

## Petrels, skuas and other migrant seabirds in a coastal bay in Santa Catarina state, southern Brazil

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O estudo de aves marinhas em Santa Catarina, especialmente de espécies pelágicas, ainda é bastante escasso. Dentro deste panorama, de janeiro de 2001 a janeiro de 2004 foram registradas as espécies de aves que utilizam a Baía Norte, a qual separa a Ilha de Santa Catarina—em sua porção mais setentrional—do continente. A presença de espécies pelágicas e algumas outras espécies migrantes foi constante ao longo de todo o estudo. Destacam-se os registros de *Macronectes giganteus*, *Fulmarus glacialisoides*, *Pachyptila* sp., *Catharacta maccormiki*—o primeiro registro para o estado—, *Catharacta chilensis* e *Stercorarius parasiticus*. Todos estes registros são aqui circunscanciados. Os Procellariiformes parecem utilizar a Baía Norte de forma esporádica, ao passo que os Stercorariidae são visitantes regulares do local. Por fim, *Sterna maxima*, espécie migratória ameaçada no Brasil e tida como rara em Santa Catarina, foi registrada regularmente ao longo de todo o estudo.

The avifauna of Santa Catarina is still poorly known, although it has received more attention during the last decade<sup>8,15</sup>. Nevertheless, seabirds, especially pelagic species, have been neglected, enabling recent works to steadily add new species to the state's list. Rosário<sup>15</sup> cited 16 Procellariiformes for Santa Catarina but at least two species were overlooked, namely White-headed Petrel *Pterodroma lessoni*, found once on a beach on Santa Catarina Island, the only documented record in Brazil<sup>1,2,18</sup>, and Antarctic Prion *Pachyptila desolata*<sup>1,8</sup>. A few additional pelagics have been recorded in Santa Catarina more recently, including Northern Royal Albatross *Diomedea sanfordi*<sup>12</sup>, Light-mantled Sooty Albatross

*Phoebetria palpebrata*<sup>14</sup> and, in recent years, several *Catharacta* and *Stercorarius*<sup>10,19</sup>.

Almost all records of Procellariiformes and Stercorariidae in Santa Catarina are of specimens found on beaches or birds observed offshore. Here we present data on some of these seabirds recorded in coastal waters of Santa Catarina. In addition, we also comment on the presence of Sphenisciformes and Laridae in the state.

### Methods

Baía Norte is in southern Brazil, between Santa Catarina Island and the mainland (27°30'S 48°35'W; Fig. 1). It is a typical shallow sea inlet with a surface area of c.250 km<sup>2</sup>, and water depth rarely

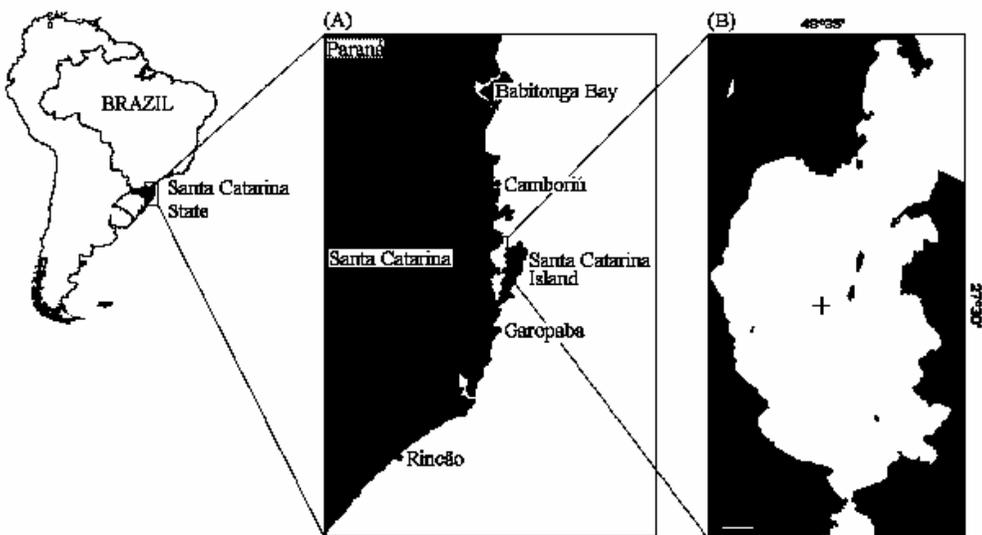


Figure 1. Map showing the location of the study area in Santa Catarina, southern Brazil, with details of: (A) the coast of Santa Catarina; (B) Baía Norte, between Santa Catarina Island and the mainland.

exceeds 5 m<sup>3</sup>. Baía Norte is highly modified and influenced by human activities, such as embankment, deforestation and urbanisation of the coast, sewage pollution, fishing and boat transit.

Between January 2001 and September 2003 we made 76 cruises to study cetaceans and seabirds. These were undertaken aboard a 5-m yacht equipped with an outboard motor. Departure was always between 07h00 and 09h00, and the voyages ended prior to 17h00. The departure point was in the eastern part of the Baía Norte, and from there we always travelled counter-clockwise until reaching the western coast. The route was interrupted each time we encountered dolphins, which we would follow in order to collect data. We also registered numbers and species of seabirds observed on these cruises. Other, opportunistic records are also included here, as well as data from a cruise in January 2004. Taxonomy adopted is that followed by Bencke<sup>2</sup>.

## Results

Four Procellariiformes and three Stercorariidae were recorded in the Baía Norte. Details of these are presented below.

### Black-browed Albatross *Thalassarche melanophrys*

A juvenile was photographed, on 29 July 2002, by A. Blankenstein north of Santa Catarina Island, between the Baía Norte and open sea. The species is the commonest albatross over shelf waters in Santa Catarina<sup>8,15</sup>, especially frequent in the austral winter<sup>1</sup>, and most individuals encountered in Brazil are juveniles, as waters over the Brazilian shelf are an important feeding ground for youngsters dispersing from Falklands colonies<sup>9,11</sup>.

### Southern Giant Petrel *Macronectes giganteus*

Two photographed in Baía Norte on 9 September 2002, were both first-year, blackish birds (Fig. 2). During the same period, a dark bird was rescued by the animal recovery centre (CETRAS) on Santa Catarina Island, and the finding of a Southern Giant Petrel at Camboriú, in northern coastal Santa Catarina, was reported in local newspapers. The first record for Santa Catarina was of a banded bird recovered at Garopaba on 25 August 1962 (Sladen *et al.* 1968 *apud* Olmos<sup>11</sup>). There are two other published state records, one from Rincão, southern coastal Santa Catarina, in 1988, and one on Santa Catarina Island, in 1991<sup>8,15</sup>. More recently, another dark young bird was photographed by C. H. S. Oliveira, at Moçambique beach, on the east coast of Santa Catarina Island, on 17 August 2003 (Fig. 3). These records suggest that giant petrels are fairly common in Santa Catarina in colder months; indeed, they are noted daily offshore around the P-14 oil platform, near the border with Paraná (J. Soto *in litt.* 2003).

### Southern Fulmar *Fulmarus glacialisoides*

On 29 April 2002, one was found at Saco Grande, on the west coast of Santa Catarina Island (Fig. 4). The bird was very bold and easily photographed. It appeared poorly nourished, as it pecked at floating debris in easy reach (e.g. leaves, wood fragments, seeds and other material; Fig. 5). There are several previous records from Santa Catarina Island<sup>8</sup>.

### Prion *Pachyptila* sp.

One seen on 29 April 2002 in zigzag flight, c.8 m from our research vessel. Two species are known in Santa Catarina, *P. desolata* and *P. belcheri*. Sick<sup>18</sup> stated that both species are only recorded close inshore during wrecks (see also Martuscelli *et al.*<sup>5</sup>). We are unaware of any storm or mortality event for other seabirds concurrent with this observation, making the record somewhat unexpected. However, it was observed the same day that we registered *Fulmarus glacialisoides*, suggesting that the presence of these Procellariiformes was related to poor weather conditions.

### South Polar Skua *Catharacta maccormicki*

On 1 September 2000 a skua was photographed in the Baía Norte (Fig. 6). The bird had dark underwing-coverts, no capped effect and a slender bill, permitting identification as *C. maccormicki* (following Malling Olsen & Larsson<sup>4</sup>). This appears to be the first record for Santa Catarina.

### Chilean Skua *Catharacta chilensis*

Our first record was in 2001 (date unrecorded), when a bird with a ferruginous breast and dark cap was photographed. Thereafter, we photographed the species on three occasions: on 23 November 2002, 29 July 2003 and 23 September 2003. The two latter observations involved two individuals, but in each only one was certainly identified. The first record in Santa Catarina was of a female now in the Natural History Museum, Tring (Saunders & Salvin 1896 *apud* Silva e Silva *et al.*<sup>19</sup>). We agree with Silva e Silva *et al.*<sup>19</sup> that this female must be the source for the citation by Pinto<sup>13</sup> of *C. chilensis* in Santa Catarina. More recently, a bird was photographed in 1994 (these photographs are stored at the Museu Oceanográfico do Vale do Itajaí [MOVI 16708]), and another was photographed in July 2001 in offshore waters of Santa Catarina<sup>19</sup>.

### Arctic Skua *Stercorarius parasiticus*

From November 2002 to September 2003 we had several records of *Stercorarius* skuas on ten cruises, with two records from land in January and April 2003, and another on a cruise in January 2004. The records are summarised in Table 1. Only on 16 April 2003 were we able to identify the species involved, although based on their kleptoparasitic behaviour, the apparently all-dark bills and the size

**Table 1.** Summary of records of *Stercorarius* sp. in Baía Norte, Santa Catarina.

|  | Date              | No. of birds |
|--|-------------------|--------------|
| <i>Stercorarius</i> cf. <i>parasiticus</i> | 16 November 2002  | 3            |
| <i>Stercorarius</i> cf. <i>parasiticus</i> | 23 November 2002  | 1            |
| <i>Stercorarius</i> cf. <i>parasiticus</i> | 13 December 2002  | 1            |
| <i>Stercorarius</i> cf. <i>parasiticus</i> | 27 December 2002  | 2            |
| <i>Stercorarius</i> cf. <i>parasiticus</i> | 10 January 2003   | 1            |
| <i>Stercorarius</i> cf. <i>parasiticus</i> | 13 January 2003   | 22           |
| <i>Stercorarius parasiticus</i>            | 16 April 2003     | 1            |
| <i>Stercorarius</i> cf. <i>parasiticus</i> | 19 April 2003     | 1            |
| <i>Stercorarius</i> cf. <i>parasiticus</i> | 21 June 2003      | 1            |
| <i>Stercorarius</i> cf. <i>parasiticus</i> | 29 July 2003      | 3            |
| <i>Stercorarius</i> cf. <i>parasiticus</i> | 19 September 2003 | 1            |
| <i>Stercorarius</i> cf. <i>parasiticus</i> | 23 September 2003 | 1            |
| <i>Stercorarius</i> cf. <i>parasiticus</i> | 20 January 2004   | 4            |

and structural similarities to the one positively identified bird, we consider that all records were of *S. parasiticus*. We recorded both dark and pale morphs, dark birds being commoner (80.5%). A first-winter pale-morph (*vide* Malling Olsen & Larsson<sup>4</sup>) was recorded once. The first state record of a *Stercorarius* was made by Schiefler & Soares<sup>17</sup>, but the bird could not be identified to species level. On 25–30 March 1995, Olmos<sup>10</sup> photographed 53 Pomarine Skuas *Stercorarius pomarinus*, 17 *S. parasiticus* and one Long-tailed Skua *S. longicaudus* following trawlers in shelf waters off Santa Catarina. On 1 October 2003, the recovery in northern coastal Santa Catarina of a *S. parasiticus* banded in Sweden was reported in local newspapers.

## Discussion

In addition to those Procellariiformes mentioned above, a Light-mantled Sooty Albatross *Phoebastria palpebrata* was found in the channel between the Baía Norte and open sea<sup>14</sup>, and Rosário<sup>15</sup> included a record of a Sooty Shearwater *Puffinus griseus* in 1988, also from the Baía Norte. Albatrosses and petrels appear to use the Baía Norte mostly on passage or during post-breeding dispersal, and their occurrence is further influenced by weather systems bringing them closer to the mainland.

On the other hand, *Stercorarius* skuas occur regularly. Although Rosário<sup>15</sup> reported three records of skuas in Santa Catarina, only one is attributable to species, as she treated all skua taxa under *C. skua*, a common usage in Brazil until recently. The record of July 1963, also mentioned by Sick<sup>18</sup>, refers to *C. antarctica lonnbergi*<sup>11</sup>. We also observed unidentified skuas on several occasions. One of these records was made in the Baía de Babilonga, in the north of the state, on 10 August

2002, whereas the others are from the Baía Norte. All but one of our records of *Catharacta* spp., as well as those cited by Rosário<sup>15</sup>, were made in April–September (Fig. 7). The paucity of records in October–March, despite equal field effort during this period, accords with the breeding season of southern skuas, as adults are on the breeding grounds in Antarctica and southernmost South America at this season<sup>4</sup>.

The presence of *Stercorarius* in Baía Norte also follows the breeding phenologies of these species. Most of our records, including that involving the largest number of individuals (Table 1), were made in November–April, when birds would be expected in the southern Atlantic along the coast of South America<sup>4</sup>. Interestingly, it is possible that spatial segregation between *S. parasiticus* and *S. pomarinus* exists: the former is much rarer over deeper waters far from land<sup>10</sup>, but thus far is the only *Stercorarius* recorded close to mainland Santa Catarina. Such apparent segregation must be viewed critically: *S. pomarinus* is recorded from the coast of Rio Grande do Sul<sup>2</sup>, thus a lack of such records in Santa Catarina may merely reflect an observational lacuna. Tern abundance in Baía Norte appears to be the reason for the presence of *Stercorarius parasiticus* there. We have witnessed many instances of kleptoparasitism of terns by skuas, as well as skuas following flocks of terns. We also observed a Magnificent Frigatebird *Fregata magnificens* harassing a skua, after the latter had stolen prey from a tern.

In winter we also recorded Magellanic Penguin *Spheniscus magellanicus* in Baía Norte. The species is common in colder months on the coast of Santa Catarina, where large numbers, mostly recently fledged immatures, are washed-up dead on beaches. It is unclear whether those that survive return to Patagonian Argentina<sup>15</sup>.

Another species frequently recorded during our studies in Baía Norte was Royal Tern *Sterna maxima*, considered Vulnerable in Brazil due to the country's small breeding population<sup>6</sup>. This tern is very common in winter and is observed year-round, although it is always less numerous than Cayenne

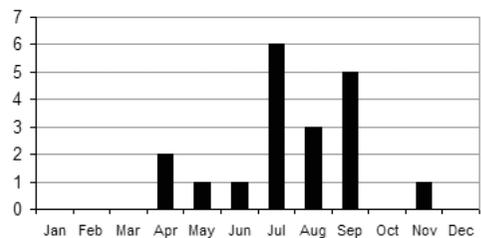


Figure 7. Number of records of *Catharacta* spp. in coastal Santa Catarina.

Tern *S. sandvicensis eurygnatha*. In Baía Norte, Royal is commoner than South American Tern *S. hirundinacea*, which is considered the commonest tern in coastal Santa Catarina<sup>15</sup>. Known from only four localities in the state<sup>7,15</sup>, we consider *S. maxima* to have been merely overlooked, and to be commoner than previously known. Recently, Rosário<sup>16</sup> found a similar pattern for Royal Tern in Baía Sul, just south of Baía Norte.

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Figure 2. Southern Giant Petrel *Macronectes giganteus* in Baía Norte, Santa Catarina (L. L. Wedekin)



Figure 3. Southern Giant Petrel *Macronectes giganteus* at Moçambique beach, Santa Catarina Island (C. H. S. Oliveira)



Figures 4–5. Southern Fulmar *Fulmarus glacialis* Saco Grande, Santa Catarina Island (L. L. Wedekin)



Figure 6. South Polar Skua *Catharacta maccormicki* in Baía Norte, Santa Catarina; note the slender bill, dark underwing-coverts and absence of a cap (L. L. Wedekin)