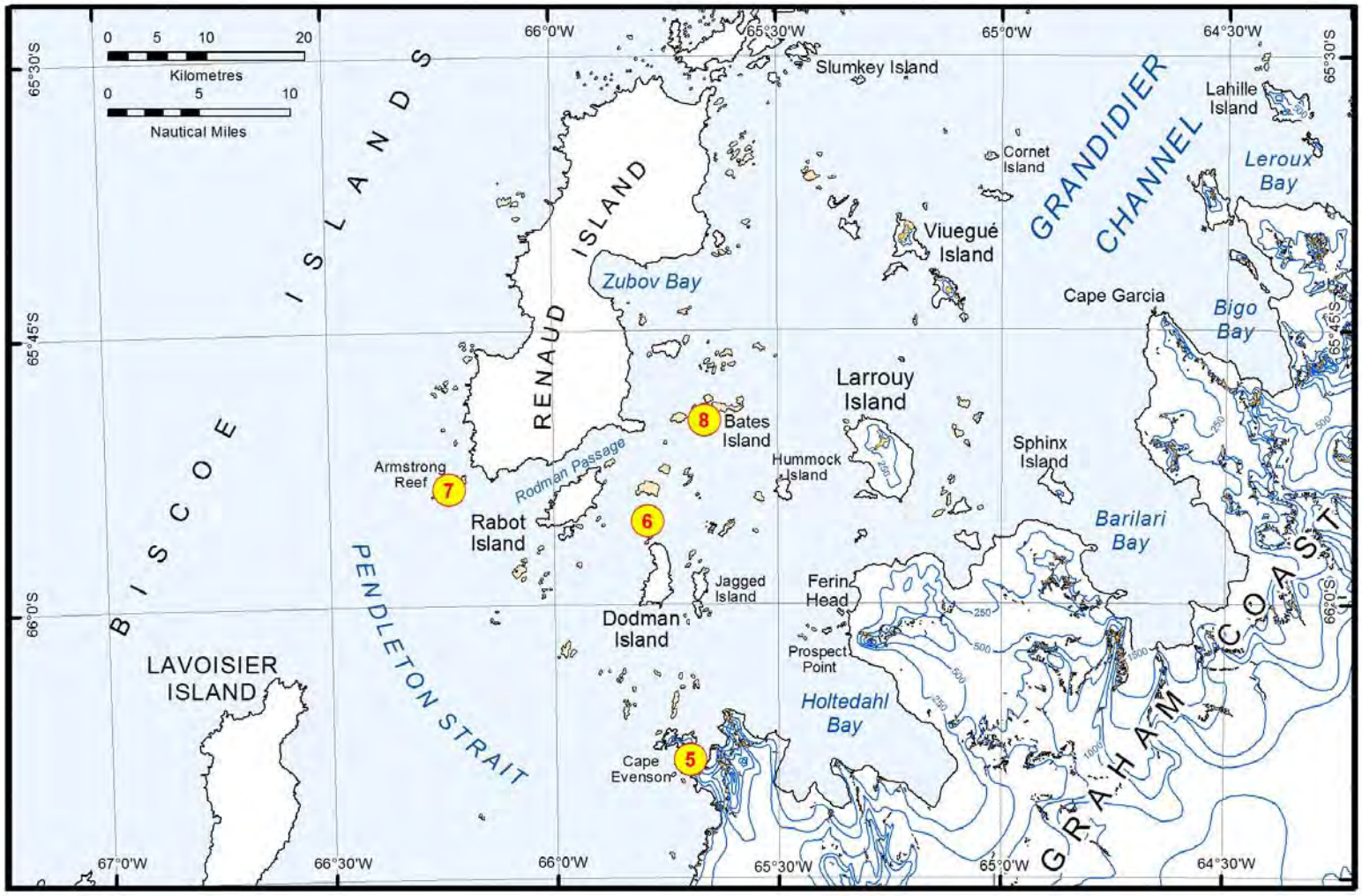
Site Accounts Overview Maps

IBA locations are identified by a yellow circle with the IBA number given adjacent.

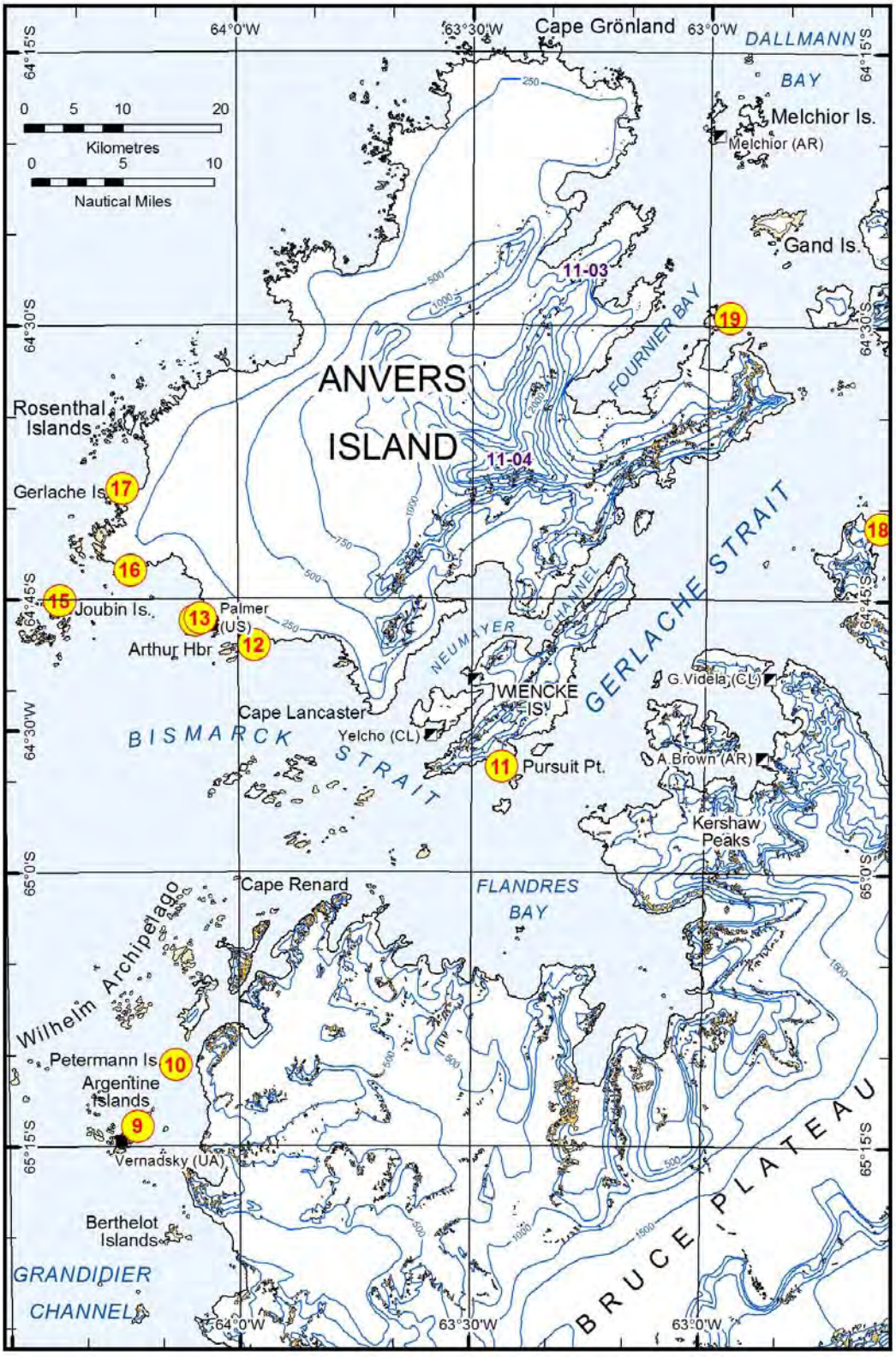
Marguerite Bay – Antarctic Peninsula



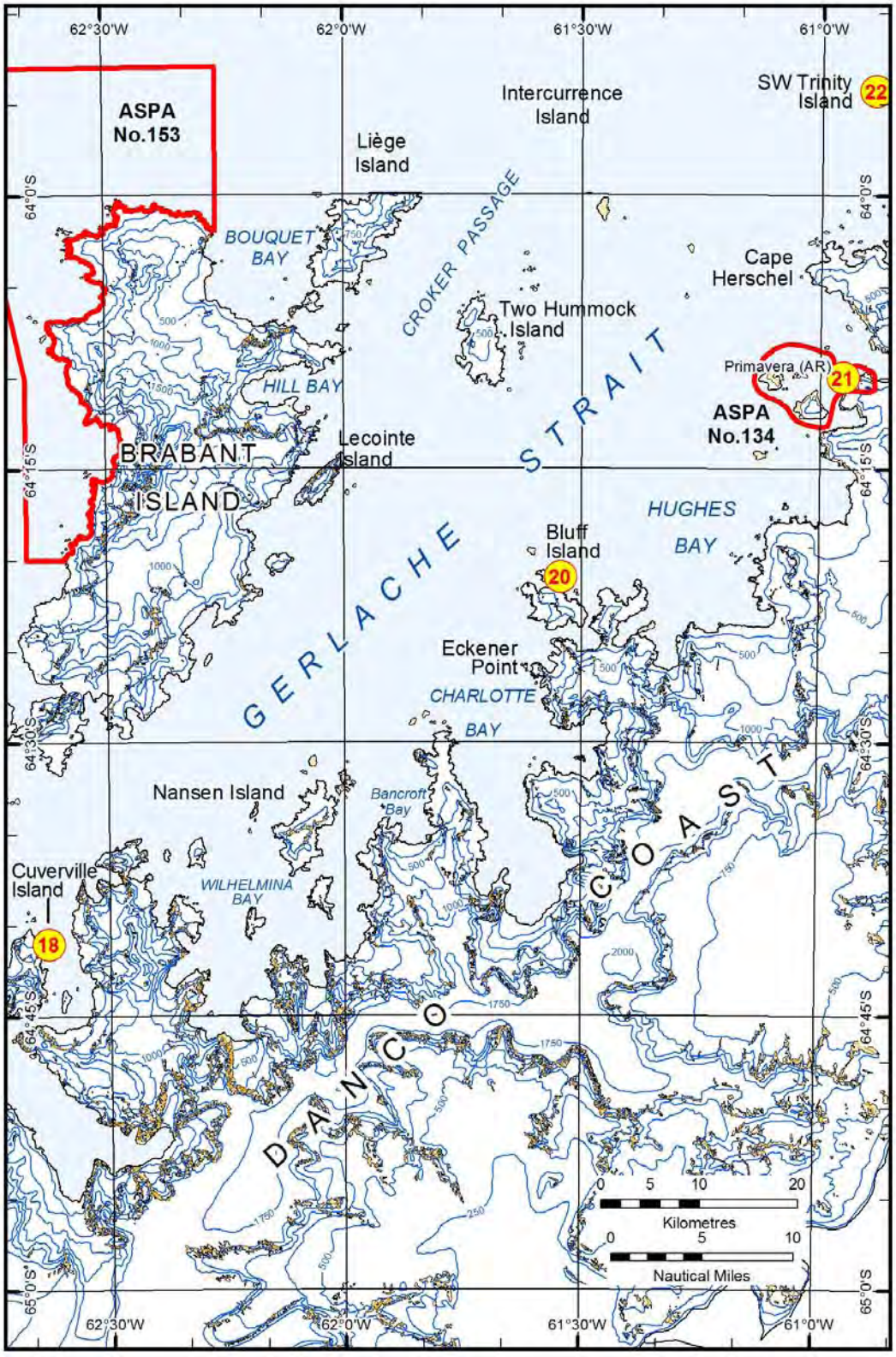
Renaud Island and surrounding region – Antarctic Peninsula



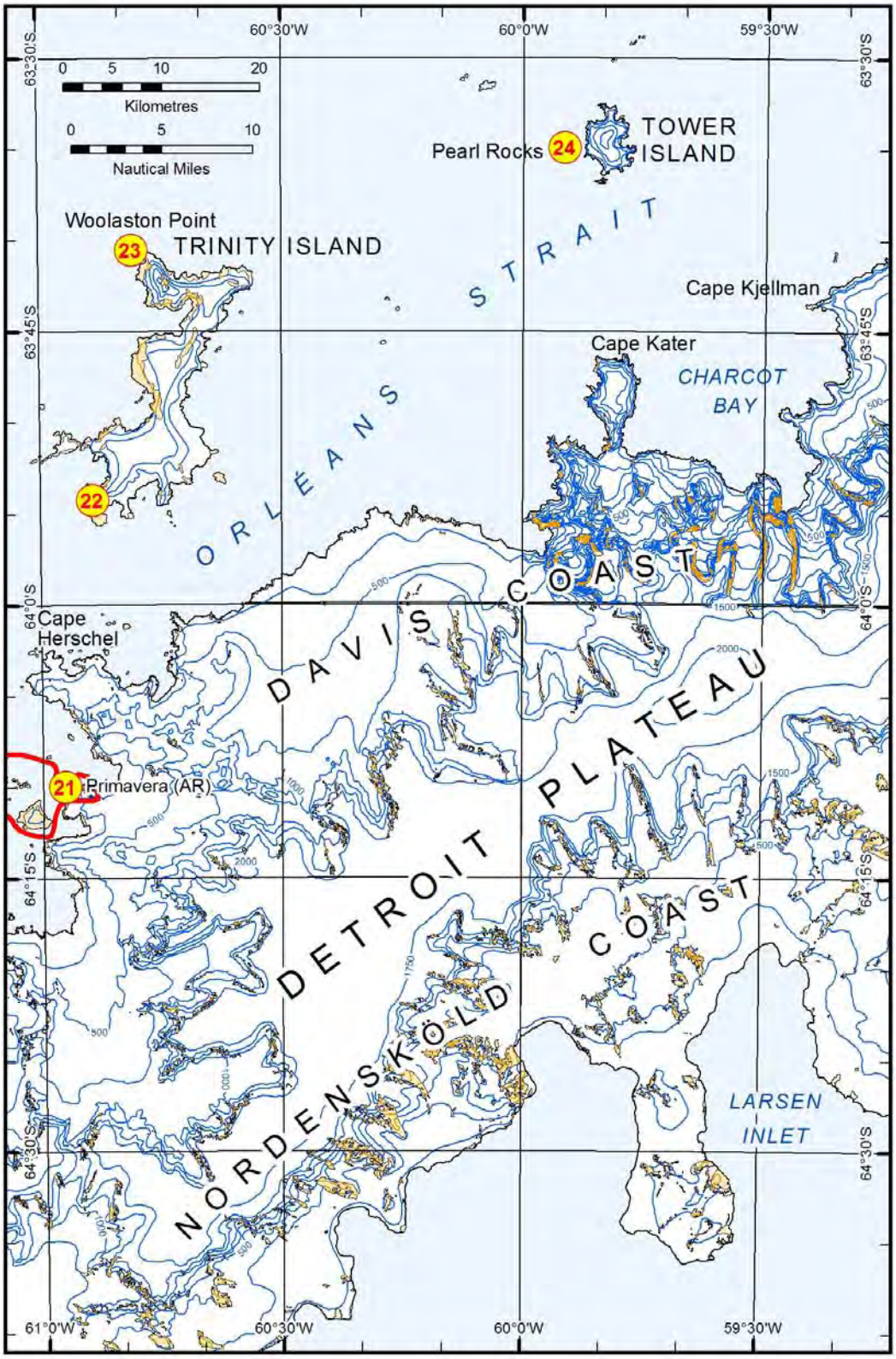
Anvers Island – Antarctic Peninsula



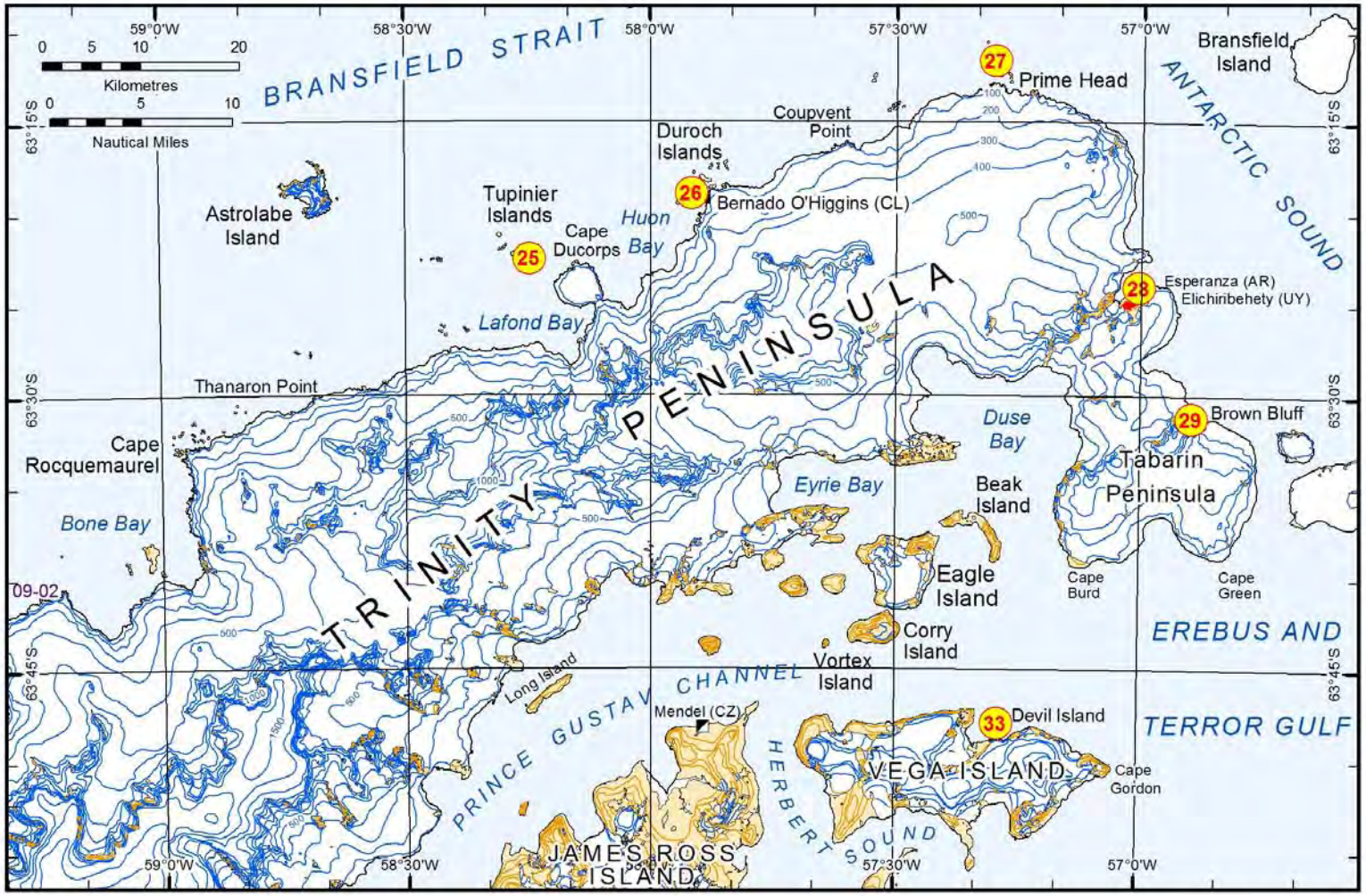
Brabant Island and surrounding region – Antarctic Peninsula



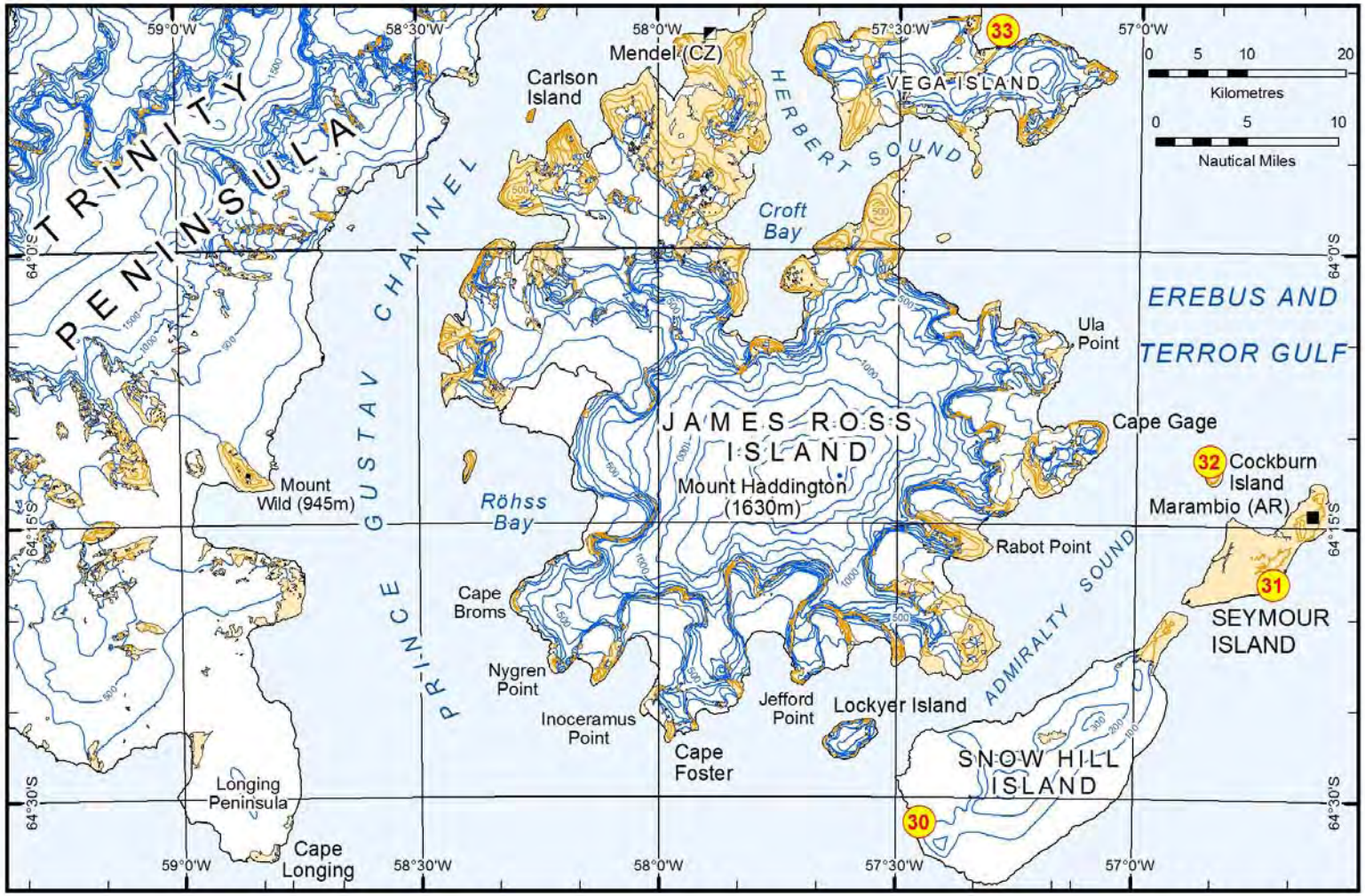
Davis Coast – Antarctic Peninsula



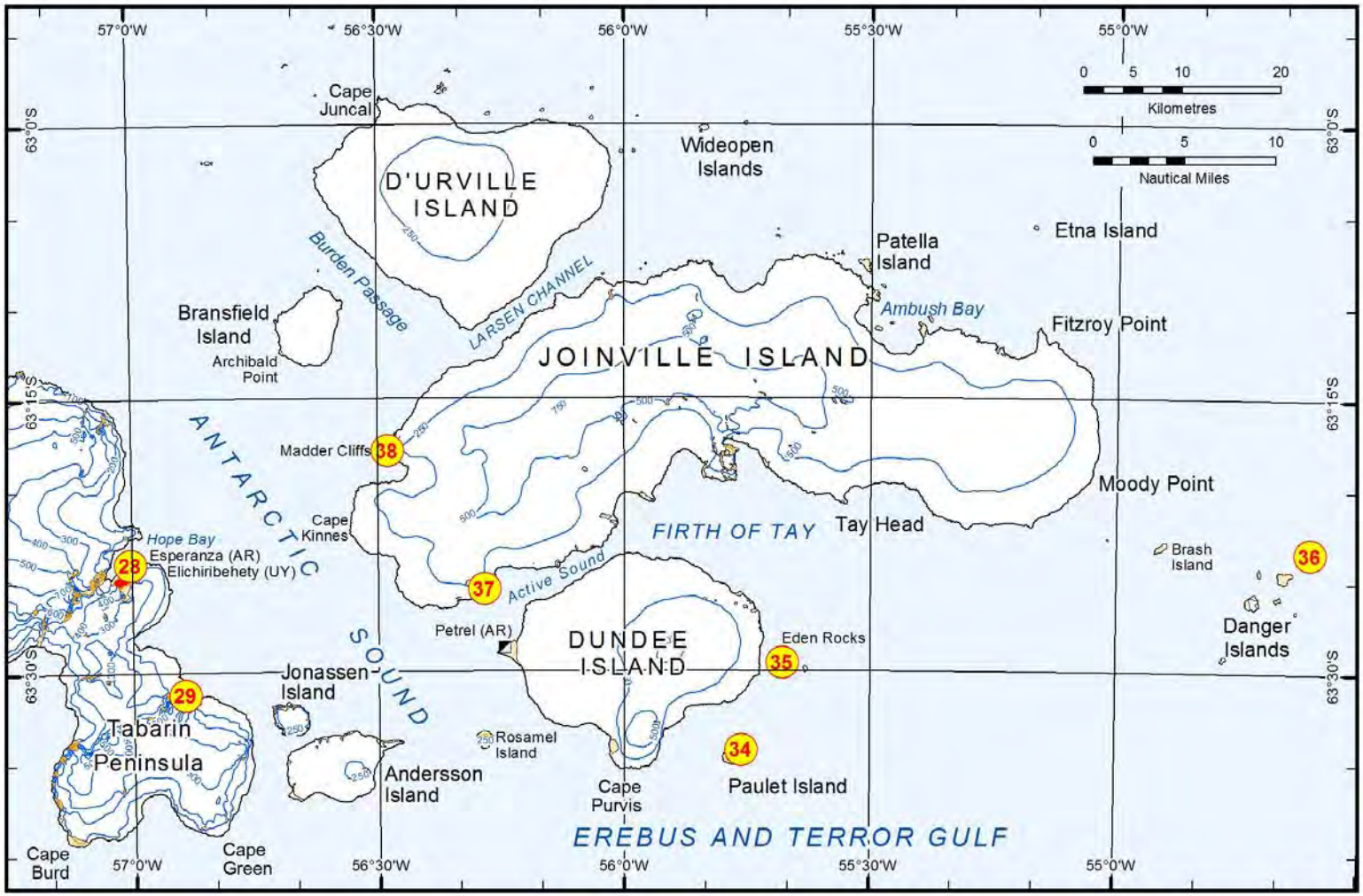
Trinity Peninsula – Antarctic Peninsula



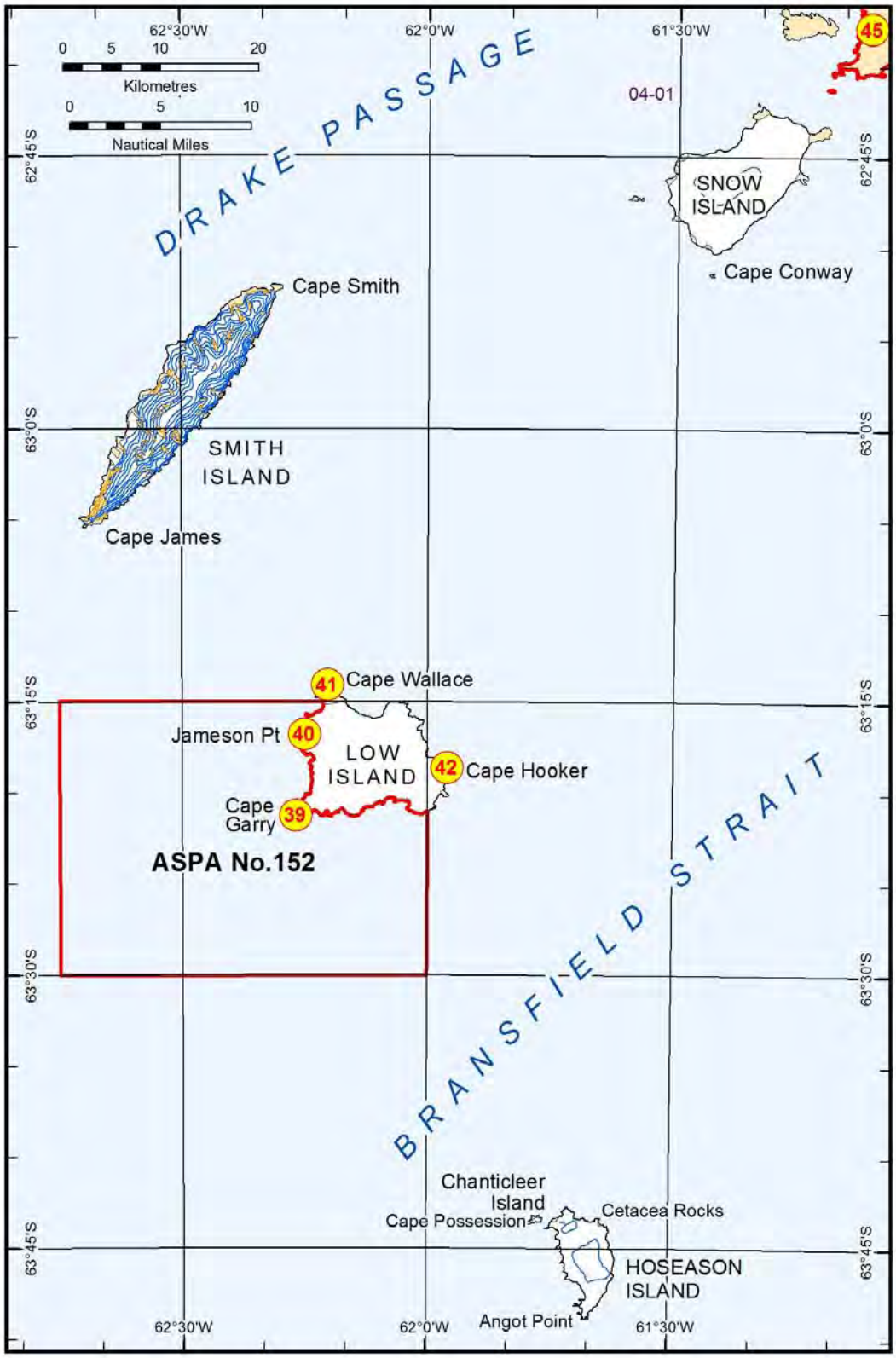
James Ross Island – Antarctic Peninsula



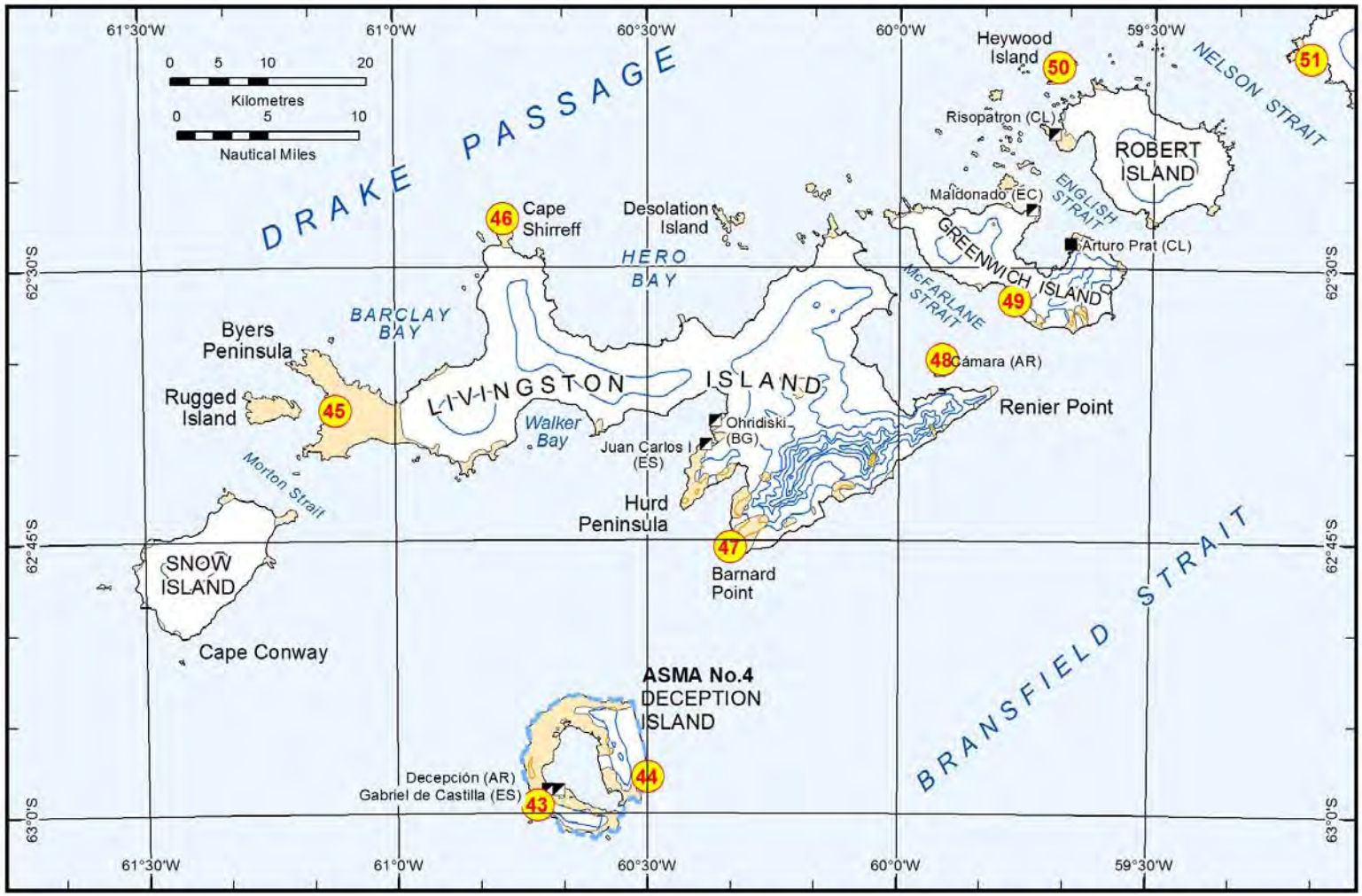
Joinville Island – Antarctic Peninsula



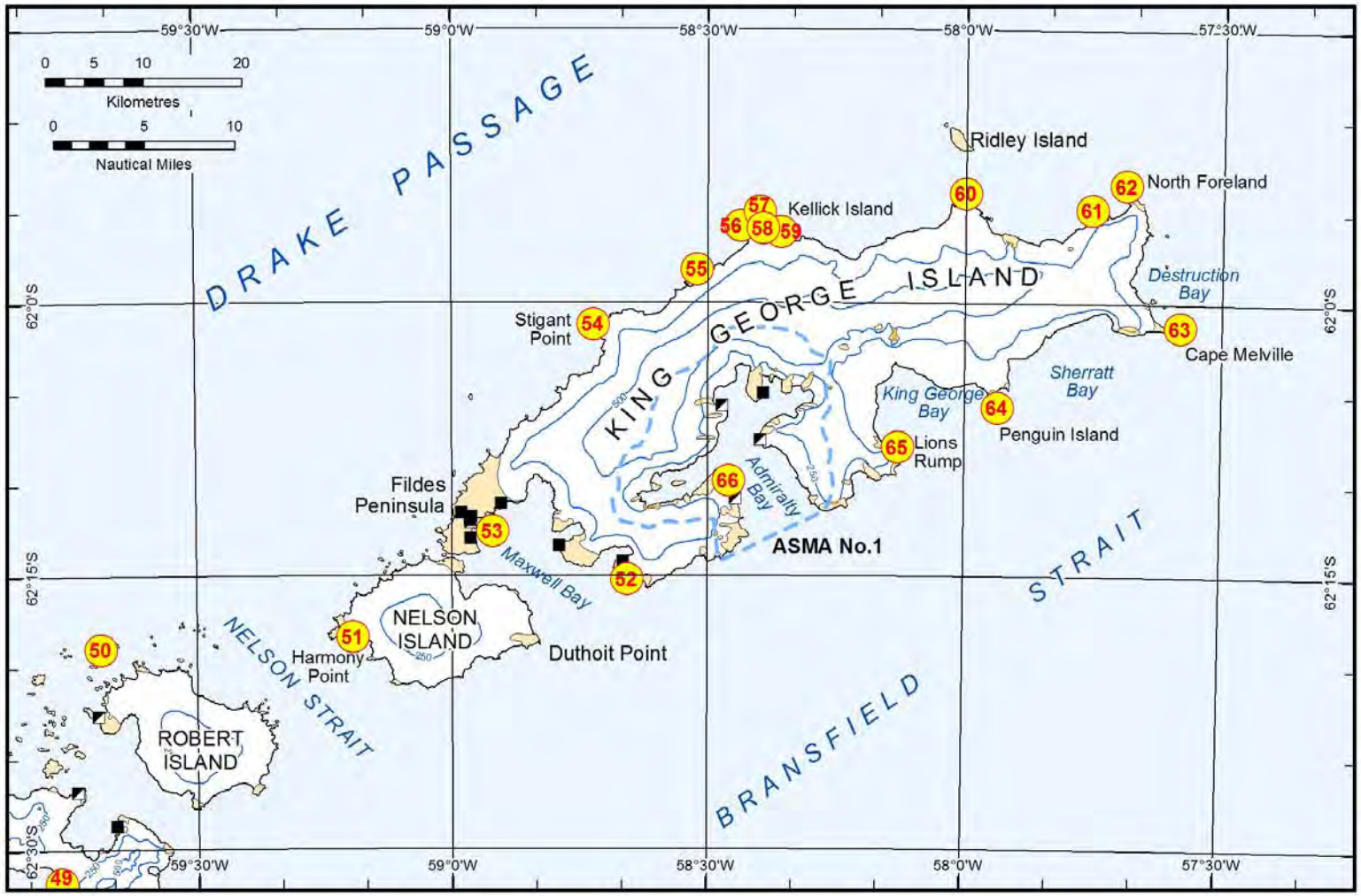
Low Island – South Shetland Islands



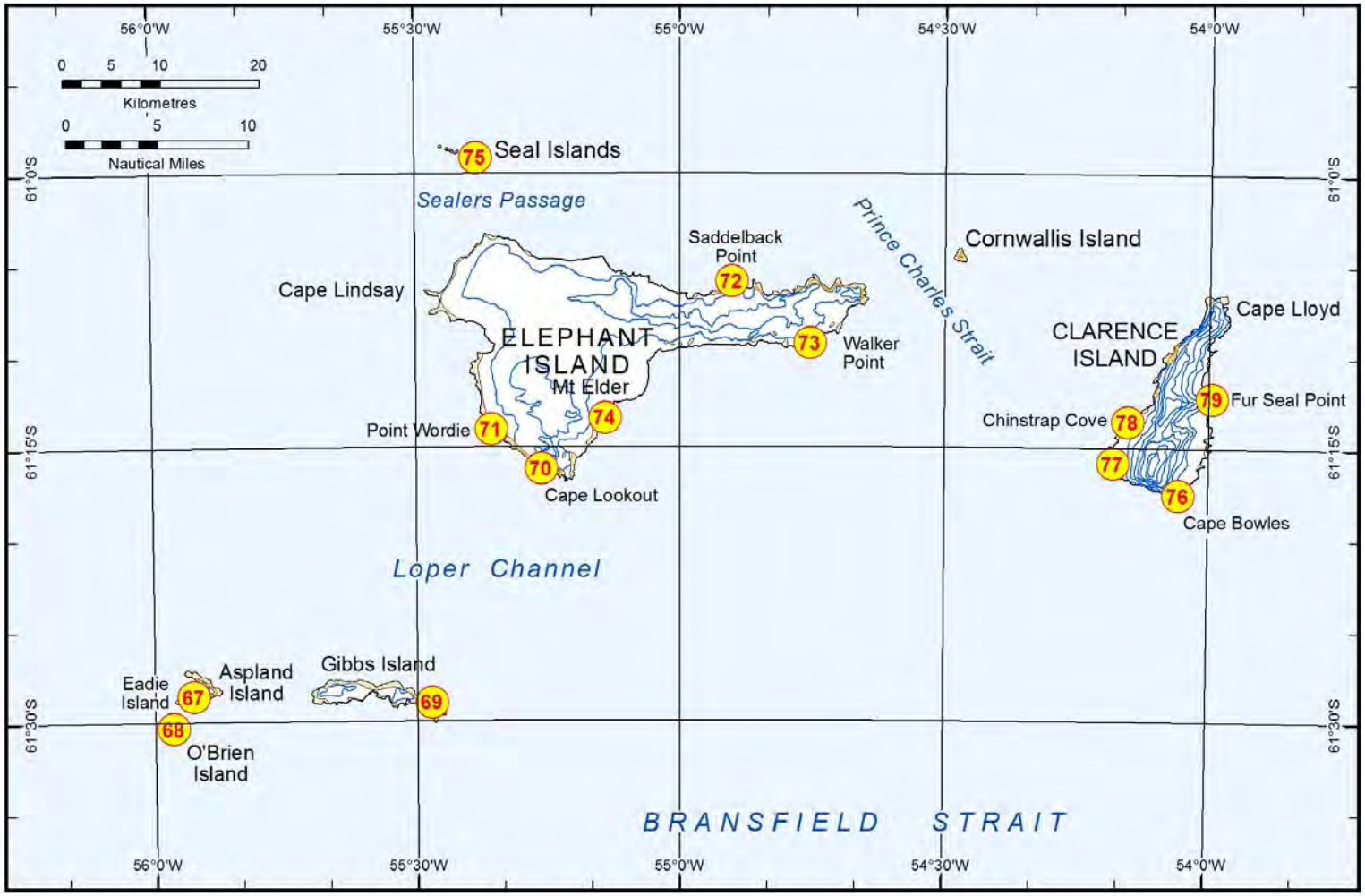
Livingston Island – South Shetland Islands



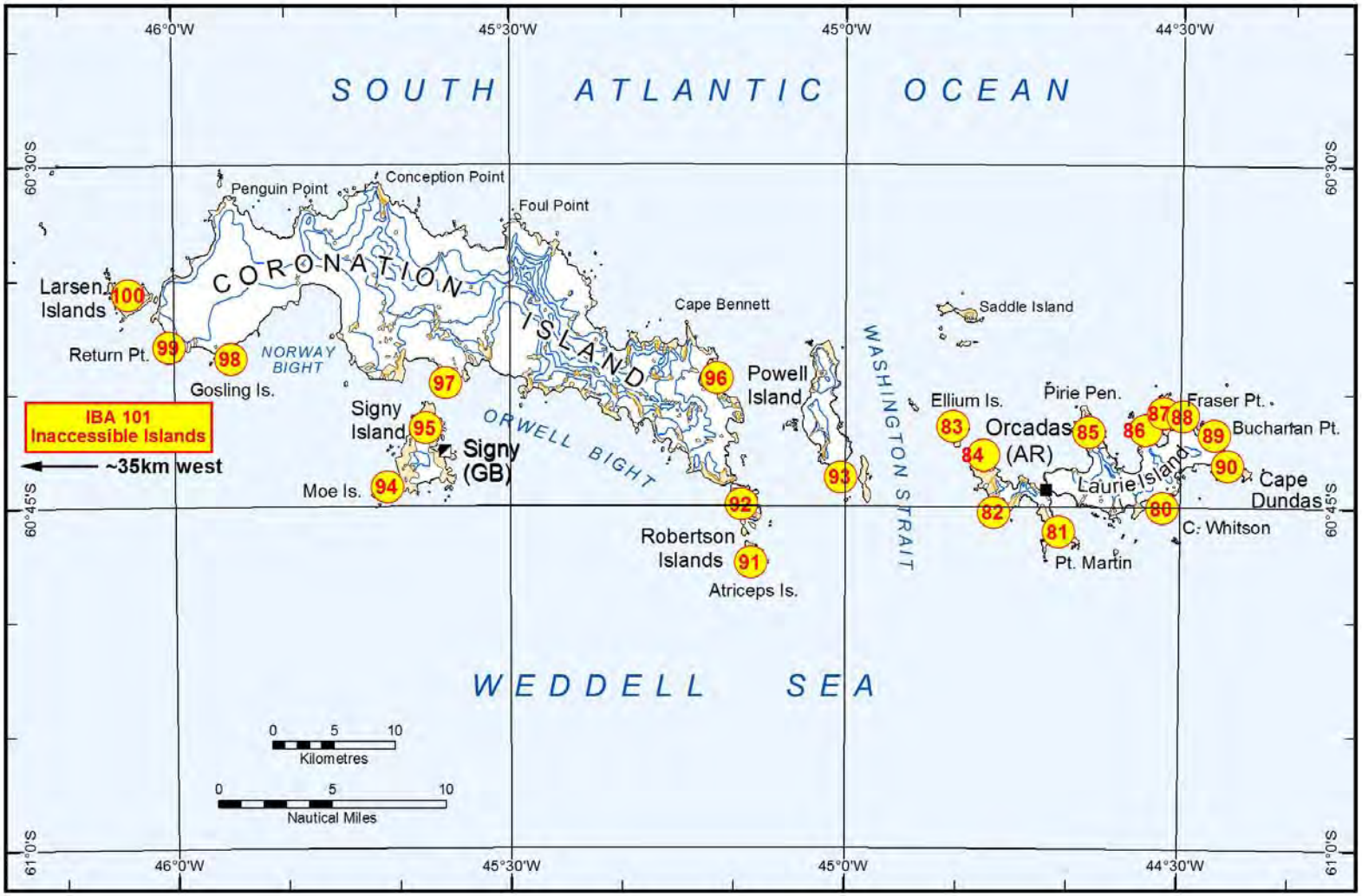
King George Island – South Shetland Islands



Elephant Island – South Shetland Islands



South Orkney Islands



Identification of Important Bird Areas in the Antarctic

IBA Site Accounts

Subantarctic skua, Signy Island (C.Harris)

Environmental Research & Assessment

Foreign & Commonwealth Office

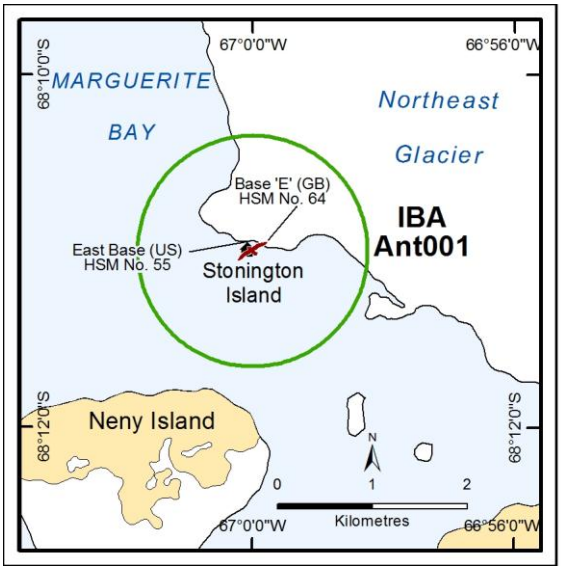
BirdLife INTERNATIONAL

environmental research & assessment era

Antarctic Peninsula

Ant001: Stonington Island

IBA criteria	A4i
Coordinates	68°11' S, 67°00' W
Area	500 ha
Altitude	Unknown
Protection	None



Site description

Stonington Island is located approximately 2 km north of Neny Island, Neny Fjord, on the Fallièrs Coast of the Antarctic Peninsula. The IBA comprises a 500 ha circular area centred on the geographic position of the bird breeding site as reported in Lynch *et al.* (2008) (68°11' S, 67°0' W).

Stonington Island is a small island with relatively flat areas of boulders interspersed with rocky outcrops (ATS Visitor Site Guide, accessed 06/08/2010). The site supports at least seven lichen species and two moss species. Two former stations are located on Stonington Island: Base E (UK) built in 1946, and East Base (US) established in 1940. Base E was closed in 1975 and is now designated as Historic Site No. 64 under the Antarctic Treaty for its historical value in early exploration of the region. East Base is designated as Historic Site No.55 to protect buildings and artefacts in the area.

The nearest permanent scientific station is San Martin (Argentina) located approximately 7 km to the north on Barry Island in the Debenham Islands.

Birds

Imperial Shags (*Phalacrocorax atriceps*) breed on Stonington Island and 135 chicks were recorded in February 2007 (Lynch *et al.* 2008). South Polar Skuas (*Catharacta maccormicki*) and Antarctic Terns (*Sterna vittata*) are also confirmed breeders at the site (Naveen 2003).

Other threatened / endemic wildlife

None known

Conservation issues

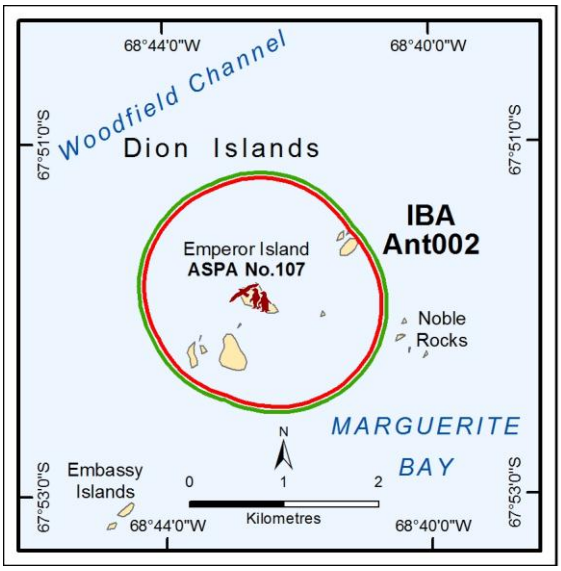
Visits to the site are managed under guidelines adopted in the Antarctic Treaty System Visitor Site Guide for Stonington Island. Visitors numbered from a minimum of 389 to a maximum of 1136 (inclusive of tourists, staff and crew) between 2006/07 and 2009/10 (IAATO Tourism Statistics, accessed: 06/08/2010).

Further reading

Antarctic Treaty System Visitor Site Guide: Stonington Island.
URL: http://www.ats.aq/siteguidelines/documents/Stonington_island_e.pdf. Accessed 06/08/2010;

Ant002: Dion Islands

IBA criteria	A4i
Coordinates	67°52' S, 68°42' W
Area	504 ha
Altitude	≤ 46 m
Protection	ASPA No. 107



Site description

The Dion Islands are located in Maguerite Bay, ~14 km south of Adelaide Island on the western side of the Antarctic Peninsula. The small archipelago comprises several islands of less than 0.5 km across, with numerous islets, shoals of rocks, and reefs. The IBA is defined by the boundary of Antarctic Specially Protected Area No. 107: Emperor Island, Dion Islands, and is around 12 km from Ant003: Avian Island.

The Dion Islands have several patches of permanent ice though are generally ice-free in summer. The geology consists of fine-grained lavas and tuffs, with shales, sandstones, grits and conglomerates also present (ASPA No. 107 Management Plan, 2002). Soil development is minimal, consisting of small areas of ornithogenic mud and decayed moss and algae. Vegetation comprises cryptogams (including the mosses *Syntrichia princeps*, *Polytrichastrum alpinum* and *Sanionia uncinata*, BAS Plant Database, accessed 16/08/2010) and at least 19 species of lichen. There is likely to be a range of microinvertebrate fauna, fungi and bacteria, although these have not yet been studied.

All birds known to breed within the IBA have been recorded on Emperor Island, the second largest island in the Dion group. Emperor Island is rocky and precipitous and less than 0.5 km across at its widest point. A meltwater pond usually occurs on its northern side in summer.

The nearest permanent scientific stations are Teniente Luis Carvajal Station (Chile, summer-only with capacity for ~30 personnel), situated ~14 km to the northwest on the southern shore of Adelaide Island, and Rothera Station (UK, year-round with capacity for c. 100 personnel) located 41 km to the northeast and also on Adelaide Island.

No long-term meteorological records are available for the Dion Islands. However, at Teniente Luis Carvajal Station the mean daily maximum temperature was 3ºC in February for the period 1962-74, with the mean daily minimum temperature being –8ºC in August over the same period (ASPA No.107 Management Plan, 2002). This is similar to data recorded in 1949 by Stonehouse (1953, cited in ASPA No.107 Management Plan, 2002) at the Dion Islands. Winds prevail from a northerly direction, and most snowfall occurs between August and October, with light precipitation continuing through the austral summer. More recent analyses for nearby Rothera Station (UK) have shown a distinct warming trend in the region, with an increase in annual average temperature of from -5ºC in 1980 to -4ºC in 2010 (Trathan *et al.* 2011).

Birds

The IBA is triggered by approximately 500 pairs of Imperial Shag (*Phalacrocorax atriceps*) recorded breeding on Emperor Island in the 1980's (S. Poncet, pers. comm.). An Adélie Penguin (*Pygoscelis adeliae*) colony on Emperor Island was estimated at 700 pairs in 1987 (Woehler 1993).

Of particular note is the presence of a small Emperor Penguin (*Aptenodytes forsteri*) colony on a low-lying beach and rocky promontory in the southeast of Emperor Island. First discovered on the island in 1948 (Stonehouse, 1953 cited in ASPA No.107 Management Plan, 2002), this is one of the most northerly Emperor Penguin colonies in Antarctica and one of only three sites where this species has been found breeding on land (Trathan *et al.* 2011). Stonehouse (1953) recorded around 150 breeding pairs on the island in the winter of 1949 and numbers are thought to have fluctuated around this level until 1968, after which they may have increased. However, only 14 males with eggs were present on the island in winter of 1999 (ASPA No. 107 Management Plan, 2002), whilst a count made from 1998 and 2005 aerial imagery indicated less than 20 Emperor Penguins may remain breeding on the island (Fretwell & Trathan 2009). A further analysis of imagery acquired on 28 November 2009 showed no Emperor Penguins present (Trathan *et al.* 2011). If these studies are typical of recent breeding patterns, the presence of Emperor Penguins on the island may be marginal or no longer exist.

Other confirmed breeders on Emperor Island include the Wilson's Storm Petrel (*Oceanites oceanicus*), Kelp Gull (*Larus dominicanus*) and Brown Skua (*Catharacta lonnbergi*) nesting on the larger islands (data cited in ASPA No.107 Management Plan, 2002). However, these species have not been censused owing to the difficult access.

Other threatened / endemic wildlife

Leopard Seals (*Hydrurga leptonyx*) are occasionally sighted in the Dion Islands, whilst Crabeater Seals (*Lobodon carcinophagus*) are commonly found on local ice floes. Weddell Seals (*Leptonychotes weddellii*) have also been recorded hauled out at Emperor Island (ASPA No.107 Management Plan, 2002).

Conservation issues

The principal reason for designation of the Dion Islands protected area in 1966 was the unusual situation of Emperor Penguins breeding on land. Because the Dion Islands are both inaccessible and designated as protected, disturbance to breeding birds by visitors remains very low. The Management Plan for ASPA No. 107 is designed to allow scientific research in the area but ensure visitor impacts are very low. Entry to the ASPA is allowed only by permit and aircraft overflight is restricted between April to December each year. The boundaries of the protected area were designed to include the surrounding marine area to ensure protection of the Emperor Penguins when at sea or on nearby sea ice.

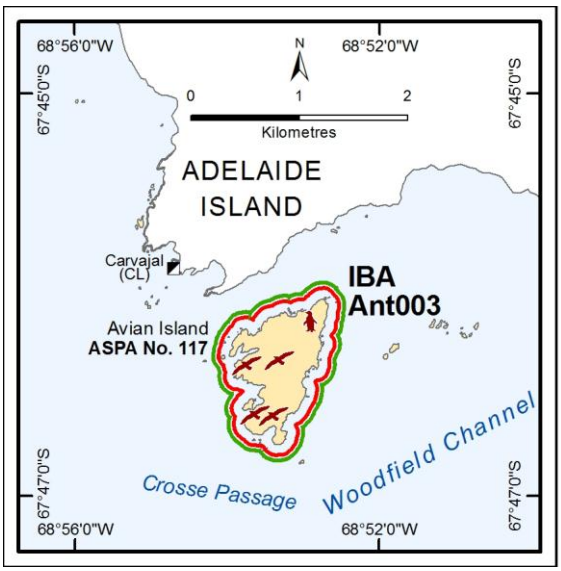
Visitor impacts on the island are believed to be minor and mainly limited to occasional marine debris. The Management Plan for ASPA No. 107 provides strict rules to govern the conduct of any visits to the islands. The principal threat to the birdlife on the island probably arises from regional changes to the ocean-ice ecosystem as a result of shifts in the patterns of global climate (Trathan *et al*. 2011).

Further reading

ASPA No. 107 Emperor Island, Dion Islands: Management Plan (2002).
Poncet, S. 1982. *Le Grand Hiver: Damien II Base Antarctique*. Les Éditions Arthaud, Paris.

Ant003: Avian Island

IBA criteria	A4i, A4ii, A4iii
Coordinates	67°46' S, 68°54' W
Area	121 ha
Altitude	≤ 40 m
Protection	ASPA No.117



Site description

Avian Island is a small island lying ~0.5 km south of Adelaide Island in Marguerite Bay, on the western side of the Antarctic Peninsula. Avian Island is one of the most ornithologically important sites in the Antarctic Peninsula region, and is designated as Antarctic Specially Protected Area (ASPA) No. 117. The ASPA includes the littoral zone, offshore islets and rocks and a 100 m buffer zone around the shoreline. The IBA is defined by the boundary of the ASPA.

Avian Island is of rocky, low relief of up to 40 m, with an irregular coastline. The southern coastline features steep cliffs with rocky ledges, suitable for small nesting birds. Other bird habitats include scattered rocks and boulders, ice-free ground, and a gently sloping, well-drained northern shoreline. Several ephemeral freshwater ponds, meltwater channels and small streams are present. Strong tidal currents are common in the surrounding sea, helping to keep coastal waters ice-free. In addition, strong winds reduce snow accumulation, resulting in more favourable conditions for bird colonisation (ASPA No. 117 Management Plan, 2002). Vegetation is sparse across Avian Island and dominated by lichens and mosses.

The nearest permanent scientific station is Teniente Luis Carvajal (Chile), a summer-only station lying ~1 km from Avian Island on the southern shore of Adelaide Island. No long-term meteorological records are available for Avian Island. However, at Teniente Luis Carvajal Station the mean daily maximum temperature was 3ºC in February for the period 1962-74, whilst the mean daily minimum temperature was –8ºC in August for the same period (ASPA No. 117 Management Plan, 2002). Most snowfall occurs between August and October, with light precipitation occurring through the austral summer.

Birds

Seven bird species are known to breed on the island, more than at most other sites in the region. An Adélie Penguin (*Pygoscelis adeliae*) colony occupies much of the northern half of the island with 35,600 breeding pairs estimated in 1979, representing one of the largest breeding colonies on the Antarctic Peninsula. A large Imperial Shag (*Phalacrocorax atriceps*) colony has been recorded on the southwestern coast of the island, totalling 670 pairs in 1989 (Poncet & Poncet, unpublished data). Avian Island holds the largest breeding colony of Southern Giant Petrel (*Macronectes giganteus*) south of the South Shetland Islands, with 250 breeding pairs recorded in 1990 (Poncet & Poncet 1990) and 237 chicks estimated in 2001 (Harris 2001). A colony of Kelp Gulls (*Larus dominicanus*) of around 60 pairs breed near the southern extent of their range on Avian island (Poncet & Poncet 1979), and South Polar Skua (*Catharacta maccormicki*) breeding colonies are present in central and eastern parts of the island (Fraser pers. comm. *in* Ritz *et al.* 2005). The southernmost record of breeding Brown Skua (*Catharacta lonnbergi*) has also been documented on Avian Island and several hundred pairs of Wilson's Storm Petrel (*Oceanites oceanicus*) breed in rocky outcrops around the island (Poncet & Poncet 1979).

Non-breeding species observed on Avian Island include the Antarctic Tern (*Sterna vittata*), Southern Fulmar (*Fulmarus glacioloides*), Antarctic Petrel (*Thalassoica antarctica*), Cape Petrel (*Daption capense*), King (*Aptenodytes patagonicus*) and Chinstrap (*Pygoscelis antarctica*) penguins.

Other threatened / endemic species

Weddell Seals (*Leptonychotes Weddellii*) and Elephant Seals (*Mirounga leonina*) commonly haul out and breed on Avian Island (ASPA No. 117 Management Plan, 2002). Non-breeding Antarctic Fur Seals (*Arctocephalus gazella)* also frequent the island with several hundred present on low-lying ground and beaches in February 2001 (Harris 2001). Leopard Seals (*Hydrurga leptonyx*) are also occasionally observed on Avian Island.

Conservation issues

The principal reason for designation of Avian Island as a protected area in 1989 was to protect the unusually large and diverse colonies of breeding birds. The Management Plan for ASPA No. 107 is designed to allow scientific research in the area but ensure visitor impacts are low. Entry to the ASPA is allowed only by permit and aircraft overflight is restricted year-round. The boundaries of the protected area were designed to include the surrounding marine as a buffer to help protect nesting birds. Visits to the island are infrequent, and disturbance to breeding birds by visitors remains low.

The past impact of visitors to Avian Island are believed to have been minor although these have not been well documented (ASPA No.117 Management Plan, 2002).The Management Plan notes that a few human visits have caused loss of eggs and chicks through nest abandonment or predation. Two refuges and beacon structures are in poor repair on the island, with rusting cans, roofing iron, wood and glass exposed to locally breeding birds, some of which were observed amongst debris in February 2001. A large beacon was installed in 1998 in the Southern Giant Petrel breeding area, and the level of disturbance to breeding birds during installation and maintenance are unknown. Southern Giant Petrels and Kelp Gulls are particularly vulnerable to disturbance.

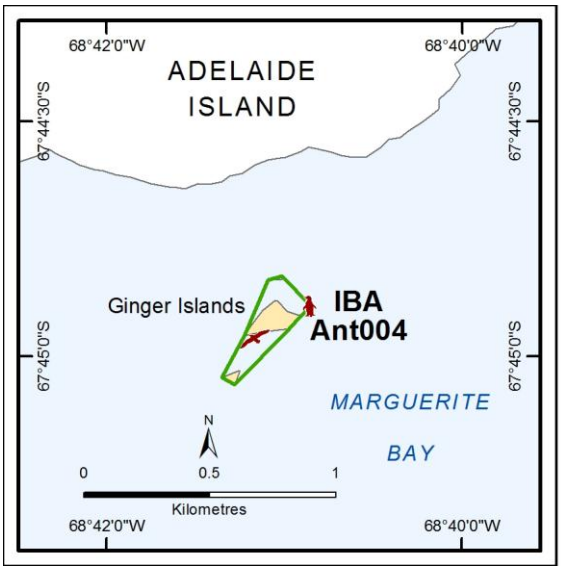
The island is close to a permanent summer research station, where activities have included the use of small boats and aircraft. A snow runway once existed on southern Adelaide Island, the access route to which crossed the general area of Avian Island, although the status and use of this runway is currently unknown.

Further reading

ASPA No. 117 Avian Island: Management Plan (2002)
Poncet, S. 1982. *Le Grand Hiver: Damien II Base Antarctique*. Les Éditions Arthaud, Paris

Ant004: Ginger Islands

IBA criteria	A4i
Coordinates	67°45' S, 68°42' W
Area	6.1 ha
Altitude	< 250 m
Protection	None



Site description

Ginger Islands are a small archipelago located in Marguerite Bay, approximately 0.5 km southeast of Adelaide Island, on the western side of the Antarctic Peninsula. This IBA comprises the island group and the intervening marine area.

Detailed information on the environment of the Ginger Islands is not available, and meteorological records do not exist for the site. However, at Teniente Luis Carvajal Station, located ~10 km to the southwest, the mean daily maximum temperature was 3ºC in February for the period 1962-74, whilst the mean daily minimum temperature was –8ºC in August for the same period. Most snowfall occurs between August and October, with light precipitation occurring through the austral summer.

Birds

Approximately 3000 pairs of Adélie Penguins (*Pygoscelis adeliae*) along with 275 pairs of Imperial Shags (*Phalacrocorax atriceps*) were estimated to breed on Ginger Islands in 1983 (Poncet & Poncet, unpublished data). More recent data are not available.

Other threatened / endemic wildlife

None known.

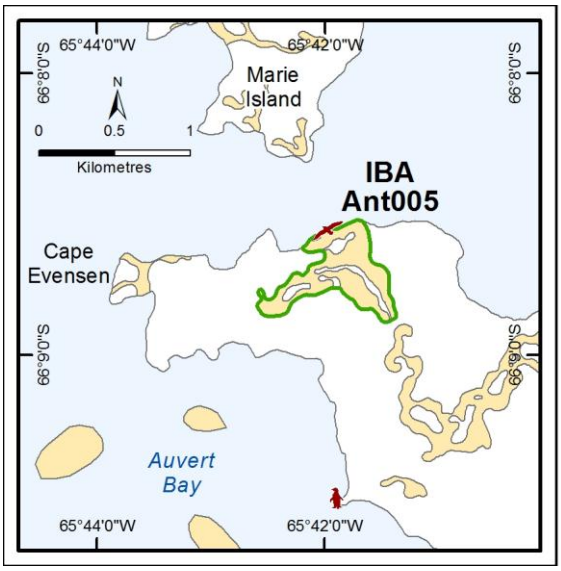
Conservation issues

There is no known record of recent visits to the Ginger Islands. The nearest stations to Ginger Islands are Teniente Luis Carvajal Station (Chile) and Rothera Station (UK), although access to the islands is difficult and few visits are made. Conservation issues thus probably relate mainly to marine debris and possibly the occasional visit by private yachts. As at other sites, global climate change presents the greatest long-term threat to this IBA.

Further reading

Ant005: Cape Evensen

IBA criteria	A4i
Coordinates	66°09' S, 65°44' W
Area	30 ha
Altitude	0 to < 750 m
Protection	None



Site description

Cape Evensen is located below Miller Heights on the Graham Coast of the central Antarctic Peninsula, in the region of Crystal Sound. The IBA consists of ice-free ground ~1 km to the east of Cape Evensen. The IBA is 26 km southeast of Ant006: Dodman Island North, and 38 km southeast of Ant007: Armstrong Reef.

Steep slopes rise from the northern coastline to heights of up 750 m at the southern extent of this IBA. Detailed information on the vegetation, soils or geology of the site is not available. The nearest permanent scientific station is Vernadsky (Ukraine), which is located 125 km northeast of Cape Evensen and operated year-round.

Birds

The IBA is triggered by the presence of a colony of 180 pairs of Imperial Shag (*Phalacrocorax atriceps*), recorded as breeding on the north-facing slopes 1 km east of Cape Evensen alongside colonies of Kelp Gull (*Larus dominicanus*) and Skua (*Catharacta*) (Poncet & Poncet, unpublished data).

Other threatened / endemic wildlife

None known

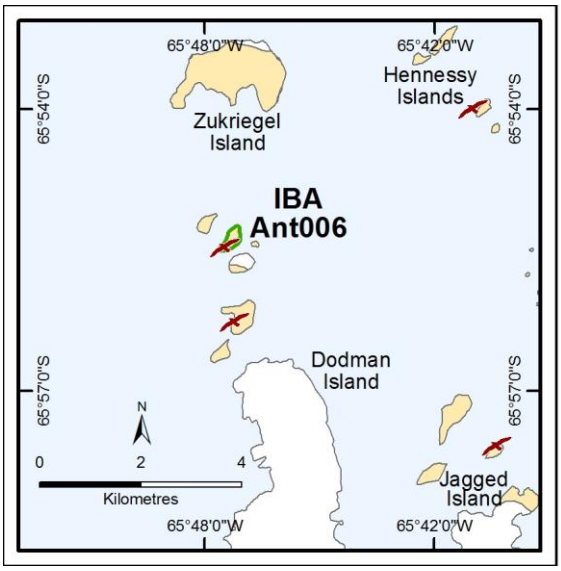
Conservation issues

None known

Further Reading

Ant006: Island north of Dodman Island

IBA criteria	A4i
Coordinates	65°55' S, 65°47' W
Area	12 ha
Altitude	0 to < 250 m
Protection	None



Site description

Dodman Island is situated to the northwest of Holtedahl Bay, Graham Coast, and to the southeast of Renaud Island in the central Antarctic Peninsula region. The IBA is a small island of ~12 ha situated 2.5 km north of Dodman Island.

Information on the environment of this site is not available. Ant008 Bates Island is 12 km to the northeast; Ant007 Armstrong Reef is ~20 km to the west; and Ant005 Cape Evensen is 25 km to the southeast. The nearest permanent scientific station is Vernadsky (Ukraine), which operates year-round and is located ~108 km to the northeast.

Birds

A colony of 163 pairs of Imperial Shags *(Phalacrocorax atriceps)* was recorded breeding on the western side of the island in 1984 (Poncet & Poncet, unpublished data). No other birds are known to breed at the site, although another smaller Imperial Shag colony was recorded at the same time on an island 1.5 km to the south.

Other threatened / endemic wildlife

None known

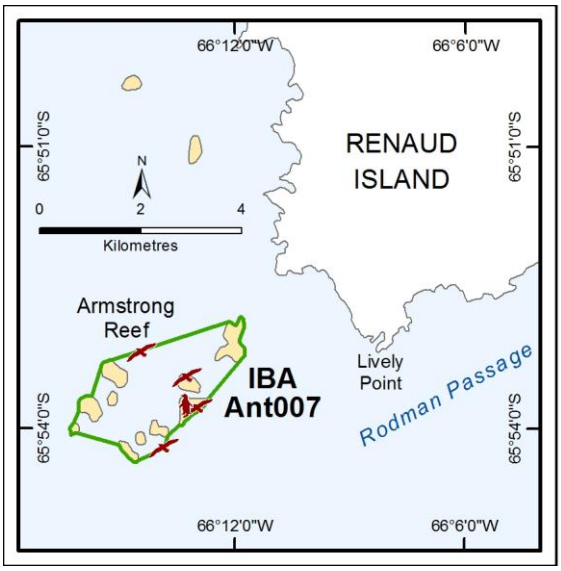
Conservation issues

None known

Further reading

Ant007: Armstrong Reef

IBA criteria	A4i, A4iii
Coordinates	65°53' S, 66°14' W
Area	557 ha
Altitude	< 250 m
Protection	None



Site description

Armstrong Reef is a small island group situated to the ~2 km southwest of Renaud Island, part of the Biscoe Islands, lying off the western coast of the central Antarctic Peninsula. Armstrong Reef extends over 4.3 km in a southwest-northeast orientation and consists of a number of small ice-free islands each with areas of < 100 ha.

Plutonic rocks dominate the geology of the island group (Smellie *et al.* 1985), although little other information on the Armstrong Reef environment is available.

The area is remote from scientific stations (the nearest being Vernadsky (Ururguay), ~121 km to the northeast), and from the most popular tour ship routes, and thus receives few visitors.

Birds

One of the largest Adélie Penguin (*Pygoscelis adeliae*) colonies on the Antarctic Peninsula is found on Armstrong Reef, with approximately 12,800 breeding pairs recorded in 1984 (Poncet & Poncet 1987). In addition, 525 pairs of Imperial Shag (*Phalacrocorax atriceps*) were also recorded breeding amongst the Adélies and on islands and islets within the island group (Poncet & Poncet, unpublished data). A sizeable colony of 126 pairs of Southern Giant Petrel (*Macronectes giganteus*) was documented breeding on Armstrong Reef in 1983 (Patterson *et al.* 2008).

Other threatened / endemic species

None known.

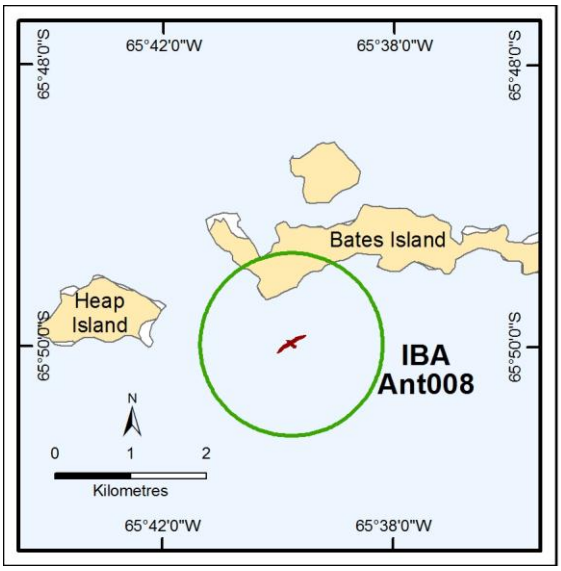
Conservation issues

None known.

Further reading

Ant008: Islet south of Bates Island

IBA criteria	A4i
Coordinates	65°50' S, 65°40' W
Area	500 ha
Altitude	Unknown
Protection	None



Site description

A small uncharted islet is located ~700 m south of Bates Island, Biscoe Islands, ~20 km off the Graham Coast of the Antarctic Peninsula. The IBA is defined as a circular area of 500 ha centered on the approximate position of this islet. The site is 12 km southwest from Ant006 Island north of Dodman Island.

Information on the environment of this site is not available. The nearest scientific station is Vernadsky (Uruguay), 97 km to the northeast.

Birds

150 breeding pairs of Imperial Shag (*Phalacrocorax atriceps*) were observed at this site in 1986 (Poncet & Poncet, unpublished data). No other bird species have been recorded breeding in the area.

Other threatened / endemic wildlife

None known.

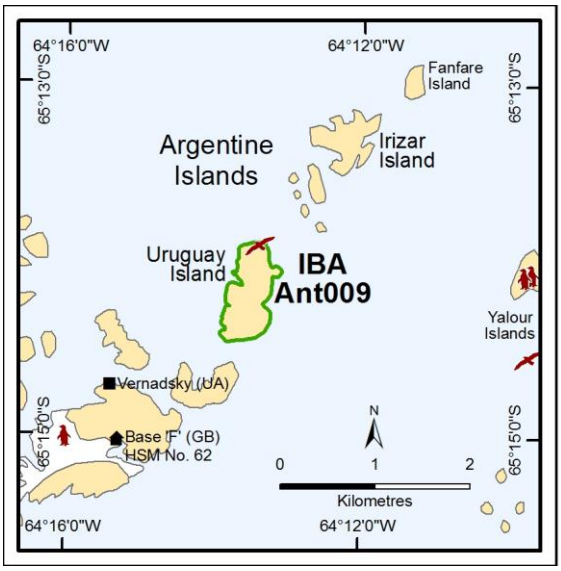
Conservation issues

None known.

Further reading

Ant009: Uruguay Island

IBA criteria	A4i
Coordinates	65°14' S, 64°14' W
Area	46.6 ha
Altitude	0 to < 250 m
Protection	None



Site description

Uruguay Island is part of the Argentine Island group in the Wilhelm Archipelago, ~6 km from the Graham Coast of the Antarctic Peninsula. The island is ~1 km from north to south and ~500 m across. The IBA includes all of Uruguay Island.

Information on the environment of Uruguay Island is not available. The nearest scientific station is Vernadsky (Uruguay), located on Galindez Island ~1 km to the southwest. Vernadsky Station operates year-round and accommodates ~24 people in the summer (COMNAP, Antarctic Facilities, accessed 19/08/2010).

Birds

Approximately 203 pairs of Imperial Shag (*Phalacrocorax atriceps*) were breeding on Uruguay Island in 1986 (Poncet & Poncet, unpublished data).

Other threatened / endemic wildlife

None known.

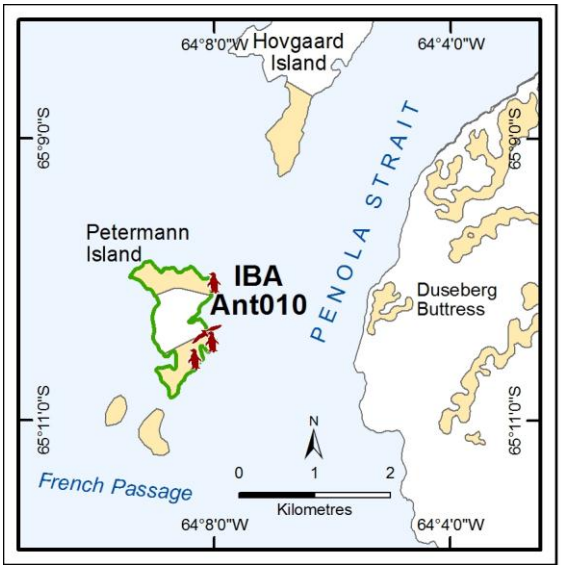
Conservation issues

Logistic support operations (e.g. aircraft, ships) associated with the nearby permanent scientific station of Vernadsky should take into account the proximity of the IBA, and avoid the site unless approach is essential for scientific or management purposes. Tour ships frequent the nearby Lemaire Channel, ~16 km to the north, and tourist visits to the IBA should be carefully monitored.

Further reading

Ant010: Petermann Island

IBA criteria	A1
Coordinates	65°10' S, 64°10' W
Area	108.5 ha
Altitude	0 to < 250 m
Protection	None



Site description

Petermann Island is located in Penola Strait, in the Wilhelm Archipelago, ~2 km west of the Graham Coast of the Antarctic Peninsula. Petermann Island extends ~1.8 km from north to south and is about 1.2 km across, with an area of ~103 ha. The IBA includes all of Petermann Island and its surrounding coastal rocks.

Petermann Island has a rocky coastline interspersed by raised pebble beaches and rises fairly steeply to elevations of ~150–250 m. The island has volcanic origins, and about half is covered by a permanent and crevassed icecap. Mosses and lichens have been observed on the island. Antarctic Historic Site and Monument No. 27 on Megalestris Hill marks the position of a plaque erected by the French Antarctic Expedition in 1909. An abandoned Argentine refuge is located on the eastern side of the island.

The nearest scientific station is Vernadsky (Ukraine), a year-round facility located ~9 km to the southwest on Galindez Island. Vernadsky Station has capacity for ~24 people (COMNAP, Antarctic Facilities, accessed 19/08/2010).

Birds

Penguins breed on ice-free slopes and ridges around the island. An estimated 3020 pairs of Gentoo Penguin (*Pygoscelis papua*) were breeding on Petermann Island in December 2009 (H. Lynch, pers. comm., 2010). Around 458 Adélie penguin (*P. adeliae*) and 29 Imperial Shag (*Phalacrocorax atriceps*) chicks were counted in Janurary / February 2007 (Lynch *et al.* 2008). Wilson's Storm-petrel (*Oceanites oceanicus*) and South Polar Skua (*Catharacta maccormicki*) are also confirmed breeders at the site (Naveen 2003). South Polar Skuas are typically found nesting on high ground in the northern part of the island.

Other threatened / endemic wildlife

None known

Conservation issues

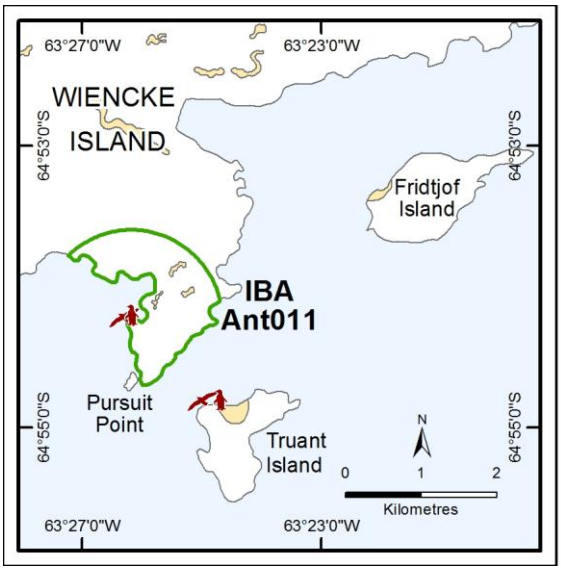
Petermann Island is a popular tourist destination with an average of ~11,650 visitors (inclusive of tourists, staff and crew) landing at the site each year between the 2005/06 and 2009/10 summer seasons (IAATO Tourism Statistics, accessed: 10/05/2011). Naveen (2003) reported yachts also frequent the site. Access to the site is managed through Visitor Site Guidelines adopted under the Antarctic Treaty System. The visitor landing site is located at Port Circumcision on the eastern coast. The Visitor Site Guide provides practical advice on how to avoid disturbance to birds and vegetation. Organised tours supervise passenger behaviour ashore. While tour visits are normally closely controlled by operators, breeding birds may be subject to some visitor disturbance.

Further reading

Antarctic Treaty System Visitor Site Guide, *Petermann Island*:
URL http://www.ats.aq/siteguidelines/documents/Petermann_e.pdf. Accessed: 10/05/2011.

Ant011: Pursuit Point, Wiencke Island

IBA criteria	A4i
Coordinates	64°55' S, 63°27' W
Area	202 ha
Altitude	0 to < 500 m
Protection	None



Site description

Pursuit Point is a largely ice-covered peninsula located on southeastern Wiencke Island, one of the larger islands in the Palmer Archipelago, which lies west of Gerlache Strait, ~9 km from the Antarctic Peninsula. The IBA includes all land and ice within a 1 km radius of the breeding locality.

Information on the local environment at the site is not available. The nearest scientific station is Yelcho (Chile), a summer-only facility located 8 km to the northwest on southern Doumer Island and which is temporarily closed (COMNAP, Antarctic Facilities, accessed 19/08/2010).

Birds

Colonies of around 140 breeding pairs of Imperial Shag (*Phalacrocorax atriceps*) and 200 breeding pairs of Gentoo Penguins (*Pygoscelis papua*) breed at Pursuit Point (Poncet & Poncet 1987; Poncet & Poncet, unpublished data).

Other threatened / endemic wildlife

None known.

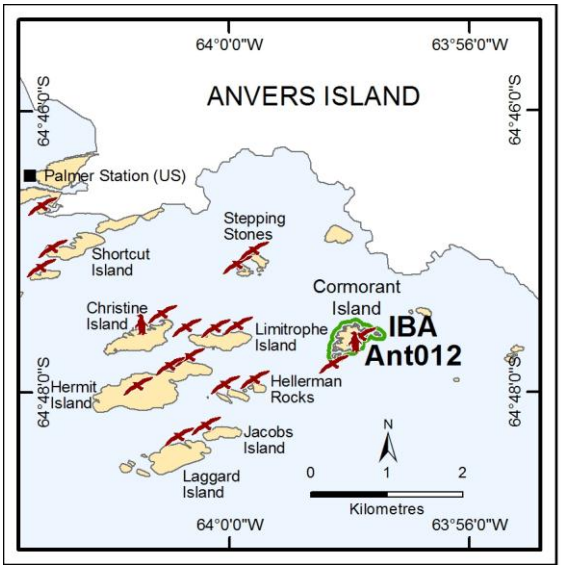
Conservation issues

None known.

Further reading

Ant012: Cormorant Island

IBA criteria	A4ii
Coordinates	64°48' S, 63°59' W
Area	24.6 ha
Altitude	< 250 m
Protection	Restricted Zone within ASMA No.7



Site description

Cormorant Island is a small (10 ha), ice-free island located in Bismarck Strait, ~1 km south of Anvers Island and ~5 km from Arthur Harbour and Palmer Station (US). The island is named for the large numbers of Imperial Shag (*Phalacrocorax atriceps*) observed on the island during British surveys carried out in 1955-57 (Hattersley-Smith, 1991).

Cormorant Island and the nearshore marine area up to 50 m surrounding the island is now designated a Restricted Zone under the Management Plan for Antarctic Specially Managed Area No. 7: Southwest Anvers Island and Palmer Basin. The IBA covers the area defined by the boundary of the Restricted Zone.

Anvers Island and surrounding islands are dominated by granitic and volcanic rocks. Vegetation comprises a wide range of mosses, lichens and algae and includes the two native Antarctic vascular species, *Deschampsia antarctica* and *Colobanthus quitensis* (ASMA No.7 Management Plan, 2009).

The nearest permanent scientific station to the IBA is Palmer (US), situated ~5 km to the northwest in Arthur Harbour. Palmer Station operates year-round, with a summer occupancy of ~43 people (COMNAP, Antarctic Facilities, accessed 16/08/2010).

Climate data are not available specifically for Cormorant Island, although good records exist for nearby Palmer Station, where the average annual air temperature for the period 1989-2009 was –1.7°C. The minimum and maximum temperatures recorded at Palmer Station over the same period were –26.0°C and 11.6°C respectively. January is typically the warmest month and August the coldest (CLIMDB/HYDRODB, accessed 16/08/2010). Average annual precipitation has been 655 mm since 1989. Storms in the region are relatively frequent, whilst prevailing winds are generally light to moderate and from the northeast (ASMA No.7 Management Plan, 2009).

Birds

Cormorant Island is one of the largest colonies of Imperial Shag (*Phalacrocorax atriceps*) in the Antarctic Peninsula region, with 729 breeding pairs recorded in 1985 (Poncet & Poncet, unpublished data). Adélie Penguins (*Pygoscelis adeliae*) also breed on Cormorant Island, with 872 pairs recorded in the last published count (Parmelee & Parmelee, 1987). Southern Giant Petrels (*Macronectes giganteus*) breed on the island, numbering around 13 breeding pairs (W. Fraser, pers. comm., 2006).

Other threatened / endemic wildlife

Fin Whale (*Balaenoptera physalus*) and Sei Whale (*Balaenoptera borealis*) have previously been observed near southern Anvers Island (ASMA No.7 Management Plan, 2009). Other species observed in the area include the Minke Whale (*Balaenoptera bonaerensis*), Killer Whale (*Orcinus orca*), Humpback Whale

(*Megaptera novaeangliae*), Southern Right Whale (*Eubalaena australis*) and Hourglass Dolphin (*Lagenorhynchus cruciger*).

Seal species common to the Anvers Island area include the Weddell Seal (*Leptonychotes weddellii*), Southern Elephant Seal (*Mirounga leonina*), Crabeater Seal (*Lobodon carcinophagus*), Leopard Seal (*Hydrurga leptonyx*) and Antarctic Fur Seal (*Arctocephalus gazella*). However, there are no records of seals breeding in the area (ASMA No. 7 Management Plan, 2009).

Conservation issues

One of the largest marine oil spills in Antarctica occurred ~5 km from Cormorant Island, with the sinking of the Argentine ship *Bahia Paraiso* in 1989 in Arthur Habour. The spill of ~ 600,000 litres of diesel oil affected bird breeding performance and the nearshore marine environment for several years. It has been estimated that ~16 % of Adélie Penguins exposed to the spill may have been killed (Penhale *et al.* 1997 cited in ASPA No. 113 Management Plan, 2009). Populations have now recovered, and the impacts are not considered to have been as long-term as initially feared. The event, however, raised significant conservation and marine planning concerns. With large colonies of breeding wildlife in the local area, and a substantial programme of science being carried out, the United States initiated steps to improve coordination and management in the region. ASMA No. 7 Southwest Anvers Island and Palmer Basin was designated in 2007 to coordinate national program activities and protect the outstanding environment of the Palmer Basin and Anvers Island region and the science being conducted in the area.

Restricted Zones such as Cormorant Island have been designated under ASMA No. 7 because of their ecological and scientific value and their sensitivity to disturbance. To protect breeding birds and plant communities, access to Cormorant Island between 1 October and 15 April is not permitted except by those conducting 'essential scientific research, monitoring or maintenance' (ASMA No. 7 Management Plan, 2009). Specific guidelines for visitors to Restricted Zones are included in the ASMA No. 7 Management Plan. Visitors are requested to minimise disturbance to birds during the breeding season.

A wide range of scientific research is carried out at the Palmer Station, including on the physiology, populations and characteristics of Antarctic plants and animals, collecting census data on birds and mammals and on short- and long-term ecological change, especially in relation to global climate. Cormorant Island is within the Palmer Long-Term Ecological Research (LTER) study area.

Climate change may constitute the greatest threat to avifauna in the region. The western Antarctic Peninsula has experienced a rapid increase in temperatures since the 1940s, with a 4.5°C rise in mid-winter temperatures between 1944 and 1991 (Smith *et al.* 1996). The result is a gradual loss of sea ice and changes in ecosystem structure, a threat to the survival of the ice-dependent *Pygoscelis adeliae* and other species whose life histories are closely linked to the presence of sea ice (Ducklow *et al.* 2007). In particular, Adélie colony sizes have reduced significantly over the last 30 years in the region, possibly linked to a warming climate causing the loss of sea ice, as well as reduced prey availability and changes in snow accumulation rates (Emslie *et al.* 1998; McClintock *et al.* 2008; Trivelpiece & Fraser, 1996). However, there is some evidence that changes in climate may be having a positive effect on other species, e.g. climate warming may be linked to the southward expansion of the *Pygoscelis papua* breeding range in the Anvers Island area (Emslie *et al.* 1998).

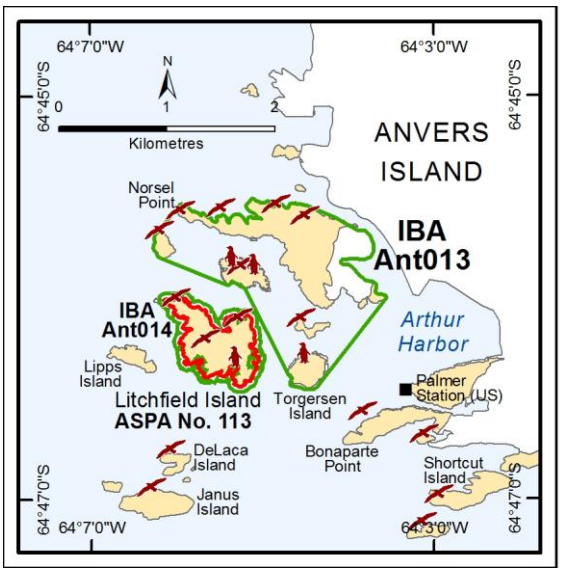
Arthur Harbour and Palmer Station are popular destinations for tourist cruise ships and yachts. However, under the ASMA No. 7 Management Plan tour visits are directed to Palmer Station itself and to the Torgersen Island Visitor Zone, and all visits are strictly controlled. Thus, whilst the annual number of tourists visiting the vicinity are relatively high (e.g. 8637 at Palmer Station in the 2009-10 summer), the Restricted Zone ensures that human activity and disturbance at Cormorant Island is kept to a minimum.

Further reading

ASMA No. 7 Palmer Basin and Southwest Anvers Island: Management Plan (2008), Appendix A.
See also: Palmer LTER project site at http://pal.lternet.edu/

Ant013: Northern Arthur Harbour area

IBA criteria	A4iii
Coordinates	64°46' S, 64°05' W
Area	214.3 ha
Altitude	< 250 m
Protection	Part of ASMA No.7; area partially or wholly contains Torgersen Island Restricted & Visitor Zones, Humble Island Restricted Zone, Elephant Rocks Restricted Zone and Norsel Point Restricted Zone



Site description

Arthur Harbour lies on the southern coast of Anvers Island. A number of islands in northern Arthur Harbour host large colonies of breeding birds, and the these include Norsel Point, Breaker Island, Humble Island, Elephant Rocks and Torgersen Island. Some of these are designated as Restricted Zones under Antarctic Specially Managed Area (ASMA) No. 7: Southwest Anvers Island and Palmer Basin. The IBA comprises all of these islands and the intervening marine area, and lies ~1 km to the northwest of Palmer Station (US)..

Vegetation on the islands within Arthur Harbour comprises a wide range of mosses, lichens and algae and includes the two native vascular plant species Antarctic hairgrass (*Deschampsia antarctica*) and the pearlwort *Colobanthus quitensis* (ASMA No. 7 Management Plan, 2009). Vegetation is less diverse on Torgersen and Humble Islands than at other sites within the IBA (Lewis-Smith 1982). Ponds and summer melt streams are common on Norsel Point and on Breaker Island, some of which are enriched by adjacent breeding bird colonies.

The nearest scientific station is Palmer (US), situated on the eastern shore of Arthur Harbour at Gamage Point. The description of the station and prevailing local climate is provided in IBA Ant012.

Birds

This site supports around 11,500 breeding pairs of Adélie Penguin (*Pygoscelis adeliae*), based on census records from 1983-84 (Parmelee & Parmelee, 1987 cited in Woehler 1993). One pair of Macaroni Penguin (*Eudyptes chrysolophus*) was observed nesting on Humble Island in 1985. Southern Giant Petrel (*Macronectes giganteus*) breed at several locations across the IBA, including at Humble Island (48 pairs), Breaker Island (3 pairs), Norsel Point (133 pairs) and Elephant Rocks (1 pair) (W. Fraser, pers. comm., 2006). The Imperial Shag (*Phalacrocorax atriceps*) is a confirmed breeder on Elephant Rocks and a wide range of non-breeding bird species also frequent the area (ASMA No. 7 Management Plan, 2009).

Other threatened / endemic wildlife

See Ant012.

Conservation issues

Ant013 lies within Antarctic Specially Managed Area (ASMA) No. 7: Southwest Anvers Island and Palmer Basin. Four Restricted Zones are designated under the ASMA within Ant013, at Norsel Point, Humble Island, Elephant Rocks and Torgersen Island. The latter island also has a Visitor Zone, where visits by tourists are directed and carefully managed under the ASMA plan. The zoning scheme helps to ensure that

disturbance to the important bird colonies in the region is minimised. See Ant012 for more information on Restricted and Visitor Zones.

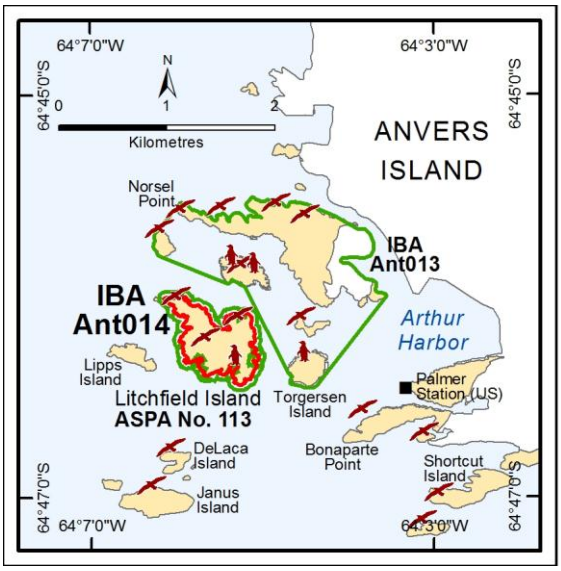
The vessel *Bahia Paraiso* sank ~750 m from the southern boundary of Ant013. See Ant012 for more information on the spill and its potential impact on Ant013, and for more information on other regional conservation issues.).

Further reading

ASMA No.7 Palmer Basin and Southwest Anvers Island: Management Plan (2008);
Palmer LTER project URL: http://pal.lternet.edu/, accessed: 04/08/2010.

Ant014: Litchfield Island

IBA criteria	A4ii
Coordinates	64°46' S, 64°06' W
Area	40 ha
Altitude	0 – 48 m
Protection	ASPA No.113



Site description

Litchfield Island lies less than a kilometer to the south of Norsel Point, Anvers Island, at the western extent of Arthur Harbour. The IBA is defined by the boundary of Antarctic Specially Protected Area No. 113 Litchfield Island, which was designated to protect an unusually rich and diverse terrestrial habitat, with a wide range of wildlife (ASPA No. 113 Management Plan, 2009).

The geology of Litchfield Island comprises tonalites, granites and other volcanics (ASPA No. 113 Management Plan, 2009). Relief is varied with numerous low summits, the highest of which is 48 m, and there are several small ponds on the island. In the 1960s, one finest examples of maritime Antarctic vegetation existed on Litchfield Island, including an extensive moss carpet dominated by *Warnstorfia laculosa*, and several areas covered by *Polytrichum strictum* and *Chorisodontium aciphyllum* (ASPA No. 113 Management Plan, 2009). By 2001, Antarctic Fur Seals (*Arctocephalus gazella*) had severely reduced the abundance and variety of vegetation on Litchfield Island's lower slopes. However, on higher slopes, vegetation remains intact and recent declines in the population of Antarctic Fur Seals may be facilitating regrowth of vegetation on previously damaged slopes (W. Fraser, pers. comm, 2009). Other species described on Litchfield Island include the two species of flowering plants found in Antarctica: *Deschampsia antarctica* and *Colobanthus quitensis*.

The nearest scientific station is Palmer (US), ~1.5 km to the east. See Ant012 for more information on Palmer Station and local climate.

Birds

At least six bird species breed on Litchfield Island, making it one of the most ornithonologically diverse sites in Arthur Harbour. Census records for the South Polar Skua (*Catharacta maccormicki*) indicate up to 50 breeding pairs breed on Litchfield Island, although the number fluctuates widely from year to year (ASPA No. 113 Management Plan, 2009). Breeding pairs of Brown Skua (*Catharacta lonnbergi*) and hybrid Skua have also been observed in the past. However, an outbreak of fowl cholera in 1979 is thought to have killed many of the Brown Skua and only two pairs were recorded in 1980-81 (ASPA No. 113 Management Plan, 2009). There were 57 breeding pairs of Southern Giant Petrel (*Macronectes giganteus*) on Litchfield Island in the 2008-09 season (W.R. Fraser, pers. comm., cited in ASPA No. 113 Management Plan, 2009) and a few Antarctic Tern (*Sterna vittata*) nests are recorded each year. Kelp Gulls (*Larus dominicanus*) breed in low numbers in this IBA, whilst Wilson's Storm-petrels (*Oceanites oceanicus*) are also a confirmed breeder at the site.

Around 1000 pairs of Adélie Penguins (*Pygoscelis adeliae*) were nesting on Litchfield Island in the early 1970's (Parmelee & Parmelee, 1987). However, Adélie numbers declined over subsequent decades and by the 2006-07 summer season all nests had been vacated (W. Fraser, pers. comm., 2007 cited in ASPA No. 113 Management Plan, 2009). Population decline of Adelie breeding sites in the Palmer area has been

linked to regional changes in sea ice extent and snow accumulation rates (Emslie *et al.* 1998; McClintock *et al.* 2008).

Other non-breeding bird species frequenting the site include the Imperial Shag (*Phalacrocorax atriceps*), Chinstrap Penguins (*Pygoscelis antarctica*) and Gentoo Penguins (*P. papua*). Occasional observations are made of Snow Petrel (*Pagodroma nivea*), Cape Petrel (*Daption capense*), Antarctic Petrel (*Thalassoica antarctica*) and Southern Fulmar (*Fulmarus glacialoides*).

Other threatened / endemic wildlife

Antarctic Fur Seals (*Arctocephalus gazella*) commonly haul out on Litchfield Island from February onwards each year, although numbers have reportedly decreased in the Arthur Harbour area in recent years (Siniff *et al.* 2008). Elephant Seals (*Mirounga leonina*) haul out along the shoreline of Litchfield Island for much of the year and Weddell Seals (*Leptonychotes Weddellii*) are also occasionally observed. Crabeater Seals (*Lobodon carcinophaga*) and Leopard Seals (*Hydrurga leptonyx*) are regularly observed on ice floes near the IBA (ASPA No. 113 Management Plan, 2009). See Ant 012 for information on other species observed nearby.

Conservation issues

Access to Litchfield Island is strictly by permit under Antarctic Specially Protected Area No. 113. Visitors are not permitted except for 'compelling scientific reasons that cannot be served elsewhere, or for essential management purposes' (ASPA No. 113 Management Plan, 2009). The Management Plan imposes strict conditions on activities that may be carried out within the area, and overflight restrictions are also in place. As such, the impacts of visitors to Litchfield Island on the breeding avifauna are minimal.

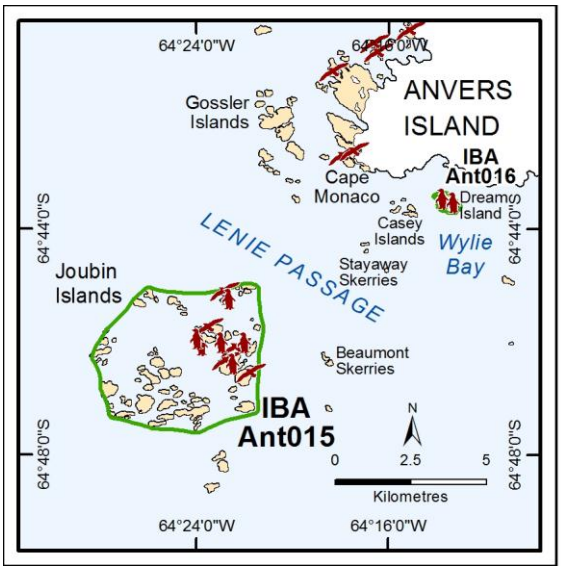
However, see Ant012 for information on conservation issues that arose as a result of the sinking of the *Bahia Paraiso* in 1989 and arising from global climate change.

Further reading

ASPA No. 113 Litchfield Island: Management Plan;
ASMA No. 7 Palmer Basin and Southwest Anvers Island: Management Plan (2008);
Palmer LTER project URL: http://pal.lternet.edu/, accessed: 04/08/2010.

Ant015: Joubin Islands

IBA criteria	A4i
Coordinates	64°47' S, 64°26' W
Area	2444 ha
Altitude	< 250 m
Protection	Restricted Zone within ASMA No.7



Site description

The Joubin Islands are an archipelago comprising numerous small islands, islets and offshore rocks situated ~5 km from Cape Monaco, southwestern Anvers Island. The islands were first charted by the French Antarctic Expedition in 1903-05 (Hattersley-Smith, 1991).

The Joubin Islands are designated as a Restricted Zone under Antarctic Specially Managed Area No. 7: Southwest Anvers Island and Palmer Basin, which includes the marine area extending to a 50 m buffer around the outer shorelines. The IBA covers the area defined by the boundary of the Restricted Zone.

Detailed information on the Joubin Islands environment is not available. The geology shares a granitic and volcanic origin with Anvers Island. Vegetation is typical of the region, and consists of a wide range of mosses, lichens and algae, as well as the native vascular plants Antarctic hairgrass (*Deschampsia antarctica*) and the pearlwort *Colobanthus quitensis* (ASMA No. 7 Management Plan, 2009).

The nearest permanent scientific station is Palmer (US), situated ~15 km to the east at Arthur Harbour, southern Anvers Island. Climate data specifically for the Joubin Islands are not available. See Ant012 for more information on Palmer Station and local climate.

Birds

Several birds species breed on the Joubin Islands, including the Imperial Shag (*Phalacrocorax atriceps*), Adélie Penguin (*Pygoscelis adeliae*), Gentoo Penguin (*P. papua*), Chinstrap Penguin (*P. antarctica*) and Southern Giant Petrel (*Macronectes giganteus*). More than 250 pairs of Imperial Shag were recorded in the north of the Joubin Islands in 1987 (Poncet & Poncet, unpublished data). Around 30 pairs of Southern Giant Petrel were recorded in 1999 (Patterson *et al.* 2008), typically breeding on the northeast aspect of high ridges on most islands (W. Fraser, pers. comm., 2006). Penguins observed breeding at the site in 1990 comprised 1261 pairs Adélies, 33 pairs Chinstraps and 104 pairs Gentoos (S. Poncet, pers. comm.).

Other threatened / endemic wildlife

See Ant 012 for information on other species observed in the region.

Conservation issues

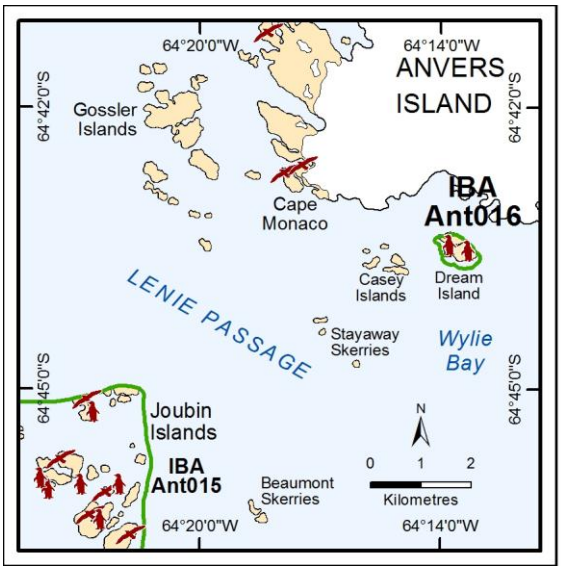
Designation of the Joubin Islands as a Restricted Zone under ASMA No. 7 provides controls and guidelines on visitor access. More information on these conditions, regional scientific programmes, and the broad conservation issues can be found under Ant012 and in the Management Plan for ASMA No. 7.

Further reading

ASMA No. 7 Palmer Basin and Southwest Anvers Island: Management Plan (2008);
Palmer LTER project URL: http://pal.lternet.edu/, accessed: 04/08/2010.

Ant016: Dream Island

IBA criteria	A4iii
Coordinates	64°43' S, 64°14' W
Area	43.8 ha
Altitude	≤ 35 m
Protection	Restricted Zone within ASMA No.7



Site description

Dream Island lies ~800 m south of Anvers Island in the west of Wylie Bay, ~10 km to the northwest of Palmer Station (US) in Arthur Harbour. Dream Island is designated under Antarctic Specially Managed Area No. 7: Southwest Anvers Island and Palmer Basin as a Restricted Zone, which includes the marine area extending to a 50 m buffer around the outer shoreline. The IBA covers the area defined by the boundary of the Dream Island Restricted Zone.

Detailed information on the environment at Dream Island is not available. The geology shares a granitic and volcanic origin with Anvers Island. Vegetation is typical of the region, and consists of a wide range of mosses, lichens and algae, as well as the native vascular plant Antarctic hairgrass (*Deschampsia antarctica*).

The nearest permanent scientific station is Palmer (US), situated ~10 km to the east at Arthur Harbour, southern Anvers Island. See Ant012 for more information on Palmer Station and local climate.

Birds

A large Adélie Penguin (*Pygoscelis adeliae*) colony of 11,263 pairs occupying the central and northwestern areas of the island was recorded in 1985 (Parmelee & Parmelee, 1987). Chinstrap Penguins (*Pygoscelis antarctica*) also breed in small numbers on Dream Island.

Other threatened / endemic wildlife

See Ant 012 for information on other species observed in the region.

Conservation issues

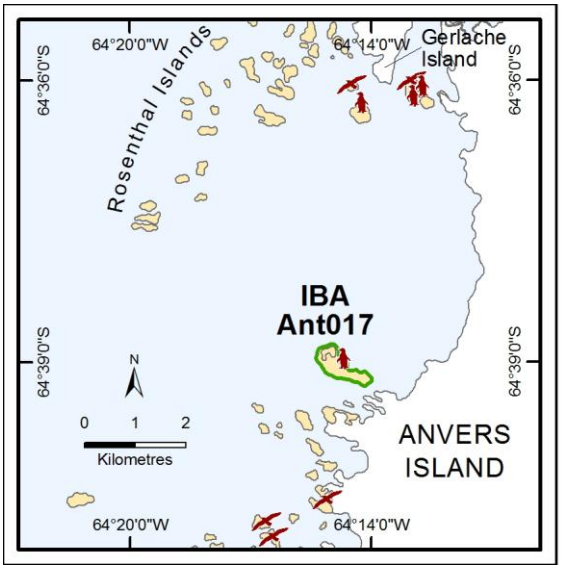
Designation of Dream Island as a Restricted Zone under ASMA No. 7 provides controls and guidelines on visitor access. More information on these conditions, regional scientific programmes, and the broad conservation issues can be found under Ant012 and in the Management Plan for ASMA No. 7.

Further reading

ASMA No. 7 Palmer Basin and Southwest Anvers Island: Management Plan (2008);
Palmer LTER project URL: http://pal.lternet.edu/, accessed: 04/08/2010.

Ant017: Islet south of Gerlache Island, Palmer Archipelago

IBA criteria	A1
Coordinates	64°39' S, 64°15' W
Area	43 ha
Altitude	0 to < 250 m
Protection	ASMA No.7



Site description

A small (41 ha) ice-free islet of low relief lies 0.5 km from the west coast of Anvers Island, and ~4.5 km to the south of Gerlache Island in the Rosenthal Islands. A large Gentoo Penguin colony is located on the island, and the IBA extent is defined by the island coastline.

Information on the environment at this island is not available, although the geology is likely to be similar to that on Anvers Island, which has granitic and volcanic origins.

The nearest permanent scientific station is Palmer (US), situated ~20 km to the east at Arthur Harbour, southern Anvers Island. See Ant012 for more information on Palmer Station and local climate.

Birds

A Gentoo Penguin (*Pygoscelis papua*) colony of ~3000 pairs was recorded on the islet in 1987 (Poncet & Poncet 1987). There is no information on any other birds breeding at this site.

Other threatened / endemic wildlife

Southern Giant Petrels (*Macronectes giganteus*) are known to breed on the west coast of Anvers Island (W. Fraser, pers. comm., 2006). See Ant 012 for information on other species observed in the region.

Conservation issues

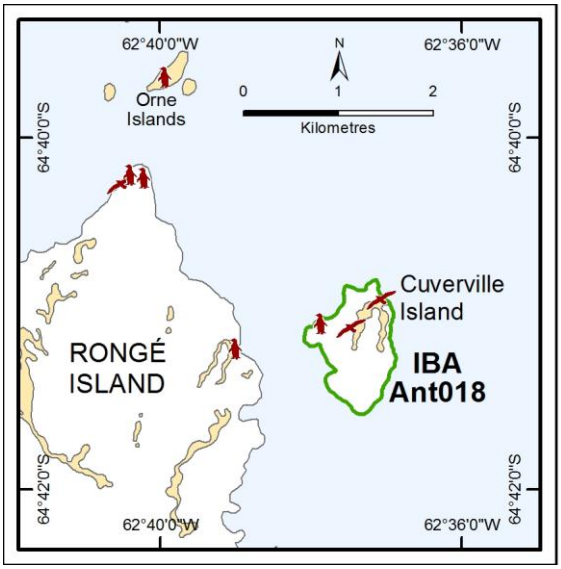
The IBA lies within Antarctic Specially Managed Area (ASMA) No. 7, which provides a Management Plan to coordinate activities in the region. Guidelines on visitor access to this island are not presently specified. More information on the regional environment and scientific programmes, and the broad conservation issues can be found under Ant012 and in the Management Plan for ASMA No. 7.

Further reading

ASMA No. 7 Palmer Basin and Southwest Anvers Island: Management Plan (2008);
Palmer LTER project URL: http://pal.lternet.edu/, accessed: 04/08/2010.

Ant018: Cuverville Island

IBA criteria	A1, A4ii
Coordinates	64°41' S, 62°38' W
Area	89.8 ha
Altitude	0 to < 250 m
Protection	None



Site description

Cuverville Island is a small island lying in the Errera Channel between Rongé Island and Arctowski Peninsula (Graham Land). A permanent ice-cap extends over much of the island, although on the northern slopes there is a series of broad, rocky beaches below steep cliffs. The rocky areas provide suitable breeding sites for penguins. The IBA extent is defined by the island coastline.

Vegetation consists of a range of moss and lichen species as well as both of the two flowering plant species Antarctic hair grass *Deschampsia antarctica* and pearlwort *Colobanthus quitensis* (ATS Visitor Site Guide: Cuverville Island, accessed 13/08/2010). Moss cover is extensive at higher elevations.

The nearest scientific station is Gabriel Gonzáles Videla station (Chile), a summer-only facility in Paradise Cove with capacity for up to nine people (COMNAP, Antarctic Facilities, accessed 16/08/2010).

Birds

Gentoo Penguins (*Pygoscelis papua*) breed along the north and northwest shoreline of Cuverille Island, with 6468 pairs recorded in December 2009 (H.Lynch, pers. comm., 2010). The colony is the largest for this species on the Antarctic Peninsula. Southern Giant Petrel (*Macronectes giganteus*) are known to breed on the island (Naveen 2003) and 29 pairs of Imperial Shag (*Phalacrocorax atriceps*) were recorded on the northeast side of the island in 2006 (Lynch *et al.* 2008).

Other threatened / endemic wildlife

Weddell Seals (*Leptonychotes weddelli*) and Antarctic Fur Seals (*Arctoceplalus gazella*) commonly haul out at Cuverille Island, while Leopard Seals (*Hydrurga leptonyx*) have been observed hunting off-shore (ATS Visitor Site Guide: Cuverville Island, accessed 13/08/2010).

Conservation issues

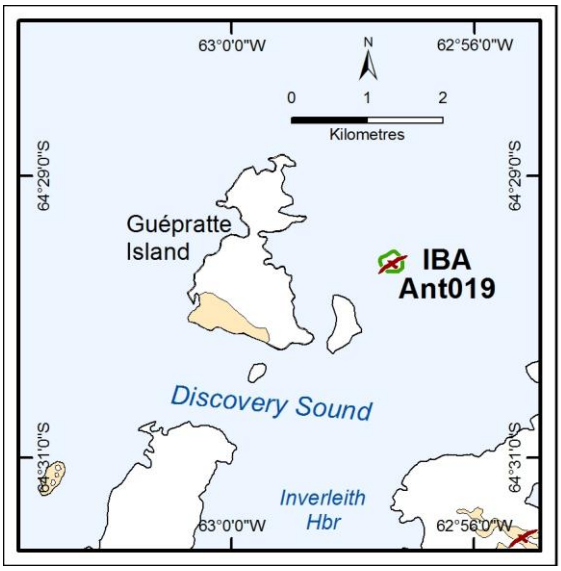
Cuverville Island is a popular tourist destination, and IBA Ant018 lies within the area on the Antarctic Peninsula that is visited most intensively by tour vessels (Lynch *et al* 2009). Access to the site is managed through Visitor Site Guidelines adopted under the Antarctic Treaty System. The visitor landing site is located on a long, exposed beach on the northwestern coast, with the remainder of the coastline comprising inaccessible and sheer cliffs. The Visitor Site Guide provides practical advice on how to avoid visitor disturbance to birds and vegetation. Organised tours supervise passenger behaviour ashore.

Further reading

Antarctic Treaty System Visitor Site Guide, *Cuverville Island*:
URL: http://www.ats.aq/siteguidelines/documents/Cuverville_e.pdf. Accessed: 10/08/2010.

Ant019: Islet east of Guépratte Island

IBA criteria	A4i
Coordinates	64°30' S, 62°57' W
Area	6.6 ha
Altitude	0 to < 250 m
Protection	None



Site description

A large colony of Imperial Shags is located on a small islet ~1.5 km east of Guépratte Island, Fournier Bay, ~1 km north of Parker Peninsula on the northeastern coast of Anvers Island. The IBA extent is defined by the coastline of the islet on which the birds breed.

The nearest scientific station is Melchior (Argentina), located on Melchior Island ~20 km to the north of Ant019.

Birds

Approximately 220 breeding pairs of Imperial Shag (*Phalocrocorax atriceps*) were recorded at this site in 1987 (Poncet & Poncet, unpublished data).

Other threatened / endemic wildlife

None known.

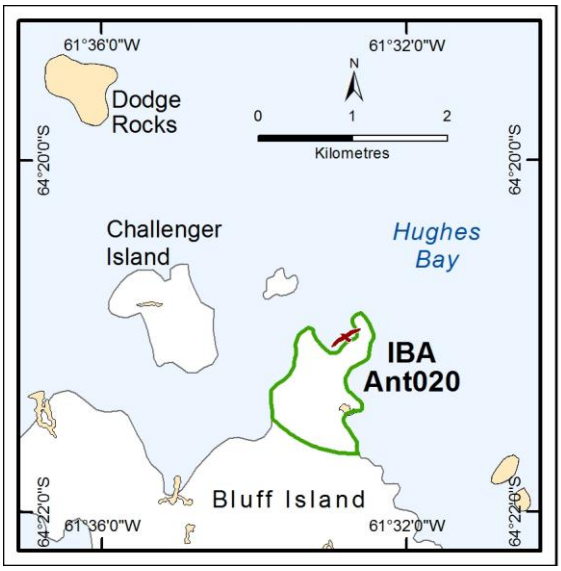
Conservation issues

IBA Ant019 lies close to Gerlache Strait, which is one of the areas on the Antarctic Peninsula that is most intensively visited by tour vessels (Lynch *et al.* 2009), although the extent of landings and zodiac cruising at this specific site is unknown.

Further reading

Ant020: Bluff Island

IBA criteria	A4ii
Coordinates	62°21' S, 61°33' W
Area	98 ha
Altitude	0 to < 250 m
Protection	None



Site description

Bluff Island (also known as Murray Island) is located in the Gerlache Strait, 500 m from Danco Coast on the western Antarctic Peninsula. The IBA comprises of a ice-free area on a peninsula on the north side of Bluff Island..

Information on the environment at the site is not presently available.

Birds

This area is home to an estimated 180 pairs of Imperial Shag (*Phalacrocorax atriceps*), recorded breeding on the western side of a small peninsula on the north coastline of Bluff Island in 1989 (Poncet & Poncet, unpublished data). No other birds are known to breed at the site.

Other threatened / endemic wildlife

None known.

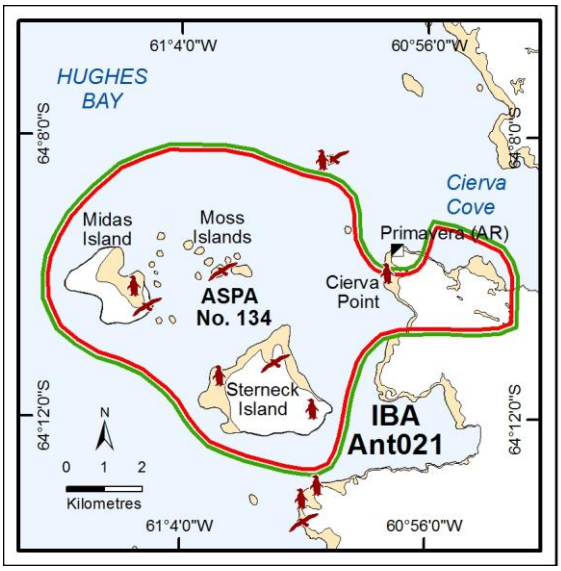
Conservation issues

None known.

Further reading

Ant021: Cierva Point and offshore islands

IBA criteria	A4ii
Coordinates	64°10' S, 61°01' W
Area	6540 ha
Altitude	<750 m
Protection	ASPA No. 134



Site description

Cierva Point (64°09' S, 60°57' W) lies on the Danco Coast of the Antarctic Peninsula, 50 km east of Brabant Island, and forms the southern entrance to Cierva Cove. The IBA is defined by the same boundary of Antarctic Specially Protected Area No. 134, which includes Cierva Point, Sterneck Island, Midas Island, Moss Islands and surrounding offshore islands. The intervening marine area and intertidal zone is included in the IBA.

South-facing slopes at Cierva Point are largely glaciated and uninhabitable, whilst the north- and west-facing slopes comprise ice-free scree slopes, rock terraces and gullies. The terrain rises to a height of over 500 m on coastal cliffs. Coastal vegetation is extensive and includes lichens, mosses and grasses, including the two native flowering species Antarctic hairgrass *Deschampsia antarctica* and the pearlwort *Colobanthus quitensis.* Peat in moss-covered areas reaches ~80 cm in thickness and cover areas of more than 1 ha (Rau *et al.* 2000). Cyanobacteria and diatoms dominate mineral soils and terrestrial arthropods and non-marine microalgae are abundant in the region.

No long-term weather data for the site are available. However, Quintana (2001) recorded weather at Cierva Point during the summer of 1992 – 1993 and found conditions were moderate compared to more northerly Antarctic locations. Mean monthly temperatures over the summer ranged from 1.8°C to 2.2°C whilst relative humidity was 79 % on average. Mean wind speed was 7.9 kmh^{-1}.

Primavera Station (Argentina) is situated ~500 m from the IBA boundary on the northern tip of Cierva Point and is accompanied by. The permanent summer only station has capacity for ~18 people and is serviced by ship and a helicopter landing site (COMNAP, Antarctic Facilities, accessed 09/08/2010).

Birds

At least 12 bird species breed within the IBA, with Chinstrap (*Pygoscelis antarctica*) and Gentoo (*P. papua*) penguins, Wilson's Storm-petrel (*Oceanites oceanicus*), South Polar Skua (*Catharacta maccormicki*) and Kelp Gulls (*Larus dominicanus*) the most abundant of species present (ASPA No. 134 Management Plan, 2006).

Quintana *et al.* (2000) documented 93 breeding pairs South Polar Skua at Cierva Point in 1995, whilst an estimated estimated 475 pairs of Skua (predominantly *Catharacta maccormicki*) are thought to breed over the entire IBA (ASPA No. 134 Management Plan, 2006). Poncet & Poncet (unpublished data) recorded 70 pairs of Imperial Shag (*Phalacrocorax atriceps*) breeding on Midas Island in 1987. In the late 1980s, 135 breeding pairs of Southern Giant Petrel (*Macronectes giganteus*) were recorded in the area, nesting on both Moss and Sterneck islands (Patterson *et al.* 2008). In 1987, around 3100 Chinstrap Penguins (*Pygoscelis antarctica*) were recorded breeding on Sterneck and Midas Islands, and 450 Gentoo Penguin (*P. papua*) nests were counted on Sterneck Island (Poncet & Poncet 1987). A further 1041 pairs Gentoo Penguin were recorded in 1995-96, nesting on snow-free areas of a north-west facing hillside at Cierva Point (Quintana *et*

al. 2000). These authors reported the breeding birds at Cierva Point include 1168 pairs Wilson's Storm-petrel, 62 pairs Kelp Gull, 24 pairs Antarctic Tern (*Sterna vittata*), seven pairs Cape Petrel (*Daption capense*), four pairs Greater Sheathbill (*Chionis alba*) and one pair Snow Petrel (*Pagodroma nivea*).

Penguin, shag and Southern Giant Petrel colonies may have since decreased in size: the ASPA No. 134 Management Plan (2006) noted 2050 pairs Chinstraps and 1500 pairs Gentoos breed across the entire IBA, along with around 45 pairs of Southern Giant Petrel and around 30 pairs of Imperial Shag. The Management Plan further noted that 2300 pairs Wilson's Storm-petrel breed in the area, along with more than 100 pairs Antarctic Tern, 375 pairs Kelp Gull and more than 50 pairs Cape Petrel.

Other threatened / endemic wildlife

None reported, although it is anticipated that various species of marine mammal such as seals and whales are likely to be found in the vicinity.

Conservation issues

Antarctic Specially Protected Area No. 134: Cierva Point and offshore islands was originally designated to protect the well-developed vegetation and breeding bird colonies in the region. Access to the ASPA is strictly controlled by permit, and the ASPA Management Plan provides guidance for activities. Guidance on aircraft access to Primavera Station requires general avoidance of overflight of the protected area and IBA unless above 2000 feet (610 m), and landings are restricted to the designated helicopter landing site close to the station.

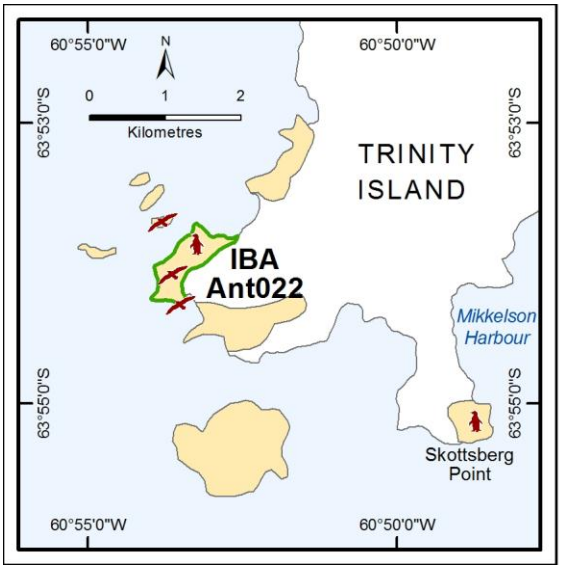
Human activity in the local area is principally associated with scientific operations and support, with occasional tourist visits to the station. Consequently, human disturbance to wildlife in the area is minimised by the requirement for a permit to access key bird breeding areas. Perhaps the most significant risks to the bird colonies may come from inadvertent low overflights by aircraft accessing the station, which may occur as a result of poor weather conditions or because of a lack of knowledge about the requirements of the protected area. As with other IBAs in Antarctica, the principal conservation issue probably relates to impacts associated with global climate change.

Further reading

ASPA No. 134 Cierva Point and offshore islands, Danco Coast: Management Plan (2006)

Ant022: Trinity Island southwest

IBA criteria	A4I
Coordinates	63°54' S, 60°53' W
Area	49.9 ha
Altitude	< 500 m
Protection	None



Site description

Trinity Island lies in Orléans Strait, ~15 km from the Davis Coast of the Antarctic Peninsula. The IBA comprises a rocky headland rising to ~250 m at the southwestern extremity of Trinity Island.

Information on the environment at the site is not available. The nearest permanent scientific facility is Primavera Station (Argentina), located 30 km to the south.

Birds

Around 195 pairs of Imperial Shag (*Phalacrocorax atriceps*), were recorded breeding in three groups along the rocky headland amongst Chinstrap Penguins (*Pygoscelis antarctica*) on 28 January 1986 (Poncet & Poncet, unpublished data). The Chinstrap Penguin colony was recorded as 1600 breeding pairs (Poncet & Poncet 1987 cited in Woehler 1993).

Other threatened / endemic wildlife

None known.

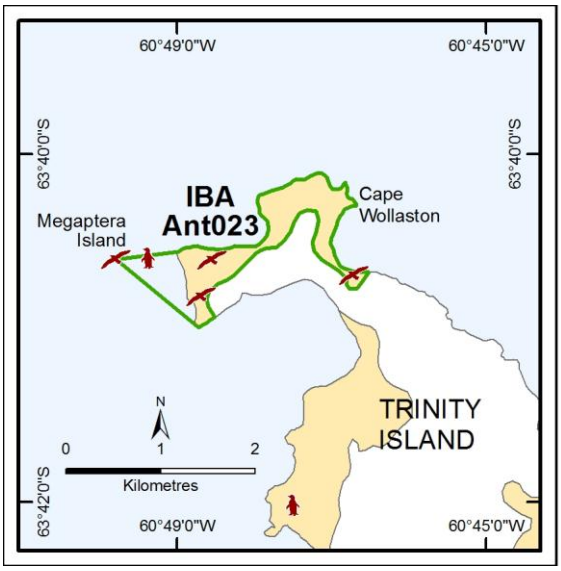
Conservation issues

None known.

Further reading

Ant023: Cape Wollaston, Trinity Island

IBA criteria	A4ii, A4iii
Coordinates	63°40' S, 60°48' W
Area	129 ha
Altitude	0 to < 500 m
Protection	None



Site description

Cape Wollaston lies at the northwestern extremity of Trinity Island, ~40 km from the Davis Coast of the Antarctic Peninsula. The IBA comprises the ice-free area of Cape Woolaston, which rises to ~250 m.

Information on the environment at the site is not available. The nearest permanent scientific facility is Primavera Station (Argentina), located 53 km to the south.

Birds

An estimated 10,000 pairs of Southern Fulmar (*Fulmarus glacioloides*) breed on the cliffs and offshore islands around Cape Wollaston, Megaptera Island and northwestern Trinity Island (Poncet & Poncet, unpublished data, cited in Creuwels *et al.* 2007). Cape Petrel (*Daption capense*) and Snow Petrel (*Pagodroma nivea*) have also been observed at Cape Wollaston (Poncet & Poncet, unpublished data).

Other threatened / endemic wildlife

None known.

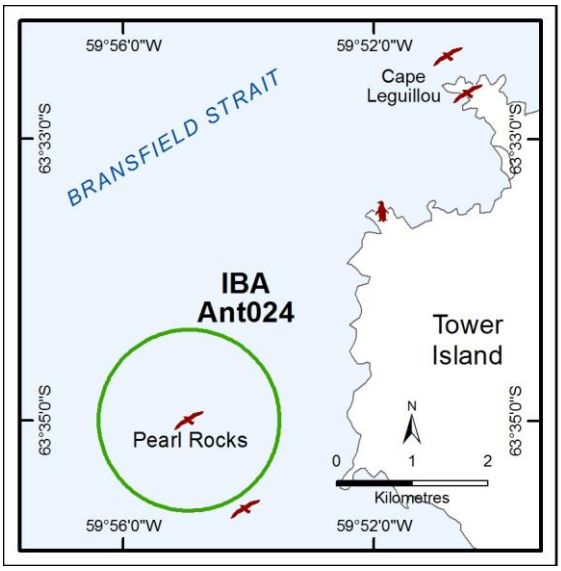
Conservation issues

None known.

Further reading

Ant024: Pearl Rocks

IBA criteria	A4i
Coordinates	63°35' S, 59°55' W
Area	500 ha
Altitude	Unknown
Protection	None



Site description

Pearl Rocks lie several km offshore from the western coast of Tower Island, ~25 km from the Davis Coast of the Antarctic Peninsula. Pearl Rocks are uncharted, so the IBA has been defined as an elliptical area centered on the approximate position of the northernmost of the three highest islets in the Pearl Rocks group.

Information on the environment at Pearl Rocks is not available. The nearest permanent scientific stations are Gabriel de Castilla (Spain) and Decepción (Argentina), located ~80 km to the northwest at Port Foster, Deception Island. These summer-only stations have a combined capacity of 90 people.

Birds

Around 170 breeding pairs of Imperial Shag were recorded in 1987 (Poncet & Poncet, unpublished data). No other birds are known to breed at this site.

Other threatened / endemic wildlife

Several small colonies of Chinstrap Penguins (*Pygoscelis antarctica*) are located on the coast of nearby Tower Island, where Southern Fulmar (*Fulmaris glacialoides*) and Cape Petrel (*Daption capense*) have also been recorded as breeding.

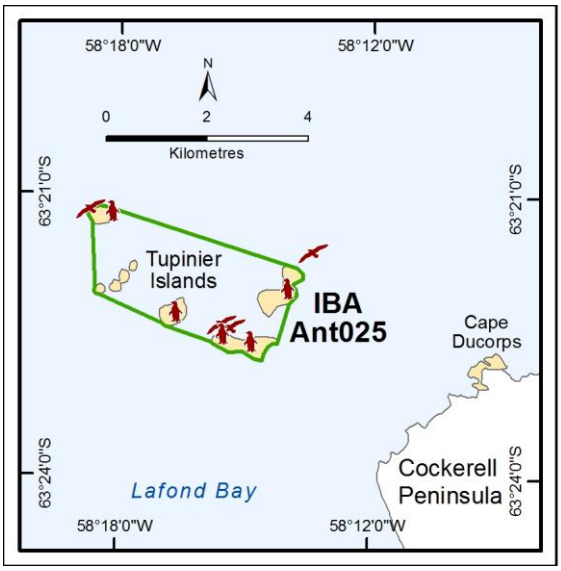
Conservation issues

None known.

Further reading

Ant025: Tupinier Islands

IBA criteria	A4iii
Coordinates	63°22' S, 58°16' W
Area	831.2 ha
Altitude	< 250 m
Protection	None



Site description

Tupinier Islands lie ~4 km northwest of Cape Ducorps on Cockerell Peninsula, Trinity Peninsula, on the Antarctic Peninsula. This ice-free archipelago was first charted in 1837–40 by the French Antarctic Expedition (Hattersley-Smith, 1991).

Information on the environment at Tupinier Islands is not available.

The nearest permanent scientific facility is Bernardo O'Higgins Station (Chile), which has capacity for ~44 people and operates year-round ~20 km to the northeast at Cape Legoupil (COMNAP, Antarctic Facilities, accessed 20/08/2010).

Birds

A large Chinstrap Penguin (*Pygoscelis antarctica*) colony, estimated at 14,130 pairs in 1990 (Poncet & Poncet, pers. comm.), is distributed across the island group in five main groups ranging from 800 to 5200 pairs. A small number of Imperial Shags (*Phalacrocorax atriceps*) breed on three small islets within the island group, with 68 breeding pairs recorded in 1990 (Poncet & Poncet, unpublished data).

Other threatened / endemic wildlife

None known.

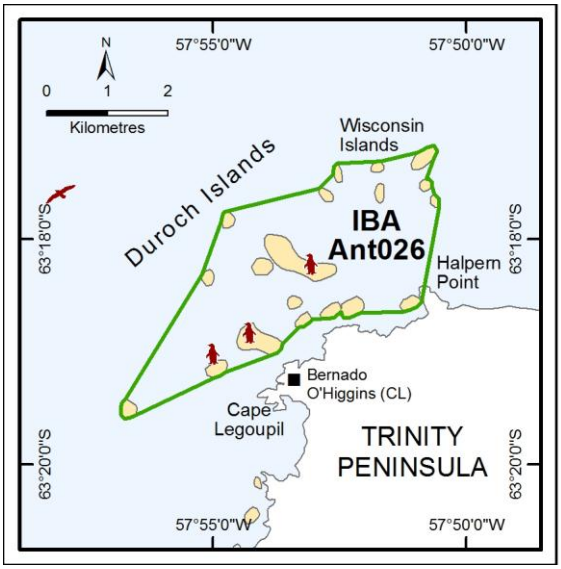
Conservation issues

None known.

Further reading

Ant026: Duroch Islands

IBA criteria	A1, A4ii
Coordinates	63°18' S, 57°54' W
Area	1191.7 ha
Altitude	< 250 m
Protection	None



Site description

The Duroch Islands lie several hundred metres offshore from Cape Legoupil, northwestern Trinity Peninsula, northern Antarctic Peninsula. The island group includes Wisconsin Islands in the northeast and extends to Estay Rock in the southwest, and excludes Demas Rocks (Hattersley-Smith, 1991).

The nearest permanent scientific facility is Bernardo O'Higgins Station (Chile), which has capacity for ~44 people and operates year-round ~200 m to the south at Cape Legoupil (COMNAP, Antarctic Facilities, accessed 20/08/2010).

Birds

Around 14,000 pairs of several penguin species breed in a number of groups on the Duroch Islands, with approximately 3500 pairs Gentoo (*P. papua*), 800 pairs Adélie (*P. adeliae*), and 9400 pairs Chinstrap (*P. antarctica*) penguins recorded in 1990 (Poncet & Poncet, pers. comm.).

Other threatened / endemic wildlife

None known.

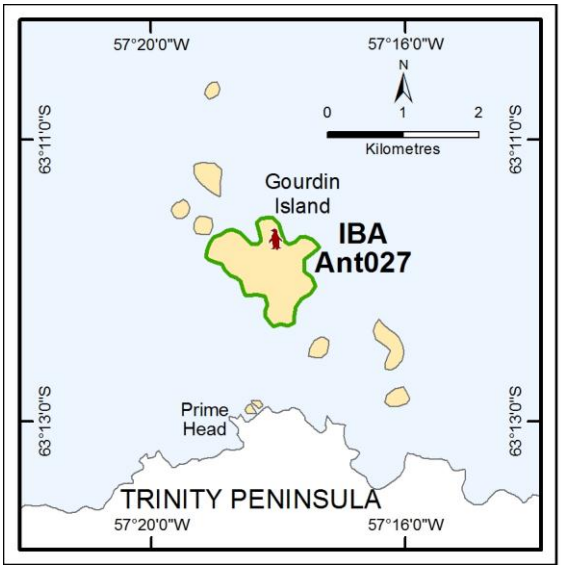
Conservation issues

The close proximity of the station, with attendant activity and logistic support is potentially a conservation concern. Information on local conservation measures implemented at the station is not currently available.

Further reading

Ant027: Gourdin Island

IBA criteria	A4iii
Coordinates	63°12' S, 57°18' W
Area	124 ha
Altitude	0 to < 250 m
Protection	None



Site description

Gourdin Islandis the largest of a group of islands lying 1.2 km north of Prime Head, northern Trinity Peninsula. The IBA comprises all of Gourdin Island

Information on the environment at Gourdin Island is not available. The permanent scientific stations Esperanza (Argentina) and Teniente de Navio Ruperto Elichiribehety (Uruguay), both located 28 km southeast in Hope Bay, and General Bernando Higgins (Chile), situated 34 km southwest at Cape Legoupil, Trinity Peninsula.

Birds

Naveen (2003) estimated an Adélie Penguin (*Pygoscelis adeliae*) colony breeding on the northwestern end of Gourdin Island in 1997 comprised more than 14,300 pairswere, along with more than 550 pairs Gentoo Penguin (*P. papua*). Other confirmed breeders include the Chinstrap Penguin (*P. antarctica*) and at least one species of Skua (*Catharacta,* spp.) (Naveen, 2003).

Other threatened / endemic wildlife

None known.

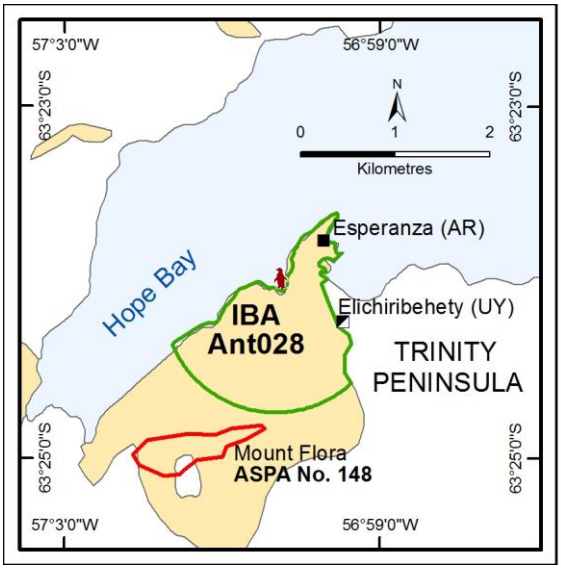
Conservation issues

Gourdin Island receives an annual average of around 890 visitors (including tourists, staff and crew) (IAATO Tourism Statistics between 2005-10, accessed: 06/08/2010). Visitor impacts are unknown although, because visits are mainly by well-organised and supervised tour ships, are likely to be low. However, Naveen (2003) cautioned that visits during the breeding season may result in disturbance to nesting birds.

Further reading

Ant028: Hope Bay

IBA criteria	A4ii, A4iii
Coordinates	63°24' S, 57°00' W
Area	230 ha
Altitude	0 to < 200 m
Protection	None



Site description

Hope Bay is located on the northeastern coast of Trinity Peninsula. The IBA comprises ice-free ground on the eastern side of Hope Bay, covering an area of 230 ha.

The terrain comprises moraine with numerous rock outcrops, sloping towards the Scar Hills, which rise to ~200 m and fringe the Hope Bay shoreline north of Five Lakes Valley. Lake Boeckella, approximately 500 m long and 200 m wide, lies in this valley, while Mount Flora (ASPA No. 148) lies several km to the southwest.

Two permanent scientific stations, Esperanza (Argentina) and Teniente de Navio Ruperto Elichiribehety (Uruguay), are situated about 1 km apart from eachother near the northeastern coast of the IBA, Esperanza operates year-round and has capacity for ~90 people, whilst Elichiribehety operates summer-only with a capacity for 10 (COMNAP, Antarctic Facilities, accessed 09/08/2010). The stations are serviced by ship and by helicopter.

Meteorological records from Esperanza Station over the 1990s indicate January was the warmest month with an average temperature of 1.5°C, and August the coldest with temperatures averaging -11.2°C (ASPA No. 148 Management Plan, 2002).

Birds

Approximately 125,000 pairs Adélie Penguin (*Pygoscelis adeliae*) were recorded at Hope Bay in 1985 (Woehler 1993), making it one of the largest Adélie colonies in Antarctica.

Other species that are confirmed breeders in the Hope Bay area are Gentoo Penguin (*P. papua*), Brown Skua (*Catharacta lonnbergi*), Antarctic Tern (*Sterna vittata*), Wilson's Storm-petrel (*Oceanites oceanicus*), Kelp Gull (*Larus dominicanus*) and Greater Sheathbill (*Chionis alba*) (ASPA No. 148 Management Plan, 2002).

Other threatened / endemic wildlife

None reported, although it is anticipated that various species of marine mammal such as seals and whales are likely to be found in the vicinity..

Conservation issues

Owing to the proximity of the scientific stations to breeding areas, aircraft access to the helicopter landing sites probably represents the most significant potential conservation issue. A preferred aircraft approach route is indicated in the Management Plan for ASPA No. 148 Mount Flora, which directs aircraft to avoid the Adélie colony, which may help to reduce aircraft disturbance to breeding birds. Other potential conservation issues may arise from station personnel visiting the colony, and the release of sewage and domestic liquid wastes into the sea from station operations. Such activities are regulated under the Annexes to the Protocol on Environmental Protection to the Antarctic Treaty.

An average of 4502 ship-based tourists visit Hope Bay annually, and an average of 2116 visitors (inclusive of tourists, staff and crew) land annually at Esperanza Station (IAATO Tourism Statistics, 2005-06 to 2009-10, accessed: 06/08/2010). Visits are managed by station personnel and tour operators.

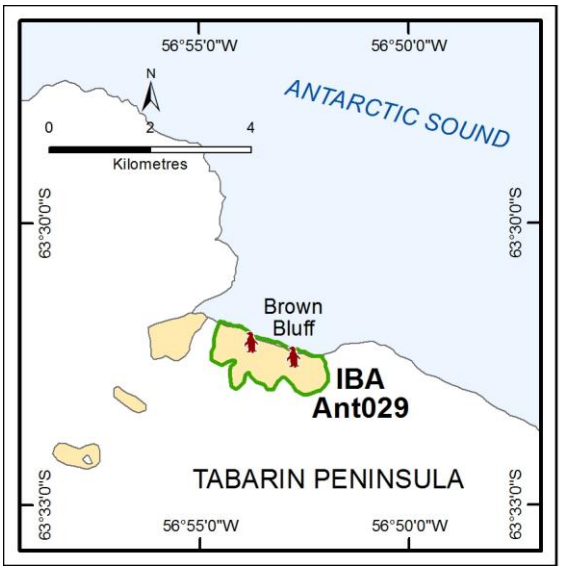
A small area ~1 km south of the IBA is designated an Antarctic Specially Protected Area No. 148: Mount Flora, Hope Bay. The site is protected for its fossiliferous rocks and not for values related to birds (ASPA No. 148 Management Plan, 2002).

Further reading

ASPA No. 148 Mount Flora, Hope Bay: Management Plan (2002).

Ant029: Brown Bluff

IBA criteria	A4ii, A4iii
Coordinates	63°32' S, 56°54' W
Area	208.9 ha
Altitude	0 to < 600 m
Protection	None



Site description

Brown Bluff is a small ice-free section of the northern coastline on Tabarin Peninsula, approximately 13 km southeast of Hope Bay and 8 km west of Jonassen Island. A low-lying rock and ash beach rises steeply to reddish-brown north-facing cliffs of volcanic origin. The IBA comprises the ice-free area of the bluff.

Erosion of the cliff face causes rock falls and slides along the shoreline, which may affect penguins nesting at the cliff-base. Naveen (2003) reports the lichens *Xanthoria* spp. and *Caloplaca* spp. growing on boulders at the shoreline and up to elevations of 185 m and mosses have been observed at higher altitudes.

The nearest permanent scientific stations are Esperanza (Argentina) and Teniente de Navio Ruperto Elichiribehety (Uruguay), situated 14 km to the northwest, more information on which can be found under IBA Ant028.

Birds

Approximately 20,000 pairs of Adélie Penguin (*Pygoscelis adeliae*) nest in tightly packed groups on gentle slopes, terraces and ridges on and above the beach at Brown Bluff (Naveen 2003). Around 550 pairs of Gentoo Penguin (*Pygoscelis papua*) breed on flat terraces and low-lying slopes to the east of the Adélies (H. Lynch, pers. comm., 2010). Kelp Gull (*Larus dominicanus*) nests are found throughout the site, whilst Wilson's Storm-petrels (*Oceanites oceanicus*) breed in rock crevices at higher altitudes. Cape Petrels (*Daption capense*) are also confirmed breeders at Brown Bluff.

Other threatened / endemic wildlife

Weddell Seals (*Leptonychotes weddellii*) have been observed hauling out on the shore below Brown Bluff (Naveen 2003).

Conservation issues

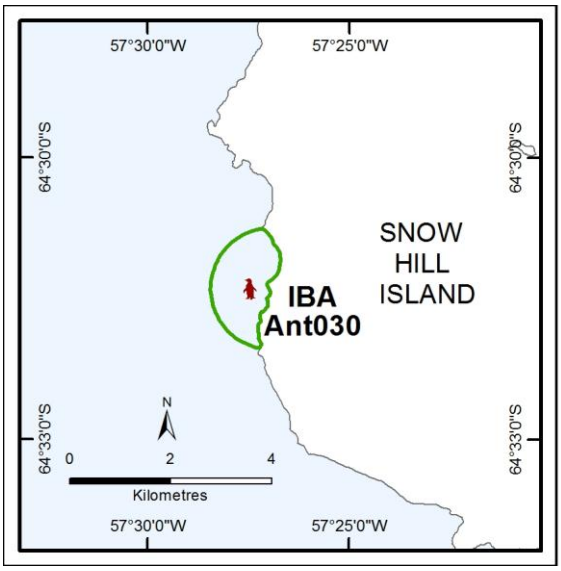
Brown Bluff is a popular destination for tour vessels, and the site is managed by Visitor Site Guidelines adopted under the Antarctic Treaty. Access to the site is managed through Visitor Site Guidelines adopted under the Antarctic Treaty System. The Visitor Site Guide provides practical advice on how to avoid disturbance to birds and vegetation, and two areas where Kelp Gulls and Adélie Penguins are breeding are designated as 'closed' to access. Organised tour visits are supervised by expedition personnel and are generally well managed, so human impacts are expected to be low. While tour visits are normally closely controlled by operators, breeding birds may be subject to some visitor disturbance.

Further reading

Antarctic Treaty System Visitor Site Guide, *Brown Bluff*:
URL http://www.ats.aq/siteguidelines/documents/Brown_e.pdf. Accessed: 10/05/2011.

Ant030: Snow Hill Island

IBA criteria	A4ii
Coordinates	64°31' S, 57°27' W
Area	236.9 ha
Altitude	0 to < 200 m
Protection	None



Site description

Snow Hill Island lies 5 km to the southeast of James Ross Island and less than 2 km to the southwest of Seymour Island, off the eastern coast of Trinity Peninsula. Snow Hill Island is nearly entirely covered by snow and ice. The IBA is located at the southwest extremity of the island and comprises 263 ha of sea ice adjacent to the coast of Snow Hill Island.

The nearest permanent scientific station is Marambio (Argentina), which operates year-round ~53 km to the northeast on Seymour Island and has capacity for ~150 people (COMNAP, Antarctic Facilities, accessed 19/08/2010).

Birds

Between 4000 – 4200 pairs Emperor Penguin (*Aptenodytes forsteri*) were reported breeding on fast ice ~400 m from ice cliffs on the southern coast of Snow Hill Island in November 2004 (Todd *et al.* 2004). This site is one of only two Emperor Penguin breeding colonies on land in the Antarctic Peninsula region, the other being Dion Islands, Marguerite Bay.

Other threatened / endemic wildlife

None known.

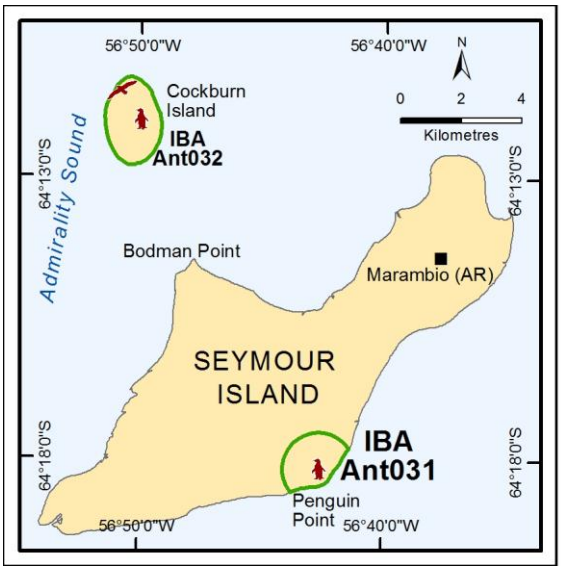
Conservation issues

Todd *et al.* (2004) noted over 100 dead Emperor Penguin chicks in the November 2004 census, although the majority of chicks were healthy.

Further reading

Ant031: Penguin Point, Seymour Island

IBA criteria	A4iii
Coordinates	64°18' S, 56°43' W
Area	326 ha
Altitude	0 to < 100 m
Protection	None



Site description

Penguin Point lies on the southeastern coastline of Seymour Island, east of James Ross Island. The IBA comprises an area of 326 ha extending 1260 m inland from Penguin Point.

Penguin Point is a sparsely vegetated area of ice-free ground with a gently sloping cobble beach that is frequently obstructed by ice (Naveen 2003).

The nearest permanent scientific station is Marambio (Argentina), which lies ~8 km to the northeast. Marambio operates year-round with peak capacity for ~150 people and a winter complement of ~55 (COMNAP, Antarctic Facilities, accessed 19/08/2010).

Birds

Approximately 16,000 pairs Adélie Penguin (*Pygoscelis adeliae*) were breeding at Penguin Point in 2009 (H. Lynch, pers. comm., 2010). There is no record of other bird species breeding at the site.

Other threatened / endemic wildlife

Weddel Seal (*Leptonychotes weddellii*) and Antarctic Fur Seal (*Arctocephalus gazella*) regularly haul out at Penguin Point (Naveen 2003).

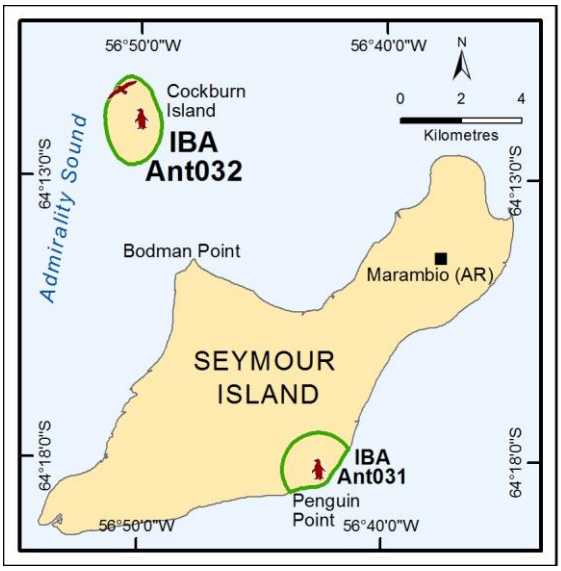
Conservation issues

None known.

Further reading

Ant032: Cockburn Island

IBA criteria	A4i
Coordinates	64°12' S, 56°51' W
Area	452.9 ha
Altitude	0 – c.450 m
Protection	None



Site description

Cockburn Island is a small, oval-shaped, ice-free island lying rising to around 450 m and 5 km northwest of Seymour Island, to the east of James Ross Island. The IBA comprises all of Cockburn Island.

Information on the environment of Cockburn Island is not available. The nearest permanent scientific station is Marambio (Argentina) located 10 km to the east, more information on which can be found under IBA Ant031.

Birds

Approximately 800 pairs of Imperial Shag (*Phalacrocorax atriceps*) were recorded breeding on Cockburn Island in 2006 (Lynch *et al.* 2008). A large colony of Adélie Penguin (*Pygoscelis adeliae*) and Snow Petrel (*Pagodroma nivea*) nests were reported on the island in 1901, although it is not known whether these species continue to breed in the area.

Other threatened / endemic wildlife

None known.

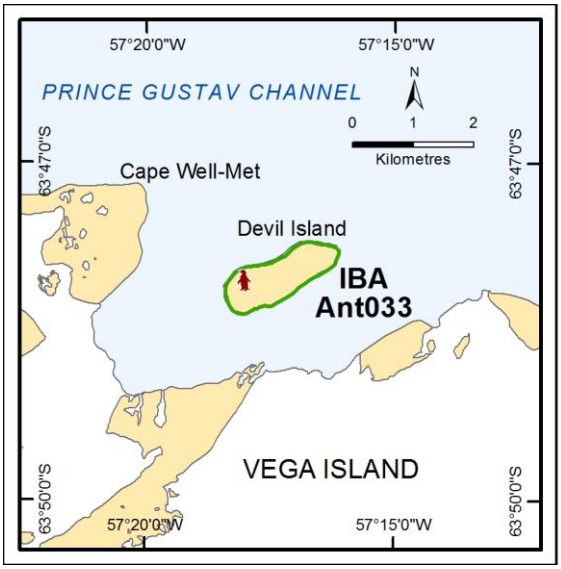
Conservation issues

None known. There are no records of tourist landings at Cockburn Island and visits to the site appear to be infrequent.

Further reading

Ant033: Devil Island

IBA criteria	A4iii
Coordinates	63°48' S, 57°17' W
Area	127.9 ha
Altitude	0 to < 150 m
Protection	None



Site description

Devil Island is is a low, ice-free island of ~2 km in length lying in a small cove ~1 km north of Vega Island, east of Trinity Peninsula. Several low hills rise to ~100 m.. The IBA comprises the entire island.

Flora is dominated by the lichen *Xanthoria* spp. on seaward-facing slopes, interspersed with patches of *Caloplaca* spp. Mosses and the algae *Prasiola* have also been observed (Naveen 2003).

The nearest permanent scientific station is Gregor Mendel (Czech Republic), located on Vega Island ~30 km to the west and operated summer-only.

Birds

Approximately 14,900 pairs Adélie Penguin (*Pygoscelis adeliae*) were recorded in December 2008 (H. Lynch, pers. comm., 2010). Brown Skuas (*Catharacta* [antarctica] *lonnbergi*) also breed on Devil Island (Naveen 2003) and Snow Petrel (*Pagodroma nivea*) nests were recorded on the island in 1945-46 (Croxall *et al.* 1995). The continued presence of the latter species is unknown.

Non-breeders frequenting the site include Wilson's Storm-petrels (*Oceanites oceanicus*) and Kelp Gulls (*Larus dominicanus*) (Naveen 2003).

Other threatened / endemic wildlife

None known.

Conservation issues

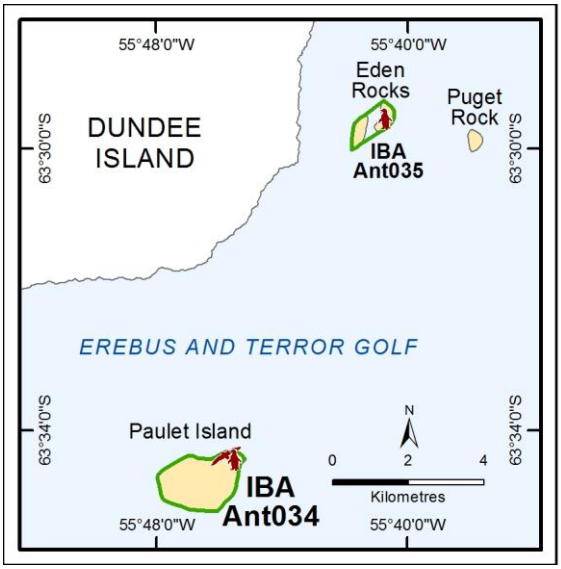
Devil Island is a popular tourist destination, and an average of 2541 visitors (passengers, staff and crew) landed at the site annually between 2005-06 and 2009-10 (IAATO Tourism Statistics between, accessed: 06/08/2010). Access to the site is managed through Visitor Site Guidelines adopted under the Antarctic Treaty System. The Visitor Site Guide provides practical advice on how to avoid disturbance to birds and vegetation. Organised tour visits are supervised by expedition personnel and are generally well managed, so human impacts are expected to be low. While tour visits are normally closely controlled by operators, breeding birds may be subject to some visitor disturbance.

Further reading

Antarctic Treaty System Visitor Site Guide, *Devil Island*:
URL http://www.ats.aq/siteguidelines/documents/Devil_e.pdf. Accessed: 10/05/2011.

Ant034: Paulet Island

IBA criteria	A4i, A4ii, A4iii
Coordinates	63°35' S, 55°46' W
Area	288.6 ha
Altitude	0 - ~350 m
Protection	None



Site description

Paulet Island is situated ~5 km southeast of Dundee Island, east of Tarabin Peninsula, northern Trinity Peninsula. The island is an ice-free extinct volcanic cone of roughly circular shape of ~1.7 km in diameter and rising to ~350 m (ATS Visitor Site Guide: Paulet Island, accessed 06/08/2010). The IBA comprises all of the island.

Scree slopes lie on the southern and western slopes of the island. A flat terrace to the north and northeast, to which visitor access is restricted, is frequently submerged at high-tide. Historic Site and Monument No. 41 is located on Paulet Island, and comprises a stone hut, rock cairn and grave, which were constructed by survivors from the vessel *Antarctic* which was wrecked close to the island during the Swedish South Polar Expedition of 1901-04.

The nearest scientific station is Petrel (Argentina), a summer-only facility for up to ~55 people (COMNAP, Antarctic Facilities, accessed 06/08/2010) and located on Dundee Island ~25 km to the northwest.

Birds

Approximately 100,000 breeding pairs of Adélie Penguins (*Pygoscelis adeliae*) were recorded breeding around meltwater lakes and on elevated ridges on the northeast of Paulet Island in 1999 (Naveen 2003). A large proportion breed on a flat terrace in the north and northeast of the island. Approximately 465 breeding pairs of Imperial Shag (*Phalacrocorax atriceps*) were recorded breeding amongst the Adélies in 2007 (Lynch *et al.* 2008). Previous records indicate most shags nest on a basaltic stack and nearby cliff on the northern shoreline (Naveen 2003). Croxall *et al.* (1995) estimated 300 pairs of Snow Petrel (*Pagodroma nivea*) were breeding on Paulet Island in 1992. The Kelp Gull (*Larus dominicanus*) is also a confirmed breeder whilst the Greater Sheathbill (*Chionis alba*) and Wilson's Storm-petrel (*Oceanites oceanicus*) are frequently observed and may breed in the area (ATS Visitor Site Guide: Paulet Island, accessed 06/08/2010).

Other threatened / endemic wildlife

Weddell Seal (*Leptonychotes Weddellii*) and Antarctic Fur Seal (*Arctocephalus gazella*) regularly haul out at Paulet Island, whilst Leopard Seal (*Hydrurga leptonyx*) are frequently observed hunting offshore.

Conservation issues

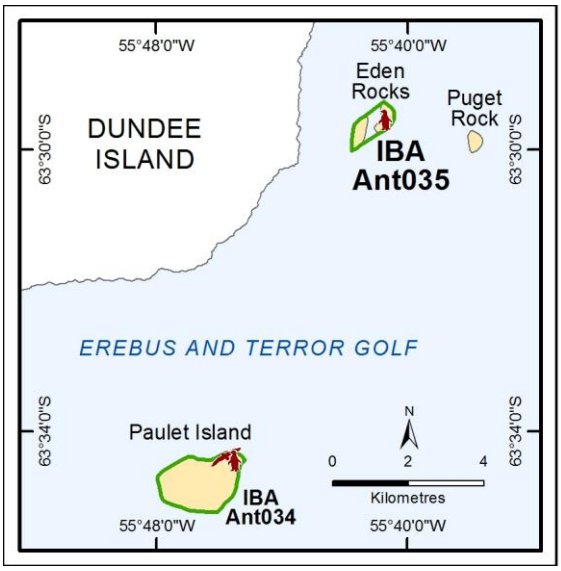
Paulet Island is a popular destination for tour vessels. The annual average number of visitors (passengers, staff and crew) landing at Paulet Island between 2005-06 and 2009-10 was 6037 (IAATO Tourism Statistics, accessed: 06/08/2010). The site is managed by Visitor Site Guidelines adopted under the Antarctic Treaty. Organised visits are supervised by expedition personnel and are generally well managed and impacts are expected to be low (ATS Visitor Site Guide: Paulet Island, accessed 06/08/2010).

Further reading

Antarctic Treaty System Visitor Site Guide: Paulet Island.
URL: http://www.ats.aq/siteguidelines/documents/Paulet_e.pdf. Accessed 06/08/2010

Ant035: Eden Rocks

IBA criteria	A4ii, A4iii
Coordinates	63°30' S, 55°41' W
Area	81 ha
Altitude	≤ c.90 m
Protection	None



Site description

Eden Rocks lie 1.5 km from the eastern coast of Dundee Island. The IBA comprises two rocks rising to around 90 m and the intervening sea. The rocks were first charted in 1842 by James Clark Ross. Ant034: Paulet Island lies ~ 9 km to the southwest.

Information on the environment at Eden Rocks is not available. The nearest permanent scientific station is Petrel (Argentina) situated ~30 km to the west, more information on which is available under IBA Ant034.

Birds

Two large colonies of of Adélie Penguin (*Pygoscelis adeliae*) were recorded breeding on Eden Rocks in 1996, with approximately 20,000 pairs in the west colony and 26,750 pairs in the east colony (total between 44,249 and 49,460 pairs) (Naveen 2003). Information on other bird species at the site is not available.

Other threatened / endemic wildlife

None known.

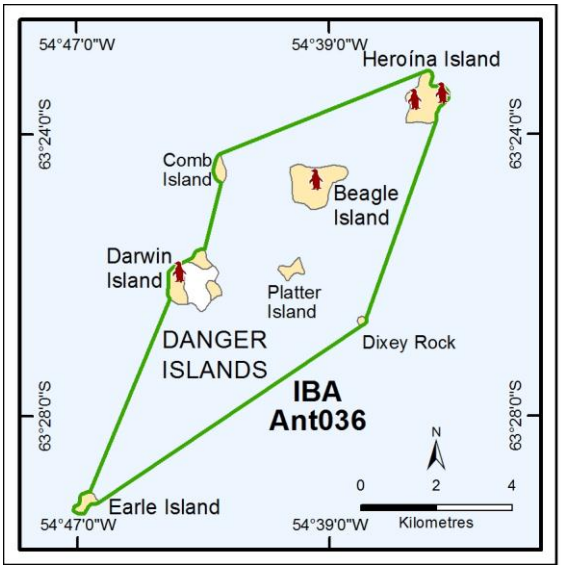
Conservation issues

Visitor landings at Eden Rocks are difficult due to the surrounding uncharted waters and variable ice conditions (Naveen 2003). Visits to the site are infrequent and human disturbance expected to be minimal.

Further reading

Ant036: Danger Islands

IBA criteria	A4ii, A4iii
Coordinates	63°26' S, 54°41' W
Area	4878 ha
Altitude	< 250 m
Protection	None



Site description

Danger Islands lie in the Erebus and Terror Gulf ~19 km southeast of Joinville Island. The site comprises several small (< 160 ha) islands which are largely ice-free. Danger Islands are ~50 km northeast of IBA Ant035: Eden Rocks and Ant034 Paulet Island. The IBA includes all of the islands in the group and the intervening marine area.

No information on the environment at Danger Islands is available. The nearest permanent scientific station is Petrel (Argentina) situated ~70 km to the east on Dundee Island, more information on which can be found under IBA Ant034.

Birds

A large number of Adélie Penguins (*Pygoscelis adeliae*) breed in the Danger Islands group. Between 285,000 and 305,000 Adélie nests and 215 Gentoo Penguin (*Pygoscelis papua*) nests were recorded in the area in 1996 (Naveen 2003). There appears to be at least five distinct Adélie colonies in the island group, breeding on slopes and ridges across Heroina, Beagle and Darwin Islands (Woehler 1993; Naveen 2003).

Other birds thought to breed at the site include the Greater Sheathbill (*Chionis alba*), Kelp Gull (*Larus dominicanus*), Skua (*Catharacta* spp.) and Imperial Shag (*Phalacrocorax atriceps*) (Naveen 2003).

Other threatened / endemic wildlife

Weddell Seal (*Leptonychotes weddellii*) has been observed hauled out on a beach at Heroina Island (Naveen 2003).

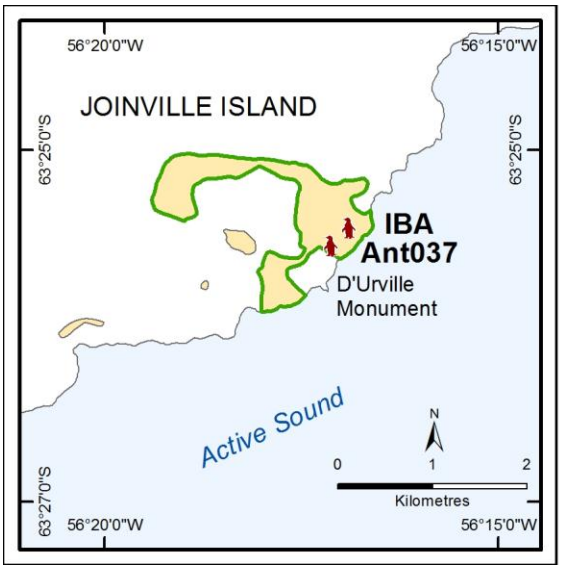
Conservation issues

Only a small number of tour vessels appear to frequent the Danger Islands, with an annual average of 237 visitors (passengers, staff and crew) to Heroina Island (IAATO Tourism Statistics 2005-10, accessed: 06/08/2010).

Further reading

Ant037: D'Urville Monument, Joinville Island

IBA criteria	A4iii
Coordinates	63°25' S, 56°17' W
Area	134.1 ha
Altitude	0 to < 500 m
Protection	None



Site description

D'Urville Monument is a small ice-free area (127 ha) at southwest Joinville Island, on the northern shore of Active Sound and facing Petrel Cove. The IBA covers the ice-free area of the feature.

The nearest permanent scientific station is Petrel (Argentina), which lies ~6 km to the southwest in Petrel Cove on Dundee Island, more information on which can be found under IBA Ant034.

Birds

Approximately 10,000 pairs of Adélie Penguin (*Pygoscelis adeliae*) and over 670 pairs of Gentoo Penguin (*P. papua*) breed at D'Urville Monument (Lynch *et al.* 2008).

Other threatened / endemic wildlife

None known.

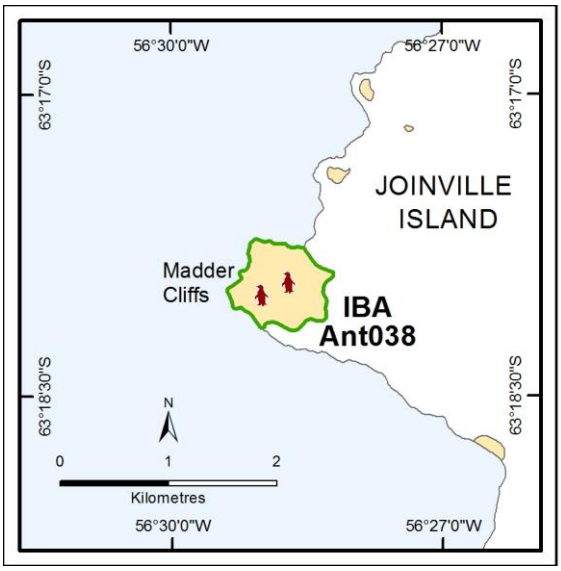
Conservation issues

Naveen (2003) reports D'Urville Monument is rarely visited. There are no known conservation issues at the site.

Further reading

Ant038: Madder Cliffs

IBA criteria	A4iii
Coordinates	63°18' S, 56°29' W
Area	61 ha
Altitude	0 to < 250 m
Protection	None



Site description

Madder Cliffs lie on the western extremity of Joinville Island, at the northern entrance to Kinnes Cove. A rocky beach lies below scree and tuff ridges and cliffs, with the distinctive red rocks that give the site its name. The IBA comprises the 58 ha ice-free area.

Snow algae and *Prasiola crispa* have been reported at the site (Naveen 2003). Other nearby IBAs are D'Urville Monument on southwest Joinville Island, and Brown Bluff and Hope Bay, both on the northern coast of Trinity Peninsula.

The nearest permanent scientific research stations are Petrel (Argentina), Esperanza (Argentina) and Teniente de Navio Ruperto Elichiribehety (Uruguay), more information on which can be found under IBAs Ant034 and Ant028.

Birds

A rough estimate made in 2003 indicated around 22,000 pairs (H. Lynch , pers. comm., 2010)of Adélie Penguin (*Pygoscelis adeliae*) breed at Madder Cliffs along exposed ridges and knolls above the beach (Naveen 2003). Gentoo Penguins (*P. papua*) also breed at the site and around 450 chicks were counted in 2005 (Lynch *et al.* 2008). The Kelp Gull (*Larus dominicanus*) and Greater Sheathbill (*Chionis alba*) are also confirmed breeders at the site (Naveen 2003).

Other threatened / endemic wildlife

None known.

Conservation issues

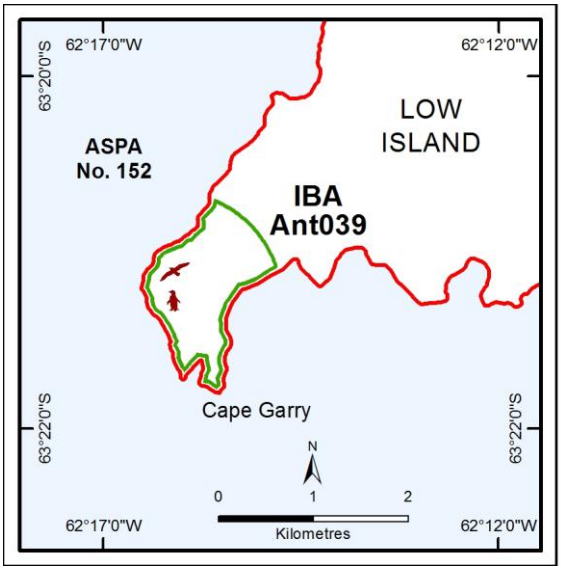
None known.

Further reading

South Shetland Islands

Ant039: Cape Garry, Low Island

IBA criteria	A4ii, A4iii
Coordinates	63°21' S, 62°15' W
Area	173.5 ha
Altitude	0 to < 250 m
Protection	None



Site description

Low Island is the southernmost of the South Shetland Islands, and is situated in the western region of Bransfield Strait. Cape Garry lies at the southwest extremity of Low Island and is a small, largely ice-covered headland protruding about 1.5 km in a southerly direction. The IBA includes an area of ~173 ha on Cape Garry. Information on the environment at Cape Garry is not available.

The coastline of southern and western Low Island form the northeastern boundary of Antarctic Specially Protected Area No. 152, recognised as an important breeding site for several fish species, including rockcod (*Notothenia coriiceps*) and the icefish *Chaenocephalus aceratus* (ASPA No. 152 Management Plan, 2003). The coastal boundary of ASPA No. 152 at Cape Garry is shared by the IBA.

The nearest permanent scientific stations to Cape Garry are Decepción (Argentina) and Gabriel de Castilla (Spain), located ~90 km to the northeast on the coast of Port Foster, Deception Island. These summer-only stations have a combined capacity of 90 people.

Birds

Around 110,000 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) breed at Cape Garry (Shuford & Spear, 1988), constituting the second largest Chinstrap colony on Low Island, the largest being at Cape Wallace. A small number of Imperial Shags (*Phalacrocorax atriceps*) breed close to the Chinstraps, constituting 10 pairs in 1987 (Shuford & Spear 1988).

Other threatened / endemic wildlife

None known.

Conservation issues

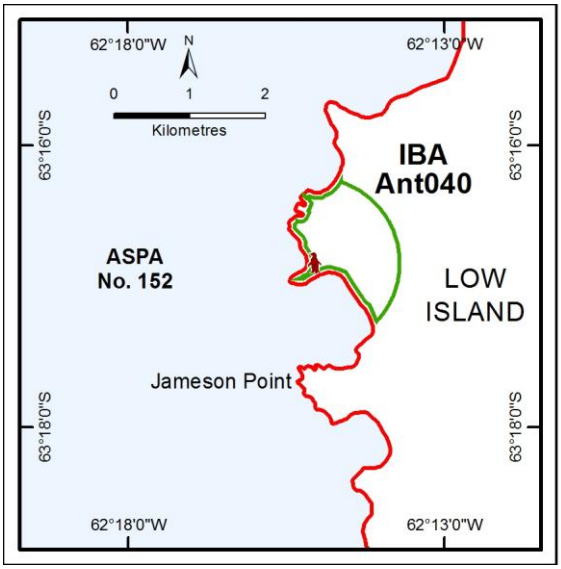
None known.

Further reading

ASPA No. 152 Western Bransfield Strait: Management Plan (2003)

Ant040: Jameson Point, Low Island

IBA criteria	A4iii
Coordinates	63°17' S, 62°15' W
Area	205.3 ha
Altitude	0 to < 250 m
Protection	None



Site description

Low Island is the southernmost of the South Shetland Islands, and is situated in the western region of Bransfield Strait. Jameson Point is a small headland that lies on the western coast of Low Island. The IBA includes an area of 205 ha 1km north of Jameson Point. Information on the environment at Jameson Point is not available.

Antarctic Specially Protected Area No. 152 Western Bransfield Strait covers the marine area adjacent to Jameson Point, more information on which is available under IBA Ant039.

The nearest permanent scientific stations to Jameson Point are Decepción (Argentina) and Gabriel de Castilla (Spain), located ~80 km to the northeast on the coast of Port Foster, Deception Island. These summer-only stations have a combined capacity of 90 people.

Birds

Approximately 25,000 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding at Jameson Point in 1987 (Woehler 1993). Information on other birds breeding in the area is not available.

Other threatened / endemic wildlife

None known.

Conservation issues

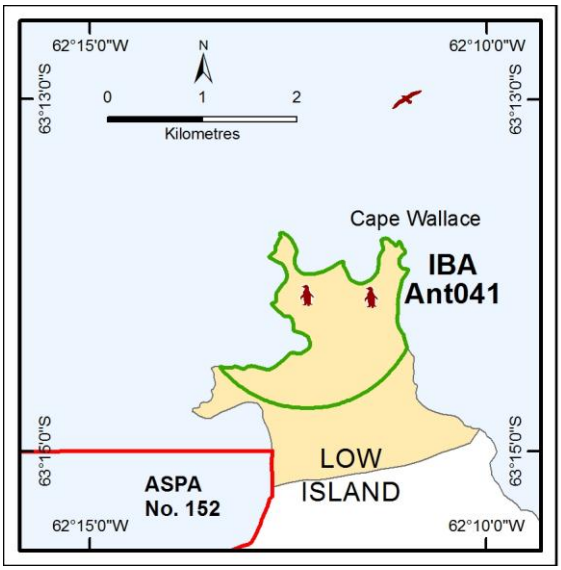
None known.

Further reading

ASPA No. 152 Western Bransfield Strait: Management Plan (2003)

Ant041: Cape Wallace, Low Island

IBA criteria	A4ii, A4iii
Coordinates	63°14' S, 62°12' W
Area	209.3 ha
Altitude	0 to < 250 m
Protection	None



Site description

Low Island is the southernmost of the South Shetland Islands, and is situated in the western region of Bransfield Strait. Cape Wallace is a rocky headland extending around 3 km at the northwestern extremity of Low Island. The IBA includes an ice-free area of 209 ha on the northern part of Cape Wallace. Information on the environment at Cape Wallace is not available.

The nearest permanent scientific stations to Cape Wallace are Decepción (Argentina) and Gabriel de Castilla (Spain), located ~80 km to the northeast on the coast of Port Foster, Deception Island. These summer-only stations have a combined capacity of 90 people.

Birds

The colony of 150,000 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) estimated in 1987 (Woehler 1993) is the largest on Low Island, and one of the largest in the region. A small number of Gentoo Penguins (*P. papua*) breed close to the Chinstraps at this site and constituted 250 breeding pairs in 1987.

Other threatened / endemic wildlife

None known.

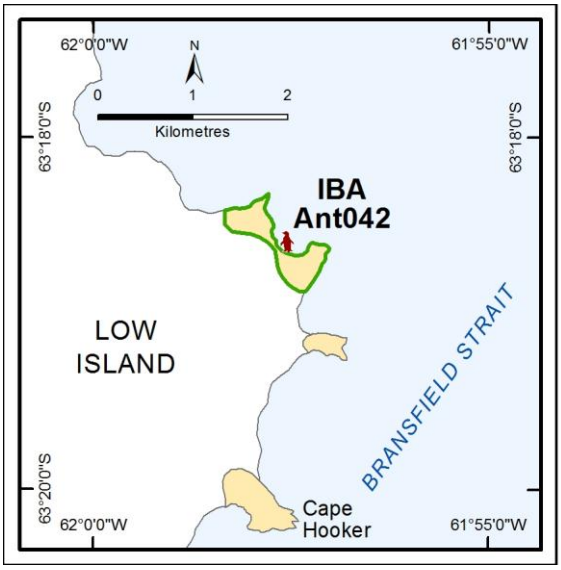
Conservation issues

None known.

Further reading

Ant042: Cape Hooker, Low Island

IBA criteria	A4iii
Coordinates	63°19' S, 61°58' W
Area	36.6 ha
Altitude	0 to < 250 m
Protection	None



Site description

Low Island is the southernmost of the South Shetland Islands, and is situated in the western region of Bransfield Strait. Cape Hooker is a rocky headland at the eastern extremity of Low Island. The IBA includes an ice-free area of around 35 ha ~500 m north of Cape Hooker itself. Information on the environment at Cape Hooker is not available.

The nearest permanent scientific stations to Cape Wallace are Decepción (Argentina) and Gabriel de Castilla (Spain), located ~75 km to the northeast on the coast of Port Foster, Deception Island. These summer-only stations have a combined capacity of 90 people.

Birds

Approximately 10,000 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding at Cape Hooker in 1987 (Shuford & Spear, 1988). Information on other birds breeding in the area is not available.

Other threatened / endemic wildlife

None known.

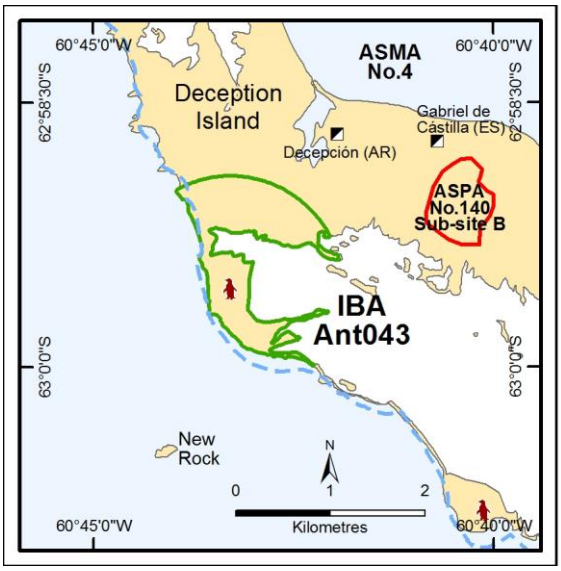
Conservation issues

None known.

Further reading

Ant043: Vapour Col, Deception Island

IBA criteria	A4ii, A4iii
Coordinates	62°59' S, 60°44' W
Area	148 ha
Altitude	0 – c.340 m
Protection	ASMA No.4



Site description

Vapour Col lies near the southwestern coast of Deception Island, South Shetland Islands. The IBA comprises ~149 ha of ice-free ground rising steeply from the SW shore of Deception Island to around 340 m and includes Vapour Col.

Deception Island is a volcano (currently dormant) of horseshore shape with a caldera flooded by the sea. The last eruption at the island was in 1967-70. The island is designated as Antarctic Specially Managed Area No. 4 to help manage scientific and tourist use of the island and to protect its exceptional flora and fauna, historical features and scientific values (ASMA No. 4 Management Plan, 2005).

Large colonies of wildlife and a diversity of cryptogams, lichens and invertebrates are found on Deception Island.

The climate at Deception Island shows average annual air temperatures of 2.9°C at sea level with prevailing winds from the northeast and west. Precipitation is ~500 mm mean annual water equivalent, falling on more than 50 % of summer days (ASMA No. 4 Management Plan, 2005).

The nearest permanent scientific stations to the IBA are Decepciòn (Argentina) and Gabriel de Castilla (Spain) located on the coast of Port Foster, Deception Island, around 800 m and 1.4 km northeast of the IBA respectively. These summer-only stations have a combined capacity of 90 people (COMNAP, Antarctic Facilities, accessed 23/08/2010).

Birds

Approximately 75,000 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding on the coastal ice-free area near Vapour Col in 1987 (Woehler 1993). Information on other bird species at the site is not available.

Other threatened / endemic wildlife

Antarctic Fur Seals (*Arctocephalus gazella*), Weddell Seals (*Leptonychotes weddelli*), Crabeater Seals (*Lobodon carcinophaga*), Southern Elephant Seals (*Mirounga leonina*) and Leopard Seals (*Hydrurga leptonyx*) are frequently observed hauled out on the inner and outer coasts of Deception Island (ASMA No. 4 Management Plan, 2005).

Conservation issues

Deception Island is one of the most popular tourist destinations in Antarctica, with an average of 14,600 tourists visiting the site by ship annually between 2005-10, of which an average of 450 visitors landed annually (IAATO Tourism Statistics, accessed: 06/08/2010). There are also two permanent scientific stations on the island with a full summer complement of up to 90 personnel. All activities at Deception Island are governed under the Management Plan for Antarctic Specially Managed Area No. 4.

Tourists are requested to follow a Code of Conduct (ASMA No. 4 Management Plan, Appendix 5, 2005), which directs recreational visits to selected sites. Tourists are discouraged from visiting other areas, including the colony near Vapour Col, so recreational visits to the IBA are anticipated to be few and visitor impacts on the avifauna in this area are likely to be low. Station personnel are also required to follow the guidelines in the Management Plan, the implementation of which is monitored by national programmes operating in the area.

Several Antarctic Specially Protected Areas (ASPA No. 140 and ASPA No. 145) are designated at Deception Island, although these were designated for reasons related to terrestrial and marine ecology rather than for birds. Entry to these sites is restricted by permit.

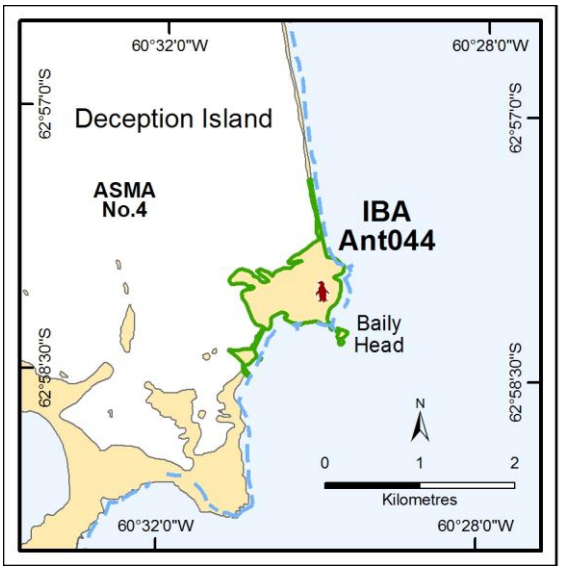
Birds inhabiting volcanic islands typically exhibit higher mortality rates than at other locations due to the unstable nature of the environment, including geothermal activity, eruptions, gas seeps, and earthquakes (Convey *et al.* (1999) in Kendall *et al.* (2009)).

Further reading

ASMA No. 4 Deception Island, South Shetland Islands: Management Plan (2005)

Ant044: Baily Head, Deception Island

IBA criteria	A4ii, A4iii
Coordinates	62°58' S, 60°30' W
Area	78.1 ha
Altitude	0 – c.160 m
Protection	ASMA No.4



Site description

Baily Head is a prominent rock headland forming the eastern extremity of Deception Island. A black-sand beach forms the eastern shoreline of Deception Island, running nearly 7 km northward from Baily Head. The IBA comprises 78 ha of ice-free ground at Baily Head, including the headland and approximately 800 m of beach to either side. A substantial melt-stream cuts through the ice cliffs at Baily Head and drains to form a semi-cicular 'ampitheatre' valley. The valley slopes are often snow-covered until early-summertime each year, to be replaced by a carpet of the terrestrial green algae *Prasiola crispa* (Naveen 2003).

More information on Deception Island and nearby stations can be found under IBA Ant043.

Birds

Approximately 100,000 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding along the beach at Baily Head and on slopes rising from the beach to a ridgeline of ~150 m in 1989 (Poncet & Poncet, pers. comm; Naveen 2003). Brown Skua (*Catharacta lonnbergi*), Cape Petrel (*Daption capense*) and Greater Sheathbill (*Chionis alba*) are also confirmed breeders at Baily Head (ASMA No. 4 Management Plan, Appendix 5, 2005).

Other threatened / endemic wildlife

Antarctic Fur Seals (*Arctocephalus gazella*) frequently haul out along the beach at Baily Head and Weddell Seals (*Leptonychotes weddelli*), Crabeater Seals (*Lobodon carcinophaga*), Southern Elephant Seals (*Mirounga leonina*) and Leopard Seals (*Hydrurga leptonyx*) have also been observed hauled out at this site (Naveen 2003).

Conservation issues

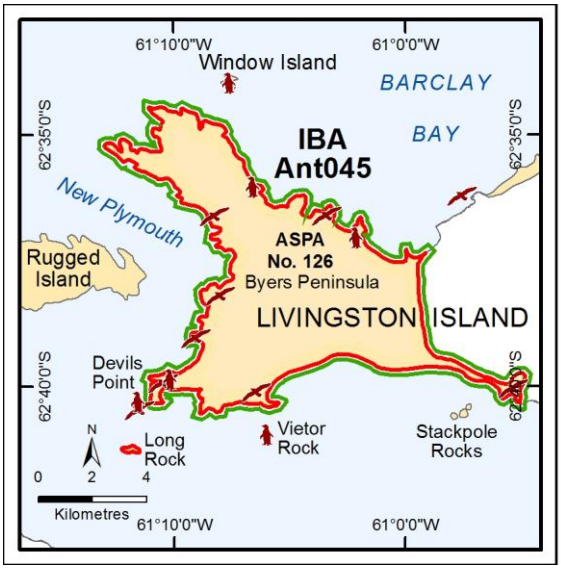
More information on conservation issues and management at Deception Island can be found under IBA Ant043.

Further reading

ASMA No. 4 Deception Island, South Shetland Islands: Management Plan (2005)

Ant045: Byers Peninsula, Livingston Island

IBA criteria	A4i
Coordinates	62°38' S, 61°05' W
Area	6592.1 ha
Altitude	< c.265 m
Protection	ASPA No. 126



Site description

Byers Peninsula is a relatively large (6062 ha) ice-free promontory at the western extremity of Livingston Island. Byer Peninsula is designated as Antarctic Specially Protected Area No. 126. The IBA covers the same area as ASPA No. 126 and includes the ice-free ground below Rotch Dome to the west of the permanent ice margin on Livingston Island, as well as several offshore islands and ice-free areas to the east of Byers Peninsula.

Detailed information describing Byers Peninsula may be found in the ASPA No. 126 Management Plan (2002), which is summarised here. Sedimentary and fossiliferous strata are present, together with rocks of volcanic origin. Well-preserved sub-fossil whale bones occur on raised beaches. The site supports a sparse but varied flora and cyanobacteria, including several rare crytogams and the flowering plants *Deschampsia antarctica* and *Colobanthus quitensis*). At least 56 lichen species, 29 mosses, 5 hepatics and 2 phanerogams have been recorded at Byers Peninsula, making it one of the most diverse sites for terrestrial flora in maritime Antarctica. Byers Peninsula contains numerous lakes, freshwater ponds and extensive streams, some of which provide habitat for the midge *Parochlus steinenii* and the wingless midge *Belgica antarctica* occurs infrequently in moist moss on the peninsula. Byers Peninsula has a large number of historical relics from the sealing expeditions of the early 1800s.

No long term meteorological records are available for Byers Peninsula. The climate is likely to be similar to that of Base Juan Carlos I on Hurd Peninsula, which experiences a mean annual temperature of below 0ºC with temperatures rising above 0ºC for several months of each summer. Precipitation is relatively high with around 800 mm/yr, mostly falling as rain during the summer months. The peninsula is generally snow-covered except near the end of the summer. Winds prevail from the Drake Passage in the north and northwest and Bransfield Strait to the south.

The nearest permanent scientific stations to the IBA are Base Juan Carlos I (Spain) and Ohridiski (Bulgaria) on Hurd Peninsula, Livingston Island, around 30 km to the east. These stations have a capacity of 25 and 12 people respectively (COMNAP, Antarctic Facilities, accessed 10/05/2011).

Birds

This site is recognised for the high diversity of bird species breeding on ice-free areas, mainly near the coast in the west and south (ASPA No. 126 Management Plan, 2002). Approximately 1760 pairs of Antarctic tern (*Sterna vittata*) and 449 pairs of Kelp Gull (*Larus dominicanus*) were breeding on Byers Peninsula in 1965 (White, 1965 cited in ASPA No. 126 Management Plan, 2002). Other confirmed breeders are the Chinstrap Penguin (*Pygoscelis antarctica*), Gentoo Penguin (*P. papua*), Wilson's Storm-petrel (*Oceanites oceanicus*), Cape Petrel (*Daption capense*), Southern Giant Petrel (*Macronectes giganteus*), Black-bellied Storm-petrel (*Fregetta tropica*), Imperial Shag (*Phalacrocorax atriceps*), Brown Skua (*Catharacta lonnbergi*) and Greater Sheathbill (*Chionis alba*). Prions (*Pachyptila* sp.) and Snow Petrels (*Pagodroma nivea*) have been recorded on Byers Peninsula, although these species are not confirmed breeders.

Other threatened / endemic wildlife

A large number of Southern Elephant Seals (*Mirounga leonina*) are known to breed and haul out on South Beaches. Over 2500 individuals were recorded in one season, one of the largest concentrations of this species in the South Shetland Islands (Torres *et al.* 1981 cited in ASPA No. 126 Management Plan, 2002). Non-breeding Weddell (*Leptonychotes weddellii*), Crabeater (*Lobodon carcinophagous*) and Leopard (*Hydrurga leptonyx*) seals occasionally haul out around the shoreline.

Conservation issues

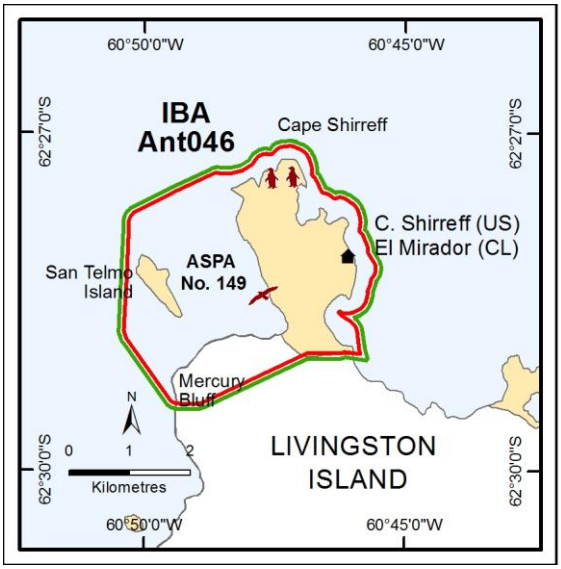
Access to Byers Peninsula is strictly by permit issued by a national authority under the management plan for ASPA No. 126. Thus, present-day human activity on Byers Peninsula is restricted to scientific research and essential management activities. The impact of these activities are "believed to be minor and limited to items such as campsites, footprints, markers of various kinds, sea-borne litter washed onto beaches…and from human wastes and scientific sampling" (ASPA No. 126 Management Plan, 2002). Livingston Island appears to be infrequently visited by tourist vessels (IAATO Tourism Statistics, accessed 06/08/2010).

Further reading

ASPA No.126 Byers Peninsula, Livingston Island: Management Plan (2002)

Ant046: Cape Shirreff, Livingston Island

IBA criteria	A4iii
Coordinates	62°28' S, 60°48' W
Area	1401.6 ha
Altitude	< 82 m
Protection	ASPA No.149; CEMP Site No.2



Site description

Cape Shirreff is an ice-free peninsula situated between Barclay and Hero Bays on the northern coast of Livingston Island. San Telmo Island lies several km west of Cape Shirreff. These ice-free areas and the intervening sea are designated as Antarctic Specially Protected Area No. 149: Cape Shirreff and San Telmo Island. The primary reason for designation of the ASPA is to protect the large and diverse seabird and pinniped populations at the site, which are subject to long term scientific monitoring. The IBA is defined by the boundary of the protected area.

Cape Shirreff is characterised by raised beaches and both steep and rolling hills rising to a maximum height of 82 m, with steep cliffs on the western coast and long sand and gravel beaches on the east. To the west of Cape Shirreff, low-lying rocky islets form the western limit of Shirreff Cove. San Telmo Island is the largest of this rocky group, with sand and pebble beaches on the southeastern coast (ASPA No. 149 Management Plan, 2005). Vegetation at this site includes at least one vascular plant species; *Deschampsia antarctica*, six lichen species, five moss species, one species of fungi and one of algae (ASPA No. 149 Management Plan, 2005).

Intermittent meteorological records are available for Cape Shirreff. Data collected between 1998-99 and 2000-01 indicate a mean diurnal air temperatre of 2.0 – 2.5 °C (Goebel *et al.* 2000; cited in ASPA No. 149 Management Plan, 2005). Snow covers the peninsula for much of the year, although this typically clears by the end of the summer.

Two small permanent summer-only scientific stations are operated on Cape Shirreff, Guillermo Mann (Chile) and Cape Shirreff Field Station (US) which are located on the eastern coast of the peninsula near sea level. The facilities have a combined capacity for ~12 personnel.

Birds

This site is recognised for the high diversity of breeding and non-breeding avifauna (ASPA No. 149 Management Plan, 2005). The most abundant bird species breeding at the site is the Chinstrap Penguin (*Pygoscelis antarctica*), with numbers fluctuating between ~7000 and ~10,400 breeding pairs since 1987 . Gentoo Penguins (*P. papua*) breed in small colonies on the northeastern and northwestern sides of the ice-free peninsula, alongside colonies of Chinstraps, and constituted 810 breeding pairs in 1997.

Other confirmed breeders include the Kelp Gull (*Larus dominicanus*), Brown Skua (*Catharacta lonnbergi*), Greater Sheathbill (*Chionis alba*), Antarctic Tern (*Sterna vittata*), Imperial Shag (*Phalacrocorax atriceps*), Cape Petrel (*Daption capense*), Wilson's Storm-petrel (*Oceanites oceanicus*) and Black-bellied Storm-petrel (*Fregetta tropica*) (ASPA No. 149 Management Plan, 2005). Southern Giant Petrel (*Macronectes giganteus*) are frequent summer-visitors.

Other threatened / endemic wildlife

The site contains the highest number of breeding Antarctic Fur Seals (*Arctocephalus gazella*) in the Antarctic Peninsula region.

Conservation issues

Krill fishing is carried out within the foraging range of species breeding at Cape Shirreff, and the site is thus important for ecosystem monitoring, which helps to meet the objectives of the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR).

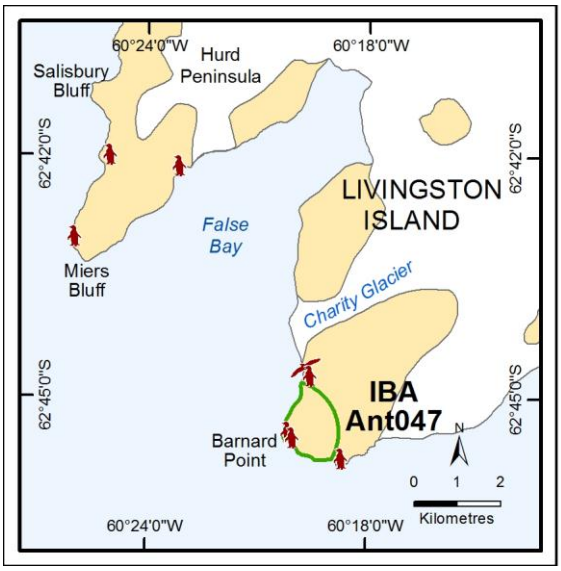
Access to Cape Shirreff is strictly by permit issued by a national authority, and all activities at the site are regulated under the ASPA management plan which is designed to protect the seabird and mammal populations to the maximum extent practicable while allowing access for research purposes.

Further reading

ASPA No. 149 Cape Shirreff and San Telmo Island Management Plan

Ant047: Barnard Point, Livingston Island

IBA criteria	A4iii
Coordinates	62°45' S, 60°19' W
Area	175 ha
Altitude	0 to < 500 m
Protection	None



Site description

Barnard Point is an ice-free area at the southern extremity of Livingston Island, South Shetland Islands. The IBA comprises 175 ha of the ice-free area at Barnard Point, which rises to over 250 m at its eastern extent. Information on the environment at Barnard Point is not available.

The nearest permanent scientific stations are Juan Carlos I (Spain), a summer-only facility with capacity for ~25 personnel, and Ohridiski (Bulgaria, capacity for 12 people), located on Hurd Peninsula ~11 km to the northwest (COMNAP, Antarctic Facilities, accessed 10/05/2011).

No meteorological records are available for Barnard Point, although the climate is expected to be similar to that of Base Juan Carlos I, more information on which can be found under IBA Ant045.

Birds

Approximately 13,000 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) and 600 pairs of Gentoo Penguin (*P. papua*) were breeding at Barnard Point in 1987 (Woehler 1993). A small number of Southern Giant Petrel (*Macronectes giganteus*) breed at the site, estimated at 30 breeding pairs in 1986 (Patterson *et al.* 2008).

Other threatened / endemic wildlife

None known.

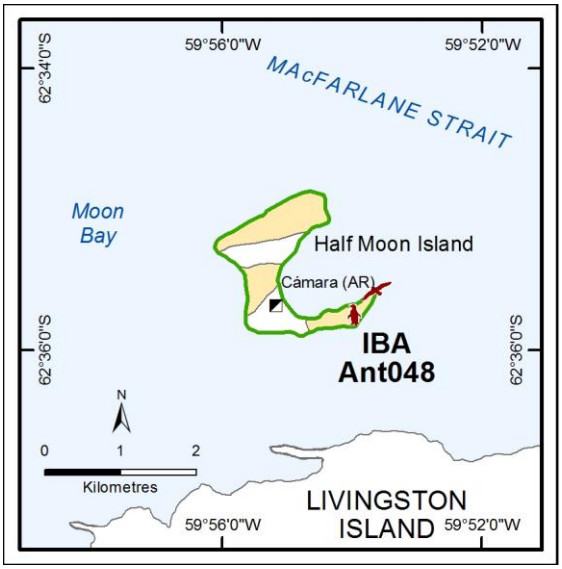
Conservation issues

The close proximity of Juan Carlos I and Ohridiski stations suggests that ship and aircraft support activities need to be carried out with a high awareness of the conservation importance of the proximity of the IBA.

Further reading

Ant048: Half Moon Island

IBA criteria	A4ii
Coordinates	62°35' S, 59°55' W
Area	170.7 ha
Altitude	0 to < 250 m
Protection	None



Site description

Half Moon Island is a crescent-shaped rocky island of igneous origin lying in Moon Bay, 2 km north of Livingston Island on the south side of McFarlane Strait in the South Shetland Islands. Raised cobble beaches line the south and central shorelines, while steep scree slopes lead to a low summit at the north of the island. East-facing slopes are typically snow-covered. The IBA comprises the entire island.

Several moss and lichen species and the native Antarctic Hairgrass *Deschampsia antarctica* are found on Half Moon Island (ATS Visitor Site Guide, Half Moon Island, accessed 06/08/2010).

Cámara Station (Argentina), a summer-only station with capacity for ~36 people, is located at the foot of a small summit in the southern part of Half Moon Island (COMNAP, Antarctic Facilities, accessed 24/08/2010).

Birds

Approximately 2000 pairs of Chinstrap Penguins (*Pygoscelis antarctica*) are breeding on Half Moon Island (H. Lynch, pers. comm., 2010). South Polar Skua (*Catharacta maccormicki*) breed at several locations on the island, mostly in the north, with 103 pairs recorded in the 1995-96 (Garcia Esponda *et al.* 2000). Antarctic terns (*Sterna vittata*) nest in rocky outcrops and 125 breeding pairs were recorded in 1995-96 season, along with 39 pairs of Kelp Gull (*Larus dominicanus*) (Garcia Esponda *et al.* 2000). Wilson's Storm-petrel (*Oceanites oceanicus*) also breed at the site, with 377 pairs in 1995-96. Other birds breeding in low numbers include the Imperial Shag (*Phalacrocorax atriceps*), Greater Sheathbill (*Chionis alba*), Cape Petrel (*Daption capense*), Brown Skua (*Catharacta lonnbergi*) and Black-bellied Storm-petrel (*Fregetta tropica*) (Garcia Esponda *et al.* 2000).

Other threatened / endemic wildlife

Weddell Seals (*Leptonychotes weddellii*) and Antarctic Fur Seals (*Arctocephalus gazella*) regularly haul out on Half Moon Island beaches (ATS Visitor Site Guide, Half Moon Island, accessed 06/08/2010). Southern Elephant Seals (*Mirounga leonina*) have also been observed at the site (Naveen 2003).

Conservation Issues

The location of Cámara Station within the IBA suggests that operational and support activities need to be carried out with a high level of awareness of the conservation importance of the site. In addition, Half Moon Island is one of the most popular tourst destinations in the Antarctic Peninsula region, with 9760 tourists landing ashore in the 2009-10 season (IAATO Tourism Statistics, accessed: 06/08/2010). There is evidence of track erosion and trampling of vegetation at the site and a concern that visitors may potentially cause disturbance to wildlife and damage to breeding burrows (ATS Visitor Site Guide, Half Moon Island, accessed: 06/08/2010). Tourist visits to the island are managed by guidelines adopted in the Antarctic Treaty Visitor Site Guide for Half Moon Island, and are supervised by expedition staff and station personnel. Given the

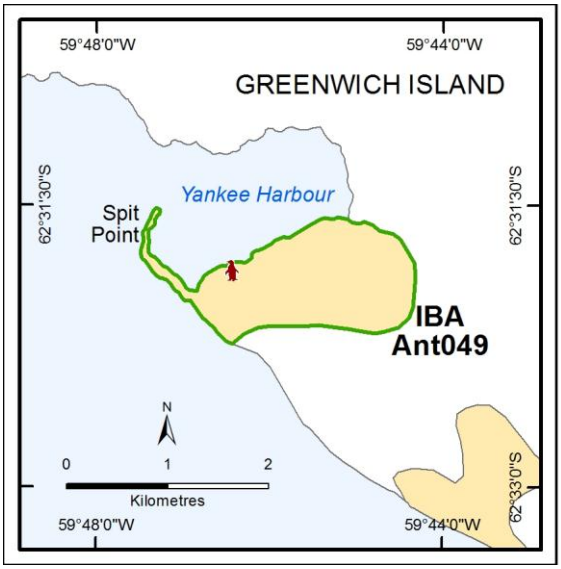
level of visits occurring and the ongoing operations of the station it is important that potential impacts on birdlife at this IBA are regularly monitored, and management actions taken should significant impacts be observed.

Further Reading

Antarctic Treaty System Visitor Site Guide: Half Moon Island.
URL: http://www.ats.aq/siteguidelines/documents/Half_moon_e.pdf. Accessed: 06/08/2010.

Ant049: Yankee Harbour, Greenwich Island

IBA criteria	A1, A4ii
Coordinates	62°32' S, 59°46' W
Area	220.9 ha
Altitude	0 to < 500 m
Protection	None



Site description

Yankee Harbour lies on the southwestern coastline of Greenwich Island, east of Triangle Point and to the north of the McFarlane Strait, South Shetland Islands. Yankee Harbour is bordered by Glacier Bluff to the north and east, and enclosed by Spit Point to the west. A large terraced beach in the southeast of Yankee Harbour contains a melt pool beyond which steep scree slopes rise sharply inland to over 250 m. The IBA comprises the ice-free area from Spit Point to the foot of the ice-covered cliffs on Greenwich Island.

Mosses, lichens, algae and the flowering plants *Deschampsia antarctica* and *Colobanthus quitensis* are found at Yankee Harbour (ATS Visitor Site Guide, Yankee Harbour, accessed: 06/08/2010). Yankee Harbour was once a popular anchorage for sealers, with some artefacts still present. The nearest scientific station is Arturo Prat (Chile), which has capacity for ~15 people and operates year-round on the northern coast of Greenwich Island ~7 km from Yankee Harbour (COMNAP, Antarctic Facilities, accessed 23/08/2010).

Birds

Approximately 4918 pairs Gentoo Penguins (*Pygoscelis papua*) were breeding on the beach and slopes around the southeast shoreline of Yankee Harbour in 2003 (Lynch *et al.* 2008). Skuas (*Catharacta* spp.) also breed in the area although no census has been reported for this. The Greater Sheathbill (*Chionis alba*) and Wilson's Storm-petrel (*Oceanites oceanicus*) are suspected breeders.

Other threatened / endemic wildlife

Southern Elephant Seals (*Mirounga leonina*), Weddell seals (*Leptonychotes Weddellii*) and Antarctic Fur Seals (*Arctocephalus gazella*) regularly haul out along the beaches of Yankee Harbour (ATS Visitor Site Guide, Yankee Harbour, accessed: 06/08/2010). There are no records of seals breeding in the area.

Conservation issues

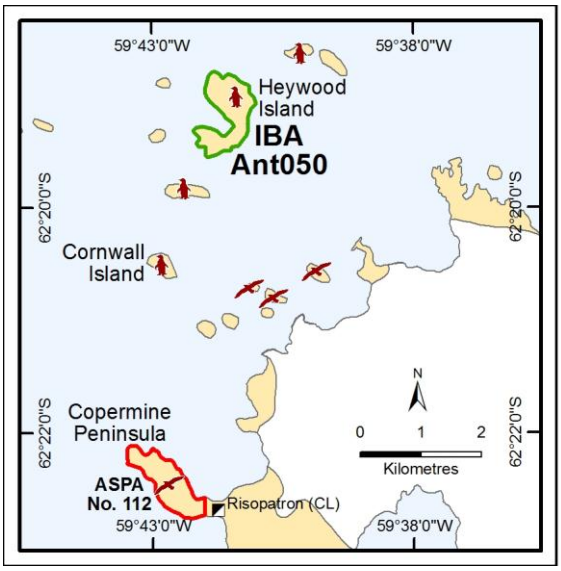
With its interesting history and wildlife, Yankee Harbour is a popular tourist destination, with an average of 2570 visitors landing annually (IAATO Tourism Statistics 2005-06 – 2009-10, accessed: 06/08/2010). Tourist visits are managed by guidelines adopted in the Antarctic Treaty System Visitor Site Guide for Yankee Harbour. Visitors disembark to walk on the beaches and along Spit Point in close proximity to Gentoo Penguin nests. Tourists are advised to walk slowly and maintain a distance of at least 5 m from birds. Visits by organised tours are supervised by expedition personnel. Visitor impacts on birds at the site are unknown, although because of the management measures in place are expected to be low.

Further reading

Antarctic Treaty System Visitor Site Guide: Yankee Harbour.
URL: http://www.ats.aq/siteguidelines/documents/yankee_e.pdf. Accessed 08/04/2010.

Ant050: Heywood Island

IBA criteria	A4ii, A4iii
Coordinates	62°19' S, 59°42' W
Area	84.8 ha
Altitude	0 to < 250 m
Protection	None



Site description

Heywood Island is a small ice-free island lying ~3 km northwest of Catharina Point, Robert Island, and ~6 km northeast of Table Island, in the South Shetland Islands. Heywood Island is a roughly crescent shaped, 1.4 km in length and 250 m across at its narrowest point. The IBA comrpises all of Heywood Island. Small rocky islands surround Heywood Island, including Cornwall Island to the southwest, all of which are low-lying and also provide suitable habitat for Chinstrap Penguins to breed, although these lie outside of the IBA.

Information on the environment of Heywood Island is not available.

The nearest permanent scientific station is Luis Risopatron (Chile), a summer-only facility located 5.5 km south of Heywood Island with capacity for ~8 people (COMNAP, Antarctic Facilities, accessed 24/08/2010). This station is temporarily closed.

Birds

Approximately 90,000 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were estimated breeding on Heywood Island in 1987 (Poncet & Poncet, pers. comm.). This is one of the largest colonies of Chinstrap Penguin in the Antarctic Peninsula region. Information on other bird species breeding at the site is not available.

Other threatened / endemic wildlife

None known.

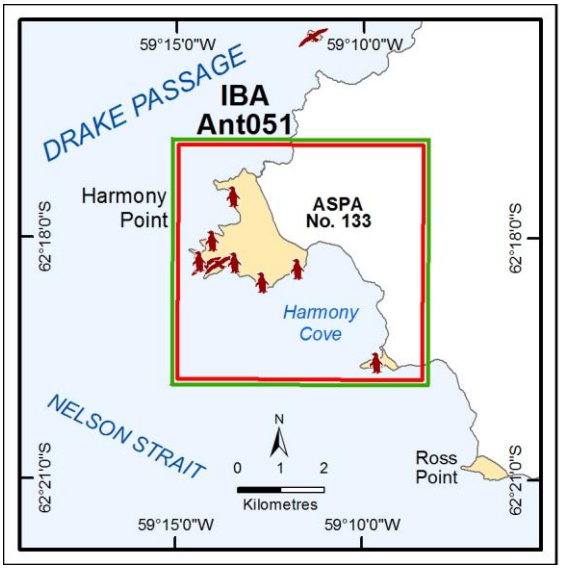
Conservation issues

None known.

Further reading

Ant051: Harmony Point, Nelson Island

IBA criteria	A1, A4ii, A4iii
Coordinates	62°18' S, 59°12' W
Area	3452.9 ha
Altitude	0 to c. 250 m
Protection	ASPA No.133



Site description

Harmony Point is an ice-free headland located on the western coast of Nelson Island, South Shetland Islands. Harmony Point is designated as Antarctic Specially Protected Area No. 133, with an area of 3450 ha including both the terrestrial and marine environment. The IBA is defined as the same area as the ASPA.

Harmony Point is of undulating topography rising to ~40 m, with numerous streams and abundant vegetation comprising mainly mosses, lichens, and two species of vascular plant (*Deschampsia antarctica* and *Colobanthus quitensis*) (ASPA No. 133 Management Plan, 2005).

The nearest permanent scientific station is Great Wall (China), a year-round facility with a capacity for 40 people situated on Fildes Peninsula, King George Island, ~16 km to the northeast of Harmony Point (COMNAP, Antarctic Facilities, accessed 31/08/2010).

Birds

The ice-free land at Harmony Point supports a wide range of bird colonies including one of the largest colonies of Chinstrap Penguins (*Pygoscelis antarctica*) in the Antarctic Peninsula region, with approximately 90,000 pairs nesting on Harmony Point in 1995-96 (Silva *et al.* 1998) and around 11,000 breeding pairs recorded at The Toe in 1987 (Woehler 1993). In 1995-96, 3347 breeding pairs of Gentoo Penguin (*Pygoscelis papua*) were recorded and 45 breeding pairs of Imperial Shag (*Phalacrocorax atriceps*). N. Coria (pers. comm. 2010) reported 395 pairs Southern Giant Petrels (*Macronectes giganteus*) breeding in the 2009-10 season, which compares to 485 pairs Coria recorded in 2004-05. Silva *et al.* (1998) reported 479 pairs of Cape Petrel (*Daption capense*), 144 pairs of Greater Sheathbill (*Chionis alba*), 61 pairs Antarctic Skua (*Catharacta antarctica*), 128 pairs of Kelp Gull (*Larus dominicanus*), 173 pairs of Antarctic Tern (*Sterna vittata*), and a combined total of around 1000 pairs of Wilson's Storm-petrel (*Oceanites oceanicus*) and Black-bellied Storm-petrel (*Fregetta tropica*) at Harmony Point in 1995-96.

Other threatened / endemic wildlife

Weddell Seal (*Leptonychotes weddellii*), Southern Elephant Seal (*Mirounga leonina*), and Antarctic Fur Seal (*Arctocephalus gazella*) frequently haul out on beaches at Harmony Point (ASPA No. 133 Management Plan, 2005). Southern Elephant Seal have been recorded breeding on Harmony Point (Carlini *et al.* 2003). Crabeater Seals (*Lobodon carcinophagus*) are occasionally seen in the vicinity.

Conservation issues

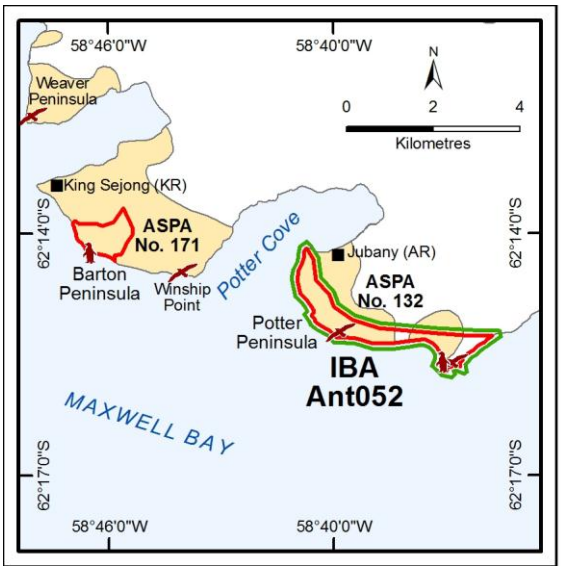
ASPA No. 133 Harmony Point was designated to protect the terrestrial ecosystem and communities of birds at Harmony Point (ASPA No. 133 Management Plan, 2005). All access is strictly by permit and aircraft access is required to follow a designated route that avoids bird colonies. A small scientific research hut is located near the coast at the SE of Harmony Point.

Further reading

ASPA No. 133 Harmony Point, Nelson Island: Management Plan (2005).

Ant052: Potter Peninsula, King George Island

IBA criteria	A4ii, A4iii
Coordinates	62°15' S, 58°39' W
Area	245 ha
Altitude	< 250 m
Protection	ASPA No.132



Site description

Potter Peninsula, King George Island, lies on the northeastern shore of Maxwell Bay, bordered to the west by Potter Cove and to the east by Stranger Point. The southern shoreline of Potter Peninsula is designated Antarctic Specially Protected Area No. 132. The IBA is defined by the same boundary as ASPA No. 132. As such, the IBA follows the coast at Potter Peninsula from Potter Cove to Stranger Point.

The site is largely ice-free and comprises raised pebble beaches, basaltic structures and moraines (ASPA No. 132 Management Plan, 2005). Small bays along the shoreline separate rocky headlands. Vegetation is relatively diverse and substantial, dominated by lichens.

The nearest permanent scientific station is Jubany (Argentina), which operates year-round with a maximum capacity of 100 personnel (COMNAP, Antarctic Facilities, accessed 25/08/2010). Jubany Station is located ~500 m from in the northwestern boundary of the ASPA and IBA. A number of other scientific stations also operate in Maxwell Bay, more information on which can be found under IBA Ant053.

Birds

Potter Peninsula supports a diverse range of avifauna, with 14,554 pairs of Adélie Penguins (*Pygoscelis adeliae*) recorded breeding in the 1988-89 season (Aguirre, 1995), most being at Stranger Point (ASPA No. 132 Management Plan, 2005). Aguirre (1995) also recorded 2325 pairs of Gentoo Penguins (*P. papua*) and 265 pairs of Chinstrap Penguins (*P. antarctica*) breeding in the summer of 1988-89. South Polar Skua (*Catharacta maccormicki*) breed at the site, with 63 breeding pairs in 2002 (Ritz *et al.* 2006). In 1998, 46 pairs of Southern Giant Petrel (*Macronectes giganteus*) were recorded breeding on Potter Peninsula (Hahn *et al.* 1998). In addition, between 1400 and 2300 breeding pairs of Wilson's Storm-petrel (*Oceanites oceanicus*) are estimated, although this count includes nests located on southern slopes of Three Brother's Hill which lies just outside the boundary of the ASPA and IBA.

Other confirmed breeders include Cape Petrel (*Daption capense*), Black-bellied Storm-petrel (*Fregetta tropica*), Imperial Shag (*Phalacrocorax atriceps*), Greater Sheathbill (*Chionis alba*), Brown Skua (*Catharacta lonnbergi*), hybrid Skuas (*Catharacta* sp.), Kelp Gull (*Larus dominicanus*) and Antarctic Tern (*Sterna vittata*) (Hahn *et al.* 1998).

Other threatened / endemic wildlife

Large numbers of Southern Elephant Seals (*Mirounga leonina*) haul out annually to breed on Potter Peninsula (ASPA No. 132 Management Plan, 2005). Carlini (pers. comm., 2010) recorded 272 female Southern Elephant Seals in the 2006 season. Antarctic Fur Seals (*Arctocephalus gazella*) and occasionally Weddell Seals (*Leptonychotes weddellii*), Crabeater Seals (*Lobodon carcinophagus*) and Leopard Seals (*Hydrurga leptonyx*) haul out along beaches at this site.

Conservation issues

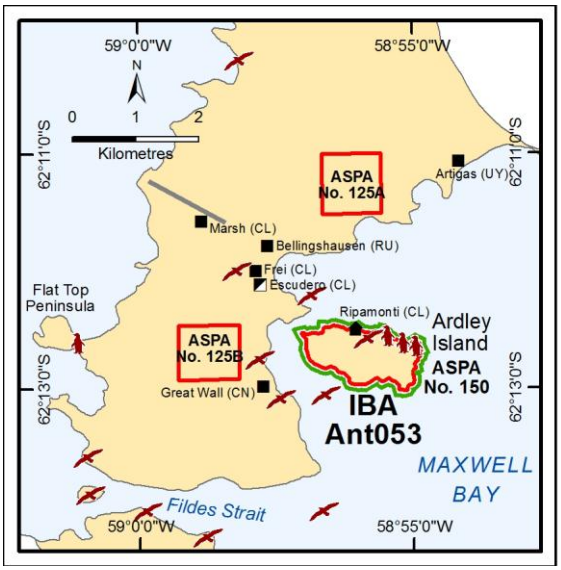
All access and activities at Potter Peninsula are undertaken strictly by permit issued by a national authority under Antarctic Specially Protected Area No. 132. However, the close proximity of Jubany Station to the IBA suggests that operational and support activities need to be carried out with a high level of awareness of the conservation importance of the IBA. In particular, care should be exercised to avoid overflight of the ASPA and IBA. Tourists and recreational activities are prohibited within the ASPA and IBA.

Further reading

ASPA No. 132 Potter Peninsula, King George Island: Management Plan (2005)

Ant053: Ardley Island, King George Island

IBA criteria	A1, A4ii
Coordinates	62°13' S, 58°56' W
Area	137 ha
Altitude	0 – c.65 m
Protection	ASPA No.150



Site description

Ardley Island is located in Maxwell Bay, ~500 m from Fildes Peninsula, King George Island. The island is ice-free, about 2 km by 1 km in size, and is connected to Fildes Peninsula by an isthmus that becomes submerged at high water (ASPA No. 150 Management Plan, 2009). Ardley Island is designated Antarctic Specially Protected Area No. 150 for the diverse range of seabirds that breed within the area. The IBA is defined by the boundary of ASPA No. 150, which includes all of Ardley Island.

Ardley Island is largely snow-free in summer and has relatlively low relief rising to ~65 m (ASPA No. 150 Management Plan, 2009). The island supports some of the best developed plant communities in the South Shetland Islands with ~250 lichen species and numerous mosses and liverworts. Antarctic hairgrass *Deschampsia antarctica* is well-established and increasingly abundant on the island, possibly spreading as a result of increased temperatures and lengthening growing seasons in the area (ASPA No. 150 Management Plan, 2009).

Ripamonti Station (Chile) is a small summer-only research facility with capacity for ~4 personnel located on the northern coast of the island (COMNAP, Antarctic Facilities, accessed 24/08/2010).

Six major scientific stations with a combined capacity of several hundreds of personnel are located within Maxwell Bay and nearby to the IBA: Great Wall (China, 850 m), Eduardo Frei and Teniente Marsh (Chile, 1 km), Bellingshausen (Russia, 1.5 km), Artigas (Uruguay, 2.9 km), King Sejong (South Korea, 6.5 km) and Jubany (Argentina, 13 km).

Birds

Approximately 4635 pairs of Gentoo Penguins (*Pygoscelis papua*) were breeding on Ardley Island in 2005-06 (ASPA No. 150 Management Plan, 2009). Adélie Penguins (*Pygoscelis* adeliae) and Chinstrap Penguins (*P.* antarctica) also breed at the site, with 334 pairs and 9 pairs respectively in the 2005-06 season. A small number of Southern Giant Petrel (*Macronectes giganteus*) breed on Ardley Island, estimated at 5 breeding pairs in 1998 (Patterson *et al.* 2008). Records indicate the number of Southern Giant Petrels has declined signficantly since 1979.

Other confirmed breeding species include the Brown Skua (*Catharacta lonnbergi*), South Polar Skua (*Catharacta maccormicki*), Wilson's Storm-petrel (*Oceanites oceanicus*), Black-bellied Storm-petrel (*Fregetta tropica*), Cape Petrel (*Daption capense*) and Antarctic Tern (*Sterna vittata*).

Other threatened / endemic wildlife

Weddell Seals (*Leptonychotes weddellii*) frequent Ardley Island and are known to breed on beaches and sea ice in Maxwell Bay between September and November (ASPA No. 150 Management Plan, 2009). Crabeater Seals (*Lobodon carcinophagus*), Antarctic Fur Seals (*Arctocephalus gazella*) and Leopard Seals (*Hydrurga leptonyx*) are regularly observed in the Ardley Island area and occasionally haul out on the island.

Conservation issues

All access and activities at Ardley Island are undertaken strictly by permit issued by a national authority under Antarctic Specially Protected Area No. 150. However, the size of nearby research stations and their very close proximity to the IBA suggests that operational and support activities need to be carried out with a high level of awareness of the conservation importance of the IBA. In particular, the main flight path to the hard-rock airstrip on Fildes Peninsula passes close to Ardley Island. Care should be exercised to avoid overflight of the ASPA and IBA. Aircraft landings, and tourists and recreational activities are prohibited within the ASPA and IBA.

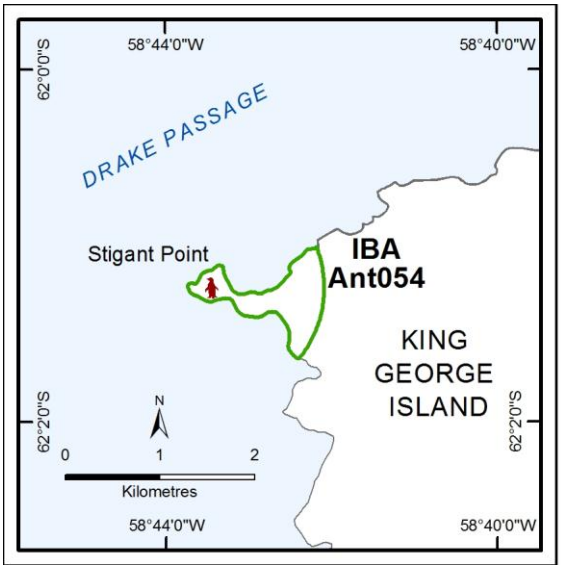
Long-term ornithological reseach on Ardley Island indicates a decline in Southern Giant Petrels on Ardley Island since 1979 may be a direct result of disturbances from visitors, aircraft and station constructions on the island and nearby (ASPA No. 150 Management Plan, 2009).

Further reading

ASPA No. 150 Ardley Island, King George Island: Management Plan (2009)

Ant054: Stigant Point, King George Island

IBA criteria	A4iii
Coordinates	62°01' S, 58°43' W
Area	68.4 ha
Altitude	0 to < 250 m
Protection	None



Site description

Stigant Point lies on the northern coast of King George Island, about 18 km northeast of Fildes Peninsula and 13 km southwest of Davey Point. The IBA comprises the ice-free ground at Stigant Point and adjacent snow-slopes.

Information on the environment at Stigant Point is not available. The nearest permanent scientific station is Comandante Ferraz (Brazil) which operates year-round on the northern shoreline of Admiralty Bay, located 19 km to the southeast of Stigant Point, and which accommodates a maximum of ~40 people in the summer (COMNAP, Antarctic Facilities, accessed 24/08/2010).

A number of large scientific stations are located ~20 km southwest on Fildes Peninsula, more information on which can be found under IBA Ant053.

Birds

Approximately 10,893 pairs of Adélie Penguin (*Pygoscelis adeliae*) were breeding at Stigant Point in 1980 (Woehler 1993). Information on other birds at the site is not available.

Other threatened / endemic wildlife

Antarctic Fur Seals (*Arctocephalus gazella*) breed at Stigant Point (M. Goebel (NOAA), pers. comm., 2004).

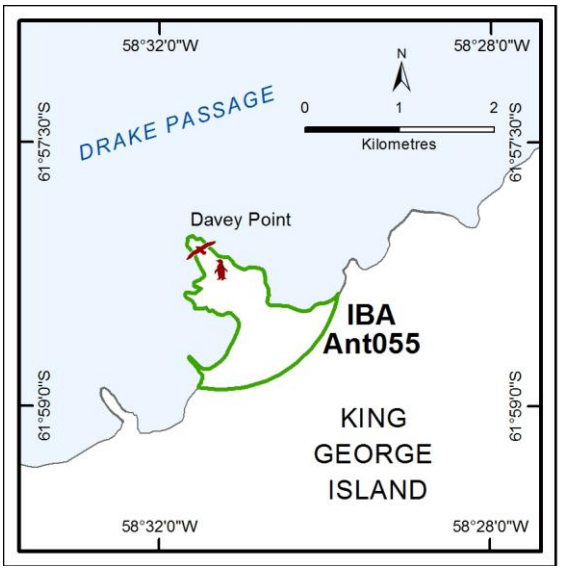
Conservation issues

None known.

Further reading

Ant055: Davey Point, King George Island

IBA criteria	A4iii
Coordinates	61°59' S, 58°31' W
Area	132 ha
Altitude	0 to < 250 m
Protection	None



Site description

Davey Point is an ice-free headland lying between Stigant Point and Round Point on the northern coast of King George Island. The IBA comprises all of the ice-free area of Davey Point and adjacent snow-slopes.

Information on the environment at Davey Point is not available.

The nearest permanent scientific station to Davey Point is Comandante Ferraz (Brazil) located ~14 km south, more information on which can be found under IBA Ant054.

Birds

Approximately 19,690 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding at Davey Point in 1980 (Woehler 1993).

Other threatened / endemic wildlife

None known.

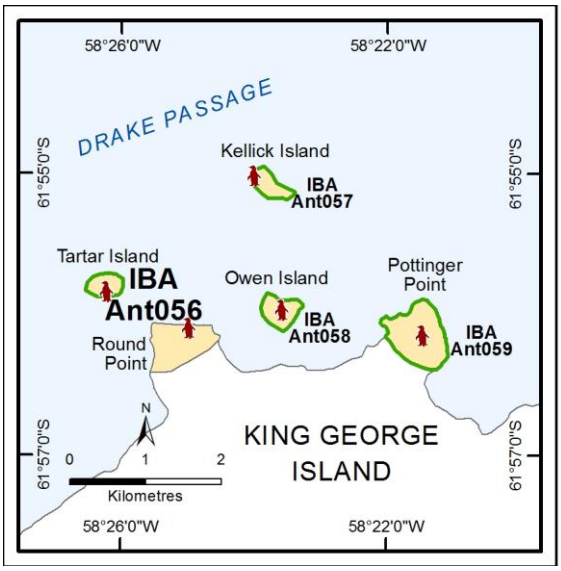
Conservation issues

None known.

Further reading

Ant056: Tartar Island, King George Island

IBA criteria	A4iii
Coordinates	61°56' S, 58°26' W
Area	13.8 ha
Altitude	0 to < 250 m
Protection	None



Site description

Tartar Island is a small (13 ha) ice-free oval-shaped island ~600 m across at its widest point and situated ~700 m northwest of Round Point on the northern coast of King George Island. The IBA comprises the whole of Tartar Island.

Information on the environment of Tartar Island is not available.

The nearest permanent scientific station is Comandante Ferraz (Brazil) ~18 km to the south in Admiralty Bay, more information on which can be found under IBA Ant054.

Birds

Approximately 18,640 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding on Tartar Island in 1980 (Woehler 1993).

Other threatened / endemic wildlife

None known.

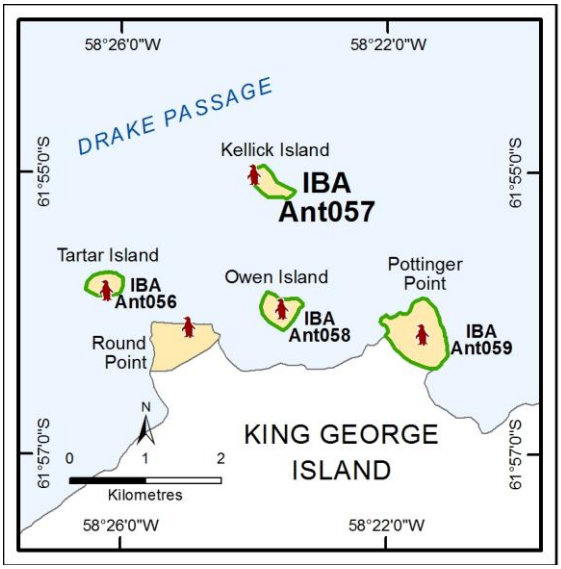
Conservation issues

None known.

Further reading

Ant057: Kellick Island, King George Island

IBA criteria	A4iii
Coordinates	61°55' S, 58°24' W
Area	14.1 ha
Altitude	0 to < 250 m
Protection	None



Site description

Kellick Island is a low-lying, ice-free island of ~13 ha lying ~2 km north of King George Island between Stigant Point and False Round Point. The IBA includes all of Kellick Island.

Information on the environment at Kellick Island is not available.

The nearest permanent scientific station is Comandante Ferraz (Brazil) ~30 km to the south in Admiralty Bay, more information on which can be found under IBA Ant054.

Birds

Approximately 26,890 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding at Kellick Island in 1980 (Woehler 1993).

Other threatened / endemic wildlife

None known.

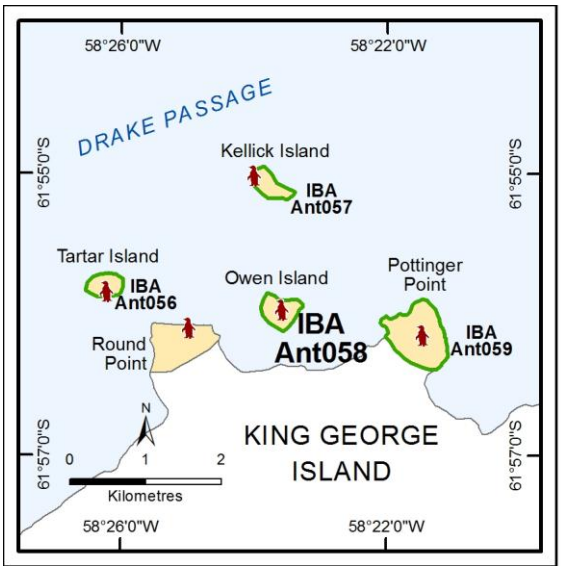
Conservation issues

None known.

Further reading

Ant058: Owen Island, King George Island

IBA criteria	A4iii
Coordinates	61°56' S, 58°24' W
Area	19.2 ha
Altitude	0 to < 250 m
Protection	None



Site description

Owen Island is a small, roughly circular ice-free island situated between Pottinger Point and Round Point ~500 m from the northern coast of King George Island. The IBA includes all of Owen Island.

Information on the environment at Owen Island is not available.

The nearest permanent scientific station is Comandante Ferraz (Brazil) ~42 km to the south in Admiralty Bay, more information on which can be found under IBA Ant054.

Birds

Approximately 21,550 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding at Owen Island in 1980 (Woehler 1993).

Other threatened / endemic wildlife

None known.

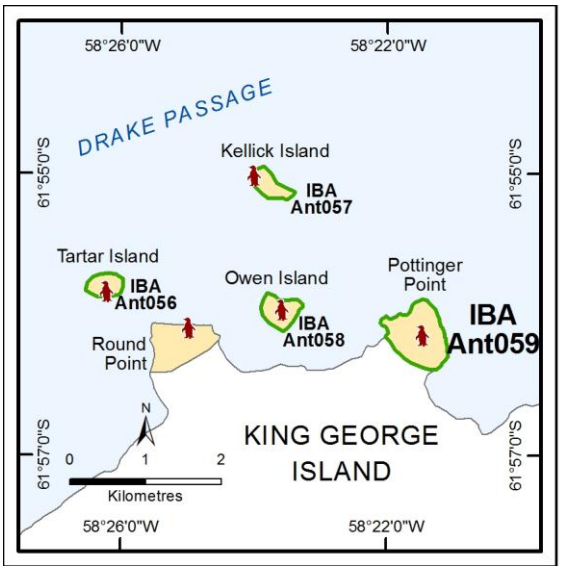
Conservation issues

None known.

Further reading

Ant059: Pottinger Point, King George Island

IBA criteria	A4ii, A4iii
Coordinates	61°57' S, 58°21' W
Area	58.1 ha
Altitude	0 to < 250 m
Protection	None



Site description

Pottinger Point is a low-lying ice-free promontory extending ~500 m on the northern coast of King George Island, between Stigant Point and False Round Point, and 2 km southeast of Kellick Island. The IBA comprises all of the ice-free ground at Pottinger Point.

Information on the environment at Pottinger Point is not available.

The nearest permanent scientific station is Comandante Ferraz (Brazil) ~17 km to the southwest in Admiralty Bay, more information on which can be found under IBA Ant054.

Birds

Approximately 55,861 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding at Pottinger Point in 1980 (Woehler 1993). The colony at Pottinger Point is one of the largest in the South Shetland Islands. Information on other bird species in the area is not available.

Other threatened / endemic wildlife

None known.

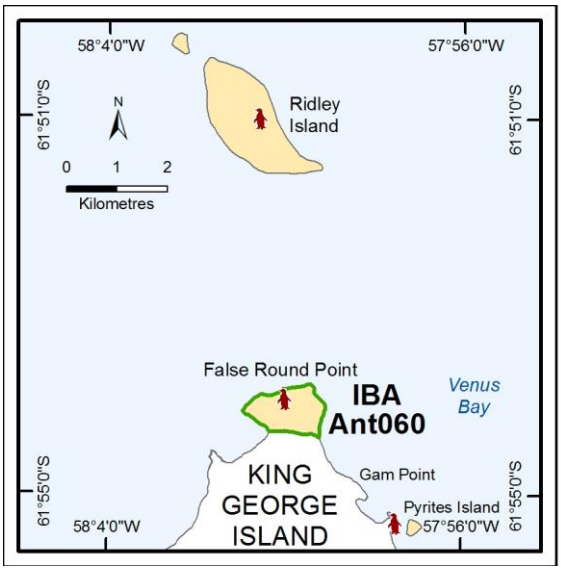
Conservation issues

None known.

Further reading

Ant060: False Round Point, King George Island

IBA criteria	A4ii, A4iii
Coordinates	61°54' S, 58°00' W
Area	125.4 ha
Altitude	0 to < 250 m
Protection	None



Site description

False Round Point is an ice-free headland on the northern coast of King George Island. The IBA comprises all of the ice-free area at False Round Point.
Information on the environment at False Round Point is not available.

The nearest permanent scientific station is Comandante Ferraz (Brazil) ~30 km to the southwest in Admiralty Bay, more information on which can be found under IBA Ant054.

Birds

Approximately 49,870 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding on the ice-free area at False Round Point in 1980 (Woehler 1993), which is the second largest Chinstrap colony on King George Island after IBA Ant059 at Pottinger Point.

Other threatened / endemic wildlife

None known.

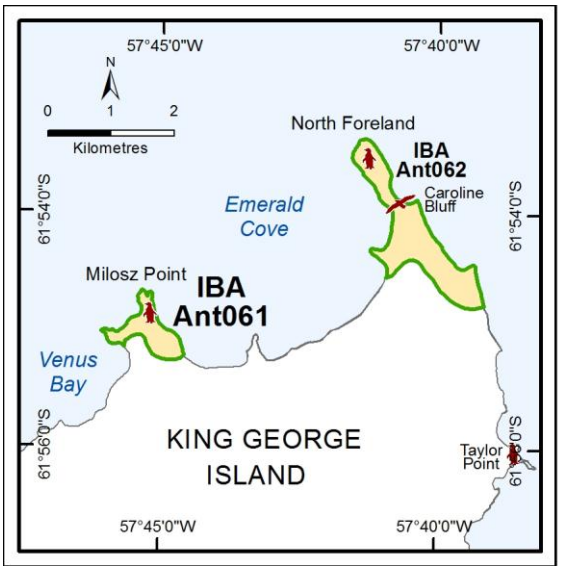
Conservation issues

None known.

Further reading

Ant061: Milosz Point, King George Island

IBA criteria	A4iii
Coordinates	61°55' S, 57°45' W
Area	59.2 ha
Altitude	0 to < 250 m
Protection	None



Site description

Milosz Point is a low-lying, ice-free headland on the northern coast of King George Island, 4 km west of North Foreland, and at the eastern entrance to Venus Bay. The IBA comprises the entire ice-free area of Milosz Point.

Information on the environment at Milosz Point is not available.

The nearest permanent scientific station is Comandante Ferraz (Brazil) ~40 km to the southwest in Admiralty Bay, more information on which can be found under IBA Ant054.

Birds

Approximately 17,150 breeding pairs of Chinstrap Penguin (*Pygoscelis antarctica*), were breeding at Milosz Point in 1980 (Woehler 1993). Information on other birds breeding at the site is not available.

Other threatened / endemic wildlife

None known.

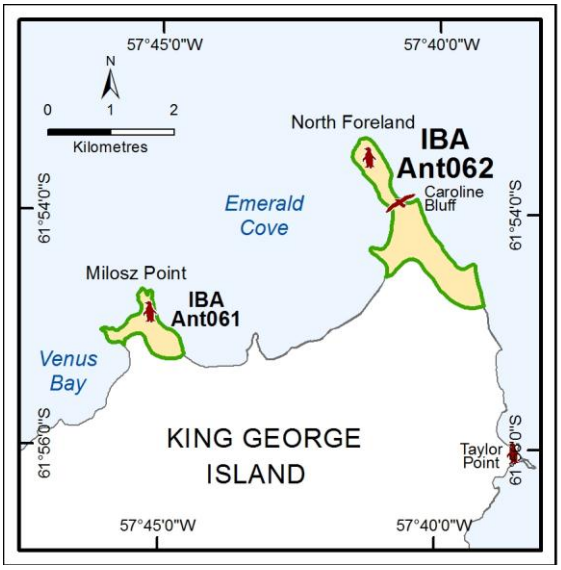
Conservation issues

None known.

Further reading

Ant062: North Foreland, King George Island

IBA criteria	A4iii
Coordinates	61°54' S, 57°40' W
Area	171.2 ha
Altitude	0 to < 250 m
Protection	None



Site description

North Foreland is a headland extending several km from the northern King George Island ice cap, at the eastern entrance to Emerald Cove and forming the northern extremity of King George Island. The IBA includes all of the ice-free area at North Foreland.

Information on the environment at North Foreland is not available.

The nearest permanent scientific station is Comandante Ferraz (Brazil) ~42 km to the southwest in Admiralty Bay, more information on which can be found under IBA Ant054.

Birds

Approximately 23,280 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding at North Foreland in 1980 (Woehler 1993). Southern Giant Petrel (*Macronectes giganteus*) are also believed to breed, with 248 pairs estimated nesting at the site in 1966 (Patterson *et al.* 2008). However, more recent census data for either species are not available.

Other threatened / endemic wildlife

None known.

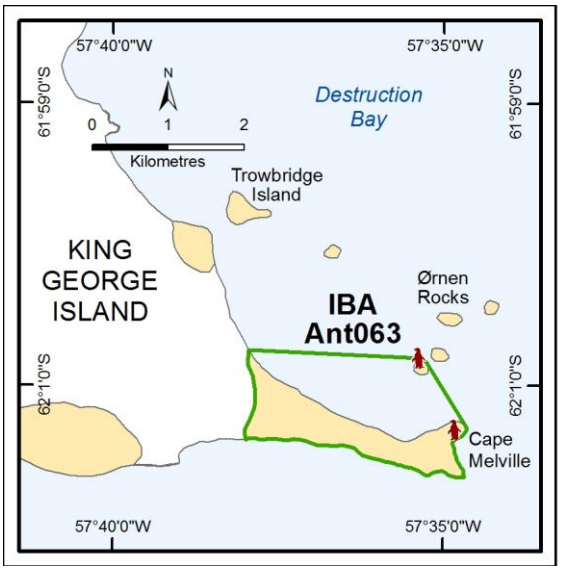
Conservation issues

None known.

Further reading

Ant063: Cape Melville, King George Island

IBA criteria	A4iii
Coordinates	62°01' S, 57°36' W
Area	388.1 ha
Altitude	< 250 m
Protection	None



Site description

Cape Melville is a low-lying, ice-free headland at the eastern extremity of King George Island. The IBA includes all of the ice-free area of Cape Melville and a colony located on Ørnen Rocks, which lie ~1 km north of Cape Melville. The site comprises both marine and terrestrial areas and covers 367 ha.

Information on the environment at Cape Melville is not available.

The nearest permanent scientific station is Comandante Ferraz (Brazil) ~43 km to the west in Admiralty Bay, more information on which can be found under IBA Ant054.

Birds

Approximately 16,278 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding on Cape Melville and on the westernmost islet of the Ørnen Rocks. In 1980 (Woehler 1993). Information on other birds breeding at the site is not available.

Other threatened / endemic wildlife

None known.

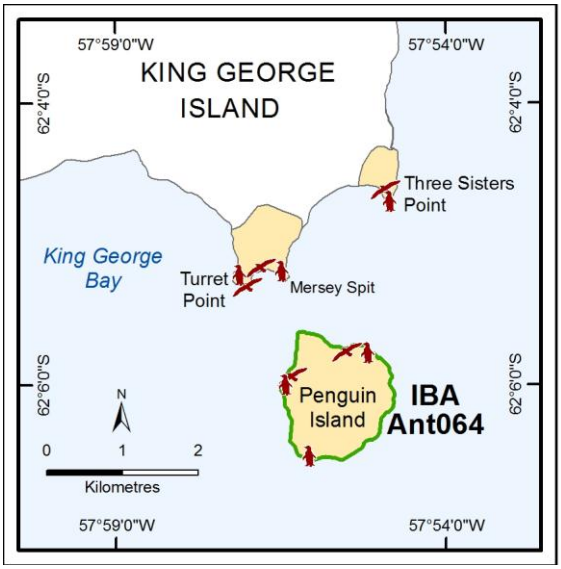
Conservation issues

None known.

Further reading

Ant064: Penguin Island, King George Island

IBA criteria	A4ii, A4iii
Coordinates	62°06' S, 57°56' W
Area	205.3 ha
Altitude	0 – c.170 m
Protection	None



Site description

Penguin Island is an oval-shaped ice-free island ~1.6 km across lying ~1 km southeast of Turret Point on the southern coast of King George Island. The IBA comprises all of Penguin Island.

Penguin Island is an extinct volcanic cone, which rises to ~170 m at Deacon Peak. The shoreline is generally of low cliffs, although a beach on the northern coast offers the most practical access. A small lake lies in the northeast of the island. Vegetation includes a variety of lichens, mosses, and the two vascular plant species *Deschampsia antarctica* and *Colobanthus quitensis* (ATS Visitor Site Guide, Penguin Island, accessed 06/08/2010).

The nearest permanent scientific station is Comandante Ferraz (Brazil) in Admiralty Bay ~25 km to the west, more information on which can be found under IBA Ant054).

Birds

A wide range of birds breed on Penguin Island. In particular, a substantial colony of Southern Giant Petrel (*Macronectes giganteus*) breeds along the northern and northwestern shoreline, with 634 pairs recorded in 1999 (Naveen 2003). Adélie Penguins (*Pygoscelis adeliae*) breed on the southern side of Penguin Island, with 2441 pairs recorded in 1997 (Naveen 2003). Approximately 7581 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding on Penguin Island in 1980 (Woehler 1993). Other confirmed breeders include the Antarctic Tern (*Sterna vittata*), Kelp Gull (*Larus dominicanus*) and Skuas (*Catharacta* spp.). The Greater Sheathbill (*Chionis alba*) and Wilson's Storm-petrel (*Oceanites oceanicus*) are frequent visitors and may breed at the site, whilst the Imperial Shag (*Phalacrocorax atriceps*) is a regular visitor (ATS Visitor Site Guide, Penguin Island, accessed 06/08/2010).

Other threatened / endemic wildlife

Southern Elephant Seals (*Mirounga leonina*) and Weddell Seals (*Leptonychotes weddellii*) regularly haul out on Penguin Island (ATS Visitor Site Guide, Penguin Island, accessed 06/08/2010).

Conservation issues

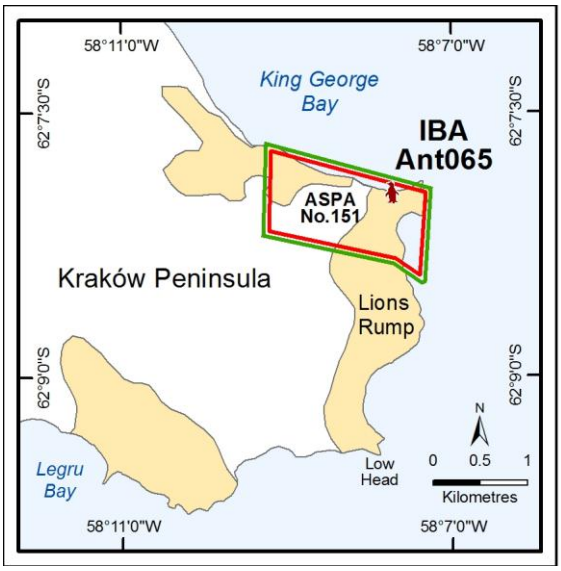
Penguin Island is a popular tourist destination, receiving an average of 1502 visitors annually (IAATO Tourism Statistics 2005-06 – 2009-10, accessed 06/08/2010). Tourist visits are managed by the Antarctic Treaty System Visitor Site Guide for Penguin Island, which provides specific procedures for visitors ashore to follow. Included are the requirements that visitors maintain a separation distance of at least 50 m from Southern Giant Petrels and at least 5 m from all other wildlife, and several breeding areas are completely closed to tourist visits. A well-developed trail has developed on the pedestrian route leading to Deacon Peak (ATS Visitor Site Guide, Penguin Island, accessed 06/08/2010).

Further reading

ATS Visitor Site Guide, Penguin Island.
URL: http://www.ats.aq/siteguidelines/documents/Penguin_e.pdf. Accessed 06/08/2010.

Ant065: Lions Rump, King George Island

IBA criteria	A4iii
Coordinates	62°08' S, 58°08' W
Area	149 ha
Altitude	< c.190 m
Protection	ASPA No.151



Site description

Lions Rump is located on the southwest coast of King George Bay, southern King George Island, South Shetland Islands. The IBA comprises a small (149 ha) area of ice-free ground between Lajkonik Rock and Lions Head, extending inland to the White Eagle Glacier. The IBA is defined by the boundary of Antarctic Specially Protected Area No. 151.

Relief at the site is varied, with raised beaches, freshwater pools and streams. Moraine slopes lead up to the margins of the White Eagle Glacier, and the highest point is around 190 m (ASPA No. 151 Management Plan, 2000).

The area is designated as ASPA No. 151 to protect the ecological values of the area, including vascular plants, lichens and diverse avian fauna, and representative examples of maritime Antarctic habitats (ASPA No. 151 Management Plan). Two vascular plant species – *Deschampsia antarctica* and *Colobanthus quitensis* – and over 104 lichen taxa grow at this site, dominated by species of *Caloplaca* and *Buellia* (ASPA No. 151 Management Plan, 2000).

The nearest permanent scientific stations to Lions Rump are Comandante Ferraz (Brazil), located 15 km east of the site in Admiralty Bay, and Arctowski (Poland), located 17 km to the west, also in Admiralty Bay. Both stations have peak capacities of around 40 people during the summer season (COMNAP, Antarctic Facilities, accessed 15/03/2011).

Birds

An estimated 12,345 breeding pairs of Adélie Penguin (*Pygoscelis adeliae*) were recorded at Lions Rump in 1980 (Woehler 1993), with smaller colonies of Gentoo and Chinstrap Penguin (*Pygoscelis papua* and *P. antarctica*). In 1987, the number of Gentoo Penguins was estimated at 1105 breeding pairs (Woehler 1993) whilst the Chinstrap colony was estimated at 10 breeding pairs in 1980 (Woehler 1993).

Other confirmed breeders at the site are the Southern Giant Petrel (*Macronectes giganteus*), Cape Petrel (*Daption capense*), Wilson's Storm-petrel (*Oceanites oceanicus*), Black-bellied Storm-petrel (*Fregetta tropica*), Greater Sheathbill (*Chionis alba*), South Polar Skua (*Catharacta maccormicki*), Brown Skua (*Catharacta lonnbergi*), Kelp Gull (*Larus dominicanus*) and the Antarctic Tern (*Sterna vittata*) (ASPA No.151 Management Plan, 2000).

Other threatened / endemic wildlife

Southern Elephant Seal (*Mirounga leonina*), Antarctic Fur Seal (*Arctocephalus gazella*) and Weddell Seal (*Leptonychotes weddellii*) are reported to breed on beaches at Lions Rump (ASPA No. 151 Management Plan, 2000).

Conservation issues

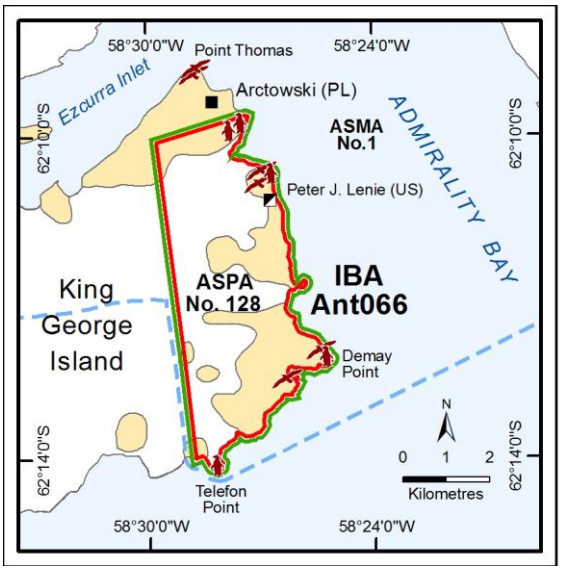
Entry to ASPA No. 151 is by permit for scientific or management purposes. The management plan requires visitors to minimise disturbance to birds, vegetation and geological features. Overflight by helicopters or fixed-wing aircraft must be at least 250 m offshore, and helicopters are not permitted to land within the ASPA (ASPA No. 151 Management Plan, 2000). Although helicopters are used to access nearby stations in Admiralty Bay, the site is not in the vicinity of the usual flight-paths to and from these stations.

Further reading

ASPA No. 151 Lions Rump, King George Island: Management Plan (2000).

Ant066: Western shore of Admiralty Bay, King George Island

IBA criteria	A4ii, A4iii
Coordinates	62°12' S, 58°28' W
Area	2032 ha
Altitude	0 – c.350 m
Protection	ASPA No.128



Site description

Admiralty Bay lies on the southern coast of King George Island. The IBA is defined by the boundary of Antarctic Specially Protected Area No. 128, and covers an area of 2032 ha extending from Telefon Point in the southwest to a point on the coastline about 1800 m south of Point Thomas.

The western shore of Admiralty Bay rises to a maximum elevation of around 350 m and is shaped by glacial and coastal marine processes. Approximately 80% of the IBA is permanently covered by snow and ice (ASPA No. 128 Management Plan, 2000). Ice-free areas are located on raised beaches, moraines, rocky headlands, islets and spurs. Several shallow beaches are present on the northeastern coast.

ASPA No. 128 was designated to protect its diverse avian and mammalian fauna and locally rich vegetation, and provides a representative example of a maritime Antarctic ecosystem (ASPA No. 128 Management Plan, 2000). The site also lies within Antarctic Specially Managed Area No. 1 (Admiralty Bay).

Vegetation is typical of the maritime Antarctic. Lichens dominate the area at altitudes higher than 60 m, whilst at lower elevations mosses and flowering plants are more common (ASPA No. 128 Management Plan, 2000). The area covered by the vascular plants *Deschampsia antarctica* and *Colobanthus quitensis* constitutes one of the largest in the Antarctic (ASPA No. 128 Management Plan, 2000).

The nearest permanent year-round scientific station is Arctowski (Poland), located on the western shore of Admiralty Bay near Point Thomas, outside the IBA. Arctowski has a capacity for ~40 people in summer and 12 in winter (COMNAP, Antarctic Facilities, accessed 25/08/2010). A small semi-permanent summer-only field camp (Peter J. Lenie (US)) is located near the shore of Admiralty Bay within the IBA and the ASPA ~3 km southeast of Arctowski station.

Birds

Approximately 15,151 pairs of Adélie Penguin (*Pygoscelis adeliae*), 2287 pairs of Gentoo Penguin (*Pygoscelis papua*) and 2545 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were recorded in 1994-95. Also breeding at the site are Southern Giant Petrel (*Macronectes giganteus*); Cape Petrel (*Daption capense*); Greater Sheathbill (*Chionis alba*); Skua (*Catharacta maccormicki* and *C. lonnbergi*); Kelp Gull (*Larus dominicanus*), Antarctic Tern (*Sterna vittata*), Wilson's Storm-petrel (*Oceanites oceanicus*) and Black-bellied Storm-petrel (*Fregetta tropica*) (ASPA No. 128 Management Plan, 2000).

Four South American bird species have also been recorded as temporary visitors: Black-necked Swan (*Cygnus melanocoryphus*), South Georgia Pintail (*Anas georgica*), White-rumped Sandpiper (*Calidris fuscicollis*) and Wilson's Phalarope (*Pharalopus tricolor*) (ASPA No. 128 Management Plan, 2000).

Other threatened / endemic wildlife

Southern Elephant Seals (*Mirounga leonina*), Antarctic Fur Seals (*Arctoephalus gazella*) and Weddell Seals (*Leptonychotes weddellii*) regularly haul out at the site, and Elephant and Weddell seals have been observed breeding in the area (ASPA No.128 Management Plan, 2000). Over winter, Leopard Seals (*Hydrurga leptonyx*) and Crabeater Seals (*Lobodon carcinophagus*) are regularly observed on nearby ice floes (ASPA No. 128 Management Plan, 2000).

Conservation issues

All access and activities at the site are undertaken strictly by permit issued by a national authority under the provisions of Antarctic Specially Protected Area No. 128 (ASPA No. 128 Management Plan, 2000).

No helicopter or fixed wing aircraft is permitted to fly over ASPA No. 128 below 250 m altitude above the highest point. All helicopters should maintain a distance of at least 500 m from the site during take-off and landing at Arctowski Station. To avoid flying over bird colonies, approach from and towards the sea or over the Warsaw Icefield is recommended (ASPA No. 128 Management Plan, 2000).

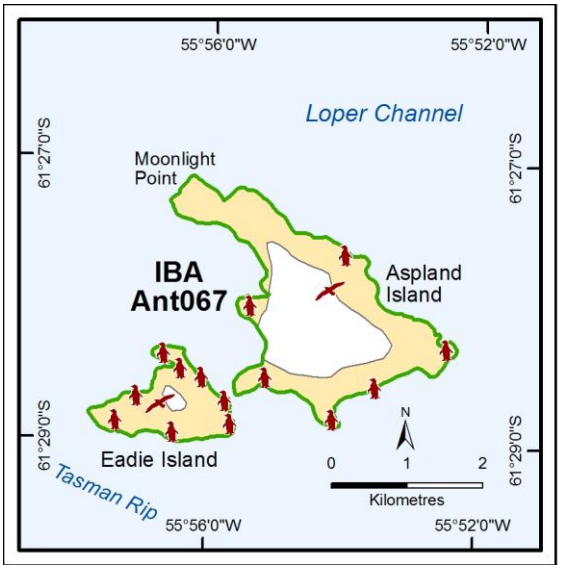
A key conservation issue is the proximity of the permanent scientific stations of four different countries (Brazil, Ecuador, Peru, Poland) with associated scientific activities and logistic support within close proximity of the IBA. In addition, Admiralty Bay is regularly visited by tour vessels and yachts. The concentration of activity increases the risk of accidents, such as an oil spill, which could have significant implications for the IBA. However, activities within Admiralty Bay are managed within ASMA No. 1, which is designed to manage potential conflicts of interest between different human activities, and to minimise cumulative environmental impacts in the area so that any environmental disturbance is kept to a minimum (ASMA No. 1 Management Plan, 2006).

Further reading

ASPA No. 128 Western shore of Admiralty Bay, King George Island: Management Plan (2000)
ASMA No. 1 Admiralty Bay, King George Island: Management Plan (2006)

Ant067: Aspland Island and Eadie Island

IBA criteria	A4iii
Coordinates	61°28' S, 55°55' W
Area	537.5 ha, 144.1 ha, respectively
Altitude	0 to < 500 m
Protection	None



Site description

Aspland Island and Eadie Island and O'Brien Island are ~40-50 km southwest of Elephant Island, in the eastern region of the South Shetland Islands. Aspland Island is the largest of the two, with its lower slopes being ice-free with a permanent ice cap rising to 735 m covering higher terrain. Eadie Island is a small rocky island approximately 2 km across, with an ice-capped summit of over 250 m. The IBA comprises both of these islands.

Little information on the environment at Aspland, Eadie and O'Brien Islands is available. Over 80 terrestrial plant species have been recorded on Elephant Island and its neighbouring islands. On Eadie Island, these include the moss *Orthotrichum crassifolium,* the lichens *Caloplaca* sp., *Catillaria corymbosa* and *Unsea antarctica*, and the algae *Prasiola crispa* (Allison and Smith, 1973).

There are no scientific stations in the vicinity of the site, with the nearest facility 155 km to the southwest on King George Island.

Birds

Sizeable colonies of Chinstrap Penguin (*Pygoscelis antarctica*) breed on these islands, with approximately 8650 pairs on Aspland Island (Croxall & Kirkwood 1979) and ~5150 pairs on Eadie Island in 1977.

Large colonies of Southern Fulmar (*Fulmarus glacialoides*) also breed on these islands, with ~9,800 pairs estimated on Aspland Island (Furse 1978) and ~8,500 pairs estimated on Eadie Island in 1977 (Creuwels *et al.* 2007). Information on other species is not available.

Other threatened / endemic wildlife

None known.

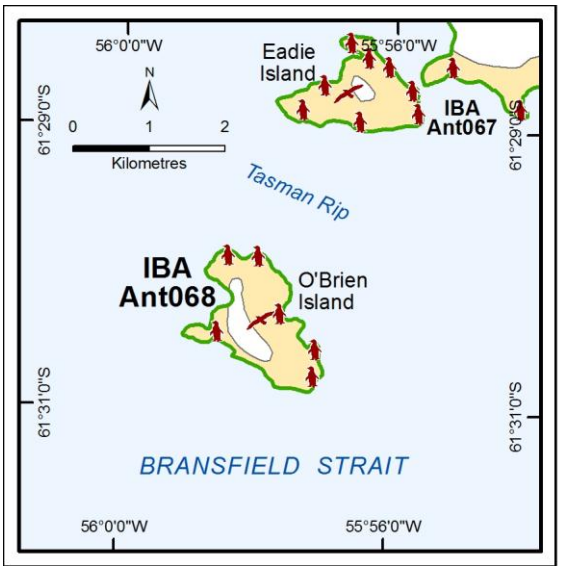
Conservation issues

None known.

Further reading

Ant068: O'Brien Island

IBA criteria	A4iii
Coordinates	61°30' S, 55°58' W
Area	190.2 ha
Altitude	0 to < 500 m
Protection	None



Site description

O'Brien Island (190 ha) has an ice-capped summit rising to over 250 m. The IBA comprises all of O'Brien Island.

Information on the environment at O'Brien Island is not available. Over 80 terrestrial plant species have been recorded on Elephant Island and its neighbouring islands.

There are no research stations in the vicinity of the site, with the nearest facility ~160 km to the southwest on King George Island.

Birds

Approximately 21,400 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) and ~7880 pairs of Southern Fulmar (*Fulmarus glacialoides*) were estimated as breeding on O'Brien Island in 1977 (Furse 1978). Information on other bird species is not available.

Other threatened / endemic wildlife

None known.

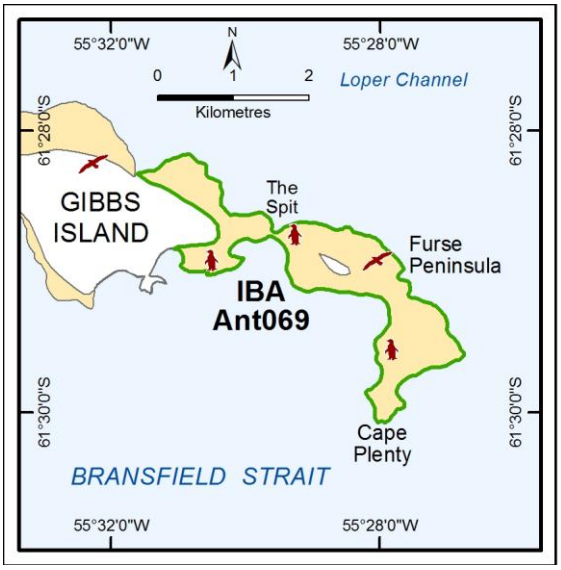
Conservation issues

None known.

Further reading

Ant069: Gibbs Island East

IBA criteria	A1, A4iii
Coordinates	61°29' S, 55°29' W
Area	368.8 ha
Altitude	0 to < 500 m
Protection	None



Site description

Gibbs Island is a small island (21.8 km^2) located ~25 km to the southwest of Elephant Island, bordered to the north by the Loper Channel and to the south by the Bransfield Strait. A thin section of land, known as The Spit, joins Furse Peninsula in the east to the main part of Gibbs Island in the west. This IBA comprises Furse Peninsula at the eastern extremity of Gibbs Island, The Spit and a small ice-free area on Gibbs Island west of The Spit.

A range of lichens, mosses, algae and liverworts have been recorded on Gibbs Island. On the south coast of the island, ~800 m west of The Spit, moss communities grow at altitudes of ~100 m (Allison & Smith 1973). Mosses, lichens and algae are also found at the eastern extremity of Gibbs Island growing at elevations of 250 – 300 m. (Lindsay, 1969 in Allison & Smith, 1973).

No long-term meteorological records exist for Gibbs Island. However, meteorological observations made in the Elephant Island group between 10 Dec 1970 and 26 March 1971 show the mean daily temperature was 1.4° C with minimum and maximum temperatures of below – 5° C and 15° C respectively (Allison and Smith, 1973). Cloud cover and precipitation were frequent, with over 415 mm falling as snow or rain over the 107 days, and a mean wind speed for the survey period of 7.2 ms^{-1} (*ibid.*).

Birds

Approximately 1672 pairs of Macaroni Penguin (*Eudyptes chrysolophus*) breed within the IBA, split between a large colony located at southern Furse Peninsula and a small colony on the east side of The Spit (Croxall and Kirkwood 1979). Colonies of Chinstrap Penguin (*Pygoscelis antarctica*) breed in several ice-free areas in the southern and eastern parts of the site, constituting 30 and 160 pairs respectively in 1977 (Croxall & Kirkwood 1979). A large number of Southern Fulmar (*Fulmarus glacialoides*) also breed in this area, on Furse Peninsula and to the west of The Spit, constituting around 18,680 pairs in 1971 (Furse 1978).

Other threatened/endemic wildlife

None known.

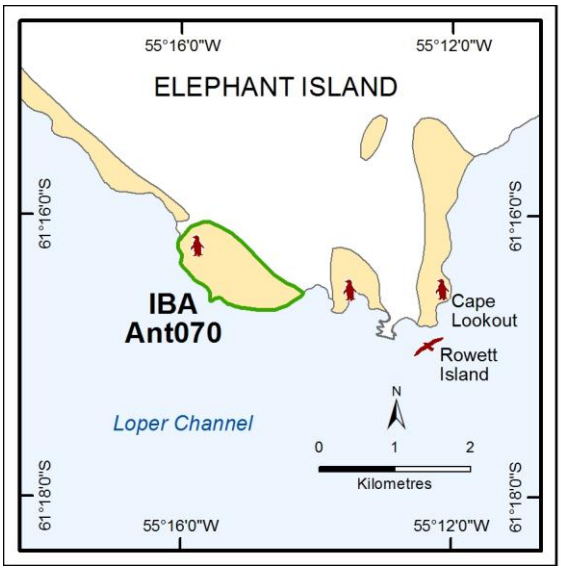
Conservation issues

None known.

Further reading

Ant070: Cape Lookout, Elephant Island

IBA criteria	A4iii
Coordinates	61°16' S, 55°15' W
Area	119.9 ha
Altitude	0 to < 500 m
Protection	None



Site description

Elephant Island is the easternmost of the South Shetland Islands, lying 153 km northeast of King George Island in the Bransfield Strait. The IBA comprises an ice-free stretch of shoreline extending nearly 2 km along the coastline at the southern extent of Elephant Island, west of Cape Lookout. The area covers 113 ha and rises to over 250 m.

Elephant Island is composed of metamorphosed sedimentary rocks and the terrain is largely snow or ice-covered with steep cliffs, narrow beaches, and glacier snouts hugging the shoreline (Allison & Smith, 1973). Ice-free ground suitable for plant and bird habitation is found mainly on coastal headlands, raised marine platforms, intervening valleys and low-lying beaches (Allison & Smith, 1973).

No information is available on the vegetation at the IBA. However, over 80 species of lichens, mosses, alga and liverworts were recorded by Allison and Smith (1973) on Elephant Island, including the two flowering plants species growing in the Antarctic Peninsula: *Colobanthus quitensis* and *Deschampsia antarctica*.

No meteorological data are available for Elephant Island. However, Allison and Smith (1973) recorded a mean daily temperature of 1.4° C with minimum and maximum temperatures of – 5° C and 15° C respectively.

There are no research stations in the vicinity, with the nearest facility 180 km to the southwest at King George Island.

Birds

Approximately 11,755 breeding pairs of Chinstrap Penguins (*Pygoscelis antarctica*) were present at the site in 1971 (Croxall & Kirkwood 1979).

Other birds observed in the Elephant Island area include the Antarctic petrel (*Thalassoica antarctica*), Cape Petrel (*Daption capense*), Kerguelen Petrel (*Lugensa brevirostris*), Blue Petrel (*Halobaena caerulea*), Wilson's Storm-petrel (*Oceanites oceanicus*), Black-bellied Storm-petrel (*Fregetta tropica*), Black-browed Albatross (*Thalassarche melanophrys*), Grey-headed Albatross (*Thalassarche chrysotoma*), Light-mantled Albatross (*Phoebetria palpebrata*), Kelp Gull (*Larus dominicanus*) and the Greater Sheathbill (*Chionis alba*) (Whitehouse & Veit 1994). Of these, Furse and Bruce (1979) recorded ~50 breeding pairs of Snow Petrel (*Pagodroma nivea*) on the island in the 1970-71 season (Croxall *et al.* 1995) and 190 pairs of Brown Skua (*Catharacta lonnbergi*) were recorded breeding on Elephant Island in 1983 (M. Sanders pers. comm. in Ritz *et al.* 2006).

Other threatened / endemic wildlife

Little is known about the presence of other species at this site. However, Naveen (2003) reports that Antarctic Fur Seals and Southern Elephant Seals regularly haul out at Cape Lookout, 2 km to the east.

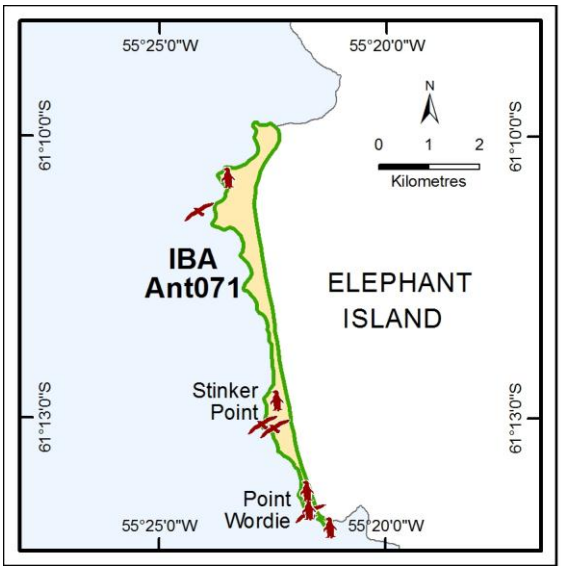
Conservation issues

None known.

Further reading

Ant071: Point Wordie, Elephant Island

IBA criteria	A4iii
Coordinates	61°12' S, 55°23' W
Area	326.7 ha
Altitude	0 to < 250 m
Protection	None



Site description

Point Wordie is located on the western coast of Elephant Island. The IBA includes the ice-free coastline extending ~9 km northwards from Point Wordie, and includes Stinker Point..

No information is available on the environment specific to the area around Point Wordie. See Ant070 for more information on the general features, vegetation and meteorology of Elephant Island.

There are no research stations in the vicinity, with the nearest being ~185 km to the southwest at King George Island.

Birds

Approximately 12,455 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding at Point Wordie and Stinker Point in 1971 (Croxall & Kirkwood 1979). A further 100 breeding pairs of Chinstrap Penguin were recorded at Mensa Bay, at the northern extent of the IBA. Approximately 1000 pairs of Gentoo Penguin (*Pygoscelis papua*) and 200 pairs of Macaroni Penguin (*Eudyptes chrysolophus*) were recorded breeding at Point Wordie in 1971. Two small colonies of Imperial Shag (*Phalacrocorax atriceps*), constituting 5 and 35 breeding pairs in 1971, are located close to the Chinstrap colonies at Mensa Bay and at Stinker Point (Bruce & Furse 1973). Approximately 295 pairs of Southern Giant Petrel (*Macronectes giganteus*) were nesting in several locations across the site in 1971 (Patterson *et al.* 2008).

See IBA Ant070 for information on other birds observed in the Elephant Island area.

Other threatened / endemic wildlife

Antarctic Fur Seals (*Arctocephalus gazella*) have been observed breeding at Stinker Point (M. Goebel (NOAA), pers. comm. 2004). Southern Elephant Seals (*Mirounga leonina*) are also present on the island (Hattersley-Smith 1991).

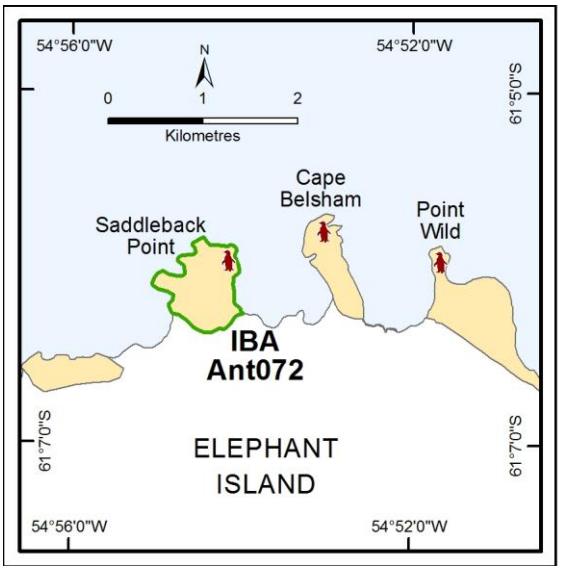
Conservation issues

None known.

Further reading

Ant072: Saddleback Point, Elephant Island

IBA criteria	A4iii
Coordinates	61°06' S, 54°54' W
Area	64.6 ha
Altitude	0 to < 250 m
Protection	None



Site description

Saddleback Point is located on the northern coast of Elephant Island. The IBA comprises an ice-free headland extending 1000 m offshore, to the west of Point Wild.

No information is available on the environment specific to the area around Saddleback Point. See Ant070 for more information on the general features, vegetation and meteorology of Elephant Island.

There are no research stations in the vicinity, with the nearest ~205 km to the southwest at King George Island.

Birds

Approximately 10,250 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were recorded breeding at Saddleback Point in 1971 (Croxall & Kirkwood 1979).

See IBA Ant070 for information on other birds observed in the Elephant Island area.

Other threatened / endemic wildlife

Little is known about other species present at this IBA. However, Naveen (2003) reported that Antarctic Fur Seals (*Arctocephalus gazella*) and Southern Elephant Seals (*Mirounga leonina*) regularly haul-out on rocky beaches at Point Wild, 2 km to the east of Saddleback Point.

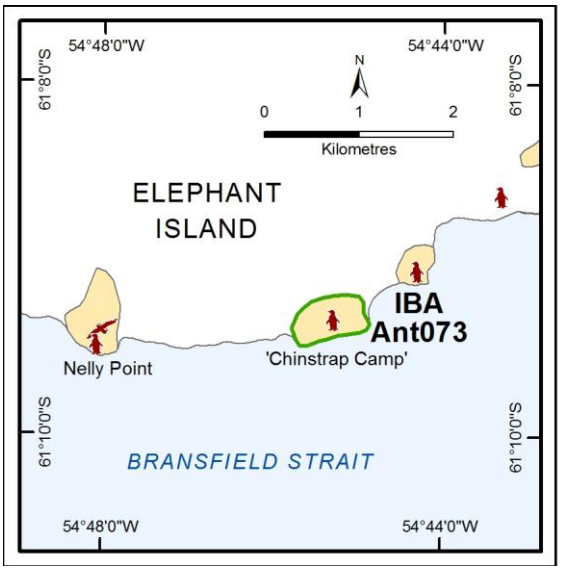
Conservation issues

None known.

Further reading

Ant073: East of Nelly Point, Elephant Island

IBA criteria	A4iii
Coordinates	61°09' S, 54°45' W
Area	34.9 ha
Altitude	0 to < 250 m
Protection	None



Site description

A small unnamed point located 2.5 km east of Nelly Point, on the southeastern coast of Elephant Island. The point has been unofficially referred to as 'Chinstrap Camp' (Furse 1979). The IBA comprises all of the ice-free area at this point.

No information is available on the environment specific to the point known as 'Chinstrap Camp'. See Ant070 for more information on the general features, vegetation and meteorology of Elephant Island.

There are no research stations in the vicinity, with the nearest ~220 km southwest at King George Island.

Birds

Approximately 24,430 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding at 'Chinstrap Camp' in 1971 (Croxall & Kirkwood 1979). See IBA Ant070 for information on other birds observed in the Elephant Island area.

Other threatened / endemic wildlife

Little is known about the presence of other species at this site, however Southern Elephant Seals (*Mirounga leonina*) and Antarctic Fur Seals (*Arctocephalus gazella*) have been recorded at other locations on Elephant Island (Hattersley-Smith 1991; Naveen 2003).

Conservation issues

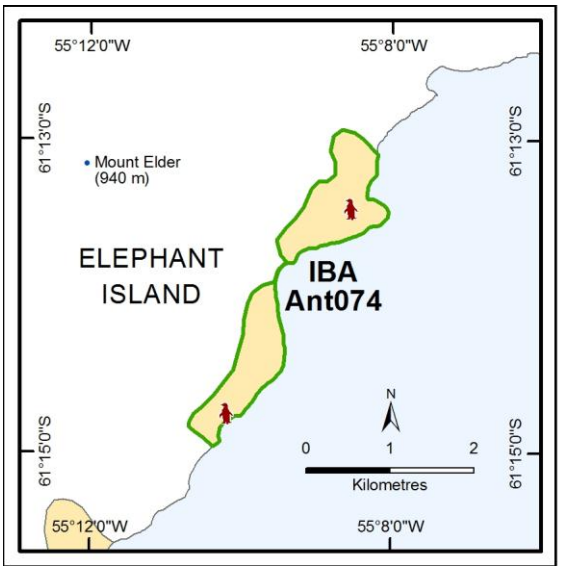
None known.

Further reading

Furse J.R. 1979. *Elephant Island: an Antarctic expedition*. Anthony Nelson, Shrewsbury.

Ant074: Mount Elder, Elephant Island

IBA criteria	A4iii
Coordinates	61°14' S, 55°09' W
Area	208.5 ha
Altitude	0 to < 250 m
Protection	None



Site description

Mount Elder (~940 m) is located at southwestern Elephant Island. The IBA comprises a low-lying ice-free shoreline extending 4 km along the coastline, ~4 km east of Mount Elder

No information is available pertaining to the environment specific the area of the IBA. See Ant070 for more information on the general features, vegetation and meteorology of Elephant Island.

There are no research stations in the vicinity, with the nearest ~200 km to the southwest at King George Island.

Birds

Approximately 14,960 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding in two main groups at this site in 1971 (Croxall & Kirkwood 1979). Approximately 10,810 pairs were breeding at the northern site and 4150 pairs in the south.

See IBA Ant070 for information on other birds observed in the Elephant Island area.

Other threatened / endemic wildlife

Little is known about the presence of other species at this site, however Southern Elephant Seals (*Mirounga leonina*) and Antarctic Fur Seals (*Arctocephalus gazella*) have been recorded at other locations on Elephant Island (Hattersley-Smith 1991; Naveen 2003).

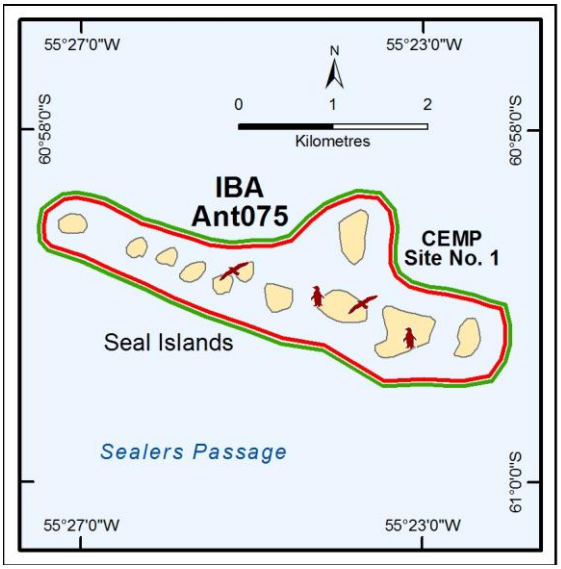
Conservation issues

None known.

Further reading

Ant075: Seal Islands

IBA criteria	A4iii
Coordinates	60°59' S, 55°24' W
Area	514 ha
Altitude	< 250 m
Protection	CEMP Site No.1



Site description

Seal Islands lie 7 km north of Elephant Island and comprise a number of small islands and rocky islets extending east – west for approximately 5 km. The IBA includes the entire Seal Islands group, including all land areas and rocks of the island group and the intervening marine area.

Seal Island (elevation 125 m), the largest island in the group, has a coastline dominated by steep cliffs, except for a sandy beach on the western shore and several small coves. Seal Island is composed of sedimentary rocks which are poorly consolidated and susceptible to wave action and runoff erosion. Other islands in the group are similarly rocky with precipitous cliffs and few beaches, and ice-cover is seasonal (CEMP Site No. 1 Management Plan, 2001).

Birds

Eight species of bird have been recorded breeding on Seal Islands. Approximately 20,000 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) have been estimated in over 60 subcolonies across the Seal Islands group in 1988-89 (Woehler 1993). Approximately 350 pairs of Macaroni Penguin (*Eudyptes chrysolophus*) were recorded in five colonies on Seal Island (CEMP Site No. 1 Management Plan, 2004). In addition, small numbers of Southern Giant Petrel (*Macronectes giganteus*) and Imperial Shag (*Phalacrocorax atriceps*) breed on Seal Islands, estimated at 25 pairs and 40 pairs respectively in 1971 (Bruce & Furse 1973). Other breeding birds include the Cape Petrel (*Daption capense*) and Wilson's Storm-petrel (*Oceanites oceanicus*), which respectively nest on cliff faces and in burrows in talus slopes. Greater Sheathbill (*Chionis alba*) and Kelp Gull (*Larus dominicanus*) also breed on the islands (CEMP Site No. 1 Management Plan, 2004).

Non-breeding birds include the Brown Skua (*Catharacta lonnbergi*), Adélie Penguin (*Pygoscelis adeliae*), Gentoo Penguin (*P. papua*), King Penguin (*Aptenodytes patagonicus*) and Rockhopper Penguin (*Eudyptes chrysocome*) (CEMP Site No.1 Management Plan, 2004).

Other threatened / endemic wildlife

Antarctic Fur Seals (*Arctocephalus gazella*), Southern Elephant Seal (*Mirounga leonina*), Weddell Seal (*Leptonychotes weddellii*), Leopard Seal (*Hydrurga leptonyx*) and Crabeater Seal (*Lobodon carcinophagus*) haul out on Seal Islands. Antarctic Fur Seals are the only confirmed breeders, with around 600 seal pups born each year, with about half born on Seal Island and the other half on Large Leap Island (CEMP Site No. 1 Management Plan, 2004; M.Goebel, pers. comm., 2004). It is suspected that small numbers of Elephant Seals may also breed on the islands.

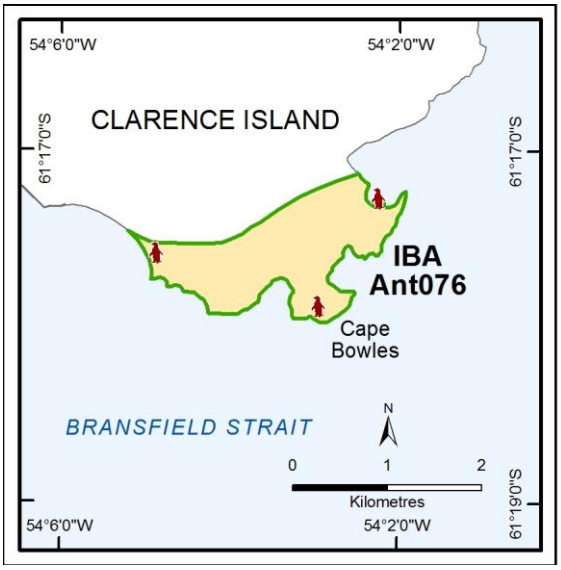
Conservation issues

Designation of Seal Islands as a CCAMLR Ecosystem Monitoring Programme lapsed in 2007 because research was no longer being undertaken at the site (CCAMLR Scientific Committee Report, 2007).

Further reading

Ant076: Cape Bowles, Clarence Island

IBA criteria	A4ii, A4iii
Coordinates	61°18' S, 54°03' W
Area	234.1 ha
Altitude	0 to < 250 m
Protection	None



Site description

Clarence Island is the easternmost of the South Shetland Islands, lying 30 km east of Elephant Island. The IBA comprises the ice-free headland of Cape Bowles, at the southeastern extremity of Clarence Island.

The geology of Clarence Island is predominantly metamorphic of Mesozoic age (Marsh & Thomson, 1985). No other information is available on the environment at this site.

There are no research stations in the near vicinity, the closest being ~260 km to the southwest, on King George Island.

Birds

Approximately 58,000 breeding pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were estimated at Pink Pool Point on the eastern side of the headland, 33,000 breeding pairs were at Cape Bowles, and 21,200 at Thunder Bay, at the western side of the headland in 1977 (Croxall & Kirkwood 1979).

Other threatened / endemic wildlife

None known.

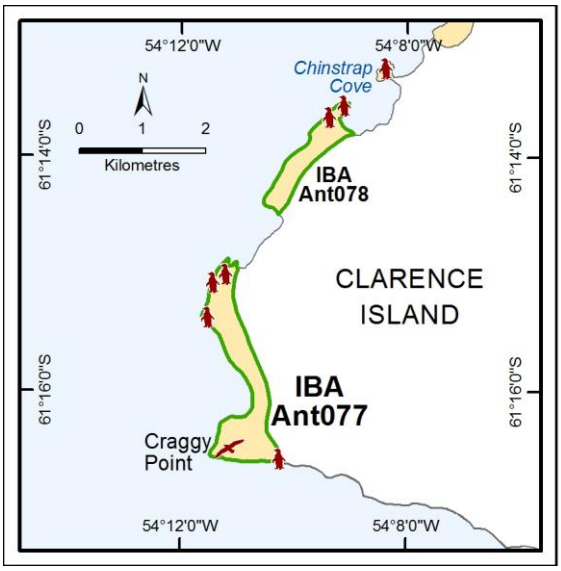
Conservation issues

None known.

Further reading

Ant077: Craggy Point, southwest Clarence Island

IBA criteria	A1, A4ii, A4iii
Coordinates	61°16' S, 54°10' W
Area	173.4 ha
Altitude	0 - < 250 m
Protection	None



Site description

Clarence Island is the easternmost of the South Shetland Islands, lying 30 km east of Elephant Island. The IBA comprises the ice-free coastline extending northward from Craggy Point in the south 3.5 km along the southwestern shoreline of Clarence Island.

The geology of Clarence Island is predominantly metamorphic of Mesozoic age (Marsh & Thomson, 1985). No other information is available on the environment at Craggy Point.

There are no research stations in the near vicinity, the closest being ~250 km to the southwest, on King George Island.

Birds

Approximately 10,370 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were recorded breeding at this site in 1977 (Croxall & Kirkwood 1979). In the same year around 3350 breeding pairs of Macaroni Penguin (*Eudyptes chrysolophus*) were recorded, making this the largest colony of this species in the Antarctic Peninsula region.

Southern Fulmars (*Fulmarus glacialoides*) are also confirmed breeders at Craggy Point. A count of Southern Fulmars over the whole of Clarence Island was estimated at 25,475 pairs in 1977, with breeding recorded at this site and at Fur Seal Point on the eastern coastline (Furse 1978).

Other threatened / endemic wildlife

None known.

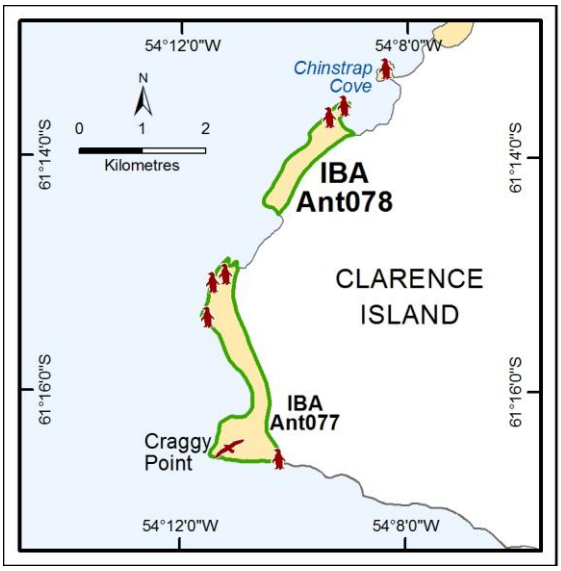
Conservation issues

None known.

Further reading

Ant078: Chinstrap Cove, Clarence Island

IBA criteria	A4iii
Coordinates	61°14' S, 54°10' W
Area	74.2 ha
Altitude	0 to < 250 m
Protection	None



Site description

Clarence Island is the easternmost of the South Shetland Islands, lying 30 km east of Elephant Island. Chinstrap Cove lies on the western shore of Clarence Island).

The IBA comprises all of the ice-free area south of Chinstrap Cove, extending around 2 km southwards along the coastline of Clarence Island.

Information on the environment at this site is not available. There are no research stations in the near vicinity, the closest being around 250 km to the southwest, on King George Island.

Birds

Approximately 19,500 pairs Chinstrap Penguin (*Pygoscelis antarctica*) were breeding on the ice-free area at the southern entrance point of Chinstrap Cove in 1977 (Croxall & Kirkwood 1979).

Other threatened / endemic wildlife

None known.

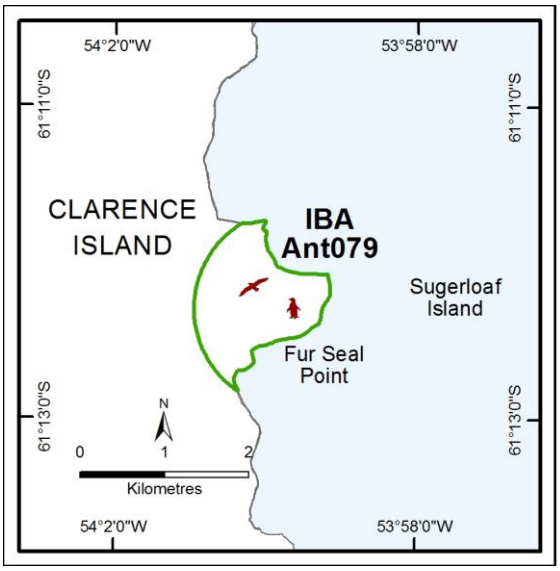
Conservation issues

None known.

Further reading

Ant079: Fur Seal Point, Clarence Island

IBA criteria	A4ii, A4iii
Coordinates	61°12' S, 54°00' W
Area	205.1 ha
Altitude	0 to < 500 m
Protection	None



Site description

Clarence Island is the easternmost of the South Shetland Islands, lying 30 km east of Elephant Island. Fur Seal Point (also referred to as Fur Seal Beach) lies mid-way along the eastern coast of Clarence Island, to the northwest of Sugarloaf Island.

Information on the environment at this site is not available. There are no research stations in the near vicinity, the closest being around 260 km to the southwest, on King George Island.

Birds

Approximately 57,500 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were recorded breeding at Fur Seal Point in 1977 along with two smaller breeding sites of 12,920 pairs and 30 pairs located offshore (Croxall & Kirkwood 1979).

Southern Fulmar (*Fulmarus glacioloides*) also breed at Fur Seal Point, one of the two known breeding sites for this species on Clarence Island, the other being at Craggy Point. Approximately 25,475 pairs Southern Fulmar were estimated over the whole of Clarence Island in 1977 (Furse 1978).

Other threatened / endemic wildlife

None known.

Conservation Issues

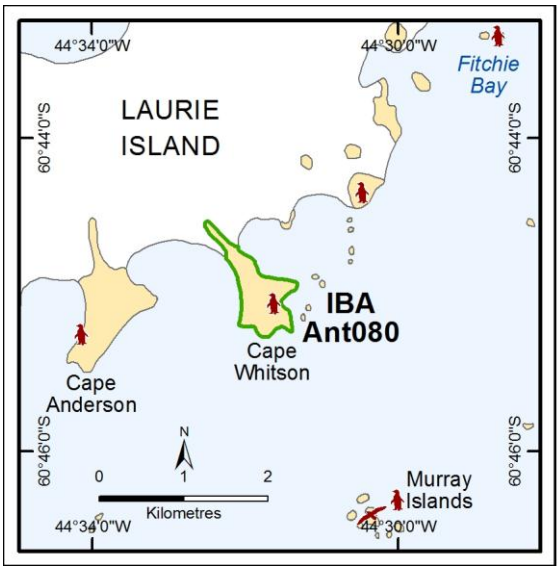
None known.

Further Reading

South Orkney Islands

Ant080: Cape Whitson, Laurie Island

IBA criteria	A4iii
Coordinates	60°45' S, 44°32' W
Area	56.6 ha
Altitude	0 to < 250 m
Protection	None



Whitson in 1994 (N. Coria, pers. comm.).

Other threatened / endemic wildlife

None known.

Conservation issues

None known.

Further reading

Site description

Laurie Island is the easternmost island of the South Orkney Islands. Cape Whitson is located on the south coast of the island. The IBA comprises the ice-free terrain of the headland at Cape Whitson, which extend for 1.5 km and separates Aitken Cove from Methuen Cove. The site covers 54 ha and has an elevation of less than 250 m.

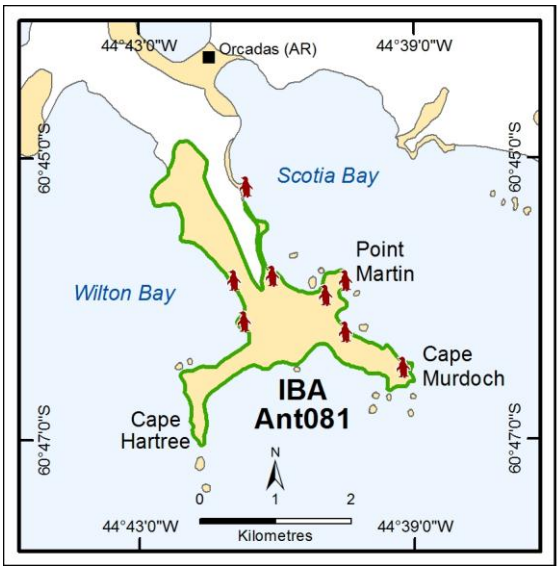
Information on the environment at Cape Whitson is not available. The nearest permanent scientific station is Orcadas (Argentina), located 9 km northwest of the site. Orcadas operates year-round with around 45 personnel present in summer and 14 in winter (COMNAP, Antarctic Facilities, accessed 01/09/2010).

Birds

Approximately 12,750 pairs of Chinstrap Penguins (*Pygoscelis antarctica*) were recorded breeding at Cape

Ant081: Point Martin, Laurie Island

IBA criteria	A4ii, A4iii
Coordinates	60°46' S, 44°41' W
Area	353.6 ha
Altitude	0 to < 250 m
Protection	None



Site description

Point Martin is located on the southern coast of Laurie Island, on a peninsula extending from the west side of Scotia Bay. The IBA comprises the ice-free area from Point Martin in the northeast to Cape Hartree in the southwest.

Information on the environment at the site is not available. The nearest research station is Orcadas (Argentina), located 1.2 km to the northeast of the northern limit of the IBA. See IBA Ant080 for information on this station.

Birds

Over 26,000 breeding pairs of Adélie Penguins (*Pygoscelis adeliae*) and 13,400 breeding pairs of Chinstrap Penguins (*P. antarctica*) were recorded at Point Martin in 1994 (N. Coria, pers. comm.).

Other threatened / endemic wildlife

None known.

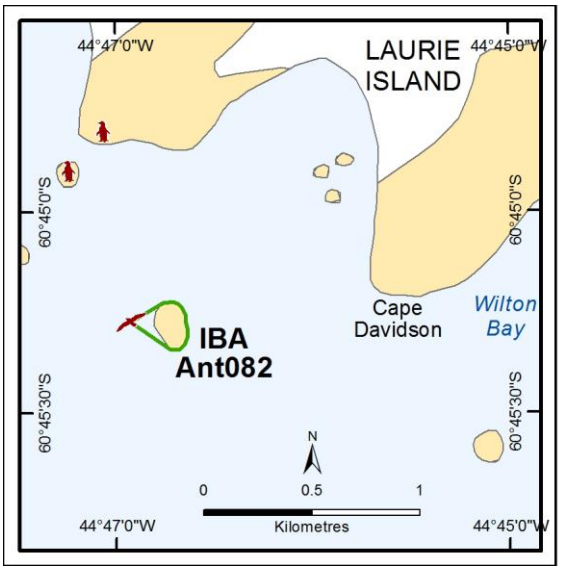
Conservation issues

None known.

Further reading

Ant082: Islet southwest of Cape Davidson, Laurie Island

IBA criteria	A4i
Coordinates	60°45' S, 44°47' W
Area	4.1 ha
Altitude	0 to < 250 m
Protection	None



Site description

Cape Davidson is located on the southwest coast of Laurie Island. The IBA comprises a small (2.8 ha) rocky islet lying ~1 km offshore from Cape Davidson.

Information on the environment at the site is not available. The nearest research station is Orcadas (Argentina) which is located 5 km to the east of the IBA. See IBA Ant080 for information on this station.

Birds

Approximately 225 pairs Imperial Shag (*Phalacrocorax atriceps*) were breeding on the islet in 1983 (Poncet & Poncet, unpublished data).

Other threatened / endemic wildlife

None known.

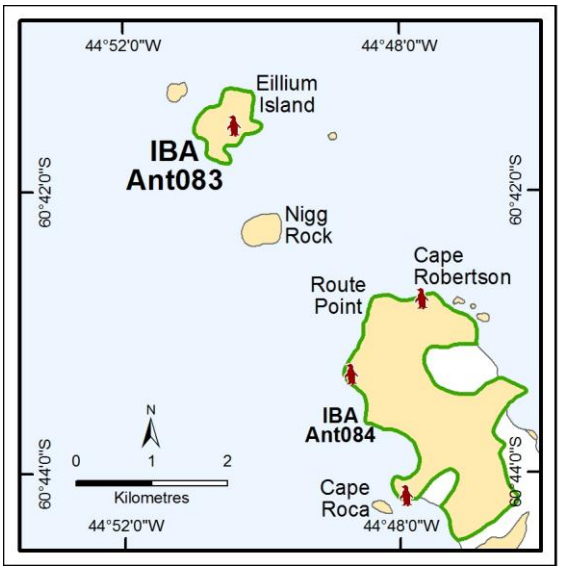
Conservation issues

Orcadas Station is located in close proximity, and station activities should take into account the presence of the IBA.

Further reading

Ant083: Eillium Island, Laurie Island

IBA criteria	A4iii
Coordinates	60°41' S, 44°51' W
Area	56.6 ha
Altitude	0 to < 250 m
Protection	None



Site description

Eillium Island is a small island lying 3 km northwest of Mackenzie Peninsula, the westernmost peninsula on Laurie Island.

Information on the environment at the site is not available. The nearest research station is Orcadas (Argentina) which is located less than 10 km to the southeast of the IBA. See IBA Ant080 for information on this station.

Birds

Approximately 21,400 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding at the site in 1983 (Poncet & Poncet 1985).

Other threatened / endemic wildlife

None known.

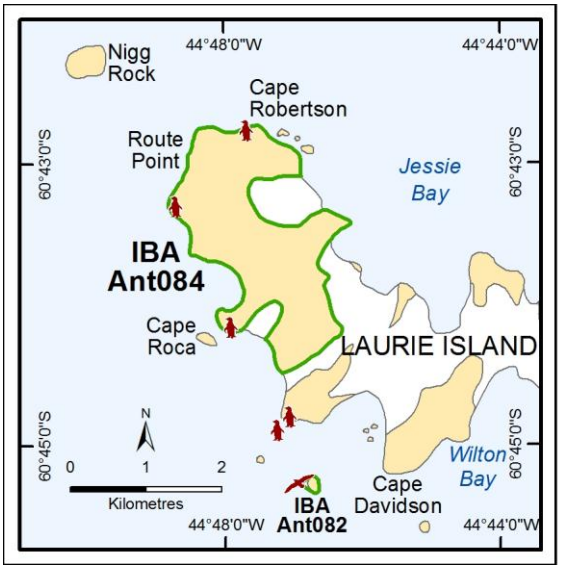
Conservation issues

None known.

Further reading

Ant084: Cape Robertson, Laurie Island

IBA criteria	A4iii
Coordinates	60°44' S, 44°47' W
Area	437.7 ha
Altitude	0 to < 500 m
Protection	None



Site description

Cape Robertson is located on the west coast of Laurie Island, at the northern tip of the Mackenzie Peninsula. The IBA extends from Cape Robertson to a coastal headland 1 km south of Cape Roca on the southern coastline of Laurie Island. The site incorporates an ice-free area of 414 ha and rises to over 250 m.

Information on the environment at the site is not available. The nearest research station is Orcadas (Argentina) which is located less than 5 km to the southeast of the IBA. See IBA Ant080 for information on this station.

Birds

Approximately 19,700 pairs of Chinstrap Penguins (*Pygoscelis antarctica*) were breeding at Cape Robertson in 1994 (N. Coria, pers. comm.), with a further 1300 pairs breeding along the coast between Cape Robertson and Cape Roca (Poncet & Poncet 1985).

Other threatened / endemic wildlife

None known.

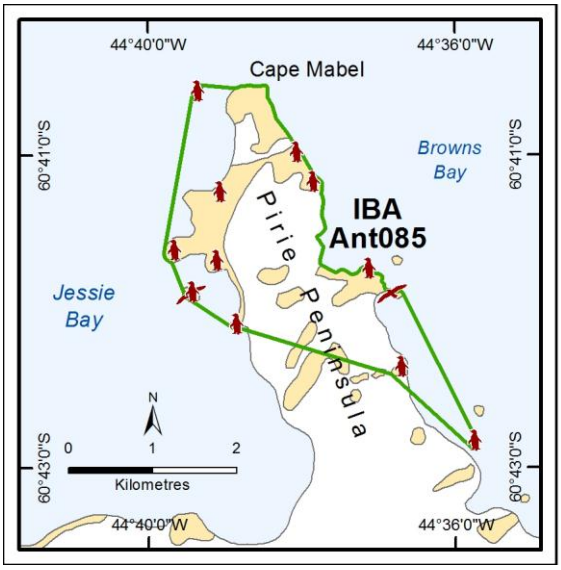
Conservation issues

Orcadas Station is located in close proximity, and station activities should take into account the presence of the IBA.

Further reading

Ant085: Pirie Peninsula, Laurie Island

IBA criteria	A4i, A4iii
Coordinates	60°42' S, 44°38' W
Area	690.4 ha
Altitude	< 500 m
Protection	None



Site description

Pirie Peninsula lies on the northern coast of Laurie Island, between Jessie Bay and Browns Bay. The IBA comprises all ice-free areas and offshore islands in the Pirie Peninsula area on which birds are known to breed, based on records collected in 1983 (Poncet & Poncet 1985). Pirie Peninsula rises to over 250 m and contains numerous small areas free from permanent snow or ice cover.

Information on the environment at Pirie Peninsula is not available. The nearest research station is Orcadas (Argentina) which is located 6 km to the southwest of the IBA. See IBA Ant080 for information on this station.

Birds

Approximately 14,270 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding at Pirie Peninsula in 1994 (N. Coria, pers. comm.). More than 170 pairs Imperial Shag (*Phalacrocorax atriceps*) were breeding in 1983 (Poncet & Poncet, unpublished data). Of these, 106 pairs were recorded on two islets off the western coast of Pirie Peninsula and 70 pairs were recorded at a skerry off the eastern coast. Approximately 3790 breeding pairs of Cape Petrel (*Daption capense*) were recorded at Pirie Peninsula in 1994 (N. Coria, pers. comm).

Other threatened / endemic wildlife

None known.

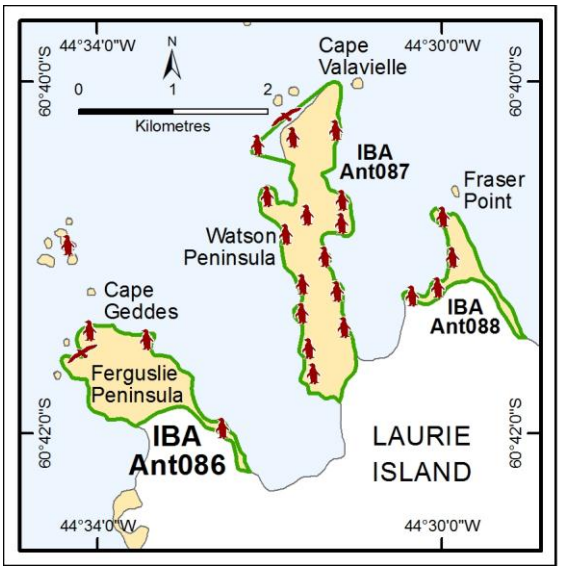
Conservation issues

Orcadas Station is located in close proximity, and station activities should take into account the presence of the IBA.

Further reading

Ant086: Ferguslie Peninsula, Laurie Island

IBA criteria	A4iii
Coordinates	60°42' S, 44°33' W
Area	113.4 ha
Altitude	0 to < 250 m
Protection	None



Site description

Ferguslie Peninsula lies on the northern coast of Laurie Island between Browns Bay and MacDougal Bay. The IBA comprises all of ice-free area on Ferguslie Peninsula, extending to Cape Geddes. Information on the environment at Ferguslie Peninsula is not available.

The nearest research station is Orcadas (Argentina) which is located 9 km to the southwest of the IBA. See Ant080 for information on this station.

Birds

Approximately 12,420 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding at the site in 1983, with colonies at Cape Geddes and on the east side of Ferguslie Peninsula (Poncet & Poncet 1985). Approximately 228 pairs of Southern Giant Petrel (*Macronectes giganteus*) were breeding at Cape Geddes in 1993 (Patterson *et al.* 2008).

Other threatened / endemic wildlife

None known.

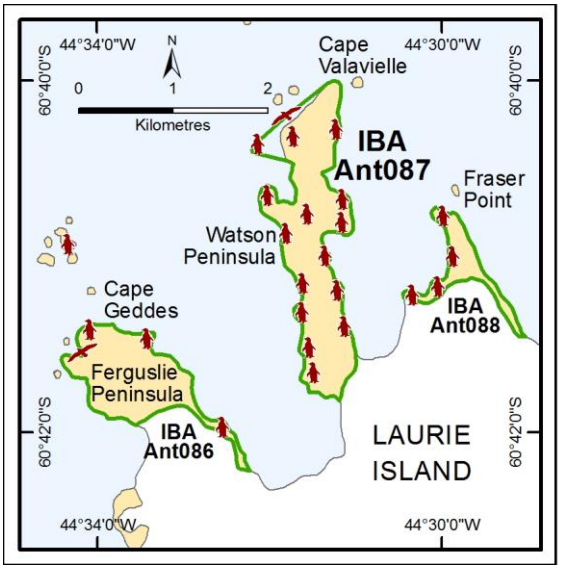
Conservation issues

None known.

Further reading

Ant087: Watson Peninsula, Laurie Island

IBA criteria	A4iii
Coordinates	60°41' S, 44°31' W
Area	203.7 ha
Altitude	< 250 m
Protection	None



Site description

Watson Peninsula is a largely ice-free headland extending for ~3.6 km to Cape Valavielle on the northern coast of Laurie Island, separating MacDougal Bay and Marr Bay. The IBA covers an area of 187 ha including all of the ice-free area of Watson Peninsula and a small island located 350 m off the northwestern shore.

Information on the environment at Watson Peninsula is not available. The nearest research station is Orcadas (Argentina), located 11 km to the southwest. See Ant080 for information on this station.

Birds

Approximately 3500 – 4000 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were recorded breeding on the eastern and western coasts of Watson Peninsula in 1948 (Croxall & Kirkwood 1979). Approximately 12,900 breeding pairs were recorded in 1994, suggesting a population increase at this site (N. Coria, pers. comm.). Approximately 462 pairs of Adélie Penguin (*Pygoscelis adeliae*) were recorded breeding on Watson Peninsula in 1994. A small Gentoo Penguin (*Pygoscelis papua*) colony is located midway along the west coast and constituted 10 breeding pairs in 1994. Southern Giant Petrel (*Macronectes giganteus*) also breed at the site, with 280 breeding pairs recorded in 2006 (ACAP Data Portal, accessed 02/09/2010).

Other threatened / endemic wildlife

None known.

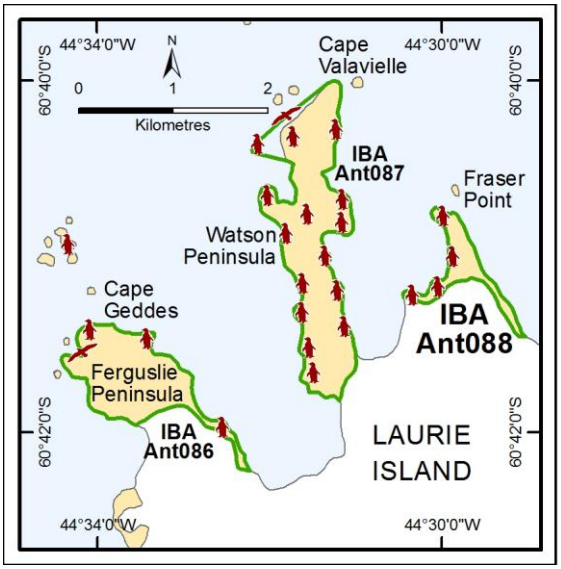
Conservation issues

None known.

Further reading

Ant088: Fraser Point, Laurie Island

IBA criteria	A4iii
Coordinates	60°41' S, 44°30' W
Area	36.3 ha
Altitude	0 to < 250 m
Protection	None



Site description

Fraser Point lies at the eastern extremity of Laurie Island, at the eastern entrance point to Marr Bay. The IBA comprises the ice-free area to the south of Fraser Point, including the eastern shoreline of Marr Bay and western shoreline of Mackintosh Cove.

Information on the environment at Fraser Point is not available.The nearest research station is Orcadas (Argentina) which is located 13 km to the west-southwest of the IBA. See Ant080 for information on this station.

Birds

Approximately 11,200 pairs of Chinstrap Penguins (*Pygsocelis antarctica*) were recorded breeding in 1983, on the shoreline of the ice-free ground on the eastern side of Marr Bay, south of Fraser Point (Poncet & Poncet 1985).

Other threatened / endemic wildlife

None known.

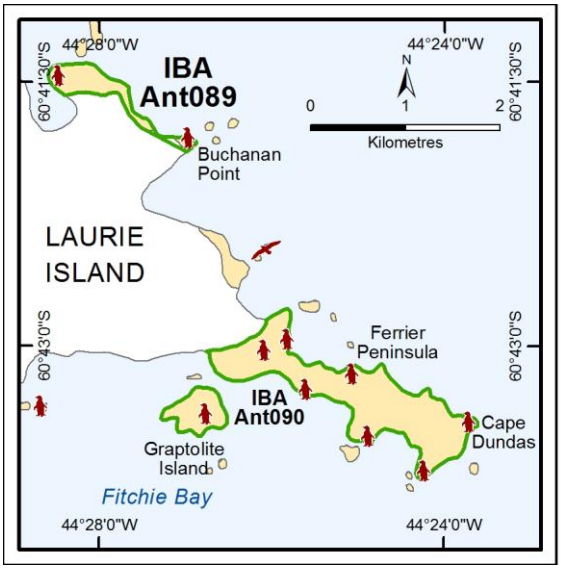
Conservation issues

None known.

Further reading

Ant089: Buchanan Point, Northeast coast of Laurie Island

IBA criteria	A4iii
Coordinates	60°42' S, 44°28' W
Area	31 ha
Altitude	0 to < 250 m
Protection	None



Mackintosh Cove.

Site description

Buchanan Point lies on the northeast coast of Laurie Island. The IBA comprises the ice-free coastal area between the eastern side of Mackintosh Cove and Buchanan Point,

Information on the environment at Buchanan Point is not available.The nearest research station is Orcadas (Argentina) which is located 15 km to the west. See Ant080 for information on this station.

Birds

Approximately 10,300 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were recorded breeding on the northeastern coast of Laurie Island in 1983 (Poncet & Poncet 1995). Of these, 6500 pairs were located at Buchanan Point, at the southern extent of the site, whilst a further 3800 pairs were breeding on the coastal area of

Other threatened / endemic wildlife

None known.

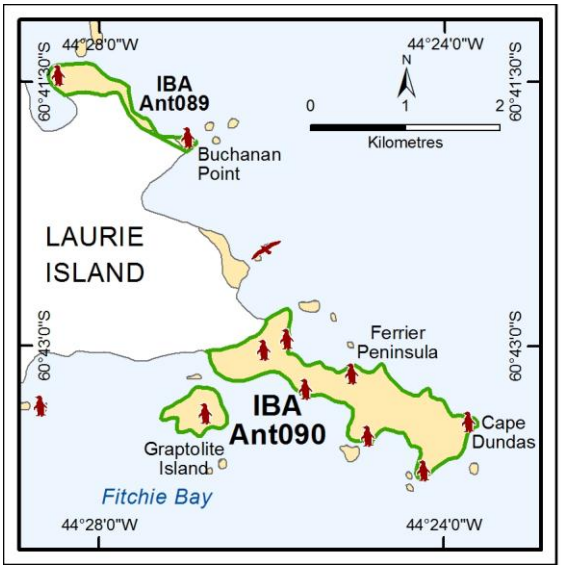
Conservation issues

None known.

Further reading

Ant090: Ferrier Peninsula / Graptolite Island, Laurie Island

IBA criteria	A4ii, A4iii
Coordinates	Ferrier Peninsula: 60°43' S, 44°25' W Graptolite Island: 60°43' S, 44°26' W
Area	157.2 ha / 25.1 ha
Altitude	0 to < 250 m
Protection	None



Site description

Ferrier Peninsula and Graptolite Island lie at the southeastern extremity of Laurie Island at Fitchie Bay. The IBA comprises the ice-free area on Ferrier Peninsula, which extends from the base of the peninsula to Cape Dundas and all of nearby Graptolite Island.

Information on the environment at Ferrier Peninsula and Graptolite Island is not available.The nearest research station is Orcadas (Argentina) which is located ~15 km to the west. See Ant080 for information on this station.

Birds

Approximately 61,000 pairs of Adélie Penguin (*Pygoscelis adeliae*) were recorded breeding on Ferrier Peninsula in 1983, most of which were nesting on the northern coast, and approximately 30,000 pairs were breeding on Graptolite Island (Poncet & Poncet 1985). Chinstrap Penguins (*Pygoscelis antarctica*) breed on both the northern and southern coasts of Ferrier Peninsula, comprising 14,200 pairs in 1983. Gentoo Penguins (*Pygoscelis papua*) were also recorded breeding on Ferrier Peninsula in 1947 (Poncet & Poncet 1985).

Other threatened / endemic wildlife

None known.

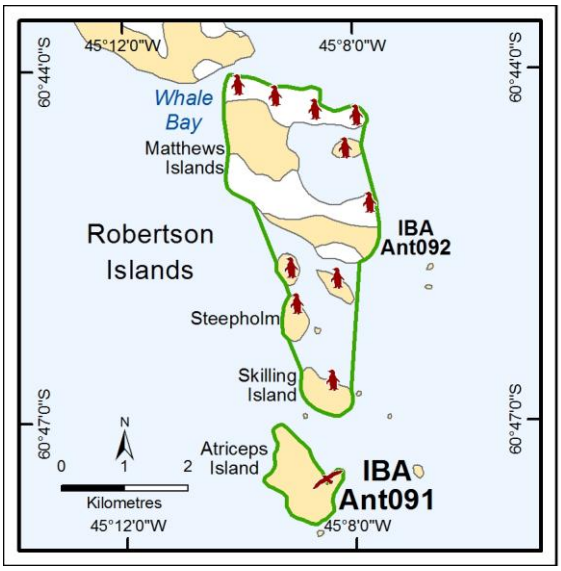
Conservation issues

None known.

Further reading

Ant091: Atriceps Island, Robertson Islands

IBA criteria	A4i
Coordinates	60°48' S, 45°09' W
Area	116.5 ha
Altitude	< 250 m
Protection	None



Site description

The Robertson Islands group is separated from the southernmost point of Coronation Island by Whale Bay and The Divide, and comprises (from north to south): Matthews Island, Coffer Island, Steepholm Island, Skilling Island and Atriceps Island. The IBA covers all of Atriceps Island, which has an area of 110 ha.

Atriceps Island is ice-free for most of the year and has a maximum elevation of less than 250 m. Information on the environment at Atriceps Island is not available.. Conditions at nearby Signy Island are characterised by relatively low temperatures and high winds, With mean summer air temperatures between –2°C to 3°C, whilst during winter the mean monthy air temperature ranges from –2°C to –17° C (ASPA No. 114 Management Plan, 2003).

The nearest research station is Signy (UK), a summer-only facility located on the eastern coast of Signy Island 27 km northwest of the IBA, and which has capacity to accommodate ~10 people (COMNAP, Antarctic Facilities, accessed 31/08/2010).

Birds

Approximately 524 pairs of Imperial Shag (*Phalacrocorax atriceps*) were recorded breeding on Atriceps Island in 1988.

Other threatened / endemic wildlife

None known.

Conservation issues

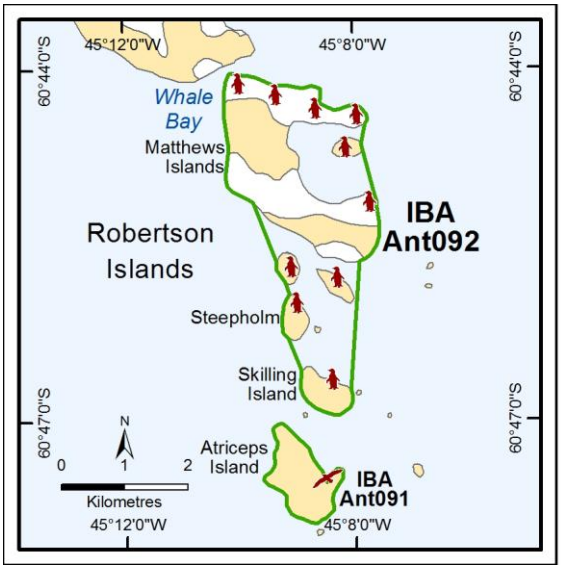
None known.

Further reading

ASPA No.111 Southern Powell Island, South Orkney Islands: Management Plan (1994).

Ant092: Robertson Islands North

IBA criteria	A4iii
Coordinates	60°45' S, 45°09' W
Area	908.2 ha
Altitude	0 to < 500 m
Protection	None



Site description

Matthews Island, Steepholm, Coffer Island and Skilling Island are part of the Robertson Islands group. Matthews Island is the largest of the Robertson Islands, rising to over 250 m at two summits in the northwest and south of the island,and partly covered in permanent ice. Other islands in the group reach an altitude of less than 250 m and have no permanent ice. The IBA comprises all islands and skerries lying north of Atriceps Island in the Robertson Islands group and the intervening marine area.

Information on the environment at the Roberson Islands is not available.. See Ant091 for information on meteorological records and facilities at Signy Station (UK), which is located 25 km to the northwest.

Birds

Approximately 35,000 breeding pairs of Chinstrap Penguins (*Pygoscelis antarctica*) were recorded in the Robertson Islands in 1983, with 14,750 pairs on Matthews Island, 2100 pairs on Coffers Island, 11,500 pairs on two islands south of Matthews Island and 6520 pairs on Steepholm and Skilling Islands combined (Poncet & Poncet 1985). In addition, Snow Petrels (*Pagodroma nivea*) breed in the area of The Divide (Croxall *et al.* 1995), a narrow channel separating Matthews Island from Coronation Island at the northern limit of the IBA.

Other threatened / endemic wildlife

None known.

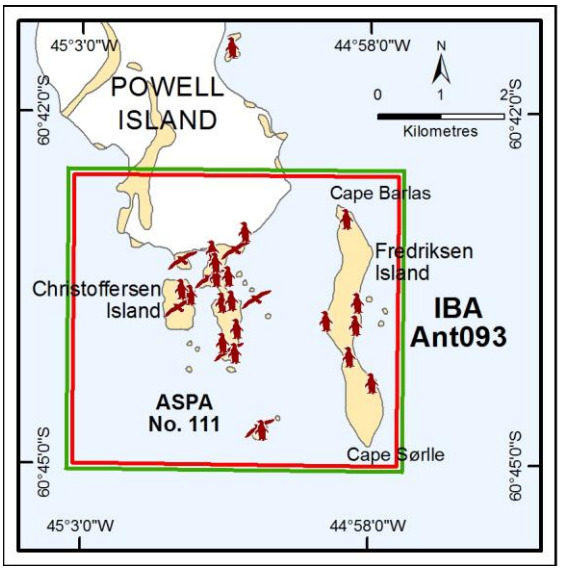
Conservation issues

None known.

Further reading

Ant093: Southern Powell Island and adjacent islands

IBA criteria	A1, A4i, A4ii, A4iii
Coordinates	60°44' S, 45°00' W
Area	2687.6 ha
Altitude	< c.375 m
Protection	ASPA No.111



Site description

Southern Powell Island is located 7 km east of the southwestern extremity of Coronation Island, between Lewthwaite Strait and Washington Strait, South Orkney Islands. The boundary of the IBA follows the boundary of Antarctic Specially Protected Area (ASPA) No. 111, comprising part of Powell Island to the south of John Peaks (375 m) and including Chistoffersen Island, Fredriksen Island, Michelsen Island, Grey Island and neighbouring unnamed islands lying offshore. Much of the land area at this site is ice-free in summer, but a few permanently ice-covered areas are present on southern Powell Island.

Vegetation at the site includes moss banks around Falkland Harbour (southern Powell Island), Christoffersen Island and northern Fredriksen Island, and extensive cover of the algae *Prasiola crispa*, associated with penguins breeding in the area (ASPA No. 111 Management Plan, 1995). Snow algae also grow on glaciated areas and snow patches around the site.

The nearest research station is Orcadas (Argentina), which lies ~17 km to the southeast on Laurie Island and operates year-round with accommodation for ~45 people in summer and a winter complement of ~14 people (COMNAP, Antarctic Facilities, accessed 01/09/2010). See Ant091 for information on meteorological records and facilities at Signy Station (UK), located 35 km to the west.

Birds

Southern Powell Island is one of the most populous sites for breeding birds in the South Orkney Islands. Over 8000 breeding pairs of Gentoo Penguin (*Pygoscelis papua*) were recorded in 1983, at several sites on southern Powell Island (5072 pairs), Michelsen Island (2175 pairs) and Christoffersen Island (710 pairs) (Poncet & Poncet 1985). In the same year, 16,750 pairs of Adélie Penguin (*Pygoscelis adeliae*) and 28,100 pairs of Chinstrap Penguin (*P. antarctica*) were recorded at the site. Adélie Penguins also breed on Michelsen Island (9000 pairs) and on southern Powell Island (7500 pairs), with a smaller colony on Christoffersen Island (250 pairs). The most abundant Chinstrap breeding site is on Fredriksen Island (21,320 pairs), while smaller colonies are located on southern Powell Island, the southern coast of Michelsen Island (4435 pairs) and on Grey Island (2350 pairs). Small numbers of Macaroni Penguin (*Eudyptes chrysolophus*) also breed among the Gentoo Penguins at the site (ASPA No. 111 Management Plan, 1995).

Southern Giant Petrel (*Macronectes giganteus*) breed on southern Powell Island and on Christoffersen and Michelsen islands, and were estimated at 613 breeding pairs in 1982–83 (Patterson *et al.* 2008). Other breeding birds include the Imperial Shag (*Phalacrocorax atriceps*) (144 breeding pairs nesting among Chinstrap Penguins on the northern coast of Grey Island in 1988), and the Snow Petrel (*Pagodroma nivea*), which breeds at Ellefsen Harbour, Michelsen Island and Fredricksen Island (Croxall *et al.* 1995). Kelp Gull (*Larus dominicanus*), Cape Petrel (*Daption capense*), Brown Skua (*Catharacta lonnbergi*) and Greater Sheathbill (*Chionis alba*) also breed at the site, and Antarctic Prion (*Pachyptila desolata*) and Black-bellied Storm-petrel (*Fregetta tropica*) are possible breeders (ASPA No. 111 Management Plan, 1995).

Other threatened / endemic wildlife

Antarctic Fur Seal (*Arctocephalus gazella*) breed on Michelsen Island, with 34 pups recorded on the island in 1994, indicating an upward trend in the breeding population since the 1950's (ASPA No. 111 Management Plan, 1995). Non-breeding mammals observed at the site include Southern Elephant Seal (*Mirounga leonina*), Weddell Seal (*Leptonychotes weddellii*) and occasionally Leopard Seal (*Hydrurga leptonyx*) and Crabeater Seal (*Lobodon carcinophagus*) (*ibid.*).

Conservation issues

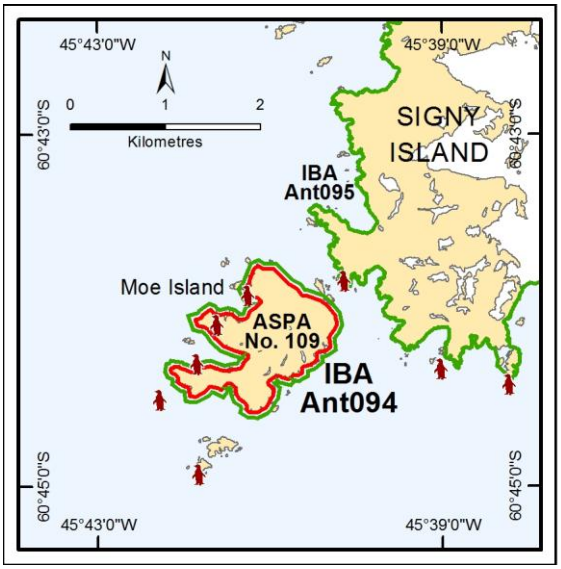
Southern Powell Island and its adjacent islands was designated as ASPA No. 111 to protect its flora and fauna, which is representative of the natural ecology of the South Orkney Islands, and an important breeding site for Antarctic Fur Seals (ASPA No. 111 Management Plan, 1995). In accordance with the management policy for ASPA No. 111, access the area is prohibted without a permit except for essential management or compelling scientific purposes.

Further reading

ASPA No.111 Southern Powell Island, South Orkney Islands: Management Plan (1994).

Ant094: Moe Island

IBA criteria	A4iii
Coordinates	60°44' S, 45°41' W
Area	137 ha
Altitude	0 – 226 m
Protection	ASPA No.109



Site description

Moe Island is a small, low-lying island with an irregular coastline located ~300 m southwest of Signy Island. Moe Island is designated as Antarctic Specially Protected Area (ASPA) No. 109. the IBA comprises all of Moe Island (excluding offshore rocks) and coincides with the boundary of ASPA No. 109.

Moe Island has a rugged and steep coastline, and rises to an elevation of 226 m at Snipe Peak. The island is dominated by metamorphic quartz mica schists and a large proportion of the island is covered by glacial drift and scree. Immature soil deposits are intermixed with gravel, stones and large rocks. Vegetation includes moss banks of *Andreaea - Usnea* and *Chorisodontium - Polytrichum* associations, the latter being the largest of its type in Antarctica (ASPA No. 109 Management Plan, 2007).

The nearest research station is Signy (UK), located ~5 km to the northeast. See IBA Ant091 for information on the meteorology and facilities at this station.

Birds

Approximately 11,000 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were recorded breeding in 1978-79 (Woehler 1993). However, the Chinstrap population may have since decreased, with ~1100 pairs recorded in February 1994 and ~ 100 pairs in January 2006 (ASPA No. 109 Management Plan, 2007). About 2000 pairs of Cape Petrel (*Daption capense*) were recorded breeding in 14 colonies on the island in 1966 and a large number of Antarctic Prion (*Pachyptila desolata*) also nest at the site (ASPA No. 109 Management Plan, 2007). Snow Petrels (*Pagodroma nivea*) were recorded breeding on Moe Island in 1957-58 when the colony comprised 34 breeding pairs (Croxall *et al.* 1995).

Other threatened / endemic wildlife

Weddell Seals (*Leptonychotes weddellii*), Crabeater Seals (*Lobodon carcinophaga*), Leopard Seals (*Hydrurga leptonyx*) and Antarctic Fur Seals (*Arctocephalus gazella*) are regularly observed hauled out in bays along the western shore of Moe Island (ASPA No. 109 Management Plan, 2007).

Conservation issues

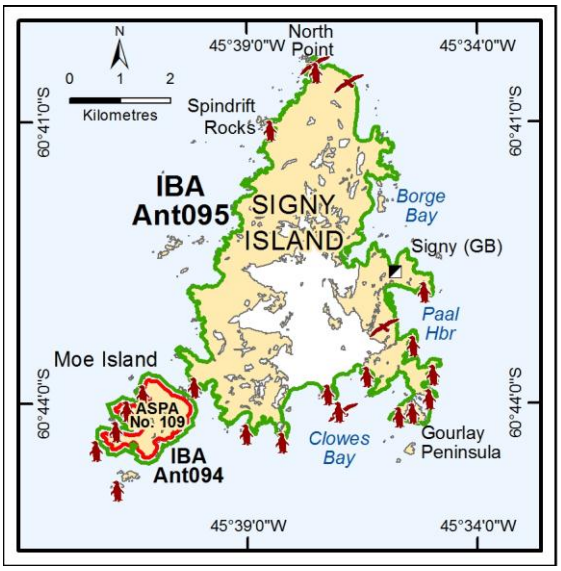
Moe Island was designated as ASPA No. 109 to protect its near pristine natural environment, which is representative of a maritime Antarctic ecosystem (ASPA No. 109 Management Plan, 2007). Access to Moe Island is prohibted except for essential management or compelling scientific purposes. As such, visitor numbers human impacts are low. An increase in the Antarctic Fur Seal (*Arctocephalus gazella*) breeding population on nearby Signy Island has substantially altered the terrestrial environment in areas where seals are able to gain access, which may also impact on bird breeding habitats. Damage to moss banks by seals has been observed on the most northerlysites on Moe Island. However, the steep topography of the site offers some protection to sensitive areas.

Further reading

ASPA No.109 Moe Island, South Orkney Islands: Management Plan.

Ant095: Signy Island

IBA criteria	A4i, A4ii, A4iii
Coordinates	60°43' S, 45°38' W
Area	2198 ha
Altitude	< 278 m
Protection	None



Site description

Signy Island lies 1.6 km southwest of Cape Hansen on the south coast of Coronation Island. The IBA comprises all of Signy Island and several offshore islands including Confusion Island, Oliphant Islands, Spindrift Rocks and Shagnasty Island.

Almost half of Signy Island is covered by a permanent ice cap, with the highest point on the island being Tioga Hill (278 m). The coastline is dominated by exposed crags,and rocky headlands, with intervening bouldery slopes and sizeable moss banks (Tickell 1962). There are 16 lakes on the island and several glaciers, the largest of which is McLeod Glacier which terminates on the southern coast.

Extensive *Chorisodontium – Polytrichum* moss turfs occur particularly on the northwest coast of Signy Island, forming primary breeding habitat for burrowing petrels (R. Fijn, pers. comm. 2011). Other flora on Signy Island includes the Antarctic hairgrass (*Deschampsia antarctica*) and Antarctic pearlwort (*Colobanthus quitensis*), ~50 moss species, ~12 liverworts and ~120 lichen species (BAS, *Signy Island Research Station*, accessed 02/09/2010). Algae and cyanobacteria have also been observed in wetter sites on the island (Broady 1979).

Signy Research Station (UK) is located midway along the eastern shoreline of Signy Island, on the southern side of Borge Bay. The facility supports mainly biological research, including for long-term ecosystem monitoring and climate studies. The station accommodates ~8 people (COMNAP, Antarctic Facilities, accessed 31/08/2010).

The winter climate on Signy Island is influenced by pack ice which extends to surround the island from the Weddell Sea. Over the summer the pack ice retreats and Signy Island has a typically maritime climate. Mean summer air temperatures are between –2°C to 3°C, whilst during winter the mean monthy air temperature ranges from –2°C to –17° C (ASPA No. 114 Management Plan, 2003). Meteorological records for Signy Station show strong winds are frequent, prevailing from the west (BAS, *Signy Island Research Station,* accessed: 02/09/2010). The minimum winter temperature on record is –39.3°C whilst in summer, temperatures range from – 7°C to 19.8°C.

Birds

An exceptionally diverse range of seabirds and waterbirds breed on Signy Island, including three species of penguin, four petrel species, two storm petrel species, shags, sheathbills, two species of skua, gulls and terns.

Approximately 19,530 breeding pairs of Chinstrap Penguins (*Pygoscelis antarctica*) breed on Signy Island (BAS unpublished data, 2010), with the most concentrated breeding sites on Gourlay Peninsula, an ice-free gently sloping peninsula on the southeast side of Signy Island; Pandomonium Point, on the southwest coast of Signy Island; Confusion Island, 100 m off the south of the island; and North Point (Croxall & Kirkwood 1979). This recent count is likely to be an under-estimate of typical Chinstrap breeding numbers, since this

season was reportedly a poor one for this species (M. Dunn, pers. comm. 2011). Approximately 16,900 pairs of Adélie Penguins (*Pygoscelis adeliae*) also breed at Gourlay Peninsula and North Point (Dunn *et al.* 2010), and 753 pairs of Gentoo Penguin were recorded breeding for all Signy Island in 2010 (BAS unpublished data, 2010). Macaroni Penguins have not been recorded breeding on Signy Island or its offshore islands for many years, and were last observed breeding in low numbers (11 pairs) in 1979 (Woehler 1993).

Imperial Shags (*Phalacrocorax atriceps*) breed on ledges of low cliffs on the north coast of Signy Island and constituted 280 pairs in 2006-07 (R. Fijn pers. comm. 2011). Three larger groups of Imperial Shag may breed on flat or shallow-sloping areas on two islets near Shagnasty Island, as Rootes (1988) reported a total of 729 pairs in this area in the mid 1980s, although more recent data on these colonies is not available.

The latest survey in 2005-06 revealed 2351 pairs of Southern Giant Petrel (*Macronectes giganteus*) breeding on Signy Island, predominantly on the western coast. Approximately 1093 breeding pairs were recorded at North Point, G.P. Ridge and Borge Bay in 1984 (Patterson *et al.* 2008).

High numbers of Wilson's Storm-petrel (*Oceanites oceanicus*) breed on Signy Island in crevices and between boulders in ice-free areas, and it has been estimated that up to 200,000 breeding pairs were present on the island in 1966-68 (Beck & Brown 1972). It was also estimated that approximately 50,000 pairs of Antarctic Prion (*Pachyptila desolata*) breed on Signy Island, concentrated at Borge Bay on the eastern coastline close to Signy Station (Tickell 1962). However, accurate counts of these species are difficult and numbers are approximate.

Approximately 100 pairs of Brown Skua (*Catharacta lonnbergi*) and a small number of South Polar Skua (*Catharacta maccormicki*) breed on Signy Island (Ritz *et al.* 2005). In addition, 195 pairs of Snow Petrel (*Pagodroma nivea*) were recorded breeding on Signy Island in 1985 (Croxall *et al.* 1995).

Other birds breeding on Signy Island include the Cape Petrel (*Daption capense*), Greater Sheathbill (*Chionis alba*), Kelp Gull (*Larus dominicanus*), Antarctic Tern (*Sterna vittata*) and Black-bellied Storm-petrel (*Fregetta tropica*) (BAS: *Signy Island Research Station*, 2010).

Other threatened / endemic wildlife

Antarctic Fur Seals (*Arctocephalus gazella*) haul out in large groups around the coast of Signy Island, concentrated on the eastern and southern coastline, with an estimated 12,245 individuals present in February 2009 (BAS unpublished data, 2009), although numbers vary and reached over 21,000 individuals in 1994 (Waluda *et al*. 2009). Weddell Seals breed on the sea-ice around Signy Island over the winter months, and Southern Elephant Seals (*Mirounga leonina*) have been observed pupping in spring (BAS, *Signy Island Research Station*, accessed 22/09/2010). In 2009, 309 Southern Elephant Seals and 5 Weddell Seals (*Leptonychotes Weddelli*) were observed hauled out on Signy Island (BAS unpublished data, 2010).

Conservation issues

A long-term penguin monitoring program is conducted at Signy Island as part of the CCAMLR Ecosystem Monitoring Programme (CEMP). The three species of penguins are surveyed annually to determine population size, breeding success, and diet. Populations of Chinstrap and Adélie Penguins have declined substantially over the past three decades. The decrease in Adélie Penguin numbers between 1987 and 2010 is possibly linked to regional warming and changes in sea ice extent experienced over the same time period (Forcada *et al.* 2006).

Further reading

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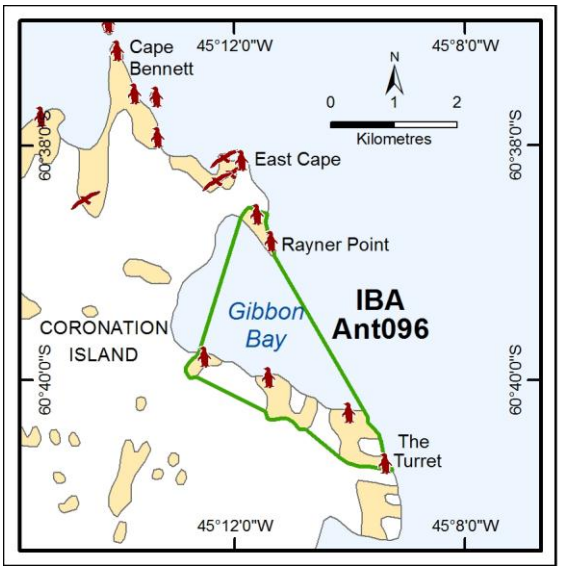
Ant096: Gibbon Bay, Coronation Island

IBA criteria	A4iii
Coordinates	60°40' S, 45°11' W
Area	615.3 ha
Altitude	0 to < 500 m
Protection	None



Site description

Gibbon Bay lies between Rayner Point and The Turret, bordering an east-facing coastline on the northwestern coast of Coronation Island. The IBA comprises ice-free areas along the shoreline of Gibbon Bay, including the intervening marine and ice-covered areas.

Information on the environment at Gibbon Bay is not available. In contrast to Signy Island, northern Coronation Island is more susceptible to fog as a result of moisture-heavy prevailing north-westerly winds rising over the permanently ice-covered mountains on Coronation Island.

The nearest research station to the site is Signy (UK) , located on the east side of Signy Island. See Ant095 for more information on this station.

Birds

Approximately 13,210 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were recorded breeding along the shoreline of Gibbon Bay in 1983 (Woehler 1993) on ice-free areas at Rayner Point, The Turret and along the shoreline between these two headlands. Snow Petrels (*Pagodroma nivea*) are reported to breed in at least three locations along the shore of Gibbon Bay (Croxall *et al.* 1995).

Other threatened / endemic wildlife

None known.

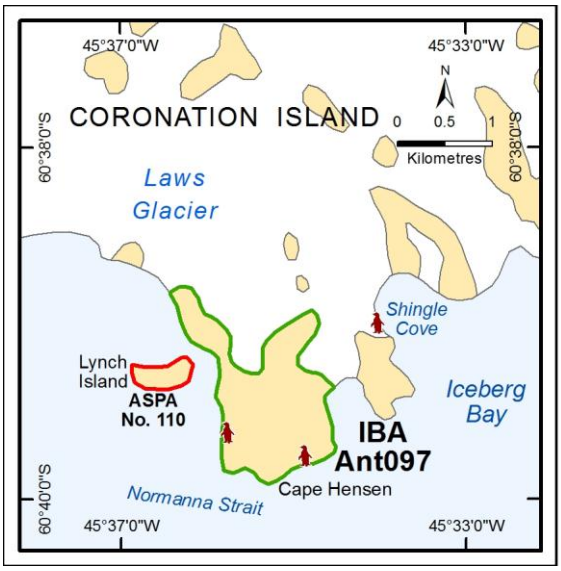
Conservation issues

None known.

Further reading

Ant097: Cape Hansen, Coronation Island

IBA criteria	A4iii
Coordinates	60°39' S, 45°35' W
Area	194.2 ha
Altitude	0 to < 500 m
Protection	None



Site description

Cape Hansen is located on the southern coast of Coronation Island. The IBA comprises the ice-free area of Cape Hansen between Marshall Bay and Iceberg Bay.

Information on the environment at Cape Hansen is not available. The nearest research station is Signy (UK), located ~1.5 km southwest of Cape Hansen. See Ant095 for more information on this station.

Birds

Approximately 13,381 pairs of Adélie Penguin (*Pygoscelis adeliae*) were recorded breeding close to Shingle Cove at Cape Hansen in 2003 (Lynch *et al.* 2008). A small number of Brown Skua (*Catharacta lonnbergi*) breed among the penguins; 4 breeding pairs were counted in 2003 (H. Lynch, pers. comm., 2010), and a colony of Chinstrap Penguins (*Pygoscelis antarctica*) was possibly present at the site in 1965 (Croxall & Kirkwood 1979).

Other threatened / endemic wildlife

None known.

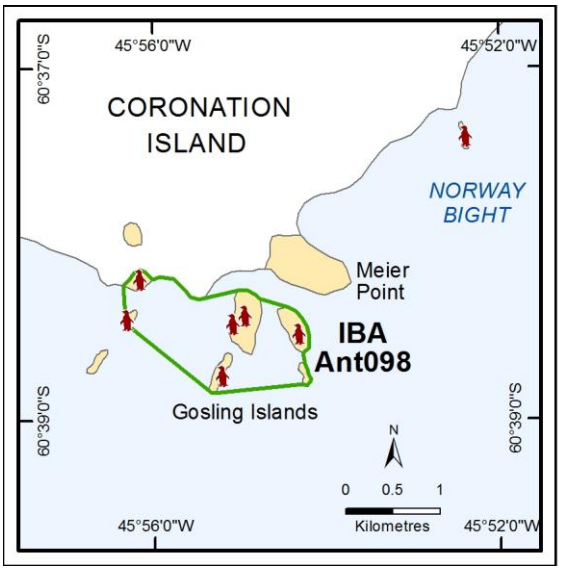
Conservation issues

None known.

Further reading

Ant098: Gosling Islands area, Coronation Island

IBA criteria	A4iii
Coordinates	60°38' S, 45°55' W
Area	190.1 ha
Altitude	< 250 m
Protection	None



Site description

The Gosling Islands are a small archipelago located several hundred metres off the southwestern coast of Coronation Island, west of Meier Point. The IBA comprises the Gosling Islands and a nearby ice-free headland on the southwestern coast of Coronation Island.

Information on the environment at the Gosling Islands is not available. The nearest research station is Signy (UK), located 16 km southeast of the Gosling Islands. See Ant095 for information on the environment and facilities at this station.

Birds

Approximately 10,764 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were breeding on the Gosling Islands and adjacent ice-free areas on the southern shoreline of Coronation Island in 1984 (Poncet & Poncet 1985). Approximately 8523 Adélie Penguin (*Pygoscelis adeliae*) chicks were also recorded in the Gosling Islands area in 1984 (Poncet & Poncet 1985).

Other threatened / endemic wildlife

None known.

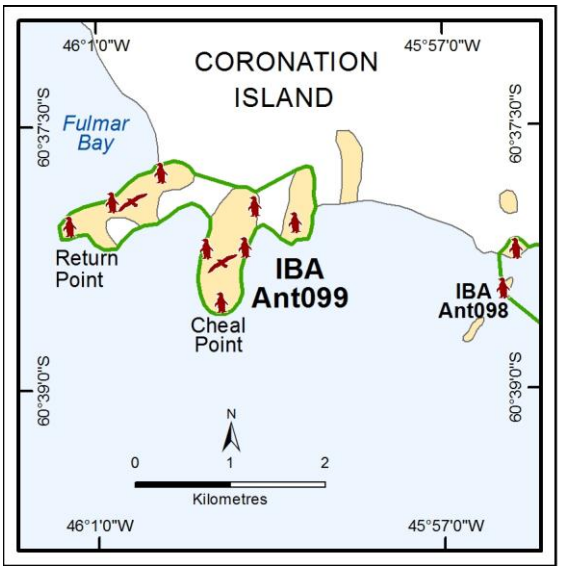
Conservation issues

None known.

Further reading

Ant099: Return Point & Cheal Point, Coronation Island

IBA criteria	A4iii
Coordinates	60°38' S, 46°00' W
Area	193.8 ha
Altitude	0 to < 250 m
Protection	None



Site description

Return Point and Cheal Point are located on the southwestern coast of Coronation Island, between Moreton Point and the Gosling Islands. The IBA comprises three large ice-free areas at Return Point, Cheal Point and to the east of Cheal Point.

Information on the environment at Return Point and Cheal Point is not available.. The nearest research station is Signy (UK), located 24 km southeast of the IBA. See Ant095 for information on the environment and facilities at this station.

Birds

Approximately 38,100 pairs of Chinstrap Penguins (*Pygoscelis antarctica*) were recorded breeding on ice-free areas on and around Return Point and Cheal Point in 1984 (Poncet & Poncet 1985).

Southern Fulmars (*Fulmarus glacialoides*) are also confirmed breeders at the site, with many thousands recorded at Cheal Point and Return Point in 1984 (Poncet & Poncet, unpublished data).

Other threatened / endemic wildlife

None known.

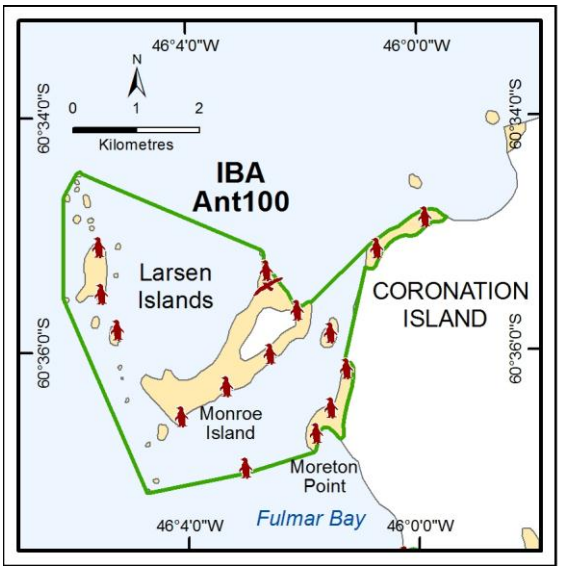
Conservation issues

None known.

Further reading

Ant100: Moreton Point, Monroe Island and Larsen Islands, western Coronation Island

IBA criteria	A4iii
Coordinates	60°36' S, 46°03' W
Area	1805.2 ha
Altitude	0 to < 500 m
Protection	None



Site description

Moreton Point lies on the western coast of Coronation Island. The Larsen Islands, of which Monroe Island is the largest, lie several kilometres west of Moreton Point. . The IBA includes the ice-free area at Moreton Point, all of the Larsen Islands and an adjacent ice-free area on the northwestern coast of Coronation island.

Information on the environment at Moreton Point and the Larsen Islands is not available.. The nearest research station is Signy (UK), located 27 km southeast of the IBA. See Ant095 for information on the environment and facilities at this station.

Birds

Data on some bird species breeding within the IBA are only available in aggregate for the whole of this area. Approximately 125,000 pairs of Chinstrap Penguin (*Pygoscelis antarctica*) were estimated breeding on Moreton Point and Monroe Island based on a survey from a ship anchored in Sandefjord Bay, with birds nesting on "every available surface" (Lynch, pers comm, 2010). Approximately 24,200 pairs of Chinstrap Penguin were recorded breeding at at three locations on Moreton Point in 1984 (Poncet & Poncet 1985) . Approximately 28,000 pairs of Chinstrap Penguins were recorded breeding on the eastern and northern shorelines of Monroe Island and at an island 250 m east of Monroe Island in 1984 (Poncet & Poncet 1985). Approximately 10,000 breeding pairs of Chinstrap Penguins (*Pygoscelis antarctica*) were also recorded in the Larsen Island area in 1984 (Poncet & Poncet 1985), at the southern and northern coast of Larsen Island and on an island located 450 m south of Larsen Island.

An estimated 125,000 Southern Fulmar (*Fulmarus glacialoides*) breed on the northern and eastern coasts of Monroe Island (Poncet & Poncet, unpublished data), and on the western coast of Coronation Island and coastal cliffs above Sandefjord Bay generally (Creuwels *et al.* 2007). Snow Petrel (*Pagodroma nivea*) are also confirmed breeders in Sandlefjord Bay (Croxall *et al.* 1995).

Other threatened / endemic wildlife

None known.

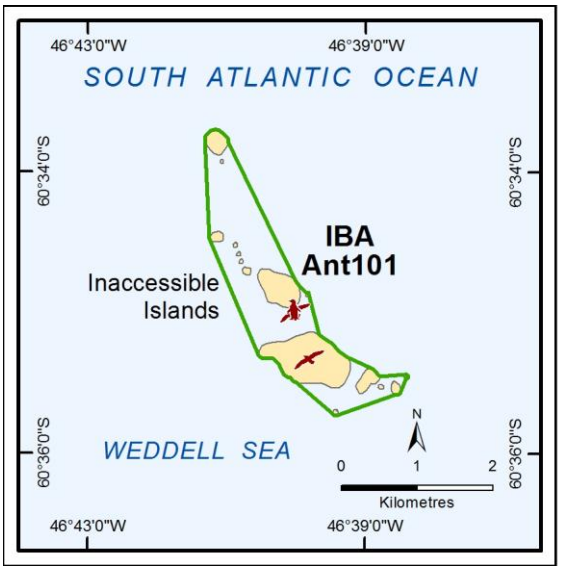
Conservation issues

None known.

Further reading

Ant101: Inaccessible Islands

IBA criteria	A4ii, A4iii
Coordinates	60°35' S, 46°40' W
Area	348 ha
Altitude	< 250 m
Protection	None



Site description

Inaccessible Islands are the most westerly of the South Orkney Islands. They are located 35 km west of Coronation Island and comprise three main islands and numerous offshore skerries. The IBA comprises all islands and offshore rocks in the Inaccessible Islands group and the intervening marine area, covering ~329 ha.

Information on the environment at the Inaccessible Islands is not available.. The nearest research station is Signy (UK), located 62 km southeast of the IBA. See Ant095 for information on the environment and facilities at this station.

Birds

Southern Fulmar (*Fulmarus glacialoides*) are the most abundant bird species present at the Inaccessible Islands, with tens of thousands of pairs recorded breeding on the northern coast of islands and islets in 1986 (Poncet & Poncet, unpublished data). Chinstrap Penguin (*Pygoscelis antarctica*) also breed on the larger islands, and approximately 1000 breeding pairs were recorded in 1986. Approximately 100 breeding pairs of Imperial Shag (*Phalacrocorax atriceps*) were also recorded on the northern coast of the more southerly of the large islands in the Inaccessible Islands group in 1986.

Other threatened / endemic wildlife

None known.

Conservation issues

None known.

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