

Management Plan For Antarctic Specially Protected Area No. 104 SABRINA ISLAND, BALLENY ISLANDS, ANTARCTICA

1. Description of values to be protected

Sabrina Island, in the Balleny Island archipelago, was originally designated as Specially Protected Area (SPA) No. 4 in Recommendation IV-4 (1966) on the grounds that “the Balleny Islands, as the most northerly Antarctic land in the Ross Sea region, supports a fauna and flora which reflects many circumpolar distributions at this latitude and that Sabrina Island in particular provides a representative sample of this fauna and flora.” The site was re-designated Antarctic Specially Protected Area (ASPA) No. 104 in Decision 1 (2002). A Management Plan was prepared and adopted in Measure 3 (2009) which included Sabrina Island, 'Chinstrap Islet' and The Monolith.

The primary reason for the designation of Sabrina Island as an Antarctic Specially Protected Area is to protect the outstanding ecological values, specifically the biological diversity which is unique for the Ross Sea region.

The Balleny Islands, discovered in February 1839 by John Balleny who was a British sealer, are located approximately 325 km north of the Pennell and Oates Coasts. They are composed of three main islands, Young, Buckle and Sturge Islands, and several smaller islets that form a northwest-southeast island archipelago about 160 kilometres between 66° 15'S to 67° 10'S and 162° 15'E and 164° 45'E (Map 1). The Balleny Islands are the only truly oceanic islands (rather than continental islands) on the Ross Sea side of Antarctica with the exception of Scott Island, which is approximately 505 kilometres northeast of Cape Adare. The archipelago is located within the main Antarctic Circumpolar Current. As such, they provide an important resting and breeding habitat for seabird and seal species and are significant in circumpolar distribution for a variety of species (see Tables 1 and 2, Appendix 1).

Sabrina Island, 'Chinstrap Islet' and The Monolith are located approximately 3 kilometres south south-east of Buckle Island. These islands are the only known breeding site for Chinstrap penguins (*Pygoscelis antarctica*) between Bouvetoya and Peter I Islands (a span of 264° longitude), with the majority of breeding pairs found on Sabrina Island. In addition, this population co-exists with a much larger Adélie penguin (*P. adeliae*) colony where normally the two species breeding ranges are completely separate – except where some colonies overlap near the tip of the Antarctic Peninsula on the South Shetland Islands, and further north on the South Orkney Islands.

Sabrina Island's Adélie colony is of particular importance because it is the largest in the archipelago (and has the majority of the Chinstrap breeding pairs), and because the population is thought to be increasing. Being isolated and prone to difficult weather and ice conditions, the Balleny Islands have been subjected to very little human disturbance, with the exception of the Southern Ocean fisheries.

2. Aims and Objectives

Management of Sabrina Island aims to:

- avoid degradation of, or substantial risk to, the values of the Area by preventing unnecessary human disturbance to the Area;

- prevent or minimise the introduction to the Area of alien plants, animals and microbes;
- preserve the natural ecosystem as a reference area largely undisturbed by direct human activities;
- avoid disturbance to the Chinstrap penguin colony, which is anomalous in terms of species distribution, by preventing unnecessary sampling;
- allow scientific research in the Area provided it is for compelling reasons which cannot be served elsewhere and which will not jeopardize the natural ecological system in the Area;
- allow visits for management purposes in support of the aims of the Management Plan.

3. Management activities

The following management activities shall be undertaken to protect the values of the Area:

- Copies of this Management Plan shall be made available to vessels operating in the vicinity of the Area.
- National programs shall ensure the boundaries of the Area and the restrictions that apply within are marked on relevant maps and marine charts for which they are responsible.
- The Area shall be visited as necessary to assess whether it continues to serve the purposes for which it was designated and to ensure that management activities are adequate.

4. Period of Designation

Designated for an indefinite period.

5. Maps and photographs

Map 1- ASPA 104: Sabrina Island, Balleny Islands, Antarctica. Regional Map.
Datum: WGS84; Projection: Antarctica Polar Stereographic; Data Source Main Map and Inset: SCAR Antarctic Digital Database, Version 6, 2012.

Map 2 – ASPA 104: Sabrina Island, Balleny Islands, Antarctica. Boundary, Access and Features.
Datum: WGS84; Projection: UTM Zone 58 South; Data Source: Imagery from Digital Globe, WorldView – 1 Satellite, Acquired on 14 January, 2011, 50 cm resolution. Features captured by Land Information New Zealand.

Inset oblique photography obtained December 2014 by the Royal New Zealand Air Force (RNZAF).

6. Description of the Area

6(i) Geographical coordinates, boundary markers and natural features

Location and general description:

The Balleny Islands are located around 325 km north of the Pennell and Oates Coasts (Map 1). The Islands are the exposed portion of a volcanic seamount chain. There are three main islands and a number of smaller islets and exposed rocks. Sabrina Island is located at 66°55 S, 163°19 E, three kilometres off the southern end of Buckle Island (the central of the main islands). It is less than 2 km

across and reaches an estimated height of 180 m above sea level. A volcanic plug approximately 80 m high, named The Monolith, is attached to the southern end of Sabrina Island by a boulder spit. A small islet lies to the north east of Sabrina Island, commonly known as 'Chinstrap Islet'.

Boundaries:

The ASPA comprises all of Sabrina Island, The Monolith, and 'Chinstrap Islet' above sea level, at low tide (Map 2). The marine area is not included with the ASPA.

Natural Features:

Approximately a quarter of Sabrina Island is covered in permanent snow and ice, and an ice foot meets the sea at the northern end. A steep ridge runs across the island, with scoria slopes to the east and south. Sheer cliffs form the majority of the island's coast except for a cobble beach in the south west.

The scoria slopes to the east of the central ridge on Sabrina Island are occupied by Adélie and Chinstrap penguin nests. The birds access their nesting sites via the beach to the south west of the island. Sabrina Island has the largest penguin colony of the Balleny Island penguin colonies with approximately 3,770 Adélie breeding pairs recorded in 2000; and 202 Chinstrap adults and 109 chicks in 2006. 'Chinstrap Islet' had 2,298 penguin breeding pairs in 2000, with approximately 10 Chinstrap pairs recorded on the Islet in 1965 and 1984.

Cape petrels (*Daption capense*) were seen nesting on Sabrina Island in 2006 and also on the southern side of The Monolith in 1965 (although this has not been confirmed by more recent expeditions). Individual Macaroni penguins (*Eudyptes chrysolophus*) have been sighted on Sabrina Island (1964, possible sighting 1973).

Various species of algae (including Myxophycophyta, Xanthophyceae (*Tribonema spp.*) and Chlorophycophyta (*Prasiola spp.*)) have been recorded on Sabrina Island. Chromogenic (bright yellow) bacteria, yeasts, 14 species of filamentous fungi, two species of thermophilous fungi (*Aspergillus fumigatus* and *Chaetomium gracile*), mites (*Stereotydeus mollis*, *Nanorchestes antarcticus*, *Coccorhgidia spp.*) and nematodes have also been reported. Rock encrusting lichens, mainly *Caloplaca* or *Xanthoria* species occur on top of the main ridge.

6(ii) Access to the Area

- The Area is difficult to access due to the steep cliffs and terrain of each island and ice conditions at different times of the year. There is no identified access route to 'Chinstrap Islet' but Sabrina Island and The Monolith are accessible by helicopter or small boat from the cobble beach on the south west side of Sabrina Island (Map 2).
- Access restrictions apply within the Area, the specific conditions for which are set out in Section 7(ii) below.

6(iii) Location of structures within and adjacent to the Area

- There are no known existing structures on or adjacent to the Area.

6(iv) Location of other protected areas in the vicinity

- The nearest protected area to Sabrina Islands is ASPA 159: Cape Adare, Borchgrevink Coast located approximately 560 kilometres south east.

6(v) Special zones within the Area

- There are no special zones within the Area.

7. Terms and conditions for entry permits

7(i) General permit conditions

Entry into the Area is prohibited except in accordance with a Permit issued by an appropriate national authority. Conditions for issuing a permit to enter the Area are that:

- it is issued for compelling scientific reasons which cannot be served elsewhere, or for reasons essential to the management of the Area;
- the actions permitted are in accordance with this Management Plan;
- the actions permitted will not jeopardize the natural ecological system or the environmental or scientific values of the Area;
- the Permit is issued for a finite period; and
- the Permit, or a copy, shall be carried within the Area.

7(ii) Access to, and movement within or over, the Area

- Access to Sabrina Island and The Monolith is by small boat or helicopter on the gravel beach below the scoria slopes of the south west side of Sabrina Island, 66° 55.166'S, 163° 18.599'E (Map 2).
- There is no identified preferred access route to 'Chinstrap Islet'.
- Helicopter overflight of the Area should be avoided, except for essential scientific or management purposes.
- The operation of aircraft over the Area should be carried out, as a minimum requirement, in compliance with the 'Guidelines for the operation of aircraft near concentrations of birds' contained in Resolution 2 (2004).
- All movement within the Area should be on foot. Pedestrian traffic should be kept to the minimum necessary to undertake permitted activities and every reasonable effort should be made to minimise trampling effects.

7(iii) Activities which may be conducted within the Area

Activities which may be conducted within the Area include:

- compelling scientific research which cannot be undertaken elsewhere and will not jeopardise the natural ecological system or the environmental or scientific values of the Area; and
- essential management activities, including monitoring and inspections.

7(iv) Installation, modification or removal of structures

- No new structures (i.e. signs or boundary markers) are to be erected within the Area, or scientific equipment installed, except for compelling scientific or management reasons and for pre-established periods, as specified in a Permit.
- All markers, structures or scientific equipment installed in the Area must be clearly identified by country, name of the principal investigator or agency, year of installation and date of expected removal.
- All such items should be free of organisms, propagules (e.g. seeds, eggs) and non-sterile soil, and be made of materials that can withstand the environmental conditions and pose minimal risk of contamination of the Area.

- Removal of specific structures or equipment for which the Permit has expired shall be the responsibility of the authority which granted the original Permit and shall be a condition of the Permit.

7(v) Location of field camps

Field camps may be established if necessary to support permitted scientific or management activity. The camp location should be selected to minimise disturbance to wildlife as much as possible and care should be taken to secure all equipment.

7(vi) Restrictions on materials and organisms which may be brought into the Area

- The deliberate introduction of animals, plant material, microorganisms and non-sterile soil into the Area shall not be permitted. Precautions shall be taken to prevent the accidental introduction of animals, plant material, microorganisms and non-sterile soil from other biologically distinct region (within or beyond the Antarctic Treaty area).
- All sampling equipment, footwear, outer clothing, backpacks and other equipment used or brought into the Area shall be thoroughly cleaned before entering the Area. Scrubbing footwear in a disinfectant footbath before each landing is recommended.
- No poultry products, including food products containing uncooked dried eggs, shall be taken into the Area.
- No pesticides shall be brought into the Area. Any other chemicals, which may be introduced for compelling scientific, management or safety purposes specified in the Permit, shall be removed from the Area at or before the conclusion of the activity for which the Permit was granted.
- Fuel, food and other materials are not to be deposited in the Area, unless required for essential purposes connected with the activity for which the Permit has been granted. All such materials introduced are to be removed when no longer required. Permanent depots are not permitted.
- Spill response materials appropriate to the volume of fuels or other hazardous liquids taken into the Area should be carried. Any spills should be immediately cleaned up, provided the response has less environmental impact than the spill itself.

7(vii) Taking of, or harmful interference with, native flora and fauna

- Taking of, or harmful interference with, native flora and fauna is prohibited, except in accordance with a permit issued in accordance with Annex II of the Protocol on Environmental Protection to the Antarctic Treaty. Where taking or harmful interference with animals is involved this should, as a minimum standard, be in accordance with the SCAR Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica.

7(viii) The collection or removal of materials not brought into the Area by the permit holder

- Material may be collected or removed from the Area only in accordance with a Permit and should be limited to the minimum necessary to meet scientific or management needs. Permits shall not be granted if there is reasonable concern that the sampling proposed would take, remove or damage such quantities of soil, sediment, microbiota, flora or fauna, that their distribution or abundance within the Area would be significantly affected.
- Material of human origin likely to compromise the values of the Areas, which was not brought into the Area by the Permit Holder or otherwise authorised, may be removed from the Area, unless the impact of removal is likely to be greater than leaving the material *in situ*; if this is the case the appropriate authority should be notified.

7(ix) *Disposal of waste*

- All wastes, including all human wastes, shall be removed from the Area.

7(x) *Measures that may be necessary to continue to meet the aims of the Management Plan*

Permits may be granted to enter the Area to:

- carry out monitoring and Area inspection activities, which may involve the collection of a small number of samples or data for analysis or review;
- erect or maintain signposts, structures or scientific equipment;
- or for other management measures.

7(xi) *Requirements for reports*

The principal permit holder for each visit to the Area shall submit a report to the appropriate national authority as soon as practicable, and no later than six months after the visit has been completed. Such visit reports should include, as applicable, the information identified in the recommended visit report form, contained in Appendix 2 of the Revised Guide to the Preparation of Management Plans for Antarctic Specially Protected Areas appended to Resolution 2 (2011) available from the website of the Secretariat of the Antarctic Treaty (www.ats.aq).

If appropriate, the national authority should also forward a copy of the visit report to the Party that proposed the Management Plan, to assist in managing the Area and reviewing the Management Plan.

Data currently available for the Area is very limited. New Zealand, as the Party responsible for review of this Management Plan, would therefore appreciate copies of data and images which could assist future management of the Area.

8. Supporting documentation

Bradford-Grieve, Janet and Frenwick, Graham. November 2001. *A Review of the current knowledge describing the biodiversity of the Balleny Islands: Final Research Report for Ministry of Fisheries Research Projects ZBD2000/01 Objective 1 (in part)*. NIWA, New Zealand.

de Lange W., Bell R. 1998. Tsunami risk from the southern flank: Balleny Islands earthquake. *Water and atmosphere*. 6(3), pp 13-15.

Macdonald, J.A., Barton, Kerry J., Metcalf, Peter. 2002. Chinstrap penguins (*Pygoscelis antarctica*) nesting on Sabrina Islet, Balleny Islands, Antarctica. *Polar Biology* 25:443-447

Robertson, CJR, Gilbert, JR, Erickson, AW. 1980. Birds and Seals of the Balleny Islands, Antarctica. *National Museum of New Zealand Records* 1(16).pp271-279

Sharp, Ben R. 2006. *Preliminary report from New Zealand research voyages to the Balleny Islands in the Ross Sea region, Antarctica, during January-March 2006*. Ministry of Fisheries, Wellington, New Zealand.

Smith, Franz. 2006. *Form 3: Format and Content of Voyage Reports: Balleny Islands Ecology Research Voyage*.

Varian, SJ. 2005. *A summary of the values of the Balleny Islands, Antarctica*. Ministry of Fisheries, Wellington, New Zealand.

Appendix 1

Table 1: Bird species recorded from the Balleny Islands

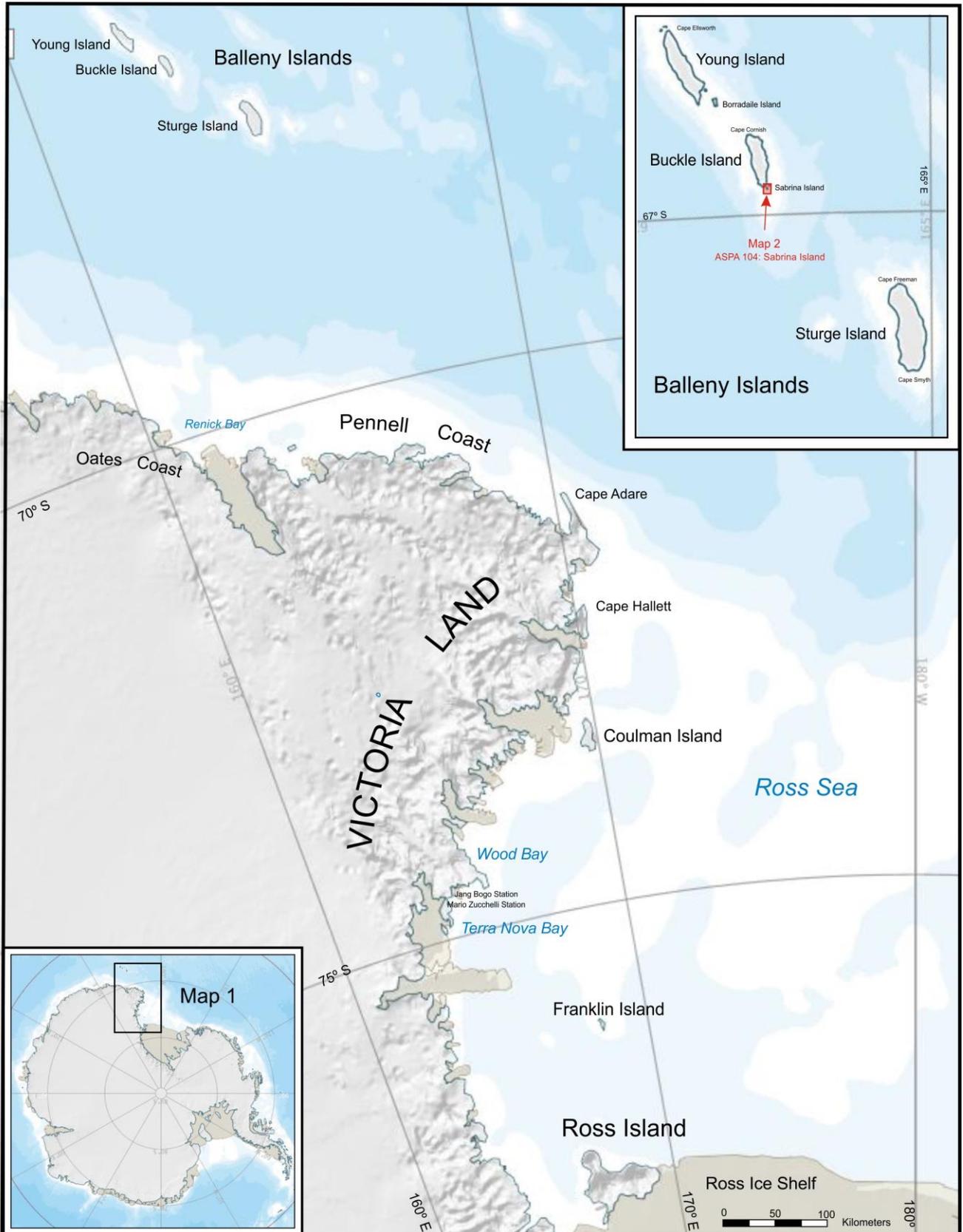
The table lists sightings recorded in expedition reports and scientific publications. Species indicated as breeding have been confirmed in recent expeditions (i.e. since 2000), those marked with S breed on Sabrina Island itself.

Common Name	Species	Breeding
Adélie penguin	<i>Pygoscelis adeliae</i>	✓ S
Antarctic fulmar	<i>Fulmarus glacialisoides</i>	✓
Antarctic petrel	<i>Thalassoica antarctica</i>	✓
Antarctic prion	<i>Pachyptila desolata</i>	
Arctic tern	<i>Sterna paradisea</i>	
Black browed mollymawk	<i>Diomedea melanophrys</i>	
Cape pigeon	<i>Daption capense</i>	✓ S
Chinstrap penguin	<i>Pygoscelis antarctica</i>	✓ S
Grey-headed mollymawk	<i>Diomedea chrysostoma</i>	
Light-mantled sooty albatross	<i>Phoebetria palpebrata</i>	
Macaroni penguin	<i>Eudyptes chrysolophus</i>	
Snow petrel	<i>Pagodroma nivea</i>	✓
Sooty shearwater	<i>Puffinus griseus</i>	
Southern giant petrel	<i>Macronectes giganteus</i>	
South polar skua	<i>Catharacta maccormicki</i>	
Brown skua	<i>Catharacta antarctica subsp lonnbergi</i>	
Wandering albatross	<i>Diomedea exulans</i>	
White chinned petrel	<i>Procellaria aequinoctialis</i>	
Wilson's storm petrel	<i>Oceanites oceanicus</i>	

Table 2: Seal species recorded from the Balleny Islands

The table lists sightings recorded in expedition reports and scientific publications. Breeding has not been confirmed for any species.

Common Name	Species
Crabeater seal	<i>Lobodon carcinophagus</i>
Elephant seal	<i>Mirounga leonina</i>
Leopard seal	<i>Hydrurga leptonyx</i>
Weddell seal	<i>Leptyonychotes weddellii</i>



Map Information

Source: SCAR Antarctic Digital Database
Version 6.0 Year 2012

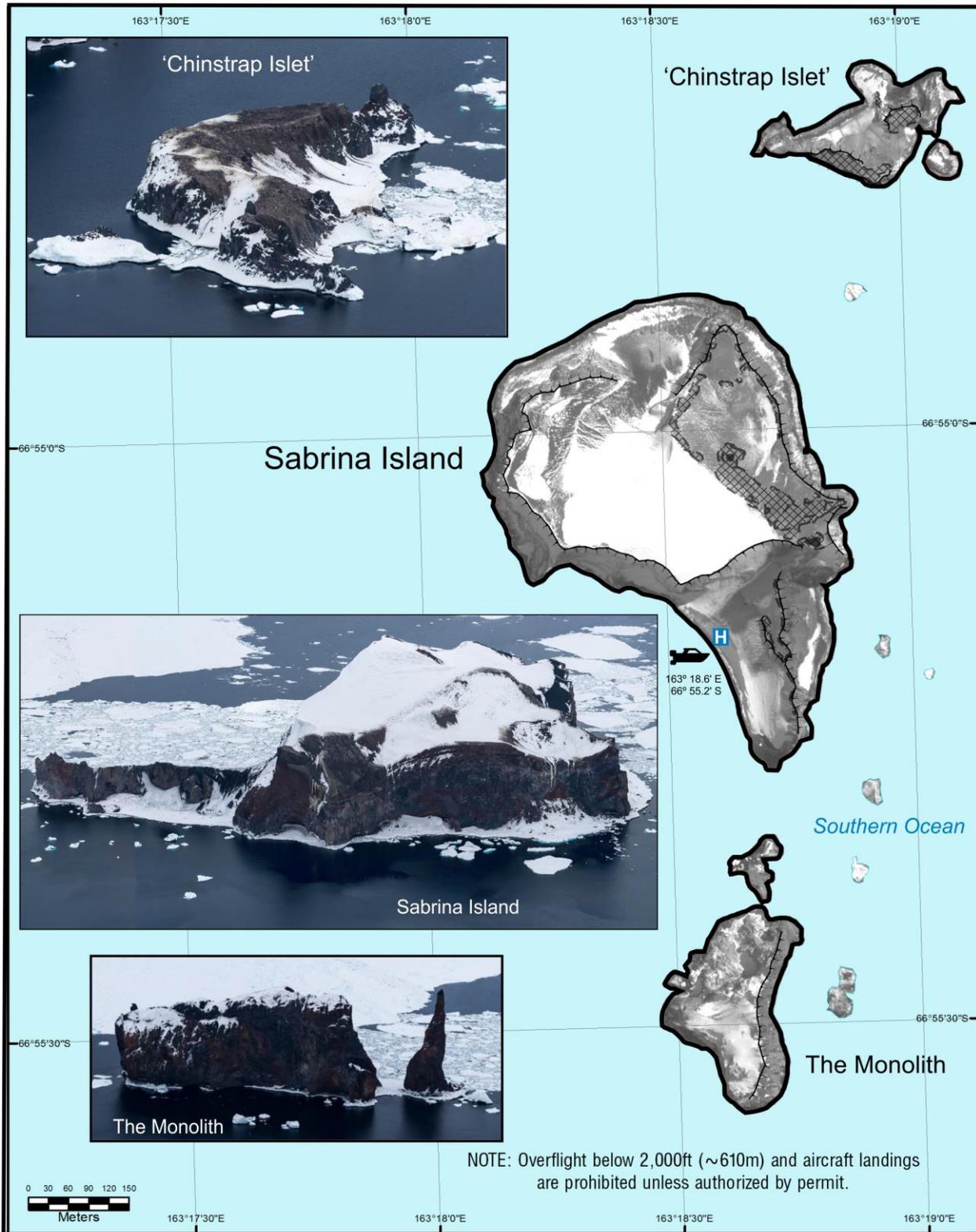
Projection: Antarctic Polar Stereographic
Datum: WGS84

True north is coincident with the lines of longitude

Map 1 - ASPA 104: Sabrina Island

Balleny Islands, Antarctica.

Regional Map



Map Information

Projection: UTM Zone 58 Sth
 Datum: WGS 84
 True north is coincident with the lines of longitude

Data Source

Imagery: Digital Globe, WorldView-1 Satellite
 Acquired on 14 January 2011, 50cm res
 Features: Captured by Land Information New Zealand
 Oblique Photography: Taken in Dec 2014 by RNZAF

**Map 2 - ASPA 104: Sabrina Island
 Balleny Islands, Antarctica.**

Boundary, Access and Features

Legend

- Cliffs
- Adelie penguin colonies (extends approximate as at Dec 2000)
- Chinstrap penguin colonies (extends approximate as at Dec 2000)
- ASPA Boundary
- Preferred Landing Site (helicopter & small boat)