

# THE STATUS OF BREEDING BIRDS AT HARMONY POINT, NELSON ISLAND, ANTARCTICA IN SUMMER 1995/96

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## SUMMARY

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A survey of breeding birds was carried out in summer 1995/96 at Harmony Point, Site of Special Scientific Interest No. 14, Nelson Island, South Shetland Islands, Antarctica. A total of 12 species was recorded: Gentoo Penguin *Pygoscelis papua* (3347 breeding pairs), Chinstrap Penguin *P. antarctica* (89 685), Southern Giant Petrel *Macronectes giganteus* (746), Pintado or Cape Petrel *Daption capense* (479), Wilson's Storm Petrel *Oceanites oceanicus* and Black-bellied Storm Petrel *Fregetta tropica* (10<sup>3</sup>), Imperial Cormorant *Phalacrocorax atriceps* (45), Kelp Gull *Larus dominicanus* (128), Subantarctic Skua *Catharacta antarctica* (61), South Polar Skua *C. maccormicki* (10), Antarctic Tern *Sterna vittata* (173) and Greater Sheathbill *Chionis alba* (144). Population size and distribution of species breeding in the area are updated and possible factors related to changes occurring during a short time period discussed.

## INTRODUCTION

Over the last two decades several studies have pointed out the occurrence of large fluctuations in seabird populations in Antarctica and the Southern Ocean, raising the need for monitoring studies toward management and protection of living resources (e.g. Croxall *et al.* 1981, Jouventin & Weimerskirch 1990, Wilson 1990, Woehler 1993). Increases in the size of penguin colonies have been documented and mainly attributed to an increase in food availability resulted from the decrease in baleen whale stocks (e.g. Croxall & Kirkwood 1979, Croxall *et al.* 1984, Woehler 1993), or to loss of sea ice cover due to environmental warming (Fraser *et al.* 1992). On the other hand, data on flying birds, including albatrosses and petrels which seem to be particularly affected by human activities (Croxall *et al.* 1984, Jouventin & Weimerskirch 1990), are scarce. This paper details the distribution and abundance of breeding birds at Duthoit Point, Nelson Island, Antarctica, a protected area under the Antarctic Treaty System as Special Scientific Site Interest No. 14 (Anon. 1998), one of several places monitored by Argentina in the South Shetland Islands.

## METHODS

The survey was carried out from December 1995 to February 1996 at Harmony Point (62°18'S, 59°10'W), Nelson Island, South Shetland Islands, Antarctica (Fig. 1). Numbers of breeding pairs were estimated by direct censuses using 8× binoculars during incubation and following CCAMLR standard methods. The accuracy of the estimations was ±5% for Gentoo Penguins *Pygoscelis papua*, Imperial Cormorants *Phala-*

*crocorax atriceps*, Southern Giant Petrels *Macronectes giganteus*, Pintado or Cape Petrels *Daption capense*, Kelp Gulls *Larus dominicanus*, Subantarctic Skuas *Catharacta antarctica*, South Polar Skuas *C. maccormicki*, Antarctic Terns *Sterna vittata* and Greater Sheathbills *Chionis alba* (N1, following Croxall & Kirkwood 1979, Woehler 1993); ±25–50% for Chinstrap Penguins *P. antarctica* (N2) and ±10–15% for Wilson's Storm Petrels *Oceanites oceanicus* and Black-bellied Storm Petrels *Fregetta tropica* (N3/A3). The breeding colonies were plotted based on the map in Favero *et al.* (1991).

## RESULTS & DISCUSSION

The breeding colonies were distributed both along the shoreline and on a c. 40 m high plateau (Fig. 1). A total of 12 species was found breeding within the study area, discussed individually below.

### Penguins

All of the 3347 breeding pairs of Gentoo Penguins were evenly distributed along fossil beach reaches and on the Northwest side of the plateau. When compared with the last census of the area (Favero *et al.* 1991) the size of the breeding population had decreased by approximately 15%, although greater than that reported for 1966 (Croxall & Kirkwood 1979, Table 1).

The 89 781 pairs of Chinstrap Penguins present in the area were restricted to rocky promontories along the coast. The most important sub-colonies were located on the coast of the

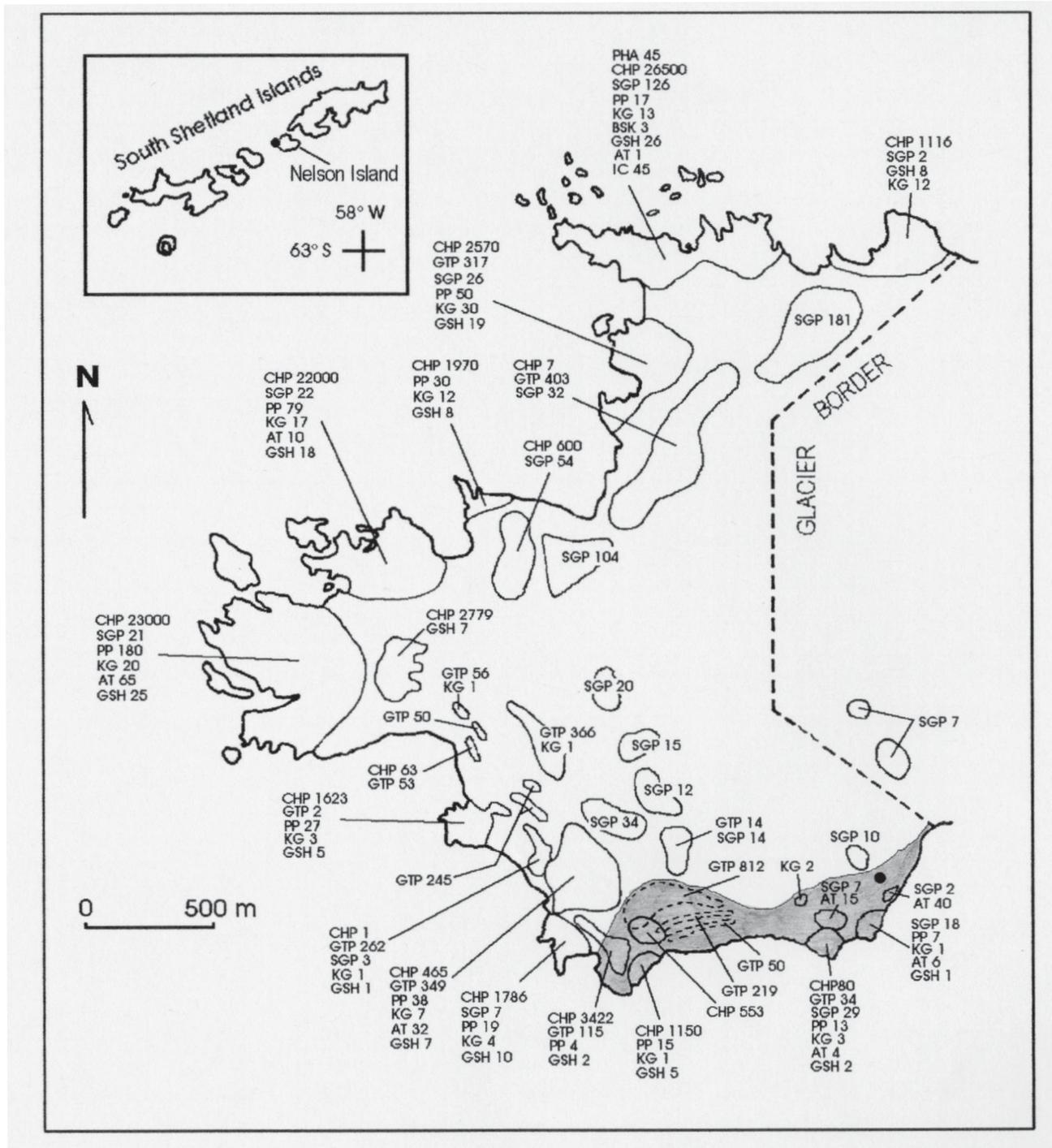


Fig. 1. Distribution and abundance (in pairs) of breeding species at Harmony Point, Nelson Island: GTP Gentoo Penguin, CHP Chinstrap Penguin, MG Southern Giant Petrel, DC Pintado Petrel, FT Black-bellied Storm Petrel, OO Wilson's Storm Petrel, LD Kelp Gull, SV Antarctic Tern, PHA Imperial Cormorant, CA Greater Sheathbill.

Drake Passage and on the entrance of the Nelson Strait. The number of pairs is 25% lower than in 1989 (Favero *et al.* 1991) but, as observed for Gentoo Penguins, the population had increased since earlier censuses (Croxall & Kirkwood 1979, Woehler 1993, Anon. 1998, Table 1). Further studies will allow a better understanding of population trends since the current levels could represent: (i) that the area has reached its carrying capacity for penguin populations and they are fluctuating naturally as widely reported for other areas (e.g. Wilson 1990); (ii) at least for Chinstrap Penguins, they have been steadily decreasing from about 1987; and/or (iii) differences could be attributed to biases in the censuses, since values from 1989 equal those from the present census.

#### Flying birds

The distribution of colonies coincides, in general, with those reported by Favero *et al.* (1991) (Fig. 1). Comparing our counts with those from 1989, Southern Giant Petrels (+34%), Pintado Petrels (+37%), skuas (both species, +44%), Greater Sheathbills (+44%) and Antarctic Terns (+83%) showed increases in abundance, whereas Imperial Cormorants decreased (-60%) and Kelp Gulls remained stable (+10%, Table 1).

The large decrease in the number of breeding Imperial Cormorants was focused in a restricted area of the colony (effectively

TABLE 1

Varations in the size of the breeding populations at Harmony Point (accuracy of counts in percent are in parentheses, following Croxall & Kirkwood 1979)

Species	1903 <sup>a</sup>	1957 <sup>b</sup>	1964 <sup>c</sup>	1966 <sup>d</sup>	1971 <sup>e</sup>	1987 <sup>f</sup>	1989 <sup>g</sup>	1995 <sup>h</sup>
Gentoo Penguin <i>Pygoscelis papua</i>	50 (25–50)	500 (10–15)	730 (10–15)	1642 (< 5)	800 (10–15)		3957 (< 5)	3347 (< 5)
Chinstrap Penguin <i>Pygoscelis antarctica</i>			31 300 (25–50)	47 600 (10–15)	50 000 (25–50)	151 000 (25–50)	110 875 (5–10)	89 685 (5–10)
Southern Giant Petrel <i>Macronectes giganteus</i>			417 (?)				494 (< 5)	746 (< 5)
Pintado Petrel <i>Daption capense</i>			50 (?)				288 (< 5)	479 (< 5)
Wilson's & Black-bellied Storm Petrels <i>Oceanites oceanicus</i> , <i>Fregatta tropica</i>								10 <sup>3</sup> (25–50)
Imperial Cormorant <i>Phalacrocorax atriceps</i>			50 (?)				112 (< 5)	45 (< 5)
Kelp Gull <i>Larus dominicanus</i>			15 (?)				95 (< 5)	128 (25–50)
Subantarctic Skua <i>Catharacta antarctica</i>			27				40 <sup>i</sup>	61
South Polar Skua <i>C. maccormicki</i>			? (?)				? (< 5)	10 (< 5)
Antarctic Tern <i>Sterna vittata</i>			25 (?)				25 (10–15)	173 (10–15)
Greater Sheathbill <i>Chionis alba</i>			40 (?)				100 (< 5)	144 (< 5)

a. Andersson 1905, b. Stephens (in Croxall & Kirkwood 1979), c. Araya & Aravena 1965, d. White (in Croxall & Kirkwood 1979), e. Müller-Schwarze & Müller-Schwarze 1975, f. Shuford & Spear 1987 (in Woehler 1993), g. Favero *et al.* 1991, h. this work, i. both skua species are considered together.

occupied in 1989 and 1990, unpubl. data) which remained snow covered until mid December, when most of the pairs were laying. By mid/late January approximately 15 pairs were observed in this area showing courtship behaviour, thus suggesting that the decrease was due to the impossibility of earlier nest building. However, other factors such as prey availability and/or weather may have had an effect.

#### General comments

Since the mid 1980s, tourism has become a common activity in Antarctica, particularly at the South Shetland Islands (Harris 1991). Although it was not considered as an important problem in a general context, there have suggestions that the colonies disturbed by this activity have diminished in number (Croxall *et al.* 1984). The 1989 census (Favero *et al.* 1991) was performed when intensive tourist activity at Harmony Point had finished (one year ago); this activity was restricted to a path (shaded area in Fig. 1) on the coast of Harmony Cove. After six years without tourist disturbance, some changes in the numbers of breeding pairs were observed in the impacted area (Table 2). Penguins, Kelp Gulls and Greater Sheathbills do not show significant variations (less than 10%); however, Southern Giant and

TABLE 2

Comparison between the number of pairs breeding during 1989 and 1995 in the previously disturbed area (shaded in Fig. 1) at Harmony Point, Nelson Island

Species	1989 <sup>a</sup>	1995 <sup>b</sup>	Status
Gentoo Penguin <i>Pygoscelis papua</i>	1412	1230	o
Chinstrap Penguin <i>P. antarctica</i>	5406	5205	o
Southern Giant Petrel <i>Macronectes giganteus</i>	38	56	+
Pintado Petrel <i>Daption capense</i>	30	39	+
Kelp Gull <i>Larus dominicanus</i>	7	7	o
Antarctic Tern <i>Sterna vittata</i>	4	65	++
Greater Sheathbill <i>Chionis alba</i>	11	10	o

a. Favero *et al.* 1991, b. this work.

(o) increases or decreases <10%,

(+) increases from 10 to 100%,

(++) increases >100%.

Only those species with previous distributional data available were considered.

Pintado Petrels exhibit noteworthy increases. The case of Antarctic Terns deserves special mention with an increase from four to 65 pairs in the breeding population, implying the effectiveness of protection measures and the sensitivity of this species to human presence. This conjecture is strengthened if the presence of 150 pairs of breeding terns in the area prior to tourist activities at Harmony Point (Calcagno 1989) is considered.

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