

**Management Plan for
Antarctic Specially Protected Area No. 139
BISCOE POINT, ANVERS ISLAND, PALMER ARCHIPELAGO**

1. Description of values to be protected

Biscoe Point (64°48'47"S, 63°47'41"W, 2.7 km²), Anvers Island, Palmer Archipelago, Antarctic Peninsula, was originally designated as a Site of Special Scientific Interest through Recommendation XIII-8 (1985, SSSI No. 20), after a proposal by the United States of America. It was designated on the grounds that the "Site contains a large (approximately 5000 m²) but discontinuous stand of the two native vascular plants, Antarctic hair grass (*Deschampsia antarctica*) and, less commonly, Antarctic pearlwort (*Colobanthus quitensis*). A relatively well developed loam occurs beneath closed swards of the grass and contains a rich biota, including the apterous midge *Belgica antarctica*. Long-term research programs could be jeopardized by interference from nearby Palmer Station and from tourist ships."

The present management plan reaffirms the exceptional ecological and scientific values associated with the rich flora and invertebrate fauna within the Area. In addition, it is noted that the first observation of *C. quitensis* growing south of 60°S was made at Biscoe Point, reported by Jean-Baptiste Charcot from the Expédition Antarctiques Française in 1903-05. The island on which Biscoe Point lies contains the most extensive communities of *D. antarctica* and *C. quitensis* in the Anvers Island vicinity, and they are of unusual abundance for this latitude. The abundance is much greater than previously described, with almost half of the island of Biscoe Point, and much of the ice-free area of the peninsula to the north, possessing significant stands of vegetation. The communities extend over a large proportion of the available ice-free ground, with a discontinuous cover of *D. antarctica*, *C. quitensis* and bryophytes and lichens of several species varying in density over an area of approximately 250,000 m². One stand of mosses in the prominent valley on the northern side of the main island extends almost continuously for 150 m along the valley floor, covering an area of approximately 6500 m². Individual, near-continuous stands of *D. antarctica* and *C. quitensis* reach a similar size, both on the main island and, to a lesser extent, on the promontory to the north. Several plant community studies were in progress when the Area was designated in 1985. Although these studies were discontinued soon after site designation, botanical research at the site has continued. For example, *D. antarctica* and *C. quitensis* seeds have been collected from Biscoe Point for plant studies examining the influence of climate change and enhanced UV-B radiation (Xiong et al. 2000). Biscoe Point was valuable

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for these studies because of the amount and quality of seeds available within the Area. In addition, Biscoe Point is one of the few low-lying vegetated sites that have not yet been substantially damaged by Antarctic fur seals, and as such the Area has been identified as a potential control site for assessing Antarctic fur seal impacts on vegetation and soils in this region.

Biscoe Point is also valuable for ornithological research. Long-term studies are being conducted on both Adélie (*Pygoscelis adeliae*) and gentoo (*Pygoscelis papua*) penguin colonies present within the Area. The gentoo colony became established at Biscoe Point some time around 1992 and, as a recently founded colony, is of particular value for monitoring long-term ecological changes to the local bird population structure and dynamics (Fraser, pers. comm., 1999). The Adélie colony is valuable for long-term monitoring and comparison with other colonies in Arthur Harbour that are subjected to higher levels of human influence. In this respect, the fact that the Area has been protected from significant human use, and that use allowed has been regulated by permit, for such a long period of time is of particular value. The Adélie colony is one of the oldest in the southern Anvers Island region (more than 700 years), and as such is valuable for paleoecological studies. The site is also the only site in the region where brown (*Catharacta loennbergi*), south polar (*C. maccormicki*) and hybrid skuas are known to occur annually.

Until recently, Biscoe Point was on a peninsula joined to Anvers Island by an ice ramp extending from the adjacent glacier. The ice ramp disappeared as the glacier retreated, and a narrow channel now separates Anvers Island from the island on which Biscoe Point lies. The original boundary of the Area was of geometric shape and extended to include a separate ice-free promontory 300 m to the north of this island, and also included the intervening marine environment. The Area is now defined to include all land above the low tide water level of the main island on which Biscoe Point is situated (0.53 km²), all offshore islets and rocks within 100 m of the shore of the main island, and most of the predominantly ice-free promontory 300 m to the north (0.1 km²). The marine component has now been excluded from the Area because of the lack of information on its values. The Area in total is now approximately 0.63 km².

In summary, the Area at Biscoe Point therefore has high value for its outstanding:

- examples of vegetation communities, soils and associated terrestrial ecology;

- ornithological interest, with several of the resident breeding bird species and associated paleoecological features possessing unusual properties, and which are the subject of long-term studies; and
- utility as a reference site for comparative studies and monitoring.

In order to protect the values of the Area, it is important that visitation continue to remain low and be carefully managed.

2. Aims and Objectives

Management at Biscoe Point aims to:

- avoid degradation of, or substantial risk to, the values of the Area by preventing unnecessary human disturbance and sampling in the Area;
- allow scientific research on the ecosystem and physical environment associated with the values for which the Area is protected, while ensuring protection from over-sampling;
- allow other scientific research within the Area provided it is for compelling reasons which cannot be served elsewhere and provided it will not compromise the values for which the Area is protected;
- minimize the possibility of introduction of alien plants, animals and microbes to 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, including maps of the Area, shall be made available at Palmer Station (US) on Anvers Island and at Yelcho Station (Chile) on Doumer Island.
- Markers, signs or other structures erected within the Area for scientific or management purposes shall be secured and maintained in good condition.
- Visits shall be made as necessary (at least once every five years) to assess whether the Area continues to serve the purposes for which it was designated and to ensure management and maintenance measures are adequate.

4. Period of designation

Designated for an indefinite period.

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5. Maps and photographs

Map 1: Biscoe Point, ASPA No. 139, in relation to Biscoe Bay and Anvers Island, showing the location of nearby stations (Palmer Station, US; Yelcho Station, Chile; and Port Lockroy Historic Site and Monument No. 61, UK), and the location of nearby protected areas. Projection UTM Zone 20S, Spheroid WGS84, Data source SCAR Antarctic Digital Database V4.0. Inset: the location of Anvers Island and the Palmer Archipelago in relation to the Antarctic Peninsula.

Map 2: Biscoe Point, ASPA No. 139: Physical features and access guidelines. Map specifications:

Projection: UTM Zone 20S; Spheroid: WGS84; Vertical datum: mean sea level; Contour interval: 5 m. The map of the island on which Biscoe Point lies is derived from digital orthophotography with a horizontal and vertical accuracy of ± 2 m (Sanchez and Fraser, 2001). The peninsula to the north of Biscoe Point, several offshore islands and Anvers Island are beyond the limits of the orthophotograph. These features were digitized from a rectified aerial image covering the wider area (Ref: TMA 3208 006V, 12/23/98) and are estimated as accurate to ± 20 m. No elevation data are available for these areas.

Map 3: Biscoe Point, ASPA No. 139: Penguin colonies, approximate vegetation extent, and known contaminated sites. Map specifications as for Map 2.

6. Description of the Area

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

GENERAL DESCRIPTION

Biscoe Point ($64^{\circ}48'47''\text{S}$, $63^{\circ}47'41''\text{W}$) is at the western extremity of a small island (0.53 km^2), located close to the southern coast of Anvers Island (2700 km^2) about 6 km south of Mount William (1515 m), in the region west of the Antarctic Peninsula known as the Palmer Archipelago (Map 1). Until recently, this island was joined to Anvers Island by an ice ramp extending from the adjacent southward-flowing glacier, and many maps (now incorrectly) show Biscoe Point as lying on a peninsula. A narrow, permanent, marine channel of approximately 50 m in width now separates the island on which Biscoe Point lies from Anvers Island. This mostly ice-free island lies south-east of Biscoe Bay and to the north of Bismarck Strait. A smaller extent of mostly ice-free land about 300 m to the north remains joined as a peninsula to Anvers Island by an ice ramp.

The island on which Biscoe Point lies is approximately 1.8 km long in an east-west direction and of up to about 450 m in width (Map 2). Topography consists of a series of low-lying hills, with the main east-west oriented ridge rising to a maximum altitude of about 24 m. A small remnant ice cap (0.03 km²) rises to 12 m at the eastern end of the island, where it was formerly bridged to Anvers Island by an ice ramp. The coastline is irregular and generally rocky, studded by offshore islets and rocks, and pitted by numerous bays. A number of the more sheltered bays Harbour gentle and accessible gravel beaches. The unnamed promontory to the north is approximately 750 m in length (east-west) by 150 m wide and is of similar character, although of lower topography.

Palmer Station (US) is located 13.8 km north-west of the Area at Arthur Harbour, Yelcho Station (Chile) is located approximately 12 km to the southeast at Doumer Island, while 'Base A' (UK, Historic Site No. 61) is located at Port Lockroy Historic Site and Monument No. 61, Goudier Island (off Wiencke Island) approximately 13 km to the east (Map 1).

BOUNDARIES

The original boundary of the Area was of geometric shape to include the land associated with Biscoe Point, the separate ice-free promontory 300 m to the north, and also the intervening islands and marine environment. A recent detailed review revealed little information to substantiate special values associated with the local marine environment. The marine area is not the subject of current or planned scientific studies, nor is it being subjected to specific pressures or threats requiring management. For these reasons, the boundary has been revised to exclude the marine environment.

The Area is now defined to include all land above the low tide water level of the main island on which Biscoe Point is situated (0.53 km²), all offshore islets and rocks within 100 m of the shore of this main island, and most of the predominantly ice-free promontory 300 m to the north (0.1 km²) (Map 2).

The landward (eastern) boundary on the northern promontory bisects the peninsula at the point where it protrudes from Anvers Island, distinguished by a small bay cutting into the glacier in the south and a similar, although less pronounced, coastline feature in the north. The total area including the main island and the northern promontory is approximately 0.63 km².

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CLIMATE

No meteorological data are available for Biscoe Point, although data are available for Palmer Station (US), where conditions are expected to be broadly similar. Monthly air temperature averages recorded for Palmer Station over a 22-year period range from -7.8°C in August (the coldest month) to 2.5°C in January (the warmest) (Baker, 1996). The minimum recorded temperature is -31°C and the maximum is 9°C , while the annual mean is -2.3°C . Storms and precipitation at Palmer Station are frequent, with winds being persistent but generally light to moderate in strength, prevailing from the north-east. Cloud cover is frequently extensive, often with a ceiling of less than 300 m. While these broad patterns are expected to be reflected at Biscoe Point, the Area is in a more exposed position that is open to weather particularly from the west and south, which may result in some minor climatic differences.

GEOLOGY AND SOILS

Specific descriptions are not available of the geology of island on which Biscoe Point lies, or of the peninsula to the north. However, the bedrock appears to be composed mainly of gabbros and adamellites of Late Cretaceous to Early Tertiary age belonging to the Andean Intrusive Suite, which dominate the composition of southeastern Anvers Island (Hooper, 1958). Gabbro is a dark, coarse-grained plutonic rock that is mineralogically similar to basalt, and which is composed mainly of calcium-rich plagioclase feldspar and pyroxene. Adamellite is a granitic rock composed of 10-50% quartz and which contains plagioclase feldspar. A fine mineral soil is present on the gentle terrain, although precise soil characteristics have yet to be described. A relatively well-developed, loamy soil is associated with the closed swards of *Deschampsia*.

FRESHWATER HABITAT

A number of small seasonal streams and ponds are present on the island on which Biscoe Point lies, although they have not been scientifically described. A small pond (perhaps the largest, at approximately 30 m x 8 m) and stream occur in a valley on the southern side of the principal ridge of the island, 50 m NE of the southern small boat landing site (Map 2).

The presence of a long rubber hose suggests that at one time visitors may have collected fresh water from this site. Another freshwater pond of similar size (approximately 25 m x 6 m) is found in the prominent east-west trending valley on the northern side of the island. A small associated stream drains this pond to the west. The freshwater environment has thus far escaped significant disturbance from seals. Information on the hydrology of the separate promontory to the north is not available.

VEGETATION

The most significant aspect of the vegetation at Biscoe Point is the abundance and reproductive success of the two native Antarctic flowering plants, the Antarctic hair grass *Deschampsia antarctica* and Antarctic pearlwort *Colobanthus quitensis*. The communities of *D. antarctica* and *C. quitensis* at Biscoe Point are the most extensive in the Anvers Island vicinity and are considered particularly abundant for such a southerly location (Greene and Holtom 1971; Komárková 1983, 1984; Komárková, Poncet and Poncet 1985). The first observation of *C. quitensis* growing south of 60°S was made near Biscoe Point, recorded (as *C. crassifolius*) by the biologist Turquet on Jean-Baptiste Charcot's Expédition Antarctiques Française (1903-05). More recently, seeds from both flowering plants within the Area have been collected for propagation in studies on the effects of climate change and UV-B exposure on these species being conducted out of Palmer Station (Xiong et al., 2000).

The abundance of *D. antarctica* and *C. quitensis* is much greater than previously described, and almost half of the island on which Biscoe Point lies, and much of the ice-free area of the peninsula to the north, possess significant stands of these species and a wide range of bryophytes and lichens. The approximate distribution of the most substantial stands of vegetation on the main island has been estimated from air and ground photography (Map 3). The distribution illustrated in Map 3 is intended as a general guide to the main areas of vegetation cover, rather than as a definitive description, and is not based on a precise ground survey. However, it does serve to indicate the scale of the vegetated communities, which comprise a discontinuous cover of varied composition and density over an area of approximately 250,000 m². Komárková (1983) noted a discontinuous stand of *D. antarctica* and *C. quitensis* reaching approximately 5000 m² on the main island. One particularly extensive stand of mosses in the principal valley on the northern side of the main island extends almost continuously for 240 m along the valley floor, occupying an area of approximately 8000 m² (Harris, 2001). Stands of lesser extent are present elsewhere on the island and on the separate promontory 300 m to the north. Colonization has been observed occurring on recently deglaciated material. Mosses tend to dominate on valley floors, close to streams and ponds, and in moist depressions. On valley sides, mixed communities of moss and *C. quitensis* are frequent on lower north-facing slopes, with an increasing prevalence of *D. antarctica* with elevation. Mixed *D. antarctica* and *C. quitensis* communities are particularly prolific on northern slopes between 10-20 m, while *D. antarctica* tends to be more frequent on the higher exposed sites above 20 m.

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Mosses and lichens are frequently co-dominants or subordinate taxa. In some habitats *C. quitensis* may occur in small patches alone. Patches of dead vascular plants of up to 20 m² have been observed within the Area, believed to result from the effects of desiccation, flooding and frost during some summers (Komárková, Poncet and Poncet 1985).

Unlike many other low-lying coastal sites in the region, the vegetation at Biscoe Point does not appear to have been severely affected by the recent substantial increase in numbers of Antarctic fur seals (*Arctocephalus gazella*). As such, the Area has been identified as a potential control site for assessing Antarctic fur seal impacts on vegetation and soil (Day, T. in e-mail to C. Harris, 1999).

INVERTEBRATES, BACTERIA AND FUNGI

The apterous midge *Belgica antarctica* has been observed associated with the well-developed loam and closed swards of grass. No further information is available on the invertebrate assemblages in the Area, although in view of the well-developed plant communities a rich invertebrate fauna might be expected. There is no information available on local bacterial or fungal communities.

BREEDING BIRDS AND MAMMALS

At least six species of birds breed on the island on which Biscoe Point lies. The most numerous colony is of Adélie penguins (*Pygoscelis adeliae*), located on the ridge of a promontory on the south side of the island, above a narrow cove on the southern coast (Map 3). A gentoo penguin (*Pygoscelis papua*) colony was discovered on slopes on the northern side of this cove, on the southern side of the main island ridge, in 1992-93 (Fraser, pers. comm., 1999) (Map 3). Data on numbers of breeding pairs are presented in Table 1.

Table 1. Numbers of breeding Adélie (*Pygoscelis adeliae*) and gentoo (*Pygoscelis papua*) penguins on the island on which Biscoe Point lies 1971-2002.

Year	<i>Pygoscelis adeliae</i>			<i>Pygoscelis papua</i>		
	Breeding pairs	Count type ¹	Source	Breeding pairs	Count type ¹	Source
1971-72	3020	N3	2	0	N3	2
1983-84	3440	C3	3	0	C3	3

1984-85	2754	N1	3	0	N1	3
1986-87	3000	N4	4			
1994-95				14	N1	5
1995-96				33	N1	5
1996-97	1801	N1	5	45	N1	5
1997-98				56	N1	5
1998-99				26	N1	5
1999- 2000	1665	N1	5	149	N1	5
2000-01	1335	N1	5	296	N1	5
2001-02	692	N1	5	288	N1	5
2002-03	1025	N1	5	639	N1	5

1. N = Nest, C = Chick, A = Adults; 1 = $< \pm 5\%$, 2 = $\pm 5-10\%$, 3 = $\pm 10-15\%$, 4 = $\pm 25-50\%$ (classification after Woehler, 1993)
2. Müller-Schwarze and Müller-Schwarze, 1975
3. Parmelee and Parmelee, 1987
4. Poncet and Poncet 1987 (note: the number of 3500 given in Woehler (1993) appears to be in error).
5. W.R. Fraser data supplied February 2003, based on multiple published and unpublished sources.

The Adélie colonies are some of the oldest in the region (more than 700 years), and have been the subject of paleoecological studies, while the gentoo colony is considered particularly interesting because it has been recently established (Fraser, pers. comm., 1999). Long-term studies are being conducted on the population structure and dynamics of the penguin colonies within the Area, which make a useful comparison with other colonies in Arthur Harbour that are subjected to higher levels of human influence (Fraser, pers. comm., 1999).

South polar skuas (*Catharacta maccormicki*) and brown skuas (*C. loennbergi*) breed within the Area annually, and hybrids also occur. On the island on which Biscoe Point lies, 132 pairs of south polar skuas and one pair of brown skuas were counted on 26-27 February 2001 (Harris, 2001). Concurrently, 15 pairs of south polar skuas, usually with one or two chicks, were counted

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on the promontory 300 m to the north. Kelp gulls (*Larus dominicanus*) and Antarctic terns (*Sterna vittata*) breed within the Area (Fraser, pers. comm., 2000), although data on numbers are not available. Information on other bird species that breed within the Area, or that transiently visit, is not available.

Small numbers of non-breeding Antarctic fur seals (*Arctocephalus gazella*) (several counted on the island in late-February 2001 – Harris, 2001), Weddell seals (*Leptonychotes weddellii*) and southern elephant seals (*Mirounga leonina*) have been observed on beaches in summer.

Despite the presence of beaches and terrain suitable for haul-out, relatively few seals are typically observed within the Area. This may be a result of the observed frequent persistence of dense brash ice originating from glaciers calving from nearby Anvers Island (Fraser, pers. comm., 1999). Further information on numbers and breeding status, or on other seal species, is not available. No information is available on the local marine environment.

HUMAN ACTIVITIES AND IMPACT

Human activity within the Area appears to have been minimal, but few details have been recorded. The first documented human activity in the vicinity of Biscoe Point occurred over 150 years ago, when John Biscoe, Royal Navy, entered the bay now named after him on 21 February 1832. Biscoe recorded a landing on Anvers Island, probably near Biscoe Point, to take formal possession for the United Kingdom of what he believed to be part of the mainland of Antarctica (Hattersley-Smith, 1991). The next recorded visit to Biscoe Point was in 1903-05, when Turquet made observations of *C. quitensis* at the site on the Première Expédition Antarctiques Française led by Charcot.

More recently, formal plots for plant studies were established on the island near Biscoe Point in 1982 (Komárková, 1983), although the long-term research originally planned was discontinued soon thereafter. Komárková used welding rods inserted into the soil to mark study sites. A partial survey accurately mapped the positions (± 2 m) of 44 welding rods found in soils and vegetation during a systematic search made on the northeastern side of the island in February 2001 (Map 3) (Harris, 2001). The rods were located in an area of some of the richest vegetation on the island, and distributed over an area of at least 8000 m². In general, they had been inserted into soil or vegetation with chemically coated ends downwards. Contaminants from the rods appeared to kill all vegetation up to 20 cm from where the rods lay. Numerous rods have been found in previous seasons, possibly numbering in the hundreds (Fraser, Patterson, Day, T.: pers. comms. in e-mail

to C. Harris, 1999-2002). All rods found have been removed. The Area is not considered suitable as a reference site for measuring chemical contamination, because there remains uncertainty over contaminant types and concentrations, which sites have been affected, and the extent to which contaminants may have moved through soil, water and biological systems.

Fraser (pers. comm., 2001) also reported markers made of lead present in the gentoo colony. In addition, seaborne litter (mostly wood) may be found on beaches, and there remains a rubber hose (15 m long, ~15 cm diameter) in a small valley near the southern small boat landing site, which may once have been used for water supply purposes.

Recent scientific studies within the Area have focused on monitoring the breeding status of penguins and skuas, and the Area has also been used for the collection of seeds of *Deschampsia* and *Colobanthus* for ecological research in the Palmer Station region. Permits have been required to visit the Area since the site was specially protected in 1985.

6(ii) Restricted and managed zones within the Area

None.

6(iii) Structures within and near the Area

No structures are known to be present within the Area. A permanent survey marker, consisting of a 5/8" stainless steel threaded rod, was installed on the island on which Biscoe Point lies by the USGS on 31 January 1999. The marker is located at 64°48'40.12"S, 63°46'26.42"W at an elevation of 23 m (Maps 2 & 3). It is sited approximately midway along the principal ridgeline of the island, about 100 m north of the southern small boat landing site. The marker is set in bedrock and marked by a red plastic survey cap.

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

The nearest protected areas to Biscoe Point are: Litchfield Island (ASPA No. 113) which is 16 km west of the Area in Arthur Harbour; South Bay (ASPA No. 146), which is approximately 12 km to the southeast at Doumer Island; and Eastern Dallmann Bay (ASPA No. 153) which is approximately 85 km to the northeast, adjacent to Brabant Island (Map 1).

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7. 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 scientific study of the ecology of the Area, or for other scientific study which will not compromise the values for which the Area is protected;
- it is issued for essential management purposes consistent with plan objectives such as inspection, maintenance or review;
- the actions permitted will not jeopardize the ecological or scientific values of the Area;
- any management activities are in support of the objectives of the management plan ;
- the actions permitted are in accordance with the management plan ;
- the Permit, or an authorised copy, shall be carried within the Area;
- a visit report shall be supplied to the authority named in the Permit;
- permits shall be issued for a stated period.

7(i) Access to and movement within the Area

Access to the Area shall be by small boat, by aircraft, or over sea ice by vehicle or on foot.

Boat access

The recommended landing sites for small boats are at either of the following locations (Maps 2&3):

- (i) on the beach on the northern shore of the elongated cove on the southern coast of the island, which is the site most likely to be free of sea ice;
- (ii) on the beach in the small cove mid-way along the northern coast of the island, adjacent to the designated camp and helicopter landing sites.

Access by small boat at other locations around the coast is allowed, provided this is consistent with the purposes for which a Permit has been granted.

Aircraft access and overflight

When necessary for purposes consistent with plan objectives, aircraft may operate and land within the Area according to strict observance of the following conditions:

- (i) All overflight of the Area for purposes other than access shall be conducted

according to the height restrictions imposed in Table 2. If an updated set of overflight guidelines is adopted by the ATCM, the plan will be revised to reflect the current agreement

Table 2. Minimum overflight heights within the Area according to aircraft type

Aircraft type	Number of Engines	Minimum height above ground	
		Feet	Meters
Helicopter	1	2460	750
Helicopter	2	3300	1000
Fixed-wing	1 or 2	1500	450
Fixed-wing	4	3300	1000

(ii) Helicopter landing is permitted at two designated sites (Map 2), the first (A) on the main island on which Biscoe Point lies, and the second (B) on the separate promontory 300 m further to the north. The landing sites with their coordinates are described as follows:

(A) on beach gravels a few meters above sea level 35 m east of the beach on the eastern shore of a small cove on the northern coast of the island (64°48'35"S, 63°46'49"W).

A small tidal pool of about 25 m in diameter is located 30 m east of the landing site; and

(B) on the permanent snow slope approximately 50-100 m east of the ice-free ground on the northern promontory (64°48'22"S, 63°46'24"W).

(iii) The designated and preferred aircraft access route to landing site (A) is from the west to north-west, from the region of Biscoe Bay (Map 2). When required by prevailing conditions and for safety, access may be made from the north to north-east, over the Anvers Island ice cap, or (less preferably) from the south-west, over the area of Biscoe Point. However, because of the presence of breeding bird colonies, it is prohibited for aircraft to approach / depart landing site (A) from over the region south of the main ridge-line of the island on which Biscoe Point lies, or from directly over the ice-free ground on the separate promontory 300 m to the

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north.

- (iv) The designated and preferred aircraft access routes to the northern peninsula landing site (B) are either from a northerly direction, from the region of Biscoe Bay or over the Anvers Island ice cap, or from a southerly direction, over the stretch of sea immediately south of the promontory (Map 2). Again because of the presence of breeding bird colonies, it is prohibited to approach / depart landing site (B) over the ice-free ground on the northern promontory, or over the region south of the main ridge-line of the island on which Biscoe Point lies.
- (v) Use of smoke grenades to indicate wind direction is prohibited within the Area unless absolutely necessary for safety, and any grenades used should be retrieved.

Vehicle access and use

When access over sea ice is viable, there are no special restrictions on the locations where such access may be made, although vehicles are prohibited from being taken on land within the Area.

Foot access and movement within the Area

Movement on land within the Area shall be on foot. All people in aircraft, boats, or vehicles are prohibited from moving on foot beyond the immediate vicinity of their landing site unless specifically authorised by Permit. Visitors should move carefully so as to minimize disturbance to flora, fauna, and soils, and should walk on snow or rocky terrain if practical, but taking care not to damage lichens. Pedestrian traffic should be kept to the minimum consistent with the objectives of any permitted activities and every reasonable effort should be made to minimize effects.

7(ii) Activities that are or may be conducted in the Area, including restrictions on time or place

- Scientific research that will not jeopardize the ecosystem or scientific values of the Area;
- Essential management activities, including monitoring;
- The appropriate authority should be notified of any activities/measures undertaken that were not included in the authorised Permit.

7(iii) Installation, modification or removal of structures

Structures shall not be erected within the Area except as specified in a Permit and, with the exception of the permanent survey marker, permanent structures or installations are prohibited. All structures, scientific equipment or markers installed in the Area must be approved by Permit for a specified period, and adequately identified by country, name of the responsible investigator or agency, and year of installation. All such items should be made of materials that pose minimal risk of harm to fauna or of contamination of the Area. Installation (including site selection), maintenance, modification or removal of structures shall be undertaken in a manner that minimizes disturbance to flora and fauna. Removal of structures, equipment or markers for which the period specified in the Permit has expired shall be a condition of the Permit.

7(iv) Location of field camps

Temporary camping is allowed within the Area at the designated site about 50 m north-east of helicopter landing site (A), on the northern coast of the main island on which Biscoe Point lies. The camp site is located on beach gravels and rocky ground a few meters above sea level, immediately north of a transient tidal pool, and is separated from the sea further to the north by a low rocky ridge of about 8 m.

When necessary for essential purposes specified in the Permit, temporary camping is allowed on the separate peninsula 300 m to the north, although a specific camping site has not been determined.

Camping on surfaces with significant vegetation cover is prohibited.

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

No living animals, plant material or microorganisms shall be deliberately introduced into the Area and the precautions listed in 7(ix) below shall be taken against accidental introductions. Dressed poultry should be free of disease or infection before shipment to the Area and, if introduced to the Area for food, all parts and wastes of poultry shall be completely removed from the 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

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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 is not to be stored in the Area, unless specifically authorized by Permit for scientific or management purposes. Anything 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. If release occurs which is likely to compromise the values of the Area, removal is encouraged only where the impact of removal is not likely to be greater than that of leaving the material *in situ*.

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

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

7(vii) Collection or removal of anything not brought into the Area by the Permit holder

Collection or removal of anything not brought into the Area by the Permit holder shall only be in accordance with a Permit and should be limited to the minimum necessary to meet scientific or management needs. Anything of human origin likely to compromise the values of the Area, which was not brought into the Area by the Permit Holder or otherwise authorized, may be removed 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. Human wastes may be disposed of into the sea.

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

1. Permits may be granted to enter the Area to carry out biological monitoring and site inspection activities, which may involve the collection of limited samples for analysis or review, or for protective measures.
2. Any specific sites of long-term monitoring shall be appropriately marked.
3. To help maintain the ecological and scientific values derived from the relatively low level of human impact within the Area visitors shall take special precautions against introductions.

4. Of concern are pathogenic, microbial, invertebrate or plant introductions sourced from other Antarctic sites, including stations, or from regions outside Antarctica. Visitors shall ensure that sampling equipment or markers brought into the Area are clean. To the maximum extent practicable, footwear and other equipment used or brought into the Area (including backpacks, carry-bags and tents) shall be thoroughly cleaned 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 organising the scientific use of the Area.

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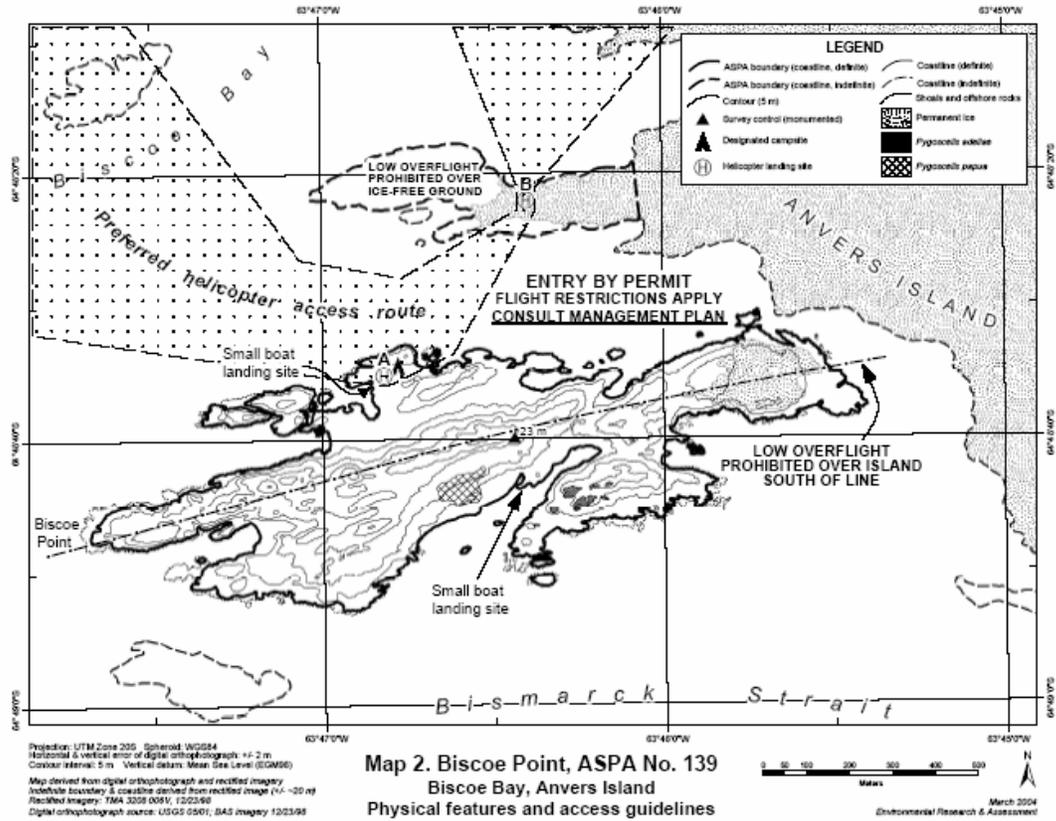
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