# THE STATUS AND TRENDS OF ANTARCTIC AND SUB-ANTARCTIC SEABIRDS

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## SUMMARY

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The third review of the status and trends of Antarctic and sub-Antarctic seabird populations compiled by the Bird Biology Subcommittee of the Scientific Committee on Antarctic Research at the request of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) is presented.

## INTRODUCTION

This is the third review of the status and trends of Antarctic and sub-Antarctic seabird populations undertaken by the Bird Biology Subcommittee of the Scientific Committee on Antarctic Research (SCAR). The first review was undertaken in 1988 (SCAR Bird Biology Subcommittee 1988). The second review was in 1992 and published as SCAR (1992) in the report of the Eleventh Meeting of the Scientific Committee of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). The present review was requested by CCAMLR in 1994 for presentation and discussion at its 1996 meeting. The SCAR Bird Biology Subcommittee (SCAR-BBS) met in Cambridge, UK, 31 July–2 August 1996.

## METHODS

Correspondence with scientists holding pertinent data was coordinated between the 1994 and 1996 meetings of the SCAR-BBS by EJW who prepared a summary of published and unpublished material provided to him. The principal materials on the status of Antarctic and sub-Antarctic seabirds available at the 1996 meeting were:

1. A detailed summary, prepared by EJW, of published and unpublished data on the distribution and abundance of penguins which had appeared since publication of the Distribution and Abundance of Antarctic and sub-Antarctic Penguins (Woehler 1993). A copy of this additional information on penguins is attached (Appendix 1).

2. The revised draft, edited by JPC, of the status of Antarctic and sub-Antarctic penguins, prepared for submission to the workshop on the Conservation Assessment and Management Plan for Penguins held in association with the Third International Penguin Conference, Cape Town, South Africa 8–9 September 1996.

3. Unpublished summaries of information on the distribution and abundance of Snow Petrel *Pagodroma nivea*, Antarctic Petrel *Thalassoica antarctica*, Cape or Pintado Petrel *Daption capense*, Northern Giant Petrel *Macronectes halli*, Southern Giant Petrel *M. giganteus*, Wilson's Storm Petrel *Oceanites oceanicus* and Antarctic and sub-Antarctic cormorants *Phalacrocorax* spp., being the working papers, at various stages of completion, of reviews on these species being undertaken by various scientists under the auspices of the SCAR Bird Biology Subcommittee.

4. A number of relevant published and unpublished papers, together with unpublished data provided by scientists in correspondence and at the meeting.

The Subcommittee reviewed all these materials and summarized some of them in a table and in a series of brief accounts of each species. Table 1 summarizes the main results of principal studies of the various species. This table is confined to information which contains at least two comprehensive and comparable counts for a species at a site. It updates a similar table produced in 1992 (SCAR 1992). The table does not contain data on albatrosses. These species have been the subject of two recent detailed reviews of their status (Gales 1993, 1998), the latter of which was submitted separately to CCAMLR. The species summaries for albatrosses rely extensively on this review. In addition to the table and the species texts, which follow below, the Subcommittee also offered some general comments, chiefly highlighting changes since the 1992 review.

## RESULTS

For penguins and albatrosses much more information is available on population trends than four years ago. Most conclusions offered below for these species are based on combinations of at least one extensive time series of data and several counts from a wider range of sites. For other seabird species, however, although many data on population distribution and abundance have been compiled in recent years, very little information on population trends is available. Data for a few species at some sites are becoming available for use as reliable baselines for future assessments. At present, however, the status and trends of most species of petrels, skuas, gulls and terns cannot be determined.

King Penguins *Aptenodytes patagonicus* are still increasing; except for Emperor *A. forsteri* and Gentoo *Pygoscelis papua* Penguins, all the other Antarctic and sub-Antarctic species (including Adélie *P. adeliae* and Chinstrap *P. antarctica* Penguins) are currently showing an overall decrease in populations compared with the situation a decade ago; this is also true for most regional populations. The situation is potentially most serious for the Macaroni Penguin *Eudyptes chrysolophus* and especially for the Rockhopper Penguin *E. chrysocome*, which is being recommended for Globally Threatened status in the next Red Data Book (S. Ellis *in litt.*).

For all sub-Antarctic albatross species breeding in the CCAMLR area, there is evidence of decreases from at least one site (and usually most, if not all, sites). Incidental mortality associated with longline fisheries is recognized as the main known or potential cause of these changes. Most species (including Wandering *Diomedea exulans*, Grey-headed *D. chrysostoma* and Sooty *Phoebetria fusca* Albatrosses) are being recommended for Globally Threatened status, and even the Black-browed Albatross *D. melanophrys* is now regarded as deserving Near Threatened status (Gales 1998). Evidence of general decreases in giant petrel populations is less clear than in 1992, with new data indicating increases at some sites and decreases at others. More monitoring studies are needed.

Programmes to eradicate predators on seabirds (especially on burrowing species) at sub-Antarctic islands are proving successful and should be further encouraged. There is already some evidence of population recovery at sites, e.g. Marion Island, where cats were removed some time ago (Cooper & Fourie 1992, Cooper *et al*. 1995). There is little, if any, evidence of change in populations due to human activities in the vicinity of breeding colonies, though relatively few sites in close proximity to bases are well documented. There is still no evidence that any population decreases reflect competition with commercial fisheries. For some species and situations a better understanding is developing of interactions between the physical and biological environment in relation to prey availability and population processes in seabirds. Further work on these topics should be a high priority.

## SPECIES ACCOUNTS

### Emperor Penguin *Aptenodytes forsteri*

One new colony recently discovered, at Peterson Bank (Wilkes Land, East Antarctica): (Mellick & Bremers 1995). The colony at Point Géologie, monitored annually since the 1950s, which decreased substantially between the mid 1970s and late 1980s, has remained stable since then (P. Jouventin, H. Weimerskirch unpubl. data). The population size of the Auster colony has remained stable over the last eight years. Numbers of breeding pairs at Taylor Glacier are in close agreement with those obtained in the mid-1970s, indicating stability at this colony for at least 20 years (G.G. Robertson unpubl. data). Colonies in the Ross Sea may be increasing currently (G.L. Kooyman unpubl. data).

### King Penguin *Aptenodytes patagonicus*

All populations for which new data are available are continuing to increase. New data using satellite imagery for Ile des Cochons, Crozet Islands, indicate that the world's largest colony of King Penguins increased from 300 000 pairs in the early 1960s to 500 000 pairs in 1988 (Guinet *et al*. 1995). With 100 000 pairs breeding now at Possession Island (Weimerskirch *et al*. 1992) the total population for the Crozet group is at least 700 000 pairs. New data from Heard Island in 1993 reported an estimated population of 16 345 pairs, an increase of 12 545 over the 1986/87 count (G.G. Robertson *in litt*.). At Macquarie Island, the most recent estimate of 110 000 breeding pairs in the main colony and about another 20 000 pairs in three permanent and seven ephemeral colonies is an increase of 76 000 pairs over 1984 estimates (D.E. Rounsvell unpubl. data). On the basis of incomplete surveys the South Georgia population is now *c*. 400 000 pairs, an increase of 11% *per annum* since 1985/86 (P.A. Prince & S. Poncet *in litt.*). Breeding at the South Sandwich Islands was recorded for the first time in 1995 (Prince & Croxall 1996). The Falkland Islands population is now estimated at 350–400 pairs (Bingham 1995, 1996), an increase of 200–250 pairs since the 1984 estimate. Many more birds are now visiting the coasts of Tierra del Fuego to moult and it is anticipated that breeding may commence there before too long (C. Venegas *in litt*.). We assume that these increases continue to be sustained by enhanced availability of myctophid fish, the species' principal prey at all sites.

### Adélie Penguin *Pygoscelis adeliae*

The increases reported for Ross Sea colonies (44% of total population) after 1982/83 were generally sustained until 1987/88 but decreased thereafter, at least until 1991/92. Recent (1992, 1993) counts from the Australian Antarctic Territory (AAT, with 27% of the total population) indicate that the populations at several colonies have increased over the last five years, the only exception being at sites subject to frequent visits from personnel from nearby stations and from visiting ships (Woehler *et al*. 1994). Populations in the AAT generally appear to be stable or increasing (Woehler & Johnstone 1991, Woehler 1993). The population at Pointe Géologie, Adélie Land, has increased steadily during the past 10 years despite habitat destruction by construction of an air strip (T. Micol & P. Jouventin unpubl. data). At Antarctic Peninsula sites, Adélie Penguin populations have generally been either stable or decreasing since the last review (SCAR 1992). In the Palmer area, the pattern over the last 20 years has been a general decrease with extinction of small colonies (W.L. Fraser & D.L. Patterson unpubl. data). At Admiralty Bay, since 1976, population size has been highly variable but decreased sharply after the late 1980s, being 30% lower on average since 1990 than between 1976 and 1988; recruitment rates decreased concomitantly (Fraser *et al*. 1992, W.Z. Trivelpiece & S. Trivelpiece unpubl. data). At Signy Island, populations fluctuated considerably since 1976 but have decreased (but not yet significantly) since 1988 (Trathan *et al.* 1996).

### Chinstrap Penguin *Pygoscelis antarctica*

Recent (post-1990) data suggest decreases throughout its range in the Antarctic Peninsula and associated island groups, with small but significant decreases at the South Orkney Islands (Signy Island, Trathan *et al*. 1996 and Laurie Island, N.R. Coria unpubl. data), South Shetland Islands (Admiralty Bay, King George Island, Fraser *et al*. 1992, W.Z. Trivelpiece & S. Trivelpiece unpubl. data, see also Myrcha 1993), Nelson Island, M. Favero unpubl. data) and at three sites on the Antarctic Peninsula (K. Crosbie unpubl. data). However, increases are reported at a site on Livingston Island (N.R. Coria unpubl. data) and in the Palmer area, where the population doubled between 1989 and 1995 (W.R. Fraser & D.L. Patterson unpubl. data).

**TABLE 1**

**Changes in Antarctic and sub-Antarctic seabird populations (Data in bold type are new or corrected entries since the 1992 review)**

| Species | Locality | Data years | Mean annual change Years | Mean annual change % | Reference |
|---|---|---|---|---|---|
| Emperor Penguin | Pointe Géologie | 1952, 1958, 1962–1986 | 1975–86 | –7.5 | Jouventin & Weimerskirch 1990 |
| | | **1986–1996** | **1986–96** | **0** | **Jouventin &Weimerskirch u/p** |
| | **Auster** | **1987–1995** | **1987–95** | **0** | **G.G. Robertson u/p** |
| | **Taylor Glacier** | **1987–1995** | **1987–95** | **0** | **G.G. Robertson u/p** |
| King Penguin | Iles Crozet | 1962, 1965, 1981, 1986 | 1962–86 | –0.4* | **Weimerskirch *et al*. 1992** |
| | | 1962, 1967, 1981, 1986 | 1962–86 | +7.3 | **Weimerskirch *et al*. 1992** |
| | | 1967, 1981, 1986 | 1967–86 | +10.4 | **Weimerskirch *et al*. 1992** |
| | Iles Kerguelen | 1962, 1985 | 1962–85 | +6.3 | Weimerskirch *et al*. 1989 |
| | | 1962, 1985 | 1962–85 | +7.2 | Weimerskirch *et al*. 1989 |
| | | 1974, 1985 | 1974–85 | +19.6 | Weimerskirch *et al*. 1989 |
| | Heard I (Spit Bay) | 8y 1963–1988 | 1963–88 | +25.5 | Gales & Pemberton 1988 |
| | | **10y 1963–1993** | **1963–93** | **+27.6** | **G. Moore & G.G. Robertson u/p** |
| | Macquarie I | 1930, 1980 | 1930–80 | +6.9 | Rounsevell & Brothers 1984 |
| | **Macquarie I (Lusitania Bay)** | **4y 1978–1990** | **1978–90** | **+4.7** | **D.E. Rounsevell u/p** |
| | **South Georgia** | **1914, 1946, 1976, 1986** | **1914–86** | **+5** | **Croxall *et al.* 1988** |
| | | **1976, 1986** | **1976–86** | **+12.3** | **Croxall *et al.* 1988** |
| Adélie Penguin | Cape Bird | 1965–70, 1974–87 | 1982–88 | +10.1 | Wilson 1990 |
| | | **4y 1981–1988** | **1981–88** | **+8.7** | **Taylor *et al*. 1990** |
| | | **6y 1988–1994** | **1988–94** | **–6.2** | **K. Barton u/p** |
| | Cape Hallett | 1981–87 | 1981–82 | +9.9 | Taylor *et al.* 1990 |
| | | **3y 1967–1988** | **1967–88** | **+1.2** | **K. Barton u/p** |
| | | **3y 1988–1991** | **1988–91** | **–7.8** | **K. Barton u/p** |
| | **Cape Royds** | **10y 1980–1995** | **1980–95** | **+4.8** | **K. Barton u/p** |
| | Beaufort I | 1981, 1983–1987 | 1981–87 | +6.1 | Taylor *et al*. 1990 |
| | | **4y 1963–1988** | **1963–88** | **+2.9** | **K. Barton u/p** |
| | | **1988–1991** | **1988–91** | **–4.5** | **K. Barton u/p** |
| | **Franklin I West** | **1981, 1983–1987** | **1981–87** | **+8.5** | **Taylor *et al*. 1990** |
| | Pointe Géologie | 1958, 1984 | 1958–84 | +2.1 | Jouventin & Weimerskirch 1990 |
| | Windmill Is | 1961, 1971, 1989 | 1961–71 | +9.6 | Woehler *et al*. 1991 |
| | | | 1971–89 | +0.8 | Woehler *et al.* 1991 |

| Species | Locality | Data years | Mean annual change | | Reference |
|---|---|---|---|---|---|
| | | | Years | % | |
| Adélie Penguin (cont.) | Signy Island | 4y 1948–1979 | 1948–79 | +3.6 | Croxall *et al*. 1981 |
| | | **1979–1992** | **1979–92** | **+0.4** | **Croxall *et al*. 1988 & Trathan *et al*. 1996** |
| | | **1979–1996** | **1979–96** | **+0.2** | **J.P. Croxall *et al*. u/p** |
| | | **1988–1996** | **1988–96** | **–0.4** | **J.P. Croxall *et al*. u/p** |
| | Admiralty Bay | 7y 1977–1986 | 1977–86 | +0.2 | Trivelpiece *et al*. 1990 |
| Chinstrap Penguin | Admiralty Bay | 7y 1977–1986 | 1977–86 | –3.1 | Trivelpiece *et al*. 1990 |
| | Signy Island | 4y 1948–1979 | 1948–79 | +7.3 | Croxall *et al*. 1981 |
| | | 1979–92 | 1972–92 | –0.1 | Croxall *et al*. 1988 & u/p |
| | **Signy I (all)** | **1979–1992** | **1979–92** | **–0.1** | **Croxall *et al*. 1988** |
| | **Signy I (some)** | **1979–1992** | **1979–92** | **–2.2** | **Trathan *et al*. 1996** |
| | **Signy I (all)** | **1979–1996** | **1979–96** | **–0.5** | **Croxall *et al*. u/p** |
| | Bouvetoya | 4y 1958–1978 | 1958–78 | +14.6 | Bakken 1991 |
| | | 1979, 1990 | 1978–90 | –7.6 | Bakken 1991 |
| | Half Moon I | 1965, 1990 | 1965–90 | +1.5 | Favero & Silva 1991 |
| | Harmony Pt | 4y 1964–1988 | 1964–88 | +5.5 | Favero *et al*. 1991 |
| Gentoo Penguin | Iles Crozet | 1970, 1985, 1986 | 1970–86 | –2 | Jouventin & Weimerskirch 1990 |
| | Heard I | 1952, 1987 | 1952–87 | +2.5 | Woehler 1991 |
| | Signy I | 1979–1992 | 1979–92 | +2.1 | Croxall *et al*. u/p |
| | | **1979–1996** | **1979–96** | **+2.3** | **Croxall *et al*. u/p** |
| | **Bird I, South Georgia** | **1973, 1977–1996** | **1973–96** | **–1.8** | **Croxall *et al*. u/p** |
| | Harmony Pt | 6y 1903–1988 | 1903–88 | +5.4 | Favero *et al*. 1991 |
| Macaroni Penguin | Iles Kerguelen | 1962, 1985 | 1962–85 | +0.7 | Weimerskirch *et al*. 1989 |
| | Bird I, South Georgia | 1958, 1977 | 1958–77 | +9.7 | Croxall & Prince 1990 |
| | | 1977–1992 | 1977–92 | –0.7 | Croxall *et al*. u/p |
| | **(Fairy Point)** | **1977–1984** | **1977–84** | **+2.1** | **J.P. Croxall *et al*. u/p** |
| | | **1985–1994** | **1985–94** | **–4.6** | **J.P. Croxall *et al*. u/p** |
| | | **1985–1996** | **1985–96** | **–7.0** | **J.P. Croxall *et al*. u/p** |
| | **(Main)** | **1979–1994** | **1979–94** | **–3.1** | **J.P. Croxall *et al*. u/p** |
| | | **1980–1994** | **1980–94** | **–1.7** | **J.P. Croxall *et al*. u/p** |
| | | **1978–1996** | **1978–96** | **–4.0** | **J.P. Croxall *et al*. u/p** |
| | Bouvetoya | 5y 1958–81 | 1958–81 | +17.1 | Bakken 1991 |
| | | | 1979–90 | –0.9 | Bakken 1991 |

| Species | Locality | Data years | Mean annual change Years | Mean annual change % | Reference |
|---|---|---|---|---|---|
| Wandering Albatross | Bird I, South Georgia | 1976–1992 | 1976–92 | –1 | Croxall *et al.* 1990 & u/p |
| | | **1976–1996** | **1976–96** | **–0.8** | **Croxall *et al*. 1990, Croxall *et al.* 1998** |
| | Possession I, Crozets | 5y 1960–1985 | 1960–**96** | –2.4 | **Weimerskirch *et al*. 1997** |
| | Cochon I, Crozets | 3y 1964–1981 | 1964–81 | –2 | **Weimerskirch & Jouventin 1998** |
| | Kerguelen | 1971, 1985 | 1971–88 | –5.7 | **Weimerskirch *et al*. 1997** |
| | Marion I | 7y 1974–1989 | 1974–91 | –0.7 | J. Cooper u/p |
| **Amsterdam Albatross** | **Amsterdam I** | **1982, 1995** | **1982–95** | **+5.0** | **Weimerskirch & Jouventin 1997** |
| **Blackbrowed Albatross** | **Iles Kerguelen** | **1978, 1986, 1996** | **1978–96** | **–0.2** | **Weimerskirch & Jouventin 1998** |
| | Bird I, South Georgia | 1976–1989 | 1976–89 | +0.8 | P.A. Prince *et al*. u/p |
| | **(H)** | **1976–1996** | **1976–96** | **–4.2** | **Prince *et al*. 1994, Croxall *et al*. 1998** |
| | | **1989–1996** | **1989–96** | **–9.4** | **Prince *et al*. 1994, Croxall *et al*. 1998** |
| | **(all)** | **1976–1996** | **1976–96** | **–1.8** | **Prince *et al*. 1994, Croxall *et al*. 1998** |
| | | **1976–1989** | **1976–89** | **+0.5** | **Prince *et al*. 1994, Croxall *et al*. 1998** |
| | | **1989–1996** | **1989–96** | **–6.9** | **Prince *et al*. 1994, Croxall *et al*. in press** |
| Greyheaded Albatross | Bird I, South Georgia | 1977–1990 | 1977–90 | –1.8 | P.A. Prince *et al.* u/p |
| | **(E)** | **1976–1996** | **1976–96** | **–1.9** | **Prince *et al*. 1994, Croxall *et al*. 1998** |
| | **(all)** | **1976–1996** | **1976–96** | **–1.4** | **Prince *et al*. 1994, Croxall *et al*. 1998** |
| **Yellownosed Albatross** | **Amsterdam I** | **1978, 1995** | **1978–95** | **–3.6** | **Weimerskirch & Jouventin 1998** |
| **Lightmantled Sooty Albatross** | **Possession I** | **>4 counts, 1966–1995** | **1966–95** | **–1.7** | **Weimerskirch & Jouventin 1998** |
| **Sooty Albatross** | **Possession I** | **>6 counts, 1966–1995** | **1966–95** | **–6.9** | **Weimerskirch & Jouventin 1998** |
| Southern Giant Petrel | Pointe Géologie | 1956–1984 | 1956–84 | –5.5 | Jouventin & Weimerskirch 1990 |
| | Giganteus I | 1956 1985 | 1956–85 | –8.2 | Woehler & Johnstone 1991 |
| | Hawker I | 1970, 1988 | 1970–88 | –7.8 | Woehler & Johnstone 1991 |
| | Frazier Is | 1956, 1983 | 1956–83 | –2.1 | Woehler & Johnstone 1991 |
| | Signy I | 4y 1937–1985 | 1937–85 | –6.5 | Rootes 1988 |
| | Anvers I | ?–1992 | 19?–92 | +? | W.R. Fraser, u/p |
| | Harmony Pt | 1965, 1989 | 1965–89 | 0.7 | Favero *et al*. 1991 |
| | | **1988–1995** | **1988–95** | **+7.3** | **M. Favero u/p** |
| | Marion I | 6y 1985–1992 | 1985–92 | –2.2 | J. Cooper u/p |
| | Heard I | 1951, 1988 | 1951–88 | –1.9 | Woehler 1991 |
| | **Bird I, South Georgia** | **1979–1981, 1996** | **1979/81–96** | **–0.5** | **Hunter 1984, D.R .Briggs & R. Humpidge u/p** |

| Species | Locality | Data years | Mean annual change Years | % | Reference |
|---|---|---|---|---|---|
| Northern Giant Petrel | Crozet | 1980–1985 | 1980–85 | –7 | Jouventin & Weimerskirch 1990 |
| | Bird I, South Georgia | 6y 1973–1982 | 1973–82 | +4.3 | Hunter 1984 |
| | **Bird I, South Georgia** | **1979–1981, 1996** | **1979/81–96** | **+3.0** | **Hunter 1984, DR Briggs & R Humpidge u/p** |
| | Marion I | 6y 1985–1992 | 1985–92 | +4.1 | J. Cooper u/p |
| Antarctic Fulmar | Haswell I | 1963, 1979 | 1963–79 | –1.8 | Woehler & Johnstone 1991 |
| | Rauer Is | 1981, 1985 | 1981–85 | +10.7 | Woehler & Johnstone 1991 |
| | Windmill Is | 1962, 1985 | 1962–84 | +3.5 | van Franeker *et al.* 1990 |
| Antarctic Petrel | Haswell I | 1962, 1979 | 1962–79 | –8.1 | Woehler & Johnstone 1991 |
| | Rauer I | 1981, 1985 | 1981–85 | –2.4 | Woehler & Johnstone 1991 |
| | Windmill I | 1962, 1984 | 1962–84 | 6 | van Franeker *et al*. 1990 |
| Pintado Petrel | Haswell Is | 4y 1957–1975 | 1957–79 | –0.6 | Woehler & Johnstone 1991 |
| | Windmill I | 1962, 1978, 1984 | 1962–84 | +10 | van Franeker *et al.* 1990 |
| | Harmony Pt | 1965, 1989 | 1965–89 | +7.6 | Favero *et al.* 1991 |
| Subantarctic Skua | Bird I, South Georgia | 1959, 1977, 1981 | 1959–81 | +3.8 | Prince & Croxall 1983 |
| | Signy I | 1959–1966, 1983 | 1959–83 | +3.8 | Hemmings 1984 |
| South Polar Skua | Anvers I | 1974–1990 | 1974–90 | +6.6 | W.R. Fraser, u/p |
| Kelp Gull | Half Moon I | 1966, 1991 | 1966–91 | +2.5 | Favero & Silva 1991 |
| | Harmony Pt | 1965, 1989 | 1965–89 | +8.1 | Favero *et al.* 1991 |
| | **Cuverville I** | **1992–1994** | **1992–94** | **–10.0%** | **K. Crosbie u/p** |
| **Antarctic Tern** | **Cuverville I** | **1992–1994** | **1992–94** | **–10.0%** | **K. Crosbie u/p** |
| Imperial Cormorant | Signy I | 20y 1948–1981 | 1948–81 | +6 | Shaw 1984 |
| | **(North Point)** | **27y 1948–1988** | **1948–88** | **+0.5** | **N.J. Cobley u/p** |
| | **(Shagnasty)** | **16y 1960–1988** | **1960–88** | **0** | **N.J. Cobley u/p** |
| | Half Moon I | 1953, 1991 | 1953–91 | +7.2 | Favero & Silva 1991 |
| | Harmony Pt | 1965, 1989 | 1965–89 | +3.4 | Favero *et al*. 1991 |
| | **Cuverville I** | **1992–1994** | **1992–94** | **–15.0%** | **K. Crosbie u/p** |

* colony adjacent to permanent station

### Gentoo Penguin *Pygoscelis papua*

Populations at all sites are characterized by large fluctuations. At sites on the Antarctic Peninsula (K. Crosbie & A. Nimon unpubl. data), South Shetland Islands (Nelson Island, N.R. Coria unpubl. data), King George Island (Myrcha 1993), South Orkney Islands (Signy Island, J.P. Croxall unpubl. data) populations have mainly increased, often by 20–40% over the last decade. At a few sites, however (e.g. Harmony Point, Nelson Island (M. Favero unpubl. data), Watson Peninsula, South Orkney Islands (N.R. Coria unpubl. data)), there are suggestions of population decreases. At Bird Island, South Georgia, annual counts over the 20 years 1976–1996 suggest an overall decrease of about 20%, from the high population levels prevailing in the mid 1970s (Croxall & Rothery 1995, J.P. Croxall & P.A. Prince, unpubl. data).

### Macaroni Penguin *Eudyptes chrysolophus*

Only for Bird Island, South Georgia, is there a substantial time series of data for this species. The monitored population there decreased substantially (by 30–40%) over two to three years in the mid-late 1970s, remained essentially stable from 1980 to 1994 but decreased by 30% in the last two years (J.P. Croxall & P.A. Prince unpubl. data). The overall result is a halving of the population over the 20-year period. Few new quantitative data are available for other sites but there is little evidence of any change in the population monitored at Seal Island, South Shetland Islands between 1988 and 1995 (J.L. Bengtson pers. comm.).

### Royal Penguin *Eudyptes schlegeli*

Endemic to Macquarie Island, whence no new data are available since the population estimate of 850 000 pairs in 1984/85 (Woehler 1993).

### Rockhopper Penguin *Eudyptes chrysocome*

Although largely extralimital to the CCAMLR Convention Area, further evidence has been provided of substantial recent and continuing decreases at the Falkland Islands (Bingham 1995, 1996), Campbell Island (Cunningham & Moors 1994), Auckland Islands (Cooper 1992), Antipodes Islands (R.H. Taylor & A. Tennyson unpubl. data) and Amsterdam and St Paul Islands (P. Jouventin & H. Weimerskirch unpubl. data). However, populations in Chile and Argentina appear to be at least stable (Venegas 1984, 1991) and the recent (1994/95) counts at Marion Island showed no change compared with the 1987/88 data (J. Cooper & R.J.M. Crawford unpubl. data). Overall, the status of this species is a cause for serious concern.

### Wandering Albatross *Diomedea exulans*

The Iles Crozet population, reduced by over 50% during the two decades to 1985, has been slowly recovering since 1986 at about 4% a year (Weimerskirch *et al*. 1997). The Bird Island, South Georgia population, however, reduced by 30% since 1962, continues to decrease at about 1% a year (Croxall *et al*. 1998). The persisting decrease of the small population at Macquarie Island has been recently documented (de la Mare & Kerry 1994). Longline fishing, predominantly for tuna but now including other target species, especially Patagonian Toothfish *Dissostichus eleginoides*, is the main cause of these decreases (Weimerskirch *et al*. 1997, Prince *et al*. 1998,). Woehler (1996) reports significant decreases in at-sea abundance in the Prydz Bay region between 1981 and 1993.

### Amsterdam Albatross *Diomedea amsterdamensis*

This species, endemic to Amsterdam Island, continues to recover from very low population levels (currently only *c*. 20 breeding pairs) but is still highly vulnerable to adverse changes in terrestrial and marine habitats (Weimerskirch *et al.* 1997). Bycatch in tuna longline fisheries off Australia has been documented (Gales 1998).

### Black-browed Albatross *Diomedea melanophrys*

Populations at Bird Island which were previously fairly stable or fluctuating (SCAR 1992) are now in significant decrease at rates reaching 7% a year for the best-studied colonies (Prince *et al*. 1994, Croxall *et al*. 1998). Recent reductions in adult survival and previous and current very low recruitment are the main demographic factors involved, with longline fisheries, both locally and in South African waters the most likely causes of existing and potential future decreases (Prince *et al*. 1998). The Kerguelen Island population is also decreasing (Weimerskirch & Jouventin 1998). Woehler (1996) reports significant decreases between 1981 and 1993 in at-sea abundance in the Prydz Bay region.

### Yellow-nosed Albatross *Diomedea chlororhynchos*

The Amsterdam Island population is decreasing at 7% per annum as a result of increased mortality of adults and immature birds (Weimerskirch & Jouventin 1998), largely attributable to longline fishing. The population at Gough Island may also be decreasing (Gales 1998); considerable bycatch of this species in tuna longline fisheries in the Indian and Atlantic Oceans is now documented (Gales 1998).

### Grey-headed Albatross *Diomedea chrysostoma*

Populations at Bird Island, South Georgia continue to decrease at about 2% a year (Prince *et al.* 1994, Croxall *et al*. 1998), mainly as a result of very low recruitment. As South Georgia has 60% of the world population this is particularly serious. The Marion Island population, which decreased at 0.7% per annum between the 1980s and 1992, is now increasing (Gales 1998).

### Sooty Albatross *Phoebetria fusca*

The only population with documented trends, at Possession Island, Crozet Islands, decreased at 7% per annum between 1979 and 1986 and is now decreasing at 3% a year (Weimerskirch & Jouventin 1998). There is a significant relationship between the population decrease and longline fishing effort within the species' foraging range while breeding (Weimerskirch & Jouventin 1998).

### Light-mantled Sooty Albatross *Phoebetria palpebrata*

The small population at Possession Island, Crozet Islands has decreased at 1.7% per annum between 1966 and 1995 (Weimerskirch and Jouventin 1998); no other data on population trends are available for this species. Woehler (1996) reports significant decreases in at-sea abundance in the Prydz Bay region between 1981 and 1993.

### Northern Giant Petrel *Macronectes halli*

A current review of giant petrel population data (D.L. Patterson unpubl. data) indicates that populations at Possession Island

decreased by about 33% (7% a year) between 1981 and 1994 (H. Weimerskirch, unpubl. data). In contrast, stable populations are suggested by censuses at Macquarie Island in 1977 and 1995 (R. Gales unpubl. data) and Marion Island in 1990 and 1994 (J. Cooper unpubl. data). Counts at Prince Edward Island in 1978 and 1990 suggest that an increase may have occurred (Cooper & Brown 1990), as do counts at Bird Island, South Georgia in 1979–1981 and 1996 (D.R. Briggs & R. Humpidge unpubl. data). Woehler (1996) reports a decrease in at-sea abundance of this species in the Prydz Bay region between 1981 and 1993.

### Southern Giant Petrel *Macronectes giganteus*

For sub-Antarctic islands, the relatively few new data available since the last assessment (SCAR 1992) indicate that populations are stable to increasing at Possession Island (H. Weimerskirch, unpubl. data) and stable or very slightly decreasing at Bird Island, South Georgia (D.R. Briggs & R. Humpidge unpubl. data) and Marion Island (J. Cooper unpubl. data) and decreasing at Macquarie Island (R. Gales unpubl. data). Elsewhere, colonies on the Antarctic Continent appear to be decreasing, whereas those on the Antarctic Peninsula are either stable (e.g. Potter Peninsula and Laurie Island, N.R. Coria unpubl. data), possibly increasing (e.g. Cape Geddes, Coria *et al*. 1995), or probably increasing (Anvers Island, W.R. Fraser & D.L. Patterson unpubl. data).

### Small fulmarine petrels

Limited new data suggest population increases in Cape (Pintado) Petrels *Daption capense* at Harmony Point and Ardley Island (Nelson Island, South Shetland Islands, N.R. Coria, M. Favero & G.E. Soave unpubl. data) but the same difficulties of interpretation noted by SCAR (1992) still apply. No new data that could indicate population trends are available for any of the other species.

### Burrowing petrels

Continuing destruction of breeding habitat by Antarctic Fur Seals *Arctocephalus gazella* at South Georgia has doubtless caused further decrease in populations of Antarctic Prions *Pachyptila desolata* and Blue Petrels *Halobaena caerulea* at this site. Breeding success of Great-winged Petrels *Pterodroma macroptera* has increased at Marion Island (Cooper & Fourie 1992, Cooper *et al*. 1995) following the removal of cats; breeding populations may also have increased and surveys to assess this commenced in 1996 (R.J.M. Crawford *in litt*. to J. Cooper). Woehler (1996) reports decreases in at-sea populations of White-chinned Petrels *Procellaria aequinoctialis* in the Prydz Bay region between 1981 and 1993. This species is currently caught and killed, especially at night, by longline fishing vessels and there is increasing concern over its status in the Atlantic and Indian Ocean regions in particular. A population survey at Bird Island, South Georgia will start in 1996.

### Imperial or Blue-eyed Cormorant *Phalacrocorax atriceps*

The increases in populations identified (using data up to about the mid 1980s) at the last review (SCAR 1992) have not continued. Indeed there is now evidence that there have been appreciable decreases (6–9% a year) over the last decade at Signy Island (N. Cobley unpubl. data), Cuverville Island (K. Crosbie unpubl. data), Half Moon Island (N.R. Coria unpubl. data), and Harmony Point and Duthoit Point (both Nelson Island, N.R. Coria & M. Favero unpubl. data). In the Palmer area, the population decreased from about 970 pairs in 1990 to 165 pairs in 1996, thought to be the result of the *Bahia Paraiso* oil spill (W.R. Fraser & D.L. Patterson unpubl. data).

### Subantarctic Skua *Catharacta antarctica*

Few new data exist, with no clear evidence of trends at any site.

### South Polar Skua *Catharacta maccormicki*

Few new data exist. Population increases have occurred at Potter Peninsula, King George Island (N.R. Coria unpubl. data), Cuverville Island (K. Crosbie unpubl. data) and Palmer area, this last despite zero fledging success in recent years (W.R. Fraser &, D.L. Patterson unpubl. data).

### Kelp Gull *Larus dominicanus*

There are suggestions of a population increase at Hope Bay (N.R. Coria unpubl. data) and decrease at Cuverville Island (K. Crosbie unpubl. data) but no reliable information on trends for any site or area.

### Antarctic Tern *Sterna vittata*

Few data exist for a species that is very difficult to count. Possible increases at Hope Bay and Nelson Island (N.R. Coria & M. Favero unpubl. data) and decreases at Cuverville Island (K. Crosbie unpubl. data).

### Kerguelen Tern *Sterna virgata*

No new data exist.

### Greater Sheathbill *Chionis alba*

No new data exist.

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# APPENDIX 1

## EMPEROR PENGUIN *APTENODYTES FORSTERI*

**New breeding colonies:** New colony at Peterson Bank, (Wilkes Land, East Antarctica) surveyed on 3 November 1994 (Mellick & Bremers 1995).

**Update on previous survey data:** Recent survey data for Taylor Glacier and Auster colonies from G.G. Robertson (unpubl. data). Unpublished data for Ross Sea (GLK).

**Assessment of population trends and status:** Stable at Taylor Glacier and Auster colonies (GGR). Increasing at colonies in the Ross Sea (GLK). Stable at Pointe Géologie (PJ & HW).

**Responders:** P. Jouventin, G.L. Kooyman, G.G. Robertson, H. Weimerskirch.

**TABLE 1**

**New and recent population data for Emperor Penguins**

| Locality No. | Lat. & Long. | No. colonies | Total population (pairs) | Date | Refs | Remarks |
|---|---|---|---|---|---|---|
| EMPEROR PENGUINS IN PRINCESS ELIZABETH LAND | | | | | | |
| 19 | Taylor Glacier | | | | | |
| | 67°28'S, 60°53'E | 1 | 1725 (A3) | 1980 | | |
| | | | 2900 (A3) | 1988 | | |
| | | | **2704 (A1)** | **1993** | | **G.G. Robertson u/p** |
| | | | **3247 (A1)** | **1994** | | **G.G. Robertson u/p** |
| 20 | Auster | | | | | |
| | 67°23'S, 64°02'E | 1 | 10000–12000 (A3) | 1978 | | |
| | | | 11000 (A4) | 1988 | | |
| | | | **13300 (A2)** | **1993** | | **G.G. Robertson u/p** |
| | | | **11150 (A2)** | **1994** | | **G.G. Robertson u/p** |
| EMPEROR PENGUINS IN WILKES LAND | | | | | | |
| **29a** | **Peterson Bank** | | | | | |
| | **65°56'S, 110°12'E** | **1** | **2000 (C3)** | **1994** | **(14)** | |
| EMPEROR PENGUINS IN THE ROSS SEA | | | | | | |
| 34 | Cape Roget | | | | | |
| | 71°59'S, 170°31'E | 1 | 11700 (C3) | 1964 | | |
| | | | 3851 (C2) | 1983 | | G.L. Kooyman pers comm. |
| | | | **6551 (C1)** | **1993** | | **G.L. Kooyman pers comm.** |
| 35 | Coulman I | | | | | |
| | 73°24'E, 169°45'E | 1 | 21000 (C2) | 1964 | | |
| | | | 22137 (C2) | 1983 | | G.L. Kooyman pers comm. |
| | | | 20204 (C2) | 1994 | | G.L. Kooyman pers comm. |
| 36 | Cape Washington | | | | | |
| | 74°39'S, 165°25'E | | 2500–3800 (C4) | 1968 | | |
| | | | 16384 (C2) | 1983 | | G.L. Kooyman pers comm. |
| | | | 19364 (C2) | 1986 | | |
| | | | **22354 (C2)** | **1995** | | **G.L. Kooyman pers comm.** |
| 39 | Cape Crozier | | | | | |
| | 77°31'S,169°23'E | 1 | 118 (C1) | 1975 | | Nos. decreased from 1962 |
| | | | 40 (C1) | 1977 | | (1280) to 1977 |
| | | | 78 (C1) | 1983 | | |
| | | | **623 (C2)** | **1995** | | **G.L. Kooyman pers comm.** |

## KING PENGUIN *APTENODYTES PATAGONICUS*

**New breeding colonies:** First breeding records for the South Sandwich Islands reported by P. Harrison *in litt.* to Prince & Croxall (1996).

**Update on previous survey data:** Recent calculations for Iles Crozet and Iles Kerguelen in Guinet *et al*. (1996), estimate King Penguins increased by 113% between 1962 and 1985 on Iles Crozet and by 341% on Iles Kerguelen.

New estimates for Macquarie Island (72 000 chicks in 1990) indicate that the breeding population continues to increase rapidly, and is now believed to be of the order of 500 000 birds (DER). At Heard Island, the population has continued to increase (in excess of 10 500 chicks in 1993: GM & GGR). The South Georgia population is estimated as *c*. 400 000 pairs, an increase of 11% since 1985/86 (PAP, SP).

**Assessment of population trends and status:** Populations of King Penguins continue to increase at all known breeding localities where surveys are undertaken. The total population is now estimated to exceed 1.64 million breeding pairs.

**Responders:** J. Cooper, G. Moore, S. Poncet, P.A. Prince, G.G. Robertson, D.E. Rounsevell, H. Weimerskirch.

**TABLE 2**

**Recent population data for King Penguins**

| Locality No. | Lat. & Long. | No. colonies | Total population (pairs) | Date | Refs | Remarks |
|---|---|---|---|---|---|---|
| KING PENGUINS ON THE ILES CROZET | | | | | | |
| 3 | Ile de la Possession | 4 | 64658 (A,N4) | 1966, 1968 | | |
| | | | 55000 | 1981/2 | | |
| | | | 95600 | 1985/6 | (11) | pop. doubled since 1966 |
| 4 | Ile de l'Est | 6 | 81133 (A4) | 1970/1 | | |
| | | | 100000 | 1981/2 | | |
| 5 | Ile aux Cochons | 3 | 200600 (A5) | 1963/4, 1974 | | |
| | | 5 | 300000 | 1985 | | |
| | | | **494000 (A3)** | **1988** | **(11)** | **SPOT satellite imagery** |
| | **Iles Crozet total** | | **1000000 (A4)** | **1988** | **(11)** | **estimate** |
| KING PENGUINS ON HEARD ISLAND | | | | | | |
| 7 | Heard I | 7 | 3800 (C1) | 1987/8 | | |
| | | **7** | **10523 (C1)** | **1993** | | **G. Moore & G.G. Robertson u/p colony photograph counts.** |
| KING PENGUINS ON MACQUARIE ISLAND | | | | | | |
| 8 | Lusitania Bay | 1 | 41454 (C1) | 1978 | | |
| | | 1 | 46595 (C1) | 1980 | | |
| | | | 55000 (C1) | 1984 | | |
| | | | **72000 (C1)** | **1990** | | **D.E. Rounsevell u/p** |
| KING PENGUINS ON SOUTH GEORGIA | | | | | | |
| 10 | South Georgia | 28 | 34000 (A2) | 1978 | | |
| | | 34 | 122000 (C1) | 1985/6 | | |
| | | | **400000 (A4)** | **1990–95** | | **P.A. Prince & S. Poncet u/p** |
| KING PENGUINS ON THE FALKLAND ISLANDS | | | | | | |
| 11 | Falkland Is | ≥3 | 150 (A2) | | | |
| | | **7** | **382 (A2)** | **1993/94** | **(3)** | **estimated from 339 chicks** |
| **KING PENGUINS ON THE SOUTH SANDWICH ISLANDS** | | | | | | |
| | | **1** | **B** | **1994/95** | | **P. Harrison in Prince & Croxall (1996)** |

## ADÉLIE PENGUIN *PYGOSCELIS ADELIAE*

**New breeding colonies:** Newly discovered colonies on islands in Pine Island Bay, Walgreen Coast, Marie Byrd Land with an estimated total population of several hundred pairs (Anon. 1992). Counts at Acuña I, Laurie Island for new colony? (1920 pairs in 12/1994: N.R. Coria). New nesting effort at Duthoit Point, Nelson Island (Coria *et al.* 1995) and at Brown Bluff, Tabarin Peninsula (RN & LB).

**Update on previous survey data:** Recent data are presented for King George Island (Sierakowski 1991, Lesinski 1993, Aguirre 1995, Emslie *et al.* 1995), and the AAT (Mellick *et al*. 1995). Myrcha (1993) reports a decrease in breeding population on King George Island from 1980/81 (approx 33 000 pairs) to approx 14 000 pairs in 1989/90; decrease was most rapid in early 1980s. Population is stable on Signy Island, South Orkney Islands, in the period 1979–1992 (Trathan *et al*. 1996).

Data not used here include data for Anvers Island (Fraser *et al*. 1992) and Lutzow-Holm Bay area (Watanuki & Kato 1992 and u/p). Unpublished data for the AAT and Ross Sea provide data on individual islands where monitoring programmes are being undertaken (i.e. Jocelyn Islands and Béchervaise Island at Mawson, Shirley Island at Casey: JRC & EJW).

**Assessment of population trends and status:** Colony decreases in the Palmer area with extinction of small colonies, and a general decrease in population over the past 20 years (WRF & DLP u/p). Population at Pointe Géologie archipelago increased 1986 to 1996, despite runway construction activities (PJ & HW). Significant decreases at most colonies in the Ross Sea since the late 1980s (KB) after increasing during the 1980s.

**Responders:** K. Barton, L. Blight, J.R. Clarke, N.R. Coria, J.P. Croxall, M. Favero, W.R. Fraser, P. Jouventin, A. Kato, R. Naveen, D.L. Patterson, Y. Watanuki, H. Weimerskirch, E.J. Woehler.

**TABLE 3**

**Recent population data for Adélie Penguins**

| Locality No. | Locality Lat. & Long. | No. colonies | Total population (pairs) | Date | Refs | Remarks |
|---|---|---|---|---|---|---|
| ADÉLIE PENGUINS IN WILKES LAND | | | | | | |
| 25 | Davis I | | | | | |
| | 66°39'S, 108°24'E | 1 | 550 (C4) | 1960 | | |
| | | **2** | **8730 (N2)** | **1993/4** | **(15)** | **Improved survey, rather than pop. increase?** |
| ADÉLIE PENGUINS IN THE ROSS SEA | | | | | | |
| 60 | Duke of York I | | | | | |
| | 71°37'S, 170°02'E | 1 | 1750 (C2) | 1982 | | |
| | | | 4749 (N1) | 1985 | | |
| | | | 4454 (N3) | 1988 | | |
| | | | **2307 (N2)** | **1990** | | **K. Barton u/p, decreasing** |
| 61 | Cape Adare | | | | | |
| | 71°18'S, 170°09'E | 1 | 220900 (C2) | 1982 | | |
| | | | 282307 (N2) | 1986 | | |
| | | | 272338 (N3) | 1988 | | |
| | | | **169200 (N2)** | **1990** | | **K. Barton u/p, decreasing** |
| 62 | Downshire Cliffs | | | | | |
| | 71°33'S, 171°22'E | 1 | 4000 (C4) | 1982 | | |
| | | | 23695 (N2) | 1986 | | |
| | | | 22589 (N3) | 1988 | | |
| | | | **12492 (N2)** | **1990** | | **K. Barton u/p, decreasing** |
| 64 | Sven Foyn I | | | | | |
| | 71°57'S, 171°09'E | 1 | 25000–30000 | 1964 | | |
| | | | 39567 (N2) | 1986 | | |
| | | | 35037 (N3) | 1988 | | |
| | | | **19587 (N2)** | **1990** | | **K. Barton u/p, decreasing** |

| Locality No. | Lat. & Long. | No. colonies | Total population (pairs) | Date | Refs | Remarks |
|---|---|---|---|---|---|---|
| (ADÉLIE PENGUINS IN THE ROSS SEA continued) | | | | | | |
| 65 | Cape Hallett | | | | | |
| | 72°19'S, 170°12'E | 1 | 43000 (N1) | 1967 | | |
| | | | 66319 (N1) | 1987 | | |
| | | | 56153 (N3) | 1988 | | |
| | | | **45362 (N2)** | **1990** | | **K Barton u/p** |
| | | | **43942 (N2)** | **1991** | | **K Barton u/p, decreasing** |
| 66 | Cape Cotter | | | | | |
| | 72°28'S, 170°20'E | 1 | 40000–50000 | 1964 | | |
| | | | 27050 (N1) | 1981 | | |
| | | | 58776 (N2) | 1987 | | |
| | | | 43423 (N3) | 1988 | | |
| | | | **27764 (N2)** | **1990** | | **K Barton u/p, decreasing** |
| 67 | Cape Wheatstone | | | | | |
| | 72°37'S, 70°14'E | 1 | 1517 (N1) | 1964 | | |
| | | | 2180 (N1) | 1983 | | |
| | | | 2812 (N2) | 1987 | | |
| | | | **1733 (N2)** | **1990** | | **K Barton u/p, decreasing** |
| 68 | Cape Phillips | | | | | |
| | 73°04'S, 169°36'E | 1 | 4482 (N2) | 1987 | | |
| | | | 4616 (N3) | 1988 | | |
| | | | **3855 (N2)** | **1990** | | **K Barton u/p, decreasing** |
| 70 | Cape Jones | | | | | |
| | 73°17'S, 169°10'E | 1 | 839 (N1) | 1964 | | |
| | | | Deserted | 1983 | | |
| | | | 167 (N3) | 1987 | | |
| | | | 133 (N3) | 1988 | | |
| | | | **112 (N2)** | **1990** | | **K. Barton u/p** |
| | | | **101 (N2)** | **1991** | | **K. Barton u/p, decreasing** |
| 71 | Coulman I | | | | | |
| | 73°30'S, 169°50'E | 3 | 13000–17000 | 1964 | | |
| | | 4 | 30754 (N2) | 1987 | | |
| | | | 25796 (N3) | 1988 | | |
| | **Coulman I north** | | **2064 (N2)** | **1988** | | **K. Barton u/p** |
| | | | **1874 (N2)** | **1989** | | **K. Barton u/p** |
| | | | **1098 (N2)** | **1991** | | **K. Barton u/p** |
| | **Coulman I middle** | | **5516 (N2)** | **1988** | | **K. Barton u/p** |
| | | | **5413 (N2)** | **1989** | | **K. Barton u/p** |
| | | | **4141 (N2)** | **1991** | | **K. Barton u/p** |
| | **Coulman I south** | | **17833 (N2)** | **1988** | | **K. Barton u/p** |
| | | | **16302 (N2)** | **1989** | | **K. Barton u/p** |
| **71a** | **Cape Anne** | | **383 (N2)** | **1988** | | **K. Barton u/p** |
| | | | **346 (N2)** | **1991** | | **K. Barton u/p** |
| 72 | Wood Bay | | | | | |
| | 74°19'S, 165°04'E | 1 | 1300 (A2) | 1981 | | |
| | | | 1802 (N2) | 1984 | | |
| | | | 2491 (N1) | 1987 | | |
| | | | 1792 (N3) | 1989 | | |
| | | | **1316 (N2)** | **1991** | | **K. Barton u/p** |
| | | | **1960 (N1)** | **1994** | | **J.R. Clarke u/p** |
| | | | **1995 (N1)** | **1995** | | **R. Trémont u/p** |

| Locality No. | Lat. & Long. | No. colonies | Total population (pairs) | Date | Refs | Remarks |
|---|---|---|---|---|---|---|
| (ADÉLIE PENGUINS IN THE ROSS SEA continued) | | | | | | |
| 73 | Terra Nova Bay | | | | | |
| | 74°45'S, 165°05'E | 1 | 10000 (A4) | 1982 | | |
| | | | 5900 (A1) | 1982 | | |
| | | | 13052 (N2) | 1987 | | |
| | | | 9852 (N3) | 1989 | | |
| | | | **7899 (N2)** | **1991** | | **K. Barton u/p, decreasing** |
| 74 | Inexpressible I | | | | | |
| | 74°53'S, 165°45'E | 1 | 11000 (A3) | 1963 | | |
| | | | 9217 (A2) | 1982 | | |
| | | | 18762 (N2) | 1984 | | |
| | | | 28715 (N2) | 1987 | | |
| | | | 23528 (N3) | 1989 | | |
| | | | **20029 (N2)** | **1991** | | **K. Barton u/p, decreasing** |
| 75 | Franklin I | | | | | |
| | 76°07'S, 168°15'E | 2 | 47300+ (A2) | 1981 | | |
| | | 1 | 47300 (N2) | 1981 | | |
| | | 1 | 62432 (N2) | 1983 | | |
| | | 2 | 71412 (N2) | 1986/87 | | |
| | | | 55773 (N3) | 1989 | | |
| | **Franklin I west** | | **54753 (N2)** | **1989** | | **K. Barton u/p** |
| | **Franklin I east** | | **1020 (N2)** | **1989** | | **K. Barton u/p** |
| | | | **847 (N2)** | **1991** | | **K. Barton u/p** |
| 76 | Beaufort I | | | | | |
| | 76°56'S, 167°03'E | 1 | 21000 (A3) | 1963 | | |
| | | | 34600 (A1) | 1981 | | |
| | | | 46001 (N1) | 1987 | | |
| | | | **43336 (N2)** | **1988** | | **K. Barton u/p** |
| | | | 42561 (N3) | 1989 | | |
| | | | **27953 (N2)** | **1990** | | **K. Barton u/p** |
| | | | **37668 (N2)** | **1991** | | **K. Barton u/p, decreasing** |
| 77 | Cape Bird | | | | | |
| | 77°13'S, 166°28'E | 3 | 36236 (N1) | 1981 | | |
| | | | 43515 (N1) | 1983 | | |
| | | | 59757 (N1) | 1987 | | |
| | | | 41976 (N3) | 1989 | | |
| | **Cape Bird north** | | **33247 (N2)** | **1988** | | **K. Barton u/p** |
| | | | **27505 (N2)** | **1989** | | **K. Barton u/p** |
| | | | **22908 (N2)** | **1990** | | **K. Barton u/p** |
| | | | **24906 (N2)** | **1991** | | **K. Barton u/p** |
| | | | **28905 (N2)** | **1992** | | **K. Barton u/p** |
| | | | **21914 (N2)** | **1994** | | **K. Barton u/p** |
| | | | **24565 (N2)** | **1995** | | **K. Barton u/p** |
| | **Cape Bird middle** | | **2648 (N2)** | **1988** | | **K. Barton u/p** |
| | | | **2392 (N2)** | **1989** | | **K. Barton u/p** |
| | | | **1609 (N2)** | **1990** | | **K. Barton u/p** |
| | | | **2008 (N2)** | **1991** | | **K Barton u/p** |
| | | | **2501 (N2)** | **1992** | | **K. Barton u/p** |
| | | | **1875 (N2)** | **1994** | | **K. Barton u/p, decreasing** |
| | **Cape Bird south** | | **12765 (N2)** | **1988** | | **K. Barton u/p** |
| | | | **12079 (N2)** | **1989** | | **K. Barton u/p** |
| | | | **8944 (N2)** | **1990** | | **K. Barton u/p** |
| | | | **9499 (N2)** | **1991** | | **K. Barton u/p** |

| Locality No. | Lat. & Long. | No. colonies | Total population (pairs) | Date | Refs | Remarks |
|---|---|---|---|---|---|---|
| (ADÉLIE PENGUINS IN THE ROSS SEA continued) | | | | | | |
| | **(Cape Bird south continued)** | | **11693 (N2)** | **1992** | | **K. Barton u/p** |
| | | | **9292 (N2)** | **1994** | | **K. Barton u/p, decreasing** |
| 78 | Cape Royds | | | | | |
| | 77°33'S, 166°09'E | 1 | 2039 (N1) | 1980 | | |
| | | | 2604 (N1) | 1983 | | |
| | | | 3986 (N2) | 1987 | | |
| | | | 3011 (N3) | 1989 | | |
| | | | **2651 (N2)** | **1990/91** | | **K. Barton u/p** |
| | | | **3101 (N2)** | **1991/92** | | **K. Barton u/p** |
| | | | **3627 (N2)** | **1992/93** | | **K. Barton u/p** |
| | | | **3515 (N2)** | **1993/94** | | **K. Barton u/p** |
| | | | **3563 (N2)** | **1994/95** | | **K. Barton u/p** |
| | | | **4096 (N2)** | **1995/96** | | **K. Barton u/p, increasing** |
| 80 | Cape Crozier | | | | | |
| | 77°31'S, 169°23'E | 2 | 105000 | 1970 | | |
| | | | 177083 (N1) | 1987 | | |
| | | | 136249 (N3) | 1989 | | |
| | **Cape Crozier east** | | **18495 (N2)** | **1988** | | **K. Barton u/p** |
| | | | **19966 (N2)** | **1989** | | **K. Barton u/p** |
| | | | **16124 (N2)** | **1990** | | **K. Barton u/p** |
| | | | **17680 (N2)** | **1991** | | **K. Barton u/p** |
| | | | **19435 (N2)** | **1992** | | **K. Barton u/p** |
| | | | **19912 (N2)** | **1993** | | **K. Barton u/p** |
| | | | **15880 (N2)** | **1994** | | **K. Barton u/p, decreasing** |
| | **Cape Crozier west** | | **113199 (N2)** | **1988** | | **K. Barton u/p** |
| | | | **116343 (N2)** | **1989** | | **K. Barton u/p** |
| | | | **93032 (N2)** | **1990** | | **K. Barton u/p** |
| | | | **100540 (N2)** | **1991** | | **K. Barton u/p, decreasing** |
| **ADÉLIE PENGUINS IN MARIE BYRD LAND** | | | | | | |
| **86a** | **Pine Island Bay area** | | | | | |
| | **74°50'S, 102°40'W** | | | | | |
| | **Bronson Islands** | | **B** | **1992** | **(2)** | **First records for area. Total population** |
| | **Edwards Islands** | | **B** | **1992** | **(2)** | **probably several 100 pairs.** |
| | **Lindsey Islands** | | **B** | **1992** | **(2)** | |
| ADÉLIE PENGUINS IN THE ANTARCTIC PENINSULA | | | | | | |
| **130a** | **Brown Bluff, Tabarin Peninsula** | | | | | |
| | **63°32'S, 56°55'W** | **1** | **20000 (C4)** | **1996** | | **R. Naveen u/p** |
| 131 | Jonassen I | | | | | |
| | 63°33'S, 56°40'W | | B | 1901 | | Large colony |
| | | | **Not re-located** | **1996** | | **R. Naveen u/p** |
| 142 | Devil I | | | | | |
| | 63°48'S, 57°17'W | 1 | B | 1945 | | Large colony |
| | | **1 (pairs)** | **10320 (C1)** | **1996** | | **R. Naveen u/p** |

| Locality No. | Lat. & Long. | No. colonies | Total population (pairs) | Date | Refs | Remarks |
|---|---|---|---|---|---|---|
| ADÉLIE PENGUINS ON THE SOUTH SHETLAND ISLANDS | | | | | | |
| Livingston I | | | | | | |
| 145 | Nelson I | | | | | |
| | **62°18'S, 59°14'W** | **Nil** | **1 (N1)** | **1994** | | **N.R. Coria u/p** |
| King George Island | | | | | | |
| 146 | Llano Pt | | | | | |
| | 62°11'S, 58°27'W | | **7000 (xx)** | **1978/79** | **(17)** | **Error in Myrcha (1993): LP #s transposed with PT** |
| | | 15 | 7095 (N1–3) | 1980 | | |
| | | **17** | **7098 (N2)** | **1988/89** | **(19)** | |
| | | | **5920 (xx)** | **1989/90** | **(17)** | |
| | | | **6100 (N3)** | **1993/4** | **(8)** | |
| 148 | Stranger Pt | | | | | |
| | 62°16'S, 58°37'W | 77 | 19372 (N3) | 1971 | | |
| | | 36 | 18412 (N1–3) | 1980 | | |
| | | **53** | **14554 (N2)** | **1988/89** | **(1)** | **Decrease associated with station activities?** |
| **148a** | **Duthoit Pt** | | | | | |
| | **62°18'S, 58°50'W** | **1** | **1 (N1)** | **1993/94** | **(5)** | **Nest located within Gentoo Penguin colony** |
| 149 | Pt Thomas | | | | | |
| | 62°10'S, 58°27'W | | **11000 (xx)** | **1978/79** | **(17)** | **Error in Myrcha (1993): PT #s transposed with LP** |
| | | 2 | 9310 (N1) | 1980 | | |
| | | | **9320 (xx)** | **1986/87** | **(17)** | |
| | | **9** | **10220 (N2)** | **1988/89** | **(19)** | |
| | | | **8645 (xx)** | **1989/90** | **(13)** | |
| ADÉLIE PENGUINS ON THE SOUTH ORKNEY ISLANDS | | | | | | |
| 167 | Watson Peninsula | | | | | |
| | 60°40'S, 44°31'W | 1 | 985 (N3) | 1983 | | |
| | | | **462 (N1)** | **1994** | | **N.R. Coria u/p decreasing** |
| 171 | Port Martin | | | | | |
| | 60°46'S, 44°42'W | c.4 | 24600 (N4,N5) | 1983 | | |
| | | | **26038 (N1/N2)** | **1994** | | **N.R. Coria u/p increasing** |
| **171a** | **Acuña I, Laurie Island** | | | | | |
| | **60°46'S, 44°36'W** | | **1920 (N1)** | **1994** | | **N.R. Coria u/p increasing** |

## CHINSTRAP PENGUIN *PYGOSCELIS ANTARCTICA*

**New breeding colonies:** New data for a small colony on Byers Peninsula, Livingstone I (South Shetland Islands) in Lazo *et al*. (1992). New data for Cape Geddes, Laurie Island (Poncet & Poncet 1985 and NRC).

**Update on previous survey data:** Recent data (for 1988/89) are presented for King George Island (Sierakowski 1991, Myrcha 1993, Aguirre 1995). Error in Woehler (1993) for counts of Gentoo and Chinstrap Penguins at Cuverville I in 1988 (ML Tasker u/p) have been corrected (AN). New data for Laurie Island (NRC).

**Assessment of population trends and status:** Decrease suggested by recent counts (1991/92 to 1995/96) at Deception Island (JM). Both increases and decreases at Laurie Island (NC). Population doubled on Dream I near Palmer over the last six years (129 pairs in 1989 to approximately 250 in 1995 WRF & DLP u/p). Significant decrease in population at Signy Island, South Orkney Islands, 1979 to 1992 (Trathan *et al*. 1996). Decreasing on Nelson Island (Myrcha 1993).

**Responders:** N.R. Coria, K. Crosbie, J.P. Croxall, M. Favero, W.R. Fraser, J. Moreno, A. Nimon, D.L. Patterson.

**TABLE 4**

**Recent population data for Chinstrap Penguins**

| Locality No. | Lat. & Long. | No. colonies | Total population (pairs) | Date | Refs | Remarks |
|---|---|---|---|---|---|---|
| CHINSTRAP PENGUINS ON THE ANTARCTIC PENINSULA | | | | | | |
| **6a** | **Petermann I** | | | | | |
| | **65°11'S, 64°10'W** | | **1 (N1)** | **1995** | | **L. Blight & R. Naveen u/p unsuccessful breeding** |
| Gerlache Strait south | | | | | | |
| 19 | Georges Point, Rongi I | | | | | |
| | 64°40'S, 62°39'W | | 300 (N3/4) | 1984 | | |
| | | 1 | 600 (N3) | 1988 | | |
| | | | **414 (N2)** | **1994** | | **K. Crosbie u/p recent decrease** |
| 20 | Cuverville I | | | | | |
| | 64°41'S, 62°38'W | 1 | 37 (N3) | 1971 | | |
| | | 1 | 3 (C1) | 1986 | | |
| | | | Nil | 1987 | | |
| | | | 2535 (N3) | 1988 | | Error in Woehler (1993) refers to Gentoo Penguins. |
| | | | **Nil** | **1994** | | **A. Nimon u/p** |
| | | | **Nil** | **1995** | | **A. Nimon u/p** |
| 21 | Orne I | | | | | |
| | 64°39'S, 62°40'W | 2 | 340 (N5) | 1985 | | |
| | | | 860 (N3) | 1987 | | |
| | | | **420 (N2)** | **1994** | | **K. Crosbie u/p recent decrease** |
| CHINSTRAP PENGUINS ON THE SOUTH SHETLAND ISLANDS | | | | | | |
| Livingston I | | | | | | |
| 93 | Half Moon I | | | | | |
| | 62°36'S, 59°55'W | 1 | 1197 (N3) | 1966 | | |
| | | 1 | 2500 (N1) | 1987 | | |
| | | | **3342 (N1)** | **1995** | | **N.R. Coria u/p increasing** |
| **93a** | **Byers Peninsula** | | | | | |
| | **62°45'S, 60°07'W** | **1** | **3 (N1)** | **1988** | **(12)** | |
| Nelson I | | | | | | |
| 126 | Harmony Pt | | | | | |
| | 62°19'S, 59°14'W | | 50000 (N4) | 1972 | | |
| | | | 151000 (A4) | 1987 | | |
| | | | **89685 (N2)** | **1995** | | **M. Favero u/p decreasing** |
| King George I | | | | | | |
| 153 | Point Thomas | | | | | |
| | **62°10'S, 58°29'W** | 16 | 10033 (N1) | 1980 | | **Error: correct data in Myrcha (1993)** |
| | | | **526 (xx)** | **1980/81** | | |
| | | **3** | **21 (N1)** | **1988/89** | **(19)** | |
| | | | **18 (xx)** | **1989/90** | **(17)** | |
| King George I, continued | | | | | | |
| 154 | Llano Pt | | | | | |
| | 62°11'S, 58°27'W | 2 | 349 (N1) | 1980 | | |
| | | **1** | **58 (N1)** | **1988/89** | **(19)** | |
| | | | **81 (xx)** | **1989/90** | **(17)** | |
| 155 | Demay Pt area | | | | | |
| | 62°13'S, 58°26'W | 4 | 2158 (N1) | 1980 | | |
| | | **10** | **1629 (N1)** | **1988/89** | **(19)** | |
| | | | **210 (xx)** | **1989/90** | **(17)** | **decreasing** |

| Locality No. | Lat. & Long. | No. colonies | Total population (pairs) | Date | Refs | Remarks |
|---|---|---|---|---|---|---|
| CHINSTRAP PENGUINS ON THE SOUTH SHETLAND ISLANDS continued | | | | | | |
| 156 | Patelnia Pt | | | | | |
| | 62°14'S, 58°29'W | 4 | 1498 (N1) | 1980 | | |
| | | **4** | **1645 (N1)** | **1988/89** | **(19)** | |
| | | | **1563 (xx)** | **1989/90** | **(17)** | **decreasing** |
| 157 | Stranger Pt | | | | | |
| | 62°16'S, 58°37'W | 2 | 495 (N1) | 1980 | | |
| | | **3** | **259 (N1)** | **1988/89** | **(1)** | |
| CHINSTRAP PENGUINS ON THE SOUTH ORKNEY ISLANDS | | | | | | |
| Laurie Island | | | | | | |
| 210 | Cape Robertson | | | | | |
| | 60°42'S, 44°48'W | 1 | 250000 birds (A5) | 1903 | | |
| | | 1 | 32000 (N4) | 1983 | | |
| | | | **19745 (N3)** | **1994** | | **N.R. Coria u/p decreasing** |
| 211 | Pirie Peninsula | | | | | |
| | 60°42'S, 44°40'W | 22 | 17330 (N3/4) | 1983 | | |
| | | | **14277 (N3)** | **1994** | | **N.R. Coria u/p decreasing** |
| 213 | Watson Peninsula | | | | | |
| | 60°40'S, 44°32'W | 23 | 14000 (N3/4) | 1983 | | |
| | | | **10893 (N1)** | **1994** | | **N.R. Coria u/p decreasing** |
| 214b | South coast | | | | | |
| | 60°45'S, 44°34'W | 13 | 15600 (N4) | 1983 | | |
| | | | **12755 (N1/N2)** | **1994** | | **N.R. Coria u/p decreasing** |
| 218 | Port Martin | | | | | |
| | 60°46'S, 44°42'W | 5 | 10000 (N4/5,N5) | 1983 | | |
| | | | **13394 (N1/N2)** | **1994** | | **N.R. Coria u/p** |
| **218a** | **Graptolite I (Laurie Island)** | | | | | |
| | **60°43'S, 44°27'W** | | **7500 (A4)** | **1946/47** | | **Reported in Croxall & Kirkwood (1979), omitted in Woehler (1993)** |
| | | **1** | **6295 (N1)** | **1994** | | **NR. Coria u/p, increasing** |
| **218b** | **Cape Geddes (Laurie Island)** | | | | | |
| | **60°41'S, 44°34'W** | | **25 (N1)** | **1945/46** | | **Reported in Croxall & Kirkwood (1979),** |
| | | | **40 (A3)** | **1946/47** | | **omitted in Woehler (1993)** |
| | | | **5000 (xx)** | **1983** | **(18)** | **in Woehler (1993)** |
| | | | **7318 (N1)** | **1994** | | **N.R. Coria u/p, increasing** |

## GENTOO PENGUIN *PYGOSCELIS PAPUA*

**New breeding colonies:** Possible new data for a small colony (no data on breeding size given) on Byers Peninsula, Livingstone I (South Shetland Islands) in Lazo *et al*. (1992). New colony reported at Harmony Point, Nelson Island (MF) and at Brown Bluff, Tabarin Peninsula (LB & RN).

**Update on previous survey data:** Unpublished data for Macquarie Island report a 50% increase between 1984 (4700 pairs) and 1992/93 (6820 pairs); such a large increase needs to be confirmed (CH). Recent data for King George Island, presented by Sierakowski (1991) and Emslie *et al*. (1995) were comparable. Unpublished data for Heard Island were reported by Moore & Robertson for 1992/93 season. Error in Woehler (1993) for counts of Gentoo and Chinstrap Penguins at Cuverville I in 1988 (M.L. Tasker u/p) have been corrected (KC & AN). Recent survey of all colonies at the Falkland Islands (Bingham 1996).

**Assessment of population trends and status:** Colonies are increasing and decreasing on Laurie Island (NRC). Increasing in the Antarctic Peninsula region. Decrease at the Falkland Islands (Bingham 1996).

**Responders:** M. Bingham, L. Blight, J. Cooper, N.R. Coria, R.J.M. Crawford, K. Crosbie, J.P. Croxall, C. Hull, M. Favero, R. Naveen, A. Nimon.

**TABLE 5**

**Recent population data for Gentoo Penguins**

| Locality No. | Lat. & Long. | No. colonies | Total population (pairs) | Date | Refs | Remarks |
|---|---|---|---|---|---|---|
| GENTOO PENGUINS ON THE PRINCE EDWARD ISLANDS | | | | | | |
| 1 | Marion I | | 1300 (A1–A3) | 1974–7 | | |
| | | | 888 | 1984 | | |
| | | | **1352 (N2)** | **1994** | | **N.T.W. Klages, J. Cooper & R.J.M. Crawford u/p** |
| | | | **1310 (N2)** | **1995** | | **N.T.W. Klages, J. Cooper & R.J.M. Crawford u/p** |
| GENTOO PENGUINS ON HEARD ISLAND | | | | | | |
| 7 | Heard I | | | | | |
| | 53°05'S, 73°30'E | 16 | 16574 (N1) | 1987 | | |
| | | | **13415 (N1)** | **1992/3** | **(16)** | **decrease to be confirmed** |
| GENTOO PENGUINS ON MACQUARIE ISLAND | | | | | | |
| 8 | Macquarie I | 53 | 4700 (N1) | 1984 | | |
| | | | **6820 (xx)** | **1992/3** | **(6)** | **to be confirmed** |
| GENTOO PENGUINS ON THE ANTARCTIC PENINSULA | | | | | | |
| 32 | Danco I | | | | | |
| | 64°44'S, 62°36'W | 1 | 800 (C1) | 1986 | | |
| | | | **1637 (N2)** | **1994** | | **K. Crosbie u/p, increasing** |
| 35 | Georges Pt, Rongé I | | | | | |
| | 64°40'S, 62°39'W | 1 | 1100 (N1) | 1988 | | |
| | | | **1752 (N2)** | **1994** | | **K. Crosbie u/p, increasing** |
| 36 | Rongé I east | | | | | |
| | 64°41'S, 62°39'W | 1 | 214 (N1) | 1988 | | |
| | | | **445 (N2)** | **1994** | | **K. Crosbie u/p 'Near Point'** |
| 37 | Cuverville I | | | | | |
| | 64°41'S, 62°38'W | 2 | 3700 (C3) | 1986 | | |
| | | 1 | 3200 (N1) | 1988 | | |
| | | | 2535 (N3) | 1988 | | **Error in Woehler (1993) refers to Gentoo Penguins** |
| | | **2** | **4421 (N1)** | **1993** | | **A. Nimon u/p** |
| | | **2** | **4818 (N1)** | **1994** | | **A. Nimon u/p, increasing** |
| **46a** | **Brown Bluff, Tabarin Peninsula** | | | | | |
| | **63°32'S, 56°55'W** | | **200–250 (C3)** | **1996** | | **R. Naveen u/p** |
| 47 | Jonassen I | | | | | |
| | 63°32'S, 56°42'W | 1 | 20 (N4) | 1901 | | |
| | | | **300 (N3)** | **1995** | | **B. Houston u/p** |
| | | **1** | **229 (C1)** | **1995** | | **R. Naveen u/p** |
| **55a** | **Byers Peninsula, Livingstone I** | | | | | |
| | **62°45'S, 60°07'W** | | **B** | **1987/88** | **(12)** | **No count data presented** |
| Nelson I | | | | | | |
| 69 | Duthoit Pt | | | | | |
| | 62°18'S, 58°50'W | 1 | 400 (A3) | 1987 | | |
| 70 | north of Duthoit Pt | | | | | |
| | 62°17'S, 58°51'W | 1 | 450 (A3) | 1987 | | |
| **69/70** | | | **1828 (N1)** | **1994** | | **N.R. Coria u/p increasing** |
| **70a** | **Harmony Pt** | | | | | |
| | **62°19'S, 59°14'W** | | **3957 (N1)** | **1988** | **(9)** | |
| | | | **3347 (N1)** | **1995** | | **M. Favero u/p, decreasing** |

| Locality No. | Lat. & Long. | No. colonies | Total population (pairs) | Date | Refs | Remarks |
|---|---|---|---|---|---|---|
| GENTOO PENGUINS ON THE ANTARCTIC PENINSULA continued | | | | | | |
| 76 | Stranger Point | | | | | |
| | 62°16'S, 58°37'W | 26 | 2584 (N1–3) | 1987 | | |
| | | **57** | **2325 (Nx)** | **1988/89** | **(1)** | **Stable** |
| GENTOO PENGUINS ON THE SOUTH SHETLAND ISLANDS | | | | | | |
| 74 | Point Thomas | | | | | |
| | 62°10'S, 58°29'W | 14 | 623 (N1) | 1980/81 | | |
| | | | 121 (N1) | 1988/89 | (19) | |
| | | | 136 (xx) | 1989/90 | (17) | Decreasing? |
| 75 | Llano Pt | | | | | |
| | 62°11'S, 58°27'W | 34 | 1510 (N1) | 1980/81 | | |
| | | 34 | 2118 (N1) | 1988/89 | (19) | |
| | | | 2221 (xx) | 1989/90 | (13) | |
| | | | 2200 (N2) | 1993/94 | (8) | Increasing? |
| GENTOO PENGUINS ON THE SOUTH ORKNEY ISLANDS | | | | | | |
| 83 | Watson Peninsula | | | | | |
| | 60°40'S, 44°31'W | 1 | 70 (N1) | 1983 | | |
| | | | 10 (N1) | 1994 | | N.R. Coria u/p decreasing |
| GENTOO PENGUINS ON THE FALKLAND ISLANDS | | | | | | |
| 89 | Falkland Is | | 99360 | late 1960s | | |
| | | 86 | 108000–121000 (A4) | | | |
| | | | 70000–100000 | | | |
| | | 81 | 65000 (N2) | 1995/96 | (3) | Decreased suggested by Bingham |

## MACARONI PENGUIN *EUDYPTES CHRYSOLOPHUS*

**New breeding colonies:** New colonies reported at Acuña and Graptolite Islands at Laurie Island (NRC). New colony reported at Isla Noir (Venegas 1984).

**Update on previous survey data:** Recent surveys of Bird Island, South Georgia, and at the Willis Islands (JPC, PAP, S&JP). Some colonies on Heard Island were counted during 1992/93 (KG). New data from Marion I (J. Cooper).

**Assessment of population trends and status:** Increase reported at Laurie Island (NRC). Increased at Iles Kerguelen between 1960s and mid 1980s (PJ & HW). Recent data suggest the population at Bird Island, South Georgia has halved since 1976/77 (JPC & PAP), and also at the Willis Islands (P.A. Prince & S. Poncet).

**Responders:** J. Cooper, N.R. Coria, J.P. Croxall, K. Green, P. Jouventin, S. & J. Poncet, P.A. Prince, H. Weimerskirch.

**TABLE 6**

**Recent population data for Macaroni Penguins**

| Locality No. | Lat. & Long. | No. colonies | Total population (pairs) | Date | Refs | Remarks |
|---|---|---|---|---|---|---|
| MACARONI PENGUINS ON THE SOUTH ORKNEY ISLANDS | | | | | | |
| **25b** | **Acuña I, Laurie Island** | | | | | |
| | **60°46'S, 44°36'W** | | **2 (N1)** | **1994** | | **N.R. Coria u/p**<br>**Not recorded in December 1983** |
| **25c** | **Graptolite I, Laurie Island** | | | | | |
| | **60°43'S, 44°27'W** | **1** | **3 (N1)** | **1994** | | **N.R. Coria u/p**<br>**New since 1983** |

| Locality No. | Lat. & Long. | No. colonies | Total population (pairs) | Date | Refs | Remarks |
|---|---|---|---|---|---|---|
| MACARONI PENGUINS ON SOUTH GEORGIA | | | | | | |
| 35 | Willis Is | *c.* 20 | 5000000 | 1977 | | |
| 36 | Bird I | 3 | 175000 (A2, A5) | 1977 | | |
| 37a | mainland Western Peninsula | 21 | 5000 (A5) | 1977 | | |
| 37b | NE Coast | 13 | 130000 (A5) | 1977 | | |
| 37c | S Coast | 17 | 90000 (A5) | 1977 | | |
| 38 | Islands off SW coast | 6 | 30000 (A5) | 1977 | | |
| | **South Georgia (total)** | **61** | **5400000 (A4)** | | | |
| | | **72** | **2730000 (A4)** | **1985–95** | | **P.A. Prince & S. Poncet u/p** |
| 45 | Isla Noir | | 12000 (A3)? | | | |
| | | | **1000–2000 (Ax)** | **1984** | **(20)** | |
| 46 | Isla Recalada | | small colonies | | | |
| | | | **300 (Ax)** | **1989/90** | **(21)** | |

## ROYAL PENGUIN *EUDYPTES SCHLEGELI*

**New breeding colonies:** None reported.

**Update on previous survey data:** No new population data have been collected since 1984/85 (MAH & CH).

**Assessment of population trends and status:** No assessment possible.

**Responders:** M.A. Hindell, C. Hull.

## ROCKHOPPER PENGUIN *EUDYPTES CHRYSOCOME**

**New breeding colonies:**

Southern Rockhopper Penguin *E. c. chrysocome*

New population data for Argentina (Venegas 1984, 1991, Frere *et al.* 1993).

**Update on previous survey data:**

Southern Rockhopper Penguin *E. c. chrysocome*

Recent survey of Rockhopper Penguins in the Falkland Islands (Bingham 1996).

Eastern Rockhopper Penguin *E. c. filholi*

Recent data were collected at Heard Island during 1992/93 (KG). Recent data collected at Marion I (JC & RJMC).

**Assessment of population trends and status:** Major decreases at most/all large breeding colonies:

Southern Rockhopper Penguin *E. c. chrysocome*

Recent data suggest a major and rapid decrease in the population of Rockhopper Penguins in the Falkland Islands region (Bingham 1996). Breeding populations in Chile are stable (Venegas 1984, 1991), whereas the very small colony in Argentina has increased (Frere *et al.* 1993).

Northern Rockhopper Penguin *E. c. moseleyi*

Decreases reported at Amsterdam/St Paul Islands (PJ & HW).

Eastern Rockhopper Penguin *E. c. filholi*

Decreases reported at Auckland Islands (Cooper 1992) and Campbell Island (Cunningham & Moors 1994).

**Responders:** M. Bingham, J. Cooper, R.J.M. Crawford, J.P. Croxall, K. Green, P. Jouventin, H. Weimerskirch.

* All three subspecies are treated separately here in turn.

**TABLE 7**

**Recent population data for Rockhopper Penguins**

| Locality No. | Lat. & Long. | No. colonies | Total population (pairs) | Date | Refs | Remarks |
|---|---|---|---|---|---|---|
| EASTERN ROCKHOPPER PENGUINS ON THE PRINCE EDWARD ISLANDS | | | | | | |
| 6 | Marion I | | 93290 (A1–3) | 1974–7 | | |
| | | | 137652 (A3) | 1987 | | |
| | | | **137077 (Ax)** | **1994** | | **N.T.W. Klages, J. Cooper & R.J.M. Crawford u/p** |
| EASTERN ROCKHOPPER PENGUINS ON HEARD ISLAND | | | | | | |
| 16 | Heard I | 12 | hundreds | 1950 | | |
| | | | 10000+ (A5) | 1987 | | |
| | | | **8042 (xx)** | **1993** | **(6)** | **incomplete survey (K. Green)** |
| EASTERN ROCKHOPPER PENGUINS ON CAMPBELL ISLAND | | | | | | |
| 20 | Campbell I | | 51500 (A2) | 1986 | **(7)** | **Population decreased by 94% since 1940s** |
| EASTERN ROCKHOPPER PENGUINS ON THE AUCKLAND ISLANDS | | | | | | |
| 21 | Auckland Is | 12 | 5000–10000 (A5) | 1972 | | |
| | | **9** | **2700–3600 (A4)** | **1990** | **(4)** | **concurrent decrease with Campbell I** |
| EASTERN ROCKHOPPER PENGUINS ON THE ANTIPODES ISLANDS | | | | | | |
| 22 | Antipodes Is | 86 | 50000 (A4) | 1978 | | |
| | | **76** | **B** | **1989/90** | **(6)** | |
| SOUTHERN ROCKHOPPER PENGUINS ON THE FALKLAND ISLANDS | | | | | | |
| 25 | Beauchêne I | | | | | |
| | 52°45'S, 59°09'W | | 300000 (N4) | 1980 | | |
| | | | **71500 (xx)** | **1991** | **(6)** | **decreasing rapidly** |
| | | | **74300 (A2)** | **1995/96** | **(3)** | **major decrease** |
| 26 | Jason Is | | | | | |
| | 51°05'S, 61°10'W | | <1500000 (A5) | | | |
| | | **3** | **34400 (A2)** | **1995/96** | **(3)** | **major decrease** |
| 27 | Steeple Jason I | | | | | |
| | 51°02'S, 61°14'W | | 190000 | | | |
| | | | **115000 (A2)** | **1995/96** | **(3)** | **major decrease** |
| 28 | Falkland Is | 86 | 2500000 (A4) | 1930s | | |
| | | | 540000–700000 | 1989 | | |
| | | | **<200000? (xx)** | **1991** | **(6)** | **decreasing rapidly** |
| | | **31** | **76300 (A2)** | **1995/96** | **(3)** | **major decrease** |

| Locality No. | Lat. & Long. | No. colonies | Total population (pairs) | Date | Refs | Remarks |
|---|---|---|---|---|---|---|
| SOUTHERN ROCKHOPPER PENGUINS ON THE FALKLAND ISLANDS continued | | | | | | |
| **35a** | **Isla Ildefonso** | | **3000–10000 (A5)** | **1994/95** | | **M. Bingham u/p** |
| **35b** | **Isla Noir** | | **70000 (Ax)** | **1994/95** | **(20)** | |
| **35c** | **Isla Recalada** | | **5000 (Ax)** | **1989/90** | **(21)** | |
| **39** | **Isla Penguin** | | **450 (A1)** | **1990** | **(6, 10)** | **increasing** |

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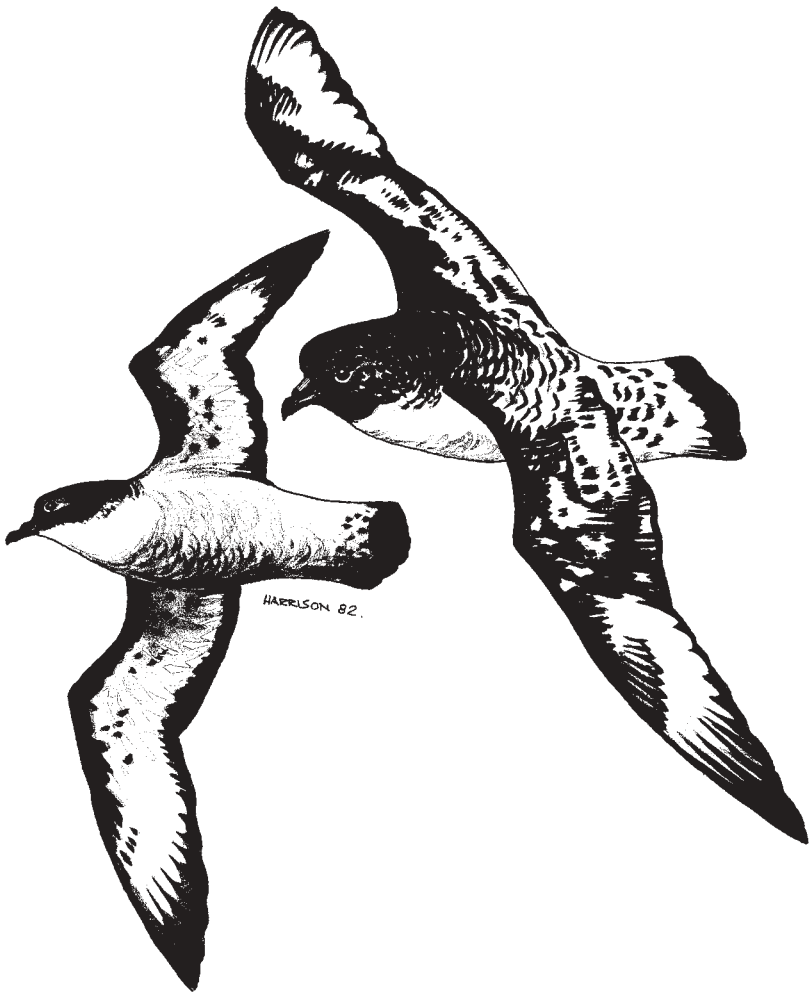


Pintado Petrels by Peter Harrison