2017

DOKE Field Work Report
Condor Survey 21Feb-1Mar 2017

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SAERI
10/25/2017

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Grant Munro
Austral biodiversity

Background

South Atlantic Environmental Research Institute (SAERI) is leading a multi-partner project entitled 'Dolphins of the Kelp: Data priorities for Falkland's inshore cetaceans' (hereinafter DOKE), which is funded by the UK Government's Darwin Plus Funding scheme and the Falkland Islands Government (FIG). The project partners are Falklands Conservation (FC), Shallow Marine Surveys Group (SMSG), Austral Biodiversity, Oregon State University, and University of St Andrews. The aim of DOKE is to establish baseline data on the abundance, distribution, natural history and genetic diversity of the Falklands inshore cetacean populations to provide a scientific basis for conservation and ecosystem-based marine management initiatives. The target species are the Commerson's (*Cephalorhynchus commersonii*) and Peale's dolphins (*Lagenorhynchus australis*) although all cetaceans encountered are recorded.

The project is delivered through three complimentary work programmes: 1. island-wide transect survey, using line transect methods to estimate abundance of both species; 2. focal studies, carried out in three areas (A. Port Stanley – Port Williams – Berkeley Sound; B. Choiseul Sound; C. Port Howard – Many Branch) and using photo-identification and passive acoustic monitoring methods; 3. tissue sampling to determine genetic diversity, local population structure, and relationship to SW Atlantic contiguous continental stocks.

The purpose of this report is to describe the *Condor* survey, a nine days survey carried out aboard the vessel *Condor* (**Figure 1**) in February 2017, in the waters off the west coast of West Falkland. Aim of the survey was gathering information about Commerson's and Peale's dolphins' distribution in a poorly known area. Data collected contributed to the design of the aerial survey and will be used to verify the habitat use predictive maps of dolphin distribution (see 'Aerial Survey Report 2017'). Detailed information about the study area, the vessel, and material and methods used are found in the 'Condor Protocol Data Collection' file.

Summary

The *Condor* survey was carried out from the 21st of February to the 1st of March 2017. Navigation covered part of the western coast of West Falkland, and the main western islands, including West Point, Split I., Passage Islands, New I., Beaver I., and Weddell I. (**Figure 2**). The cetacean research crew was formed by Marina Costa

(PM), Maria Garcia (PO), Lorna Hamilton (intern), and Connor Bamford (intern); Michael Clarke was the skipper and Jan his assistant.

During the survey, a total of 760 km were navigated of which 590 km (78%) were done in 'positive' effort, e.g. looking for cetaceans (**The survey** began in the afternoon of the 21st after the cetacean team arrival to Carcass Island. On the 22nd and 23rd sea conditions were good allowing for full days of navigation. During the following two days, 24th and 25th strong rain and wind limited the survey to the afternoon. Sea conditions were good again on the 26th and 27th allowing for full survey days. On the evening of the 27th we received the information that a storm, with winds up to 45 knots, was coming in, and on the 28th we headed to West Point in negative conditions. On the 1st of March, after having spent the night in the sheltered bay of Hope Harbour, we moved to Carcass Island at Beaufort 9.

Table 1).

Figure 1 - The vessel *Condor*.

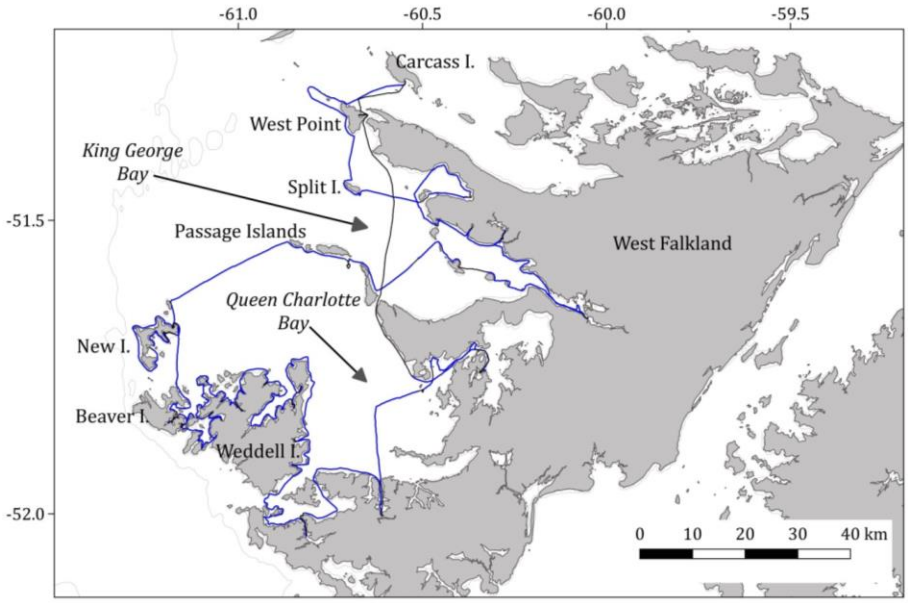

Figure 2 - Survey effort carried out from the 21st of February to the 1st of March 2017, on board of the vessel *Condor*. The blue line is the navigation with 'Positive' effort (e.g. looking for cetaceans); the black line is navigation off effort.

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Table 1 - Date, area, crew on board, and effort (total and 'Positive' kilometers, and total time) for each day of survey. Crew code: MCOS=Marina Costa; MGAR= Maria Garcia; AGUE= Amy Guest; KBRI= Katie Brigden; JSOL= Jenni Sol; PJEL= Pamela Jelbes; SCLE= Sasha Cleminson; NSMI= Ness Smith.

Date	Effort		
	Total (km)	Positive (km)	Total time (hh:mm)
21/02/2017	64.5	60.3	4:53
22/02/2017	118.9	105.1	11:57
23/02/2017	105.6	95.3	10:23
24/02/2017	52.3	39.2	5:51
25/02/2017	44.1	32.5	5:14
26/02/2017	132.5	115.6	11:20
27/02/2017	125.5	106.4	10:38
28/02/2017	100.0	35.6	11:44
01/03/2017	16.2		1:15
9 days	**759.7**	**590.1**	**73:20**

Cetaceans were observed during 337 sightings and five species were encountered, including Commerson's dolphin, Peale's dolphin, orca, sei whale, and fin whale (**Table 2**). Almost all sightings (96%) were made during 'Positive' navigation.

Table 2 - Number of sightings for the five species encountered during the *Condor* survey in total and during 'Positive' navigation (e.g. looking for dolphins), and 'Negative'.

Species	Number of sightings		
	Total	Positive	Negative
Commerson's dolphin	149	139	10
Peale's dolphin	106	103	3
Orca	1	1	
Sei whale	48	47	1
Fin whale	1	1	
Unidentified baleen whale	32	31	1
Total	**337**	**322 (96%)**	**15**

The most encountered species were Commerson's and Peale's dolphins. Commerson's were mainly encountered in the inner part of bays with only few individuals being spotted offshore. The zone around Port North, and the sheltered creeks and harbours in Beaver I. and Weddell I. appeared to be high density areas for Commerson's. The northeastern coast of New I. and the coast around Loop Ridge (Weddell I.), appeared to be high density zones for Peale's. Commerson's dolphins were not observed around New I. and no dolphins were observed in the proximity of Passage Islands (**Figure 3**). One sighting of orca was made in the canal

between Beaver I. and Governor I. The orca was a big male known to regularly visit Sea Lion I. and locally named 'Alberto'.

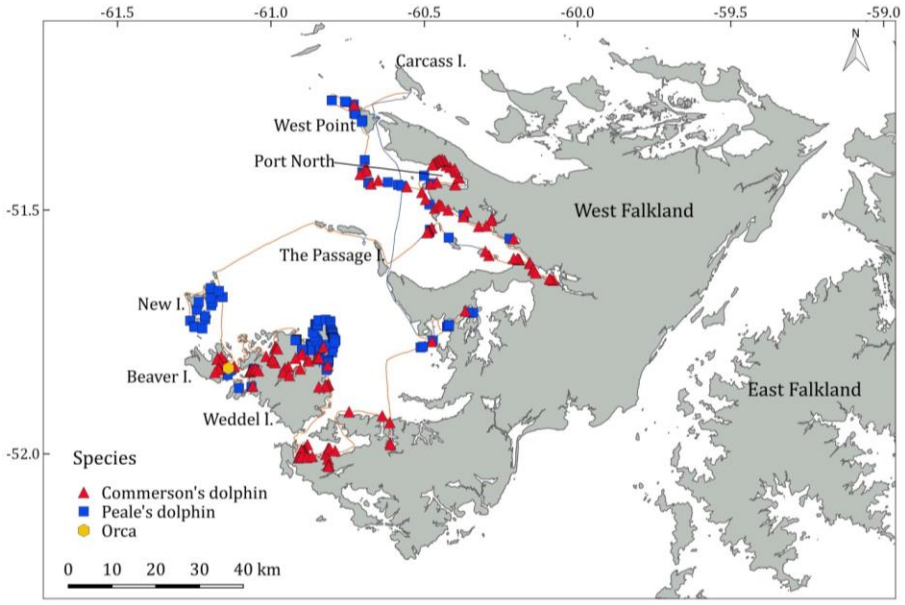

Figure 3 – Sighting distribution of delphinids species encountered during the *Condor* survey. The red line shows the 'Positive' navigation (e.g. looking for cetaceans); the black line the 'Negative'.

A total of 81 sightings of baleen whales were made of which sei whales represented the majority (59%) and in the remaining occasions animals were too far away for certain identification (**Table 2**). At least one fin whale was clearly observed in King George Bay. The vast majority of individuals were identified as adults but in one occasion in which a juvenile or possibly a calf of sei whale was observed. Baleen whales were mainly observed in King George Bay and Queen Charlotte Bay. No sightings have been made around West Point I.

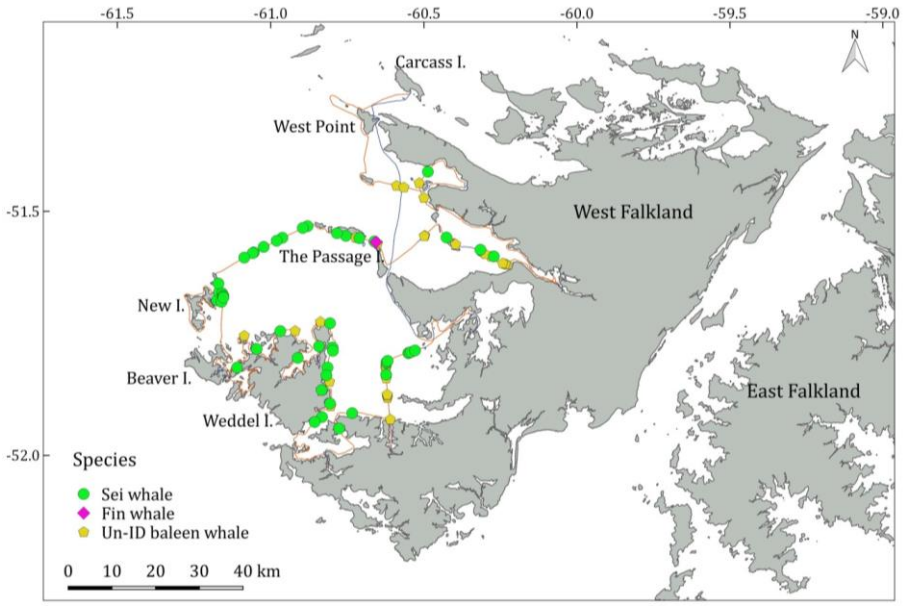

Figure 4 - Sighting distribution of baleen whales species encountered during the *Condor* survey. The red line shows the 'Positive' navigation (e.g. looking for cetaceans); the black line the 'Negative'.

Average group size for the five species encountered was calculated for 323 sightings where individual have been counted (**Table 3**).

Table 3 - Mean group size (Mean), standard deviation (SD), range and sum of individuals observed.

Species	n	Mean	SD	Range	Sum of individuals
Commerson's dolphin	141	4.9	5.3	1-30	690
Peale's dolphin	102	5.0	5.0	1-35	511
Orca	1	1.0	na	1	1
Sei whale	48	2.1	1.8	1-12	100
Fin whale	1	2.0	na	2	2
Unidentified baleen whale	30	1.7	1.5	1-8	50

Tissue sampling

One of the activities performed during the Condor survey consisted in genetic samples collection. The Condor survey was carried out after the genetic survey for Commerson's dolphin in east Falkland and provided a chance to collect samples from Peale's dolphins. Samples were collected from individuals observed around New Island, Beaver Island, Weddell Island and Port Philomel (**Figure 5**).

A first sampling attempt was carried out from the small RHIB tender. However, this boat proved to be not ideal due to its limited speed, not sufficient to properly approach the animals. All subsequent attempts were performed directly from the *Condor* vessel using an extension of the sampling pole with successful results (**Figure 6**).

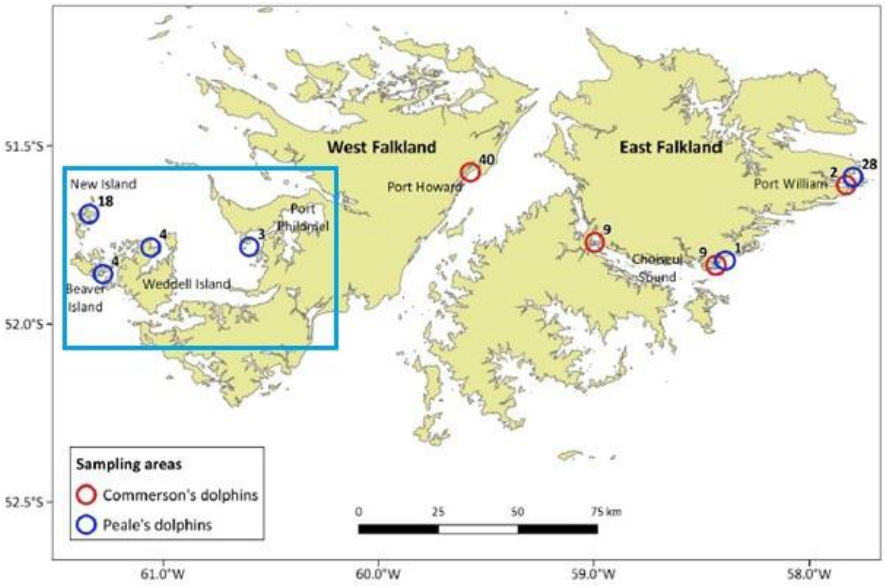

Figure 5 - Location and number of genetic samples collected from Commerson's and Peale's dolphin during the 2017 austral summer season in the Falkland Islands. The light blue square encircles the samples collected during the Condor survey.

Figure 6 – Extended pole for genetic sampling form the *Condor*.

Data management

Data management for the project operates in two ways, with the help of the IMS-GIS Data Centre Manager.

a) Storage: the data (navigation and sighting data) are saved on a secure server and backed up hourly and off-site.
b) Metadata: the data have been documented using the standard metadata form (19115). Metadata is made available online through the SAERI metadata catalogue (www.south-atlantic-research.org/metadata-catalogue).

In both cases the project is taking into account what is written in the current Falkland Islands data policy (www.south-atlantic-research.org/guide-for-researchers/planning-research-in-the-falkland-islands).

Conclusion

The aim of this survey was to investigate the presence and distribution of dolphins and other cetacean species in a scarcely known area. Several areas of high density (in summer) for Commerson's and Peale's were identified. The two species do not seem to overlap using contiguous areas with Commerson's located in the most inner and sheltered part.

Dolphins were strongly attracted to the vessel and several individuals remained bow-riding between different sightings making difficult to estimate group sizes and impossible to observe unbiased behavior. Often Commerson's and Peale's were observed bow-riding together.

Almost 100% of the baleen whales identified at specific level were sei whales. Only two individuals of fin whales were encountered. However, the presence of other baleen species cannot be excluded because 40% of the sightings of baleen whales are of unknown species.

Baleen whales were manly observed in King George and Queen Charlotte Bays where they were seen feeding sometime.

The *Condor* was a very functional vessel, although very basic. It is very stable in rough sea conditions and has very large fuel tanks, allowing for many days at sea without returning to land for refueling. The only big limit was represented by the small capacity of the fresh water tanks (for a total of 300 l). The installation of a desalination unit might solve this problem for future surveys.

This survey highlighted the importance to conduct vessel survey to better quantify species presence and distribution, in particular associated to the results obtained by the aerial survey. Due to the short period and adverse weather conditions, the western waters of West Falkland were only partially covered. In the future, it is highly recommended that similar survey will be carried out, in particular in that areas not covered by the *Condor* survey.

Acknowledgements

We would like to give our most profound gratitude to all the Falkland Islands' residents who supported our work with enthusiasm and dedication. In particular we thank: Rob & Lorraine McGill at Carcass I., John & Charlene Rowlands at New Island, Jerome Poncet at Beaver I., Byron Holdings, Lewis Clifton and Martin Beaton at Weddell I., Kennet & Josie McKay at Chartres, Ali & Marlene Marsh at Shallow Harbour, Roddy & Lilly Napier, and Alan White & Jacqui Jennings at West Point Island; and Huges Delignieres & Marie-Paul Guillaumot at Dunbar for proving accommodation to the project inters in Stanley. Thank you to the project interns Lorna Hamilton and Connor Bamford for the support before, during and after the survey. Huge thank to iLaria Marengo for her support with GIS. Big thanks to the project partners: Nick Rendell from the Falkland Islands Government; Grant Munro

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