Seabird Surveys

Background

These seabird surveys are part of a long-term ecological monitoring program of seabirds in the Southern Ocean and along the Antarctic Peninsula called the Antarctic Site Inventory (ASI). Seabirds are very useful as ecological indicators: by studying them we can learn a lot about other aspects of the environment that are often difficult to study, such as populations of fish and krill. Seabirds also travel vast distances over the ocean to feed, and most come back to discrete breeding colonies to raise young, making it (relatively) easy to observe whole portions of their populations at one time.

This project has two parts:

- **At-sea surveys:** recording seabirds observed from the ship while underway at-sea
- **On-shore surveys:** recording birds (including breeding status) at landing sites

At-sea surveys aim to understand the fine-scale at-sea distribution of seabirds and how they use the oceanic habitat. For scientists some of the most interesting aspects of marine bird distribution are the association between birds and oceanographic features such as fronts and eddies, measured at the "meso-scale" (i.e. within tens of kilometers). Yet, data on at-sea distributions in the Southern Ocean are particularly sparse, since ship-time for scientists is usually very expensive and the number of polar research vessels is limited. By conducting at-sea surveys, guests can support scientists by collecting these important data of seabird distribution and abundance at smaller time and space scales.

On-shore surveys aim to understand the presence/absence, abundance and phenology of birds (i.e. the timing of breeding events, like laying and hatching eggs) on shore. The latter is something that may or may not change for different species as the climate warms, and whether different species change that timing might be crucial to learning how well they will cope with changes. Having guests collect these data allows science to reach more places at more times - something that a single team of researchers simply can't do across the entire region.

How can you/guests participate?

At-sea surveys are a great and easy way to get guests out on deck during sea days to educate them about the seabirds flying around the ship. Surveys can last between 15min and 1h. Together with an expedition staff member all birds seen during this time should be counted and recorded on a datasheet (see resource material below). Also, include start and end times as well as start and end GPS positions (please clearly mark which GPS format you use). Additional information about weather and sea state conditions is appreciated.

On-shore surveys ideally record abundance and breeding status of penguins and other seabirds on shore. These surveys have no time limit and are preferably facilitated by an expedition staff member. If assessing abundance is too onerous, recording presence and breeding status is sufficient. It is worthwhile, however, to estimate abundance (to have some idea of the scale – were there just one or two, or were there 100s, 1000s) and record more precise numbers of other species, such as skuas, sheathbills, or the lone penguin of a different species.

Datasheets can be either scanned and emailed by the leading expedition staff member to Michael Schrimpf, or the hard copies can be mailed (see contact info below).

Training and equipment required

Participants only need to feel comfortable identifying many/most birds seen at sea or at colonies (it is fine if some birds are not identified to species – there are entry fields for larger categories, like "albatross sp.") The project is ideally led by an expedition staff member (e.g. the ornithologist), who can guide guests throughout the survey. No other training is required.

The equipment needed for this project includes

- **Datasheets** (see resource material)
- **GPS device** (at-sea surveys)

Expected results/feedback

These surveys will be used in conjunction with more traditional surveys conducted by ASI staff in the field to map bird distributions both at breeding colonies and at sea. We will need several years of data collection before we can expect definitive results, but the response so far has been exceptional. In the last three years, passengers aboard several tour vessels submitted more than 500 surveys, amounting to roughly hundreds of observation hours.

Resource material

Detailed project instructions, datasheets, reference as well as on board presentation materials can be downloaded via the following link *http://iaatocitizenscience.online/seabirds*.

Scientific project partners

- Michael Schrimpf, Stony Brook University
- Antarctic Site Inventory, a partnership between Oceanites, Inc. *https://oceanites.org* and several academic partners.
- eBird *https://ebird.org:* all data are collected consistent with the "traveling count" protocol used by the eBird program. After a quality-control review by Michael, the datasheet is entered as an eBird "checklist", and is then included in eBird's open access database, with unlimited access for scientists. Most eBird data come from birdwatchers around the world, and at a minimum are lists of birds seen on a specific date at a specific place. This project strives for a slightly higher checklist quality, by recording all birds over a short time-frame (i.e., < 1h at sea, or during a dedicated period during a landing) and at a specific location (e.g. GPS coordinates at sea or a specific landing site). These high-precision "complete checklists" are very valuable for studying bird-habitat relationships.

Main contact information

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