

**Management Plan for
Antarctic Specially Protected Area (ASPA) No. 106
CAPE HALLETT, NORTHERN VICTORIA LAND, ROSS SEA
(Lat. 72° 19'S, Long. 170° 16'E)**

1. Description of values to be protected

An area of approximately 12 ha at Cape Hallett was originally designated in Recommendation IV-7 (1966, Specially Protected Area (SPA) No. 7) after a proposal by the United States of America on the grounds that the Area provided an outstanding example of biological diversity, containing, “a small patch of particularly rich and diverse vegetation which supports a variety of terrestrial fauna”. The proposal gave special mention to the rich avifauna in the Area, which was noted as being of “outstanding scientific interest”. The boundaries of the Area were enlarged in Recommendation XIII-13 (1985) to include extensive stands of vegetation to the south and north of the Area, increasing the Area to approximately 32 ha. The boundaries have been further extended in this plan to include critical avifauna habitat at Seabee Hook, the breeding area of a substantial colony of Adelie penguins, increasing the size of the Area to 74 ha.

The Area contains a variety of habitats with plant communities that are considered important as the most extensive, representative, examples known at the northern end of the latitudinal gradient of Victoria Land and the Ross Sea. Vegetation surveys have recorded five species of moss, dominated by *Bryum subrotundifolium*, and 18 species of lichen. Studies in 1961/62 identified an algal component composed mainly of *Prasiola crispa* with associated filamentous and microscopic blue-green forms. Although few algal species have been identified numerous species are expected to be present. In addition, four species of mites and three of springtails have been identified within the Area.

South Polar skuas (*Catharacta maccormicki*) nest within the Area and on ice-free ground. The population declined from 181 breeding pairs in 1960/61 to 98 breeding birds recorded in both 1968/69 and 1971/72. In January 1983 there was a population of 247 birds (84 breeding pairs and 79 non-breeding birds).

A large Adelie penguin colony inhabits Seabee Hook, on the west side of the Hallett Peninsula between Edisto Inlet and Moubray Bay. The history of human impact on the colony and the subsequent closure of the station, together with the availability of reliable and repetitive historical data on Adelie population changes, make this site unique and ideal for scientific study of impacts on, and recovery of, the colony following substantial ecosystem disturbance. As such, the site has high scientific value, and in order to maintain this value it is desirable that any further human presence be carefully controlled and monitored: the most effective way in which this can be achieved is through the guidance and conditions provided in this management plan.

In addition to the ecological and scientific values described, the Area possesses outstanding aesthetic values, with its combination of prolific biological resources and the impressive surrounding scenery of Edisto Inlet and Mt. Herschel (3,335 m). The Area is one of only a few such sites that are relatively accessible in the northern Ross Sea. The site of the former station and history of human activity at the site are also of interest to visitors. As such, the Area is of high aesthetic, wildlife, and historical value to tourist and non-governmental expeditions. To accommodate these interests and allow access under controlled conditions, a managed zone has been designated within the Area where visits for reasons other than science or management are allowed by permit.

2. Aims and objectives

Management at Cape Hallett aims to:

- avoid degradation of, or substantial risk to, the values of the Area by preventing unnecessary human disturbance to the Area;
- permit scientific research, in particular on the plant and bird communities, while preventing unnecessary sampling in the Area;
- allow environmental clean-up and remediation activities associated with the decommissioning and removal of the former Hallett Station as required and appropriate, provided the impacts of these activities are not greater than those arising from leaving material *in situ*;
- minimize the possibility of introduction of alien plants, animals and microbes into the Area;
- allow visits to the managed zone for historical, educational, wildlife and scenic viewing purposes under control by permit;
- allow visits for management purposes in support of the protection of the values and features of the Area.

3. Management activities

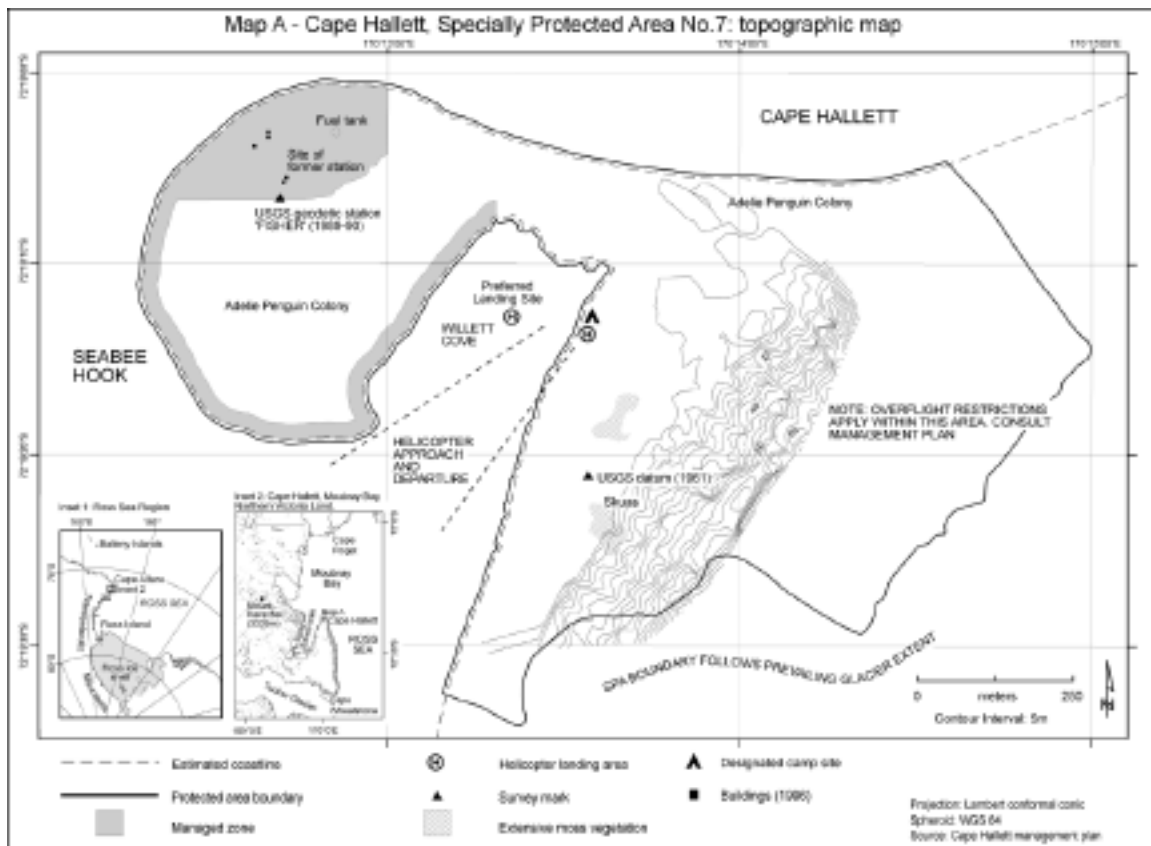
- Signs showing the location, boundaries and clearly stating entry restrictions shall be placed at appropriate locations at the boundaries of the Area to help avoid inadvertent entry.
- Markers, signs or structures erected within the Area for scientific or management purposes shall be secured and maintained in good condition, and removed when no longer necessary.

- Visits shall be made as necessary (no less than once every five years) to assess whether the Area continues to serve the purposes for which it was designated and to ensure that management and maintenance measures are adequate.
- National Antarctic programs operating in the region shall consult together for the purpose of ensuring that the above provisions are implemented.

4. Period of designation

Designated for an indefinite period.

5. Maps



Map A: Cape Hallett Specially Protected Area No. 7 topographic map.

Map specifications:

Projection: Lambert Conformal conic
 Standard parallels: 1st 74° 20' 00" S; 2nd 71° 40' 00" S
 Central Meridian: 170° 10' 00" E
 Latitude of Origin: 73° 00' 49.201" S

Spheroid: WGS84

Datum: USGS Fisher geodetic station 1989-90: ITRF93 Coordinates
170°12'39.916" E, 72°19' 06.7521" S

Contour interval 5 m: contours are derived from a digital elevation model used to generate an orthophotograph. The original orthophotograph was prepared at 1:2500 with a positional accuracy of ±5 m (horizontal) and ±2.5 m (vertical) with an on-ground pixel resolution of 0.4 m. [note: provision of elevation data subject to approval].

Inset: The Moubray Bay region of Northern Victoria Land, Ross Sea

6. Description of the Area

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

Cape Hallett is located at the southern end of Moubray Bay, Northern Victoria Land, in the western Ross Sea. The protected area occupies ice-free ground of a cusped spit of low elevation known as Seabee Hook and includes the adjacent western slopes of the north end of the Hallett Peninsula.

The Area includes Seabee Hook and the adjacent western slopes up to the crest of the ridge of the north end of the Hallett Peninsula, east of Willett Cove to the margin of the permanent ice sheet (Map A). The sea-level boundary is predominantly defined by the coastline of Seabee Hook, and extends south along the east shore of Willett Cove to the southernmost boundary at 72°19'30"S (approximately 800 m south of the Moubray Bay coast). The east boundary of the Area follows the edge of the permanent ice sheet near the ridge of Hallett Peninsula.

The topography of the Area comprises the large flat area of the spit and adjoining steep scree slopes that form part of the western side of the Hallett Peninsula. Seabee Hook is composed of coarse volcanic material deposited in a series of beach ridges, with gently undulating terrain of hummocks and depressions and a number of level areas. Many of the depressions contain melt water in the summer season, and are colonized by dense mats of algae. In the northeast part of the Area a small meltwater stream flows from the western slopes of the Hallett Peninsula down to Willett Cove.

The algal component in the Area is comprised mainly of the sheet-like green alga *Prasiola crispa* with associated filamentous algae and cyanobacteria. It is expected that a number of other algal species may be present, but information on the algal communities in the Area is exceptionally sparse.

The vegetation within the Area, with the exception of algae such as *Prasiola*, is largely confined to the ice-free ground not occupied by breeding Adelie penguins, which is to the east of Willett Cove and south of 72°19'10"S. This area includes a 100-200 m strip of

relatively level ground adjacent to Willett Cove and steeper slopes up to the crest of the Hallett Peninsula ridge. The strip of flat ground comprises a number of dry, gravel hummocks up to 1.5 m high, many of which are occupied by nesting skuas, and in the northern part old guano deposits indicate former occupation by Adelie penguins. Small patches of moss and algae may be found at the base of these hummocks but the upper parts are devoid of vegetation. Substantial beds of moss colonize stable gravel flats in the north part of the flat ground where there is a high water table, while scattered patches of moss, algae and lichen occur on coarser, more angular, loose rocks in the south. The moss becomes more sparse as the ground slopes upwards, with the notable exception of a particularly dense and extensive patch covering approximately 3,900 m² with almost complete coverage of the substratum occupying a shallow valley on a scree slope in the south of the Area.

Bryum subrotundifolium is the dominant moss within the Area. The presence of *Bryum subrotundifolium* in such a bird enriched area, makes the Area an excellent example of a bird affected vegetation site. Also, the presence of almost pure *Bryum pseudotriquetrum* at the site is unusual for the region.

The steep scree slope adjoining the largely flat area is dissected by shallow gullies and small ridges, with a number of prominent rock outcrops. These rock outcrops, particularly in the north of the Area, support large stands of lichens and scattered moss, with cover of 70 – 100% in many places.

Following are current species lists of mosses and lichens in the Area (based on research of Allan Green, University of Waikato, New Zealand and Rod Seppelt, Australian Antarctic Division, 2002).

Mosses include:

Bryum subrotundifolium (originally known as *Bryum argenteum*)

Bryum pseudotriquetrum

Sarconeurum glaciale

Ceratodon purpureus

Schistidium (Grimmia) sp.

Lichens include:

Acarospora gwynnii

Amandinea petermannii

Buellia frigida

Caloplaca athallina

Caloplaca citrina

Candelaria murrayi

Candelariella flava

Lecanora chrysoleuca

Lecanora expectans

Lecidea cancriformis

Physcia caesia
Pleopsidium chlorophanum
Rhizocarpon geographicum
Rhizoplaca chrysoleuca
Rhizoplaca melanophthalma
Usnea sphacelata
Xanthoria elegans
Xanthoria mawsonii

Four species of mites, *Eupodes wisei*, *Stereotydeus belli*, *Protereunetes* sp. and *Coccorhagidia gressittii*, and three of springtails, *Friesea grisea*, *Cryptopygus cisantarcticus* and *Isotoma klovstadi*, have been recorded from Cape Hallett. *F. grisea* occurs mainly on the scree slopes and adjacent level areas, *C. cisantarcticus* was reported to be associated with moss, occurring plentifully on level ground, while *I. klovstadi* was abundant under stones on the slopes.

Seabee Hook is the site of one of the largest Adelie penguin colonies in the Ross Sea region, numbering approximately 66,000 breeding pairs in 1987. Seabee Hook is also the site of the former Hallett Station, a joint United States and New Zealand station that was open from 1956-73. During operation the station and associated infrastructure occupied an area of 4.6 ha on land that had formerly been occupied by breeding Adelie penguins. Establishment of Hallett Station in 1956 required eviction of 7,580 penguins, including 3,318 chicks, in order to clear the 0.83 ha required for bulldozing and erection of buildings. The was subjected to substantial impacts from the establishment and operation of Hallett Station, with the population declining from 62,900 pairs in 1959 to a low of 37,000 pairs in 1968, although increasing again to 50,156 in 1972. Fluctuations in populations may have been exacerbated by changes in sea ice cover documented for the entire region. By 1987, after the closure of the station in 1973, the colony has increased to near its 1959 population; however, few areas modified by humans had by that time been fully recolonized.

South Polar skuas (*Catharacta maccormicki*) nest within the Area and on nearby ice-free ground; in January 1983 there was a population of 247 birds (84 breeding pairs and 79 non-breeding birds).

Emperor penguins (*Aptenodytes forsteri*) have been recorded in the vicinity of the area in late December, and solitary chinstrap penguins (*Pygoscelis antarctica*) have been recorded in late January and February. Wilson's storm petrels (*Oceanites oceanicus*) and southern giant petrels (*Macronectes giganteus*) have been sighted frequently in the vicinity of the Area. Weddell seals (*Leptonychotes weddellii*) are commonly seen and probably breed under the sea ice in Edisto Inlet, and have been recorded ashore on Seabee Hook.

6(ii) Restricted and managed zones within the Area

A managed zone is designated on Seabee Hook to allow access by tourist expeditions to the Area subject to permit and the provisions of this management plan. The managed zone encompasses the site of the former station, and extends from the northeast corner (170° 13' 00"E, 72° 40' 00"S) at a rocky part of the north shoreline on Seabee Hook, due south for 118 m to a series of mounds used by breeding penguins. The boundary extends 205 m west following the north side of these mounds, south of a region which was leveled for construction of Hallett Station, to the USGS geodetic station 'Fisher' (170°12'40"E, 72°19'07"S) which is set in a prominent concrete block structure (2x1x1 m). The boundary extends from 'Fisher' 150 m due west to a point 25 m inland from the coastline. The boundary of the managed zone then extends south as a 25 m wide coastal 'corridor' around the shores of Seabee Hook to an eastern-most point at the northern-most point of Willett Cove (170° 13' 18"E, 72° 19' 08"S).

6(iii) Structures within and near the Area

Cape Hallett Station was established on Seabee Hook in December 1956 and closed in February 1973. By 1960 the buildings of Hallett Station occupied 1.8 ha and the associated roads, refuse dumps, fuel caches and radio aerials a further 2.8 ha. The station was occupied year-round until 1964, from when summer-only operation continued until closure. The station was progressively dismantled after 1984 and in 1996 six structures remained at the site: four small sheds in various states of repair; a large fuel tank; and a small fiberglass dome from the original weather observation building (upgraded and moved to its 1996 position in 1984/85). In the summer of 1995 liquid fuel remaining in the large metal tank was pumped into barrels, which were stored on site until removed in February 1996.

The USGS geodetic station 'Fisher' (170°12'39.916"E, 72°19' 06.7521" S) is situated 70 m SE of the center of the SE side of the dome building (1996 position) and 24 m south of the SE corner of the southernmost hut. The station consists of a standard USGS Antarctic brass tablet stamped with "FISHER 1989-90" and is set flush on the top of a large concrete block (2x1x1 m) at an elevation of 2.15 m.

6(iv) Location of other protected areas within close proximity of the Area

The nearest protected areas to Cape Hallett is Cryptogam Ridge (ASPA No. 118) on Mt. Melbourne, Victoria Land, near Wood Bay, 240 km to the south.

7. Permit conditions

Entry into the Area is prohibited except in accordance with a permit. Conditions for issuing a permit to enter the Area are that:

- outside of the managed zone a permit should be issued only for scientific study of the ecosystem or for essential management purposes consistent with plan objectives such as assessment or remediation of impacts, inspection or review;
- the actions permitted will not jeopardize the ecological, scientific or aesthetic and wilderness values of the Area;
- access to the managed zone may be permitted for scientific, management, historical, educational or recreational purposes providing they do not conflict with the objectives of this plan;
- the permit, or a copy, shall be carried within the Area;
- a report or reports shall be supplied to the authority or authorities named in the permit;
- permits should be valid for a stated period.

7(i) Access to and movement within the Area

Access into the Area shall be by small boat, foot or by helicopter. Helicopters should preferably land on adjacent sea ice more than 150 m outside of the Area and land on sea ice near the center of Willett Cove when accessing the campsite. When sea ice conditions and access for permitted activities necessitate a landing within the Area, helicopters should land at the designated site on the east shore and 100 m south of the head of Willett Cove (170°13'34"E, 72°19'13"S) (see Map A). Helicopter approach and departure should follow a route southwest of the landing site along Willett Cove (see Map A for the recommended flying routes). Overflight of the Area is prohibited by single-engine helicopters at altitudes lower than 750 m (~2,500 ft) and by dual-engine helicopters lower than 1,000 m (~3,300 ft), except when required for essential scientific or management purposes specifically authorized by permit. Use of helicopter smoke grenades is prohibited unless absolutely necessary for safety, and all grenades should be retrieved.

There are no special restrictions on where access can be gained to the Area by small boat.

Land vehicles are to be used within the Area only for the purpose of gaining access to the campsite from sea ice in the vicinity of Willett Cove. Exceptions to this provision may be granted for the purpose of removing materials associated with the former station. In all cases vehicle movements shall be kept to the minimum necessary for permitted activities and avoid sites of plants or nesting birds.

Access to the managed zone for reasons other than science or management is allowed by permit subject to the conditions of this management plan. Access to the managed zone shall be on foot or by small boat from the coast of Seabee Hook (Map A). Unless

specifically authorized by permit, visitors are prohibited from moving into the Area beyond the boundary of the managed zone. When transporting permitted visitors to the managed zone, pilots, air or boat crew, or other people on such aircraft or boats, are permitted to move on foot within the managed zone under the authorization of the permit(s) for those visitors they are transporting, provided they comply with the provisions of this management plan.

All pedestrian traffic should be kept to the minimum necessary consistent with the objectives of any permitted activities and every reasonable effort should be made to minimize effects. Visitors should avoid walking on visible vegetation. Care should be exercised walking in areas of moist ground, where foot traffic can easily damage sensitive soils and plant communities.

7(ii) Activities that may be conducted in the Area

- scientific research that will not jeopardize the ecosystem of the Area;
- essential management activities, including assessment or remediation of impacts, and monitoring;
- visits to the managed zone for historical, educational or recreational purposes, subject to the conditions described in this plan;

7(iii) Installation, modification or removal of structures

No structures are to be erected within the Area except as specified in a permit. All scientific equipment installed in the Area must be authorized by permit and clearly identified by country, name of the principal investigator and year of installation. All such items should be made of materials that pose minimal risk of contamination of the Area. Removal of specific equipment for which the permit has expired shall be a condition of the permit.

7(iv) Location of field camps

Permanent field camps are prohibited within the Area. Temporary camping is permitted within the Area at the site designated on the east shore and 100 m south of the head of Willett Cove (72°19'13"S, 170°13'34"E). This site comprises unconsolidated beach gravels, uncolonized by birds or significant plant communities and lies on the site of a former station road (see Map A).

7(v) Restrictions on materials and organisms that can be brought into the Area

No living animals, plant material, microorganisms or soils shall be deliberately introduced into the Area, and precautions shall be taken against accidental introductions. Dressed poultry should be free of disease or infection before shipment to the Antarctic and, if introduced into the Protected Area for food, all parts and waste of poultry shall be

completely removed from the Protected Area and incinerated or boiled long enough to kill any potentially infective bacteria or viruses. No herbicides or pesticides shall be brought into the Area. Any other chemicals, including radio-nuclides or stable isotopes, which may be introduced for scientific or management 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 materials introduced shall be for a stated period only, shall be removed at or before the conclusion of that stated period, and shall be stored and handled so that risk of their introduction into the environment is minimized.

7(vi) Taking or harmful interference with native flora or fauna

Taking or harmful interference of native flora and fauna is prohibited, except in accordance with a separate permit issued under Article 3 of Annex II by the appropriate national authority specifically for that purpose. Where animal taking or harmful interference 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(vii) Collection or removal of anything not introduced by a visitor.

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. Material of human origin likely to compromise the values of the Area, which was not brought into the Area by a permit holder or otherwise authorized, may be removed from any part of 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(viii) Disposal of waste

All wastes shall be removed from the Area.

7(ix) Measures that may be necessary to ensure that the aims and objectives of the plan continue to be met

- Permits may be granted to enter the Area to carry out biological monitoring and site inspection activities, which may involve the collection of small samples for analysis.
- Any specific sites of long-term monitoring should be appropriately marked.
- To help maintain the ecological and scientific values of the Area visitors shall take special precautions against introductions. Of particular concern are microbial and vegetation introductions from soils at other Antarctic sites, including stations, or from regions outside Antarctica. To minimize the risk of introductions, visitors shall thoroughly clean footwear and any equipment to be used in the area – particularly sampling equipment and markers – before entering the Area.

7(x) Requirements for reports

Parties should ensure that the principal holder for each permit issued submits to the appropriate authority a report describing the activities undertaken. Such reports should include, as appropriate, the information identified in the Visit Report form suggested by SCAR. Parties should maintain a record of such activities and, in the Annual Exchange of Information, should provide summary descriptions of activities conducted by persons subject to their jurisdiction, which should be in sufficient detail to allow evaluation of the effectiveness of the management plan. Parties should, wherever possible, deposit originals or copies of such original reports in a publicly accessible archive to maintain a record of usage, to be used both in any review of the management plan and in organizing the scientific use of the Area.