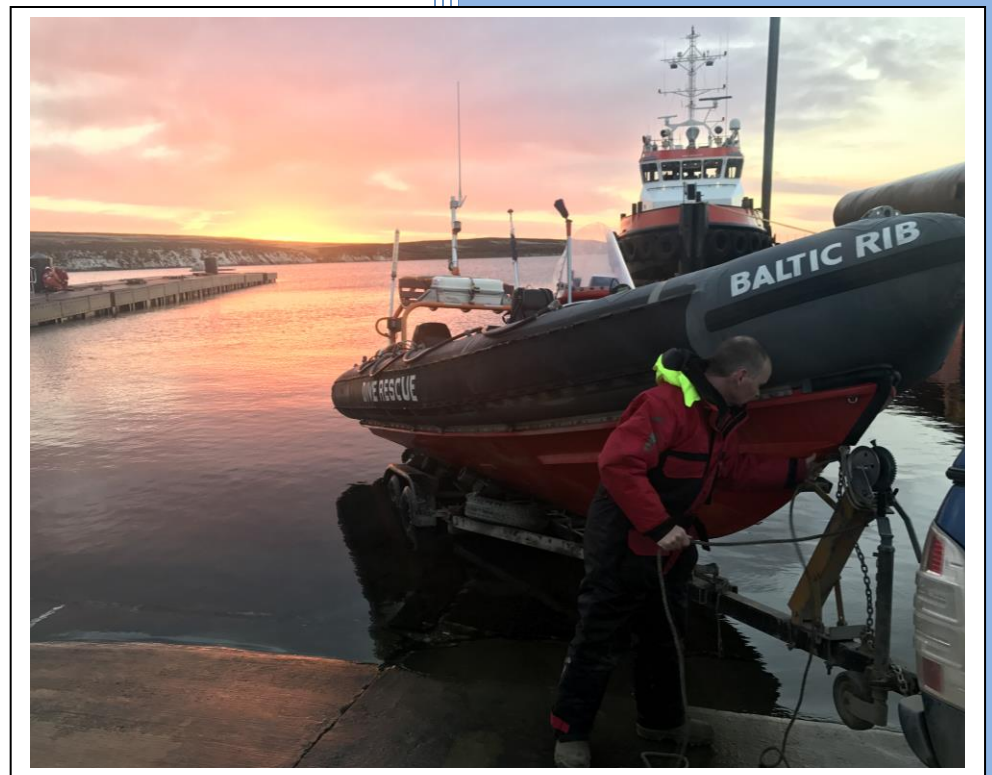




2018

DOKE Field Work Report Focal Survey #5 – Winter 2018



Marina Costa, Marcello Cazzola
SAERI
9/14/2018

Table of Contents

Background.....	2
Study area.....	2
Material and methods	3
Summary.....	4
Data management.....	7
Conclusion and next steps statement.....	8
Acknowledgements.....	8



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 field work related to the first focal survey of the project, carried out in summer 2016. This report will be made available on the SAERI website.

Study area

The study area includes three locations (**Figure 1**): A. Port Stanley, Port Williams, Berkeley Sound; B. Choiseul Sound; C. Port Howard/Many Branch. The three areas were selected based on: previous knowledge about the presence of at least one of the two target species; area accessibility; and survey feasibility during both seasons (considering limited daylight hours in winter).

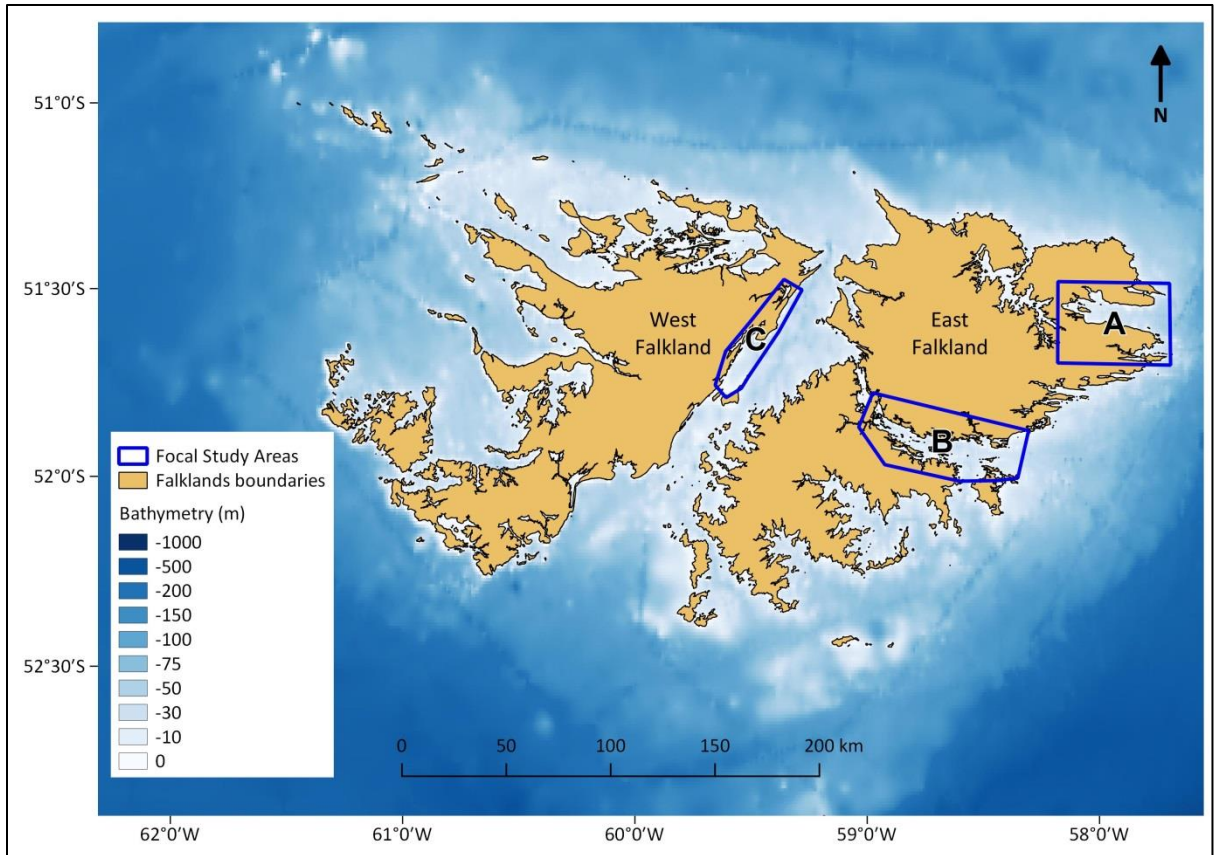


Figure 1 - Map of the Falkland Islands showing the three selected areas for the focal survey (in blue): A. Port Stanley – Port Williams – Berkeley Sound; B. Choiseul Sound; C. Port Howard – Many Branch. Map generated with QGIS 2.18.4. Falkland shapefile obtained from SAERI. Bathymetry obtained from GEBCO2014.

Material and methods

The survey was carried out on board of the rigid-hulled inflatable boat (RHIB) “Baltic Warrior” (**Figure 2**) owned by the Shallow Marine Surveys Group (SMSG); the skipper was Steve Cartwright, co-founder, director and chairman of the SMSG. Between three and five days were planned in each location. Surveys were carried out only in good sea conditions¹ (Beaufort<4). Navigation was conducted *ad libitum* (i.e. not following pre-established routes), with the exception of the area A where transects were followed. When at least two observers were looking for cetaceans a speed ranged from 13 km/h to

¹ Forecasts from: www.windfinder.com/forecast/mount_pleasant_falkland, www.passageweather.com/maps/capehorn/m_gfs.htm, and [www.yr.no/place/Falkland_Islands_\(Malvinas\)/Other/Port_Howard](http://www.yr.no/place/Falkland_Islands_(Malvinas)/Other/Port_Howard)

22 km/h (from 7 to 12 knots), navigation was considered as 'Positive' otherwise navigation was considered as 'Negative'; navigation around animals was considered as 'Cetacean'. A detailed protocol is available on the SAERI website (www.south-atlantic-research.org/research/doke/191public-outreach).

A cetacean detection was recorded as 'Encounter' when navigation was not interrupted and only species and group size were recorded and as 'Sighting' when navigation was temporally interrupted and animals were approached to collect photo-identification data (see the Photo-Identification protocol available on the SAERI website - www.south-atlantic-research.org/research/doke/191public-outreach). Species, behaviour/reaction to the vessel, group size and group composition (number of adult and calves) were recorded at each encounter/sighting.



Figure 2 - The Baltic Warrior used for the focal area study.

Summary

Sixteen days were spent at sea from the 5th of June to the 14th of August 2018, seven days in area A, three days in area B and 6 days in area C (**Figure 3**). In total 1234.4 km were covered with a 'Positive' effort of 937.4 km and 87 hours and 17 minutes were spent at sea (about 5 hours 30 minutes per day on average). The total time spent with cetaceans was 33 hours and 26 minutes. **Table 1** summarizes total and 'Positive' effort in kilometers and hours, area and crew on board for per each survey day.

People on board included crew members (MCOS and MCAZ), one yearly volunteer (AGUE) and local permanently resident volunteers (EMID, JWKI, JCAR and LCLA). One media operator (HNEW, from FITV) was also present during the survey in area C. Crew members provided training to volunteers on the following topics: use of GPS, use of camera and underwater action camera; cetacean sighting and photo identification; group size estimation; introduction to research protocols; health & safety and good practices on board of small boats. The duration of the surveys reported in **Table 1** accounts for the training hours of the trainees.

Table 1 - Date, area, crew on board and effort (total and 'Positive' kilometers, and time) for each day of survey. MCOS=Marina Costa; MCAZ=Marcello Cazzola; AGUE=Amy Guest; HNEW=Hannah Newton; EMID=Emmaleigh Middleton; JWKI=Jess Whalley-King; JCAR=Jack Cartwright; LCLA=Louise Clarke.

Date	Area	Crew	Effort		
			Total (km)	Pos (km)	Time (hh:mm)
05/06/2018	A	MCOS, MCAZ, AGUE	153.7	125.0	08:20
06/06/2018	A	MCOS, MCAZ, AGUE	118.9	98.1	07:13
16/06/2018	C	MCOS, MCAZ, AGUE, HNEW	41.6	31.5	03:27
17/06/2018	C	MCOS, MCAZ, AGUE, HNEW	77.4	50.4	06:11
18/06/2018	C	MCOS, MCAZ, AGUE, HNEW/ MCOS, AGUE, HNEW	90.7	83.6	04:40
19/06/2018	C	MCOS, AGUE, HNEW	21.1	8.0	01:58
20/06/2018	C	MCOS, MCAZ, AGUE, HNEW	8.9	1.3	01:47
21/06/2018	C	MCOS, MCAZ, AGUE, HNEW	40.9	20.3	03:46
05/07/2018	B	MCOS, MCAZ	88.5	79.1	04:21
06/07/2018	B	MCOS, MCAZ	80.0	70.6	03:40
08/07/2018	A	MCOS, MCAZ	63.5	41.0	05:33
17/07/2018	A	MCOS, MCAZ, AGUE, HNEW	78.5	55.5	07:22
19/07/2018	B	MCOS, MCAZ, AGUE, EMID	98.3	82.6	06:12
26/07/2018	A	MCOS, MCAZ, AGUE, JWKI	94.7	54.8	08:17
06/08/2018	A	MCOS, MCAZ, AGUE, JCAR	68.6	48.2	06:35
14/08/2018	A	MCOS, MCAZ, AGUE, LCLA	109.1	87.4	07:53
16 days		Total	1234.4	937.4	87:17

Cetaceans were observed in 64 occasions of which 25 sightings (39%) were Commerson's dolphins 33 (51%), were Peale's dolphins and 6 were southern right whales (10%) (**Figure 3**). **Table 2** summarizes the number of dolphin detections subdivided by encounter and sighting per the two species by area and the number of pictures collected during photo-identification.

Table 2 – Number of dolphin detections for each species, Commerson’s and Peale’s dolphins, for each area.

Area	All species		Commerson’s dolphin		Peale’s dolphin		Southern right whale	
	Sighting	Photos	Sighting	Photos	Sighting	Photos	Sighting	Photos
A	50	9938	11	1365	33	6566	6	2007
B	4	848	4	848	0	-	0	-
C	10	2393	10	2393	0	-	0	-
Total	58	11172	25	4606	33	6566	6	2007

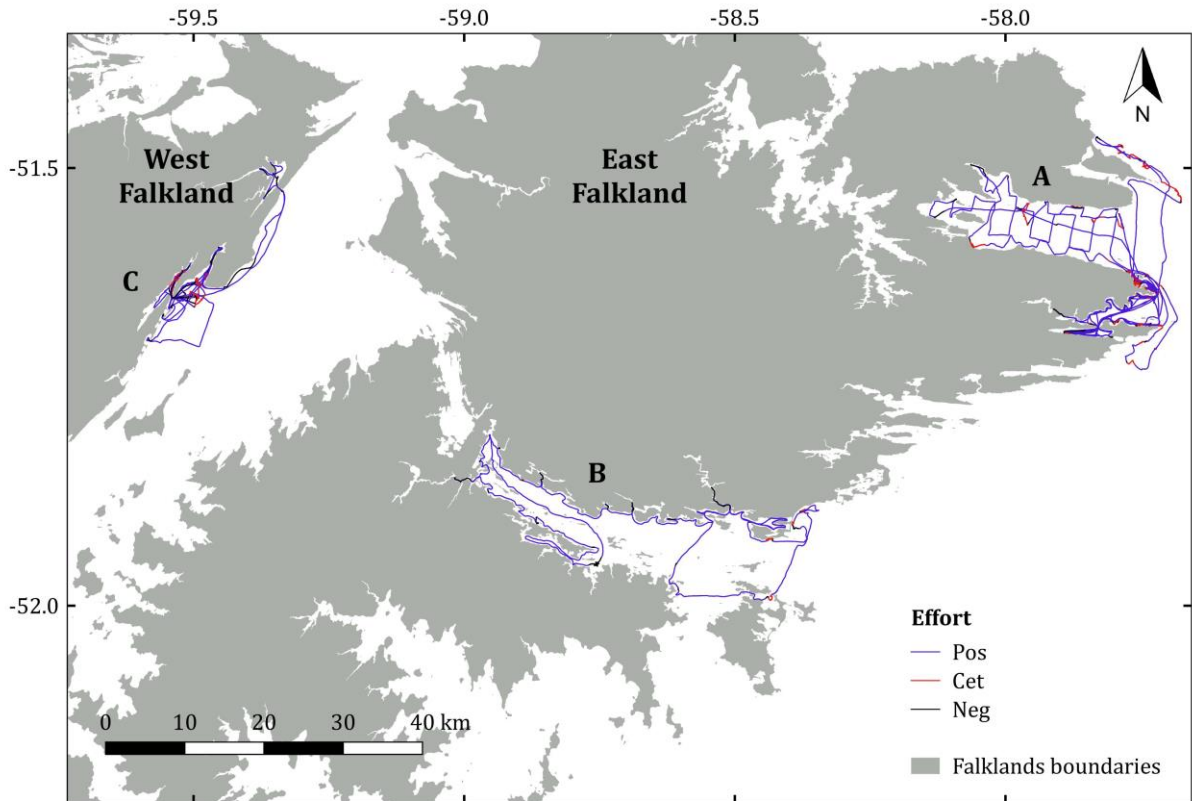


Figure 3 – Survey effort carried out from the 5th of June to the 14th of August 2018, in the three focal areas. A. Port Stanley, Port Williams, Berkeley Sound; B. Choiseul Sound; C. Port Howard/Many Branch.

Average group size estimated at sighting was 10.3 (SD=8.5) for Commerson’s dolphin, 9.5 (SD=8.4) for Peale’s dolphins and 3.7 (SD=3.2) for southern right whales (**Table 3**). Group-size estimate for Commerson’s dolphins in this season was comparable for areas B and C. Peale’s dolphins were observed in 33 sightings, all in area A.

Table 3 – Number of sightings (n), mean group size, standard deviation (SD), and range for Commerson’s dolphin (Cc), Peale’s dolphin (La), and southern right whale (Ea) for each area.

Area	Cc				La				Ea			
	n	mean	SD	range	n	mean	SD	range	n	mean	SD	Range
A	11	6.3	5.9	2-22	33	9.5	8.4	1-30	6	3.7	3.2	1-8
B	4	13.2	9.4	2-25	0	-	-	-	0	-	-	-
C	10	13.6	9.4	3-30	0	-	-	-	0	-	-	-
Total	25	10.3	8.5	2-30	33	9.5	8.4	1-30	6	3.7	3.2	1-8

C-POD

On the 17th of June 2018 the three C-PODs deployed in Many Branches bay were definitively recovered from their position. The recovery included the units and the whole anchoring system. For the purpose of the recovery the RHIB was equipped with a winch mounted on a plank to ease the retrieval (**Figure 4**). The operation was carried out successfully.

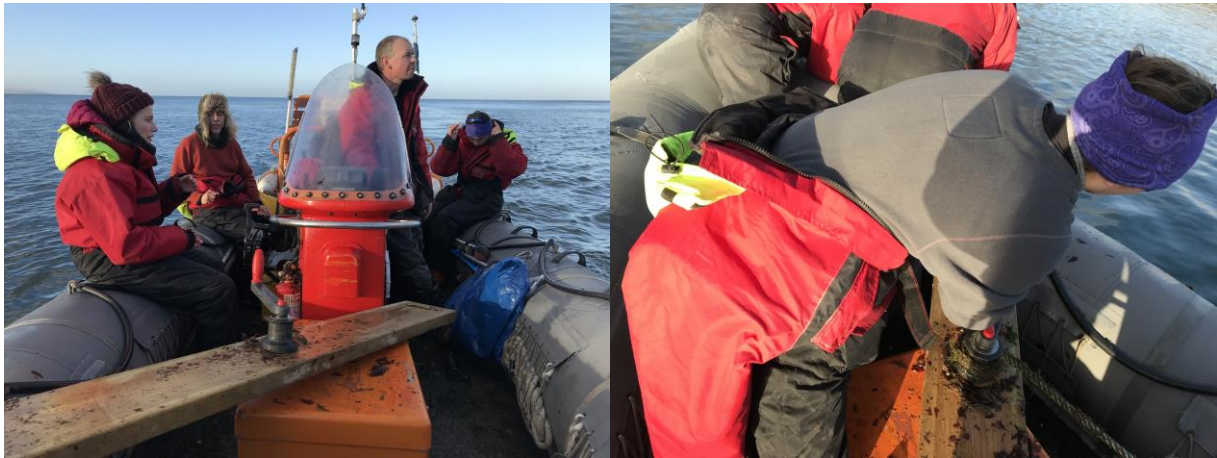


Figure 4 – Image of the winch used for C-POD recovery (left) and detail of action (right).

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 last survey season was successfully completed. Extra care was put in transportation due to the winter conditions; in particular, adverse road conditions were experienced from Stanley to area B (Choiseul Sound) due to ice and snow.

As in the previous seasons, age classes identification based on the relative proportion with adult body size was attempted. Tentatively, 1 newborn Peale's dolphin was identified in area A and 1 Commerson's dolphin calf born in the previous months was identified in area C. Notably in this focal survey the abundance of Commerson's dolphin individuals per sighting was comparable in the three areas, with abundance in area C lower than the previous seasons. One individual of Dusky dolphin (*Lagenorhynchus obscurus*) was filmed underwater within a group of Peale's dolphins during the 26th of July survey in area A. The individual has a distinctive notch on the fin and was repeatedly observed in previous sighting, always in association with Peale's dolphins; the underwater footage allowed to clearly distinguish the two species (Figure 5). On August 6th the individual was spotted again in the same area and a skin sample was collected and stored for sending for genetic analyses to project partner Scott Baker, Oregon State University.

Also noteworthy, southern right whale individuals were observed in 6 sightings in area A. Both adult and juvenile individuals were tentatively identified. Mating behavior was observed in 2 occasions; individuals congregated in groups of 5-6 individuals, one possible female surrounded by more males.

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 you: Bill Pole-Evans & Shirley at Bold Cove for the support in the field work and the logistic; Myles & Karen Lee and Critta & Beccy Lee at Port Howard for the support with the accommodation, the anchoring system for the vessel and other logistic issues; Karen

Jones at Bold Cove farm; Steven & Chris Poole at Lively Island; Ken & Bonnie (Bonita) Greenland at Darwin for the logistic support and the amazing coffee and tea that are waiting us when we are back from the field; Keith Alazia manager of Goose Green farm for logistic support; Gilberto Castro & Suzie Clarke managers at Fitzroy Farm; Bobby & Lindsay Short at Walker Creek; Andy Pollard the General Manager of Falklands Landholdings who own Goose Green and Fitzroy farms; Vernon Lee for his huge help in all the logistic issues, field work, and engine maintenance. Thank you to the observers Amy Guest, Katie Bridge, Jenni Sol, Ness Smith, Sasha Cleminson, and Pamela Jelbes. Thank you to the Commander W. Dawson of the Royal Navy at East Cove Military Port for his cordiality, logistic support, and contagious enthusiasm for the wildlife. Huge thanks to iLaria for her support with GIS and the development of an app to record wildlife presence. Big thanks to the project partners: Nick Rendell from the Falkland Islands Government; Grant Munro from Austral Biodiversity and Premier Oil; Andy Stanworth and Esther Bertram from Falklands Conservation; Scott Baker from Oregon State University (OSU); Sonja Heinrich from the University of St Andrews; Paul Brewin and Steve Cartwright from the Shallow Marine Surveys Group. A particular massive thank to Steve for driving the boat and for his support, knowledge, energy and enthusiasm put during the long our spent at sea. Thank you to Premier Oil and Falkland Conservation for providing material and in-kind work. A huge thank to the SAERI director, Paul Brickle and SAERI crew, Tara Pelembe, Teresa Bowers-McNeil, iLaria Marengo, Megan Tierney, David Blockley, Emma Beaton, Katie Brigden, Sammy Hirtle and Zoe James. The Dolphins of the Kelp project is funded by the Darwin Initiative (Darwin Plus project number DPLUS042, <http://www.south-atlantic-research.org/research/current-research/dolphins-of-the-kelp>) and by the Falkland Islands Government that we tank deeply.