



Dolphins of the Kelp



Focal Study Data collection protocol 2017

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Background

The Dolphins of the Kelp project, funded by the Darwin Initiative, is delivered through three complimentary work programmes: 1. Island-wide transect survey; 2. Focal study based on photo-identification; 3. Genetic diversity and local population structure. This document summarizes the methods used to collect field data during the focal study.

Study area

The three areas for the focal studies have been selected based on their accessibility, survey feasibility during winter and summer and potential presence of target species, Commerson's dolphin (*Cephalorhynchus commersonii*) and Peale's dolphin (*Lagenorhynchus australis*). The areas are (**Figure 1**):

- A. Port Stanley – Port Williams – Berkeley Sound (East Falkland)
- B. Choiseul Sound (East Falkland)
- C. Port Howard – Swan Island – Many Branch (West Falkland)

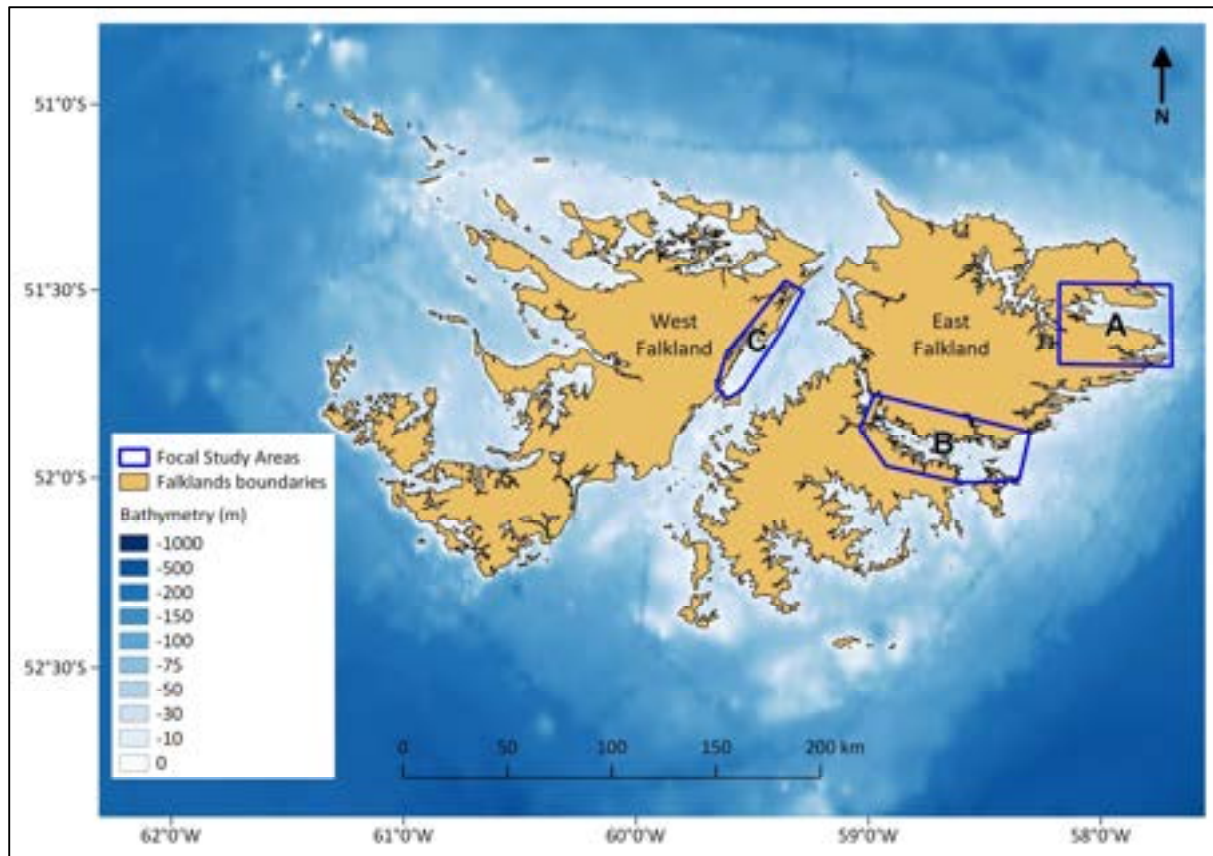


Figure 1 - Areas selected for the focal study A. Port Stanley – Port Williams – Berkeley Sound (East Falkland); B. Choiseul Sound (East Falkland); C. Port Howard – Swan Island – Many Branch (West Falkland).

Observation platform

The survey platform (**Figure 2**) is a 6.8 m long Rigid Inflatable Boat (hereafter RIB) called “Baltic Warrior”, owned by the Shallow Marine Survey Group (SMSG). The boat is propelled by two outboard Mercury 125hp engines allowing a maximum speed of 59 km/h (32 knots). The RIB is equipped with two fuel tanks with a capacity of 100 litres each.



Figure 2 – The Rigid Inflatable Boat called “Baltic Warrior” owned by the Shallow Marine Survey Group (SMSG).

Survey Design

The three study areas are covered twice a year, during summer and winter, for the two-year period of the project. Every area is surveyed for 3 to 5 days each time.

A transect-based survey for the focal study was initially in the area A (**Figure 3**). By using this approach, clear constraints were highlighted mainly due to: difficulties in following the line (due to the presence of kelp and shallow areas, in particular during low tides – see **Figure 3** strata of Berkeley Sound North and South); difficulties to maintain a constant speed (slowing down was necessary when approaching shallow areas or kelp forests); extremely coastal distribution of the dolphins (often found inside estuaries or bays); limited extension of some of the areas (i.e. Port Stanley) respect to the transect total length resulting in high level of overlapping and generating transect too short – less than 1 km); strong dolphin attraction to the RIB resulting in animals being dragged away from their initial position and possibly re-sighted on multiple transects.

Transect-based routes were therefore discarded for areas B and C where an *ad libitum* navigation was preferred. This latter approach proved to be more applicable and efficient, also allowing navigation areas to be selected depending on favourable weather conditions, in particular for the area C where surveys must be planned at least one week in advance.

The next surveys will all be carried out following *Ad libitum* routes.

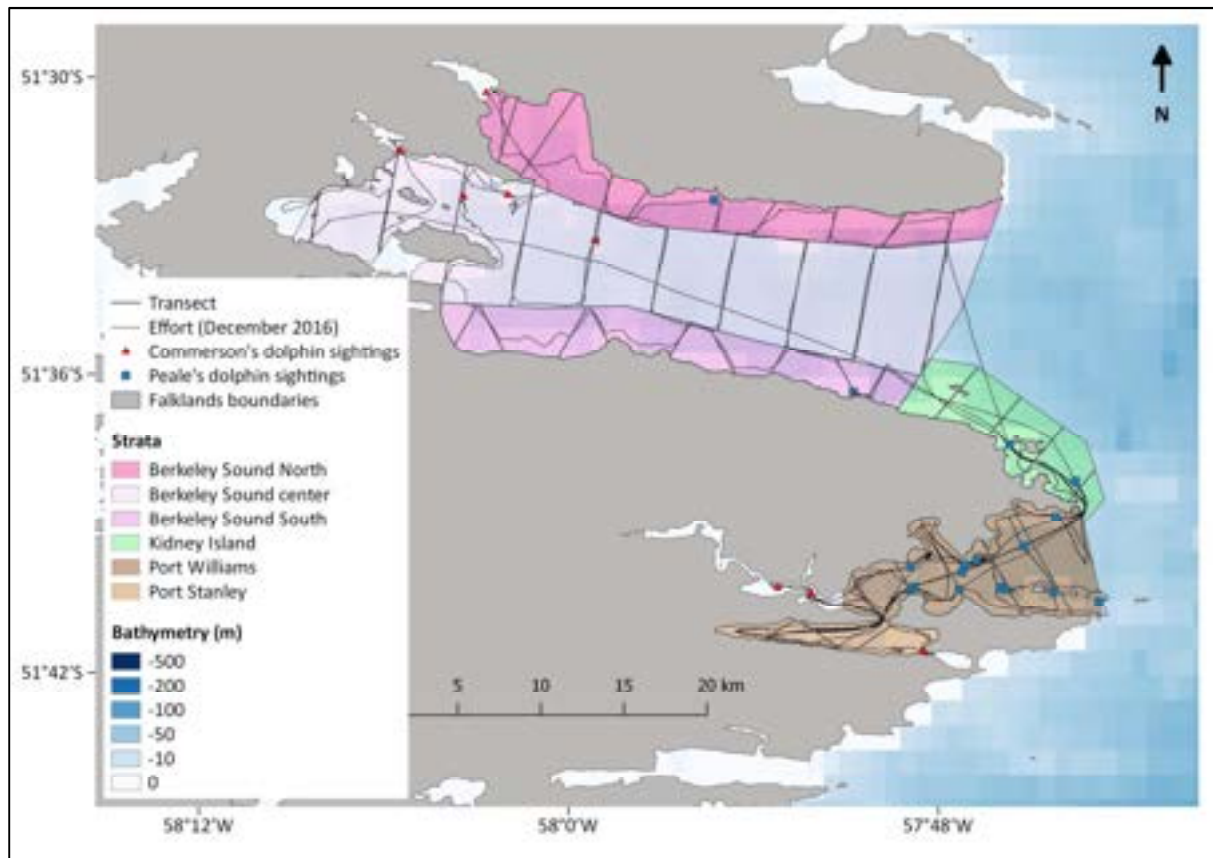


Figure 3 – Area A divided in 6 strata with the transect lines generated by Distance (plain grey line). The effort (dotted line) was rarely overlapping the transects (mainly due to kelp forest presence and weather conditions) and dolphins were often spotted in areas not covered by the transects.

Data Collection

Observation is carried out by two observers (**Figure 4**) at a speed ranging from 13 km/h to 22 km/h (from 7 to 12 knots). Navigation data, including time, position (latitude and longitude in decimal degrees), and vessel speed and heading, are recorded automatically every 20 seconds on a global positioning system (GPS) Garmin 72H. Each observer searches with naked eyes a sector of about 120 degrees from 20 degrees on one side of the RIB route to 90 degrees on the opposite side therefore creating an overlap of 40 degrees. When a third observer is present, researchers rotate positions every 30 minutes allowing one researcher to rest. Surveys last from 6 to 8 hours.

Other navigation data and environmental data are tape recorded at the beginning and at the end of the survey and every time a variable changes. These data include:

- Time (i.e. format hh:mm:ss).
- Effort – Positive: when two observers are searching for cetaceans, visibility is more than 4 km, there is no heavy rain and speed ranges from 13 km/h to 22 km/h (7 to 12

knots); Negative: when one of the previous conditions do not occur; Cetacean: as soon as a sighting occur.

- Sea state in both Beaufort and Douglas scales.
- Wind direction (using cardinal points).
- Swell high (in meters) and direction.
- Cloud cover (in %).
- Glare, precipitation and fog (none, mild, moderate and severe).
- Glare sector in degrees (less than 20, from 20 to 90, more than 90)



Figure 4 - Observers searching for cetaceans during the focal study.

When dolphins are sighted navigation is interrupted and animals are carefully approached to collect photo-identification data (see Photo-Identification protocol -). The spotter, the species, the cue of spotting, and the animal reaction to the boat are also recorded. At the end of the sighting group size (best, minimum and maximum), presence and number of calves and newborns, and quality of the group size are recorded (changes in group size and age composition during sighting are tape-recorded). During the sighting video footage of the behaviour displayed are also taken.



Figure 5 - Photo identification is carried out during the sighting.

The sighting ends usually after 30-45 minutes or in general whenever enough data have been collected; navigation is resumed nearby.