AS@S: ATLAS OF SEABIRDS AT SEA

PROTOCOL FOR DATA COLLECTION FOR DENSITY AND DISTRIBUTION OF SEABIRDS AT SEA USING ALL PLATFORMS OF OPPORTUNITY

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1. Scope and objectives

AS@S is collaboration between BirdLife South Africa and the South African Environmental Observation Network. AS@S uses 'citizen scientists' to collect seabird distribution and abundance data from any vessel, by anybody willing and able to contribute. The data are collected according to a standard protocol and uploaded via this website to be immediately incorporated into the AS@S database. The database is open-access and is fast becoming a valuable resource for understanding the abundance, distribution and seasonality of seabirds at sea, and for examining how these have changed through recent decades.

2. In order to participate, you must be able to:

- Identify reliably and with relative ease the large majority of the seabirds present or likely to be encountered
- Record time and your position with a GPS
- Enter your data into an excel spread sheet and submit your data online once you have completed the counts/cruise

3. Types of counts

Two types of counts are used for data collection. **Effort-based 10-minute transect counts** from the bow should form the majority of counts, while a handful of **snapshot counts** can be done off the stern intermittently during the day (e.g. one in the morning, lunch time and afternoon).

3.1. Effort-based 10-minute transect counts

Counts of species are of no use unless there is a context to those numbers. For example, ten birds counted in 1 minute says something very different to 10 birds counted in 1 hour. Similarly, 10 birds seen in 10 minutes in a small area is different to 10 birds seen in 10 minutes in an area 10-times the size. For counts to be useful, we need to know the effort that went into the counting. Effort is the time spent counting, and the area of the sea around the boat that was included in the count. It is as important to record these accurately as it is to do the actual counts. Without effort recorded accurately, the counts are useless. Regardless of whether you count up to 300m or up to 100m if its foggy, or whether you count for a full 10 minutes or if your transect is cut short to 4 minutes because the vessel stopped RECORD IT. From that, regardless of the unit used we can calculate the density of birds, distribution patterns and an index of abundance.

Rules for effort-based transects

- *ALWAYS COUNT FROM THE BOW (FRONT)* of the vessel or an elevated point and looking forwards.
- *ONLY COUNT WHEN THE VESSEL IS MOVING AND IN A CONSISTENT DIRECTION*
- *DO NOT COUNT SHIP FOLLOWERS.* This includes birds that come in from outside the count area during the count, specifically to investigate the boat. Many birds will also circle or do zigzags around a boat, making it very difficult to know what to do. If in doubt, leave it out.
- *ALL SPECIES ARE EQUAL.* Aside from ship-followers, it is crucial to count every single species – do not focus only on rare or "exciting" birds or birds that are bigger and easier to see. All birds are equally important to record.
- *ALWAYS KEEP COUNTING EVEN WHEN THERE ARE NO BIRDS* (i.e. count = 0). Knowing that a certain patch of ocean had no birds in it is very useful.
- *COUNT BIRDS THAT ARE FLYING VS. SETTLED ON THE WATER SEPARATELY.* Moving birds cover big areas – termed 'flux' – and are thus more likely to enter the count area than birds that are sitting still. Treating them the same will introduce a bias towards birds that are flying. An easy way to differentiate during counts is to circle tallies of sitting birds in your counting notes.
- *ALWAYS RECORD TIME AS SHIP TIME.* On some cruises vessels may switch time zones, always keep time according to the ship time. This would mean that all bird counts are relative to environmental times (e.g. sunrise) no matter which time zone is encountered.

How to do an effort- based transect count:

1. **For each count, record date, start time, end time, start position and end position off your GPS**. Make sure your GPS is set to record in decimal degrees. A 10 minute transect is preferred however if your transect is cut short for some reason (e.g. boat stops suddenly) that is okay, just record the time spent counting. Do not record for longer than 10 minutes.
2. **Define the distance from the boat that you are counting – typically 0-300 m**. This too can vary between counts (e.g. 0-50 m or 0-200 m) usually due to visibility, but again, record what you are doing for each count. Much further than 300 m and small species cannot be reliably identified and are very likely to go unnoticed, which would bias counts against smaller, less visible species. Therefore 300 m is the maximum distance from the ship we record.
3. **Decide on the arc (90° or 180°) from the bow that will be counted**. This can vary between counts, as long as you record what you are doing for each count). Why would this change? If a low sun or strong reflections makes counting to one side difficult, or there is a sail or bulkhead or some other obstruction, or you are on your own with lots of birds around, count only to one side (90°).
4. **Count the number of each species seen remembering to record these as either flying or sitting**. You can use shorthands or keys for spp, e.g. BBA for Black-browed Albatross)

3.2 Snapshot counts

A handful of snapshot counts off the stern (back) of the boat during the day are helpful to get an idea of which birds are around or are following the ship. Obviously counting ship followers here is okay. But just make sure to note in the excel spreadsheet the type of transect as "snapshot" and that ship followers were included.

1. **Record the time and GPS position**. The start and end times and GPS points will be the same for a snapshot count, even though you will have moved a bit
2. **Decide on the count area (count distance and arc) and record this.**
3. **Count each species, in turn, within the count area in a single moment in time ("a snapshot").** Don't wait for lots of birds before doing the count, just go through the species as fast as you can, one- or a couple of species at a time.

4. Equipment you will need

- Good binoculars.
- A handheld GPS unit
- Notebook. Counts can be entered directly into the excel spreadsheet but this is not recommended. It is much easier (and safer) to write it down either in a notebook or a datasheet and then enter the data into excel. Hint: Enter your data everyday so that it does not accumulate.

5. Additional resources

- BirdLife SA and World Wildlife Fund–SA: Common seabirds of Southern Africa identification cards.
- BirdLife SA's Guide to identifying seabirds of Southern Africa.