



27th of January 2018



Cetacean Photo-identification Course

By Marina Costa & Maria Taylor



Grant Munro
Austral biodiversity

Course Programme

1 Marking and capturing: a gentle introduction

2 Code of conduct, status of conservation, and ethics in marine mammal science

3 Pre-matching procedure

4 Matching procedure and tricks

5 Exercise

Break (15 min)

6 What we do with photo-id data

7 Exercise

8 Practice with DSLR camera: the best picture

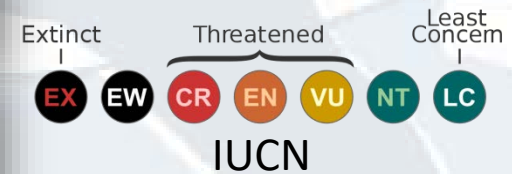
9 How can I help?

Differences between Peale's and Commerson's dolphins!



Commerson's dolphin

Cephalorhynchus commersonii



Peale's dolphin

Lagenorhynchus australis

Commerson's dolphin



- Lots of white
- Smaller (<1.5m)
- Rounded fin
- Black and white



Peale's dolphin

- Darker body
- Larger (~2m)
- Taller, pointed fin
- Shades of grey (with white stomach)



Differences between Peale's and Commerson's dolphins!



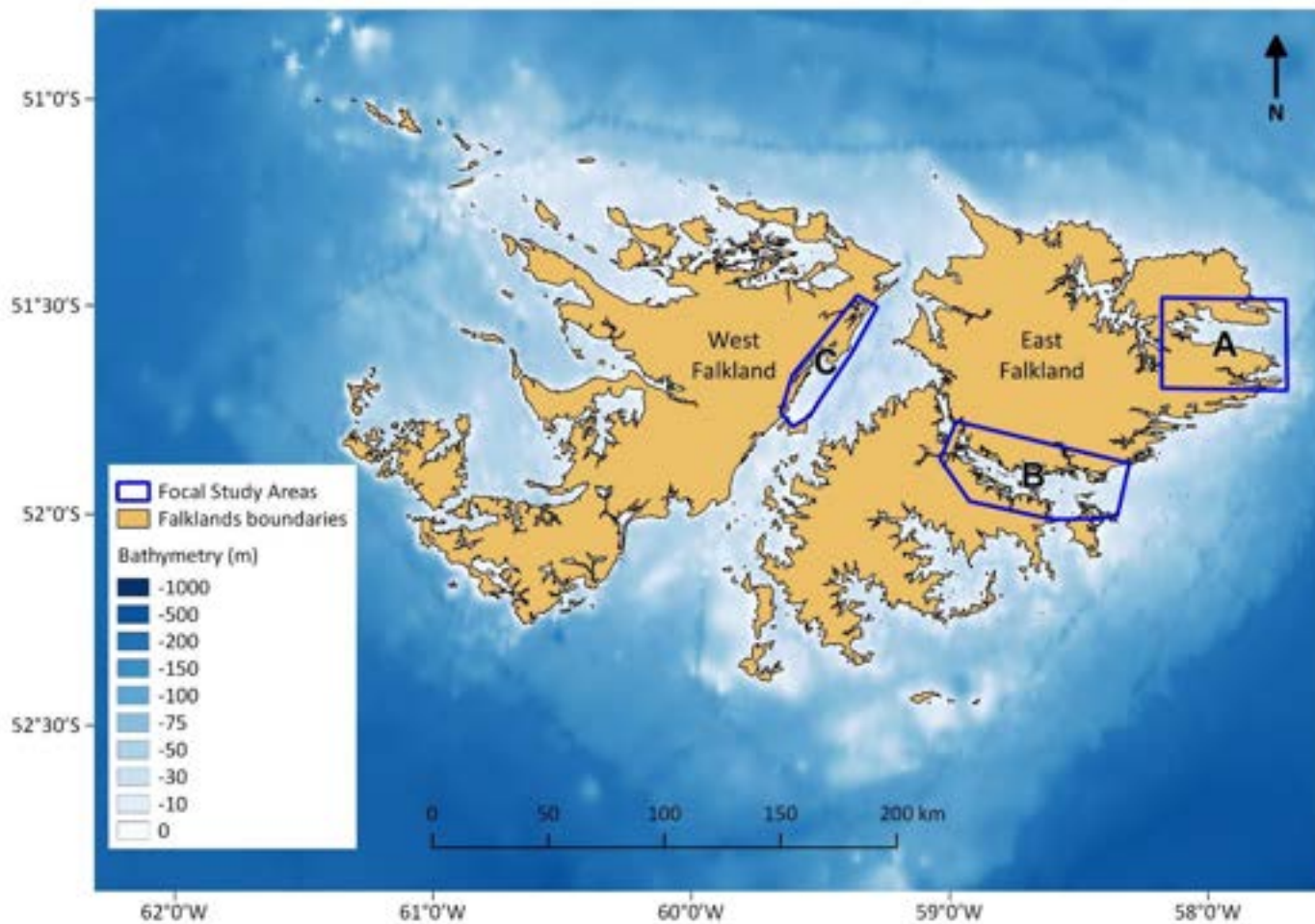
Peale's dolphin



Commerson's dolphin



The study areas



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



**Pre-matching procedure:
Selecting pictures**

Out of focus



Fin profile not visible



Water spray



Against the light



Too far away



Late shot



Stray kelp!



Wrong angle*
***with exceptions!**



*The exceptions!

- In focus
- Shows both sides of the individual
- Useful for individuals with 'plainer' fins



The 'perfect' shot!





Identifying individuals

Nicks and notches

CC0234

CC0084

LA0028

Notch	Mark or incisures of >5cm
Nick	Mark or incisures of 1-5cm
Small nick	Mark or incisures of <1cm



Collision marks

CC0316



LA0048



Large scars patterns



Large scars patterns



Scar	Cicatrix; a mark remaining after the healing of the wound or any visible manifestation of an earlier event
-------------	--



Scratches



CC0100



Fin shape

LA0043



CC0017



LA0056

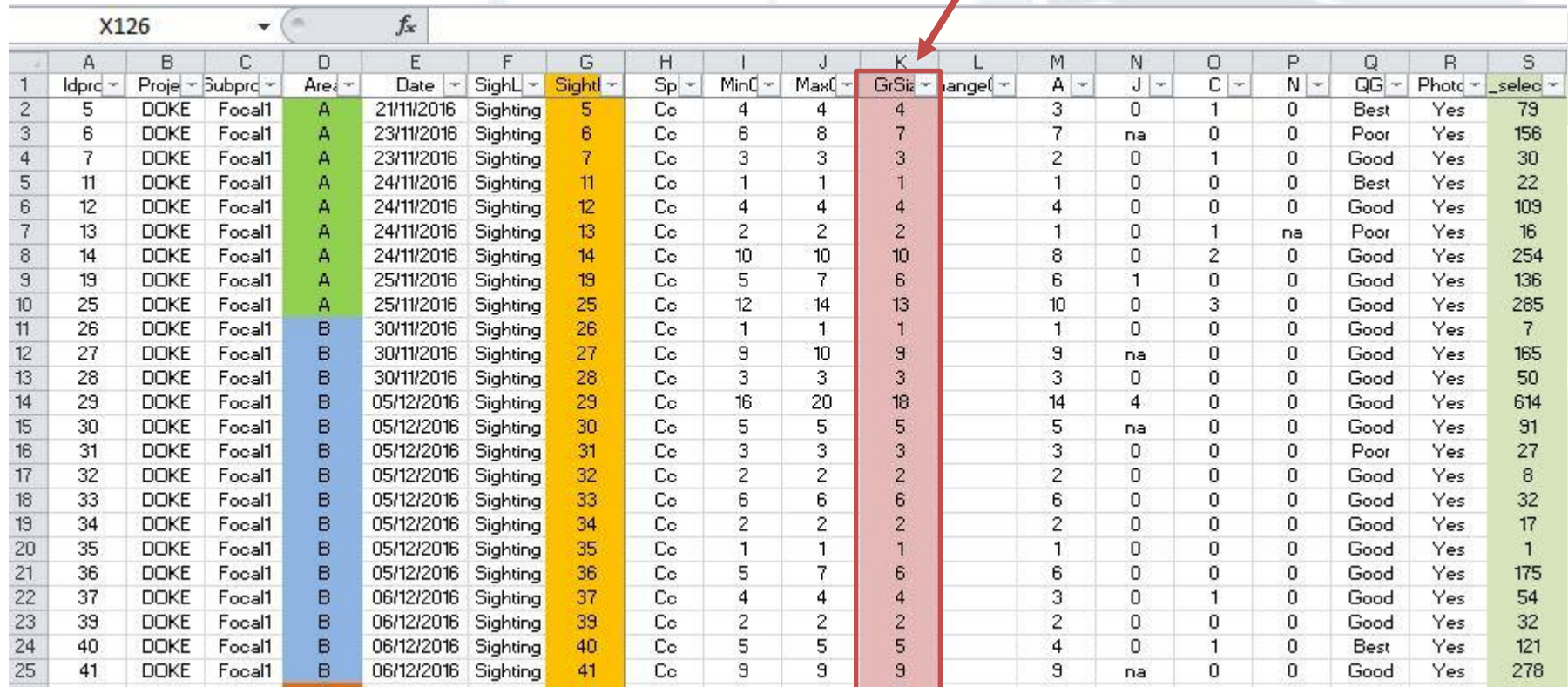




Matching the dorsal fins

Grouping individuals within a sighting

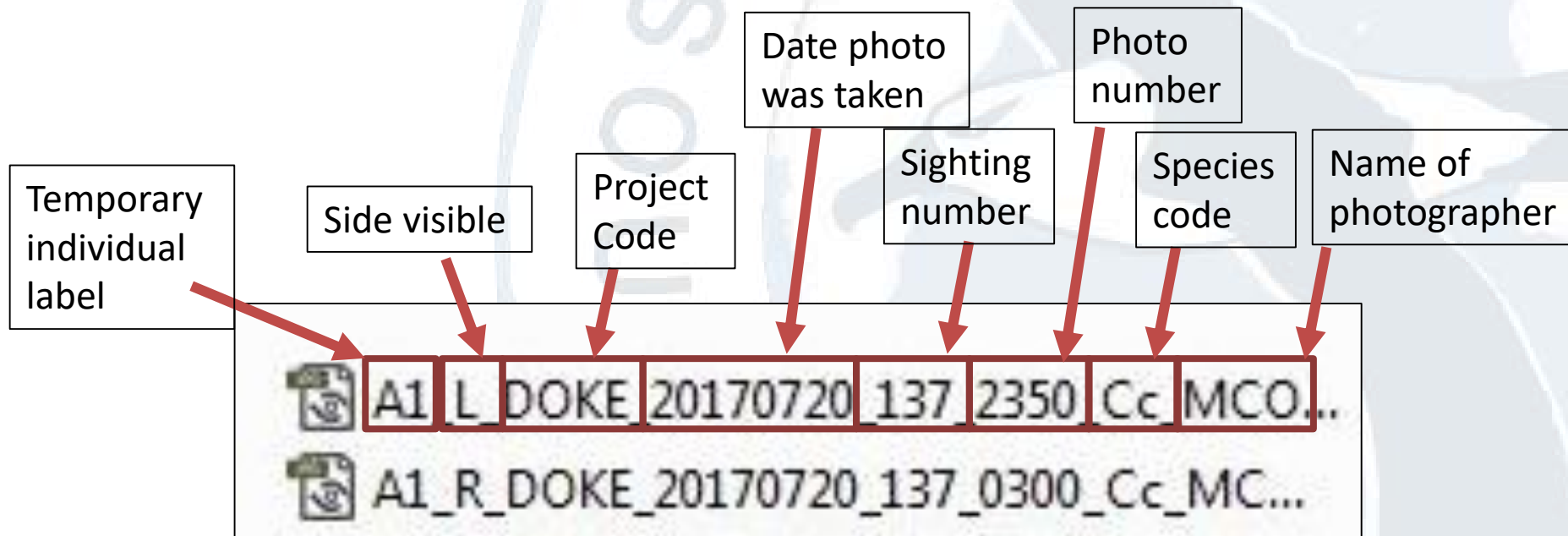
The number of animals seen within that sighting is recorded within the excel spreadsheet and gives an idea of how many different individuals there are – sometimes there are more or less!



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	Idprc	Proje	Subprc	Area	Date	SightL	SightI	Sp	MinC	MaxC	GrSiz	ChangeI	A	J	C	N	QG	Photo	_select
2	5	DOKE	Focal1	A	21/11/2016	Sighting	5	Cc	4	4	4		3	0	1	0	Best	Yes	79
3	6	DOKE	Focal1	A	23/11/2016	Sighting	6	Cc	6	8	7		7	na	0	0	Poor	Yes	156
4	7	DOKE	Focal1	A	23/11/2016	Sighting	7	Cc	3	3	3		2	0	1	0	Good	Yes	30
5	11	DOKE	Focal1	A	24/11/2016	Sighting	11	Cc	1	1	1		1	0	0	0	Best	Yes	22
6	12	DOKE	Focal1	A	24/11/2016	Sighting	12	Cc	4	4	4		4	0	0	0	Good	Yes	109
7	13	DOKE	Focal1	A	24/11/2016	Sighting	13	Cc	2	2	2		1	0	1	na	Poor	Yes	16
8	14	DOKE	Focal1	A	24/11/2016	Sighting	14	Cc	10	10	10		8	0	2	0	Good	Yes	254
9	19	DOKE	Focal1	A	25/11/2016	Sighting	19	Cc	5	7	6		6	1	0	0	Good	Yes	136
10	25	DOKE	Focal1	A	25/11/2016	Sighting	25	Cc	12	14	13		10	0	3	0	Good	Yes	285
11	26	DOKE	Focal1	B	30/11/2016	Sighting	26	Cc	1	1	1		1	0	0	0	Good	Yes	7
12	27	DOKE	Focal1	B	30/11/2016	Sighting	27	Cc	9	10	9		9	na	0	0	Good	Yes	165
13	28	DOKE	Focal1	B	30/11/2016	Sighting	28	Cc	3	3	3		3	0	0	0	Good	Yes	50
14	29	DOKE	Focal1	B	05/12/2016	Sighting	29	Cc	16	20	18		14	4	0	0	Good	Yes	614
15	30	DOKE	Focal1	B	05/12/2016	Sighting	30	Cc	5	5	5		5	na	0	0	Good	Yes	91
16	31	DOKE	Focal1	B	05/12/2016	Sighting	31	Cc	3	3	3		3	0	0	0	Poor	Yes	27
17	32	DOKE	Focal1	B	05/12/2016	Sighting	32	Cc	2	2	2		2	0	0	0	Good	Yes	8
18	33	DOKE	Focal1	B	05/12/2016	Sighting	33	Cc	6	6	6		6	0	0	0	Good	Yes	32
19	34	DOKE	Focal1	B	05/12/2016	Sighting	34	Cc	2	2	2		2	0	0	0	Good	Yes	17
20	35	DOKE	Focal1	B	05/12/2016	Sighting	35	Cc	1	1	1		1	0	0	0	Good	Yes	1
21	36	DOKE	Focal1	B	05/12/2016	Sighting	36	Cc	5	7	6		6	0	0	0	Good	Yes	175
22	37	DOKE	Focal1	B	06/12/2016	Sighting	37	Cc	4	4	4		3	0	1	0	Good	Yes	54
23	39	DOKE	Focal1	B	06/12/2016	Sighting	39	Cc	2	2	2		2	0	0	0	Good	Yes	32
24	40	DOKE	Focal1	B	06/12/2016	Sighting	40	Cc	5	5	5		4	0	1	0	Best	Yes	121
25	41	DOKE	Focal1	B	06/12/2016	Sighting	41	Cc	9	9	9		9	na	0	0	Good	Yes	278

Grouping individuals within a sighting

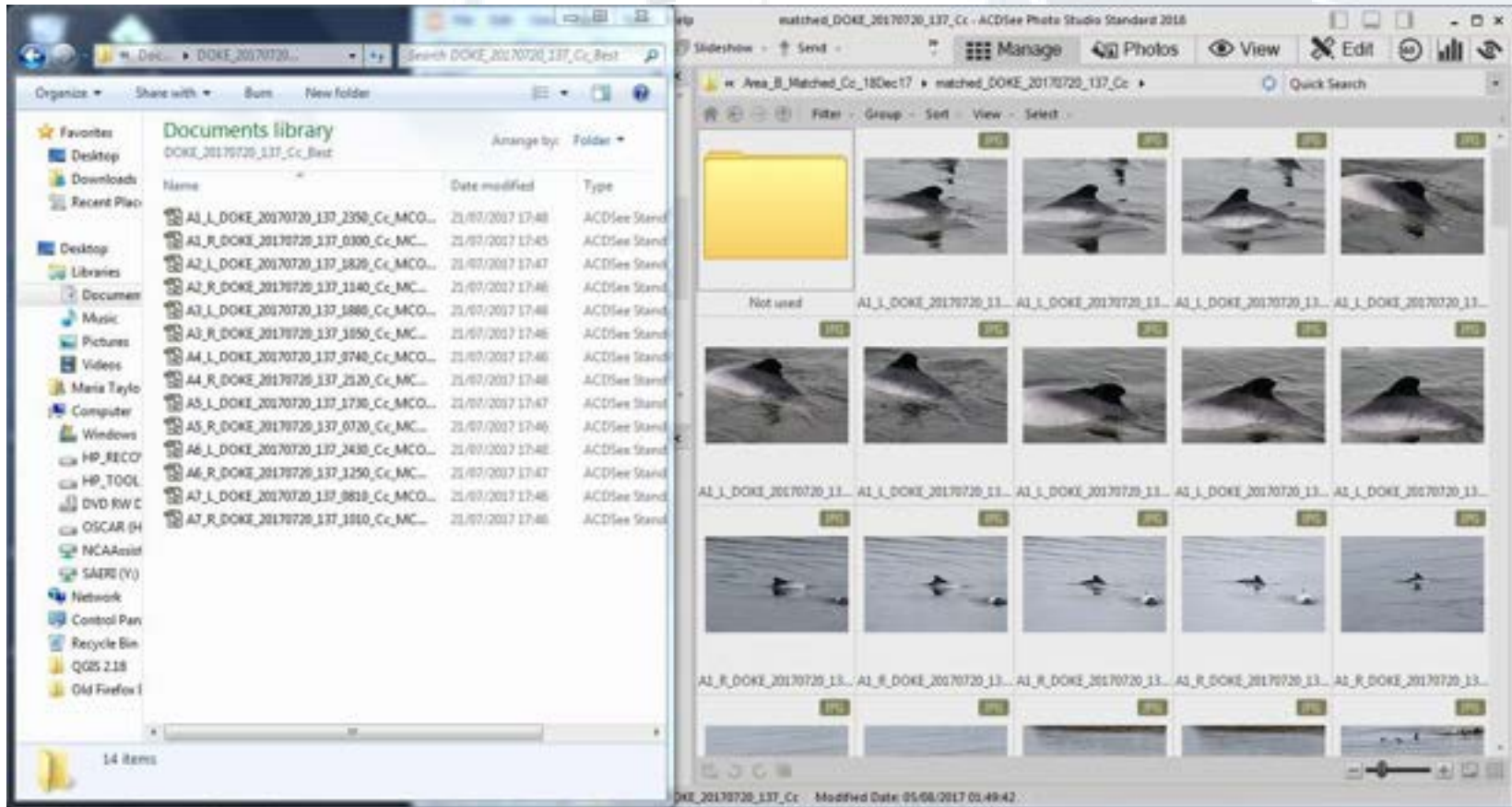
Start with the most 'distinct' individual, and label it 'A1' and add which side is visible (L or R)



TempID_side_CODE_yyyymmdd_sighting#_species_PhotographerCode

Grouping individuals within a sighting

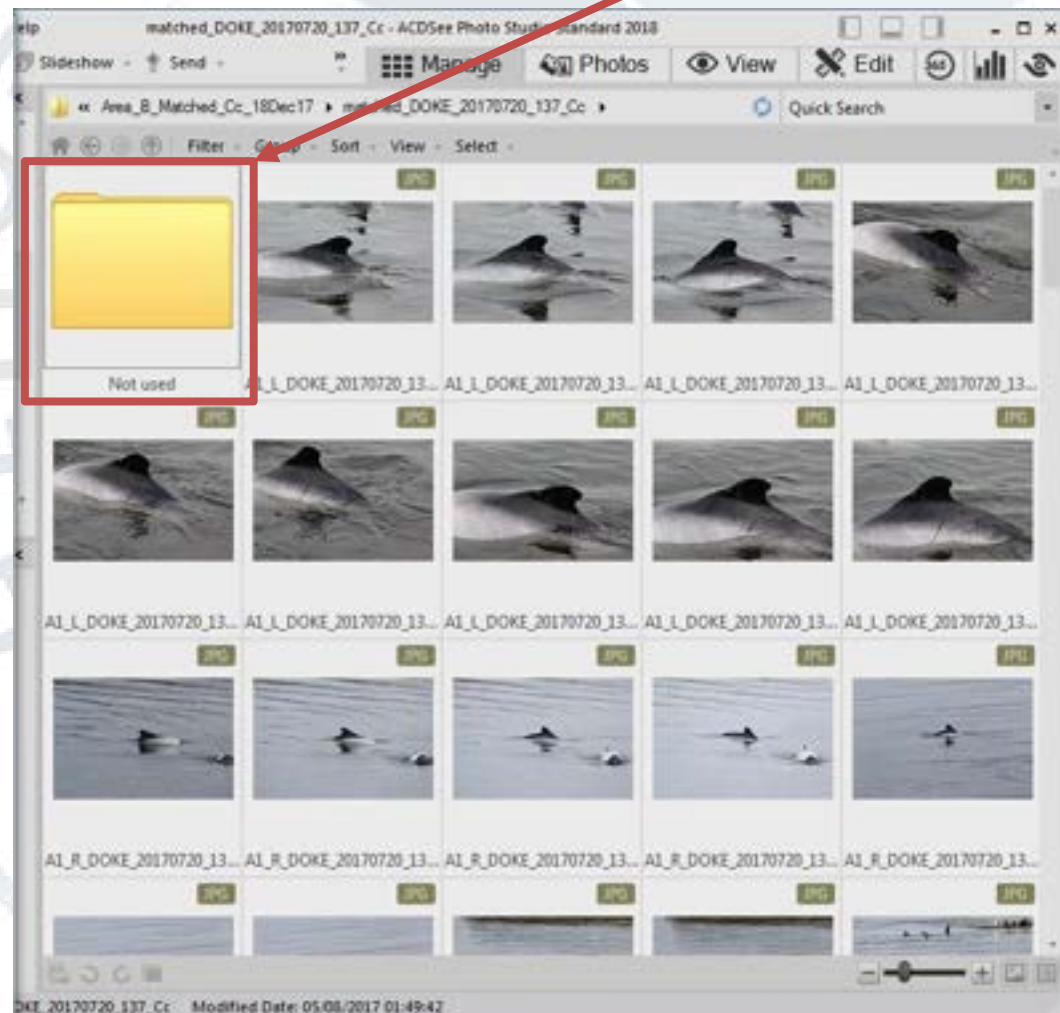
I find it easier to move the best photos of an individual (L and R sides) into another folder as the best photos for that sighting as I go along. This means I can quickly compare identified individuals against new photos.



Grouping individuals within a sighting

Any unsuitable photos (that fall into the categories about but weren't obvious on the first look through of the photos) get put in a folder called 'Not used'

NO PHOTOS ARE DELETED



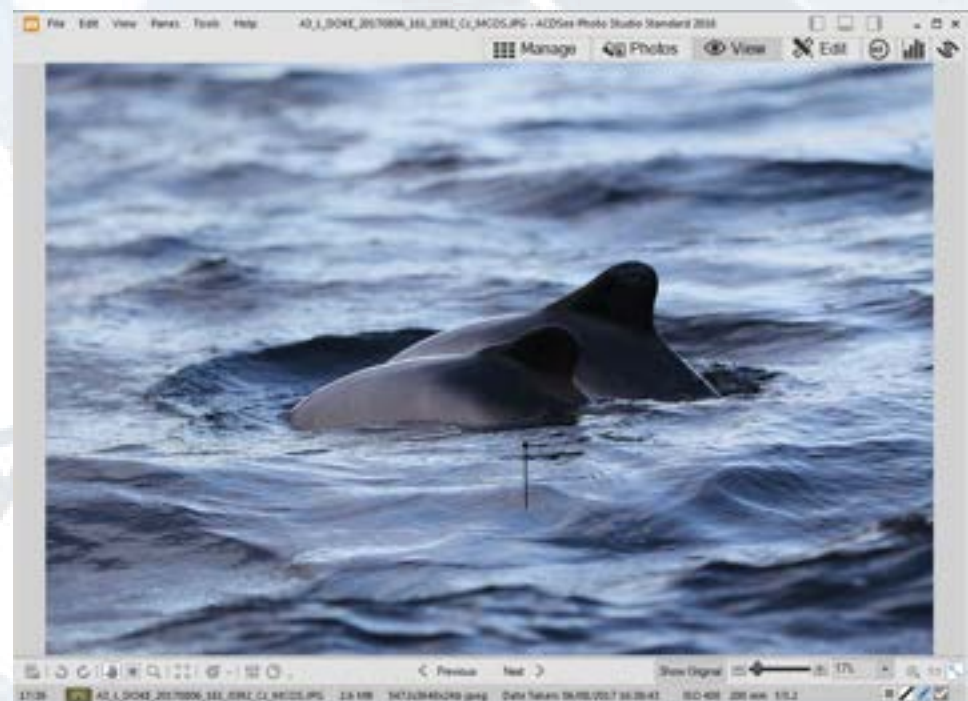
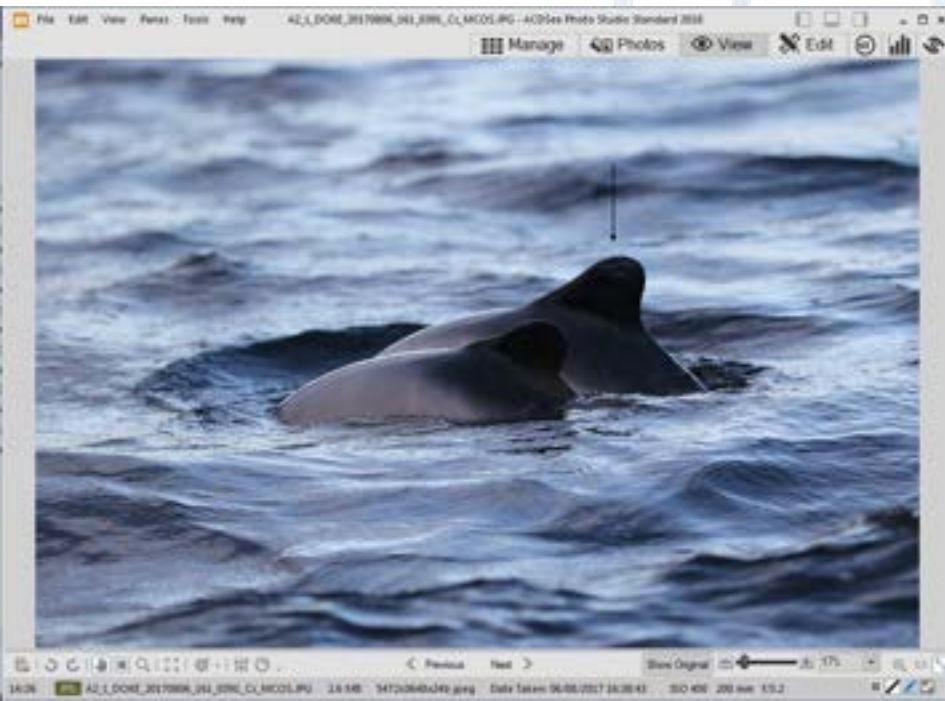
Grouping individuals within a sighting

Two fins, one photo

- When two fins are present in one photo, a copy is made
- Both photos are renamed with a '1' and '2' respectively, replacing the '0' at the end of the image ID number
- E.g. DOKE_20170806_161_0390_Cc_MCOS is renamed as:

A2_L_DOKE_20170806_161_0391_Cc_MCOS

A3_L_DOKE_20170806_161_0392_Cc_MCOS



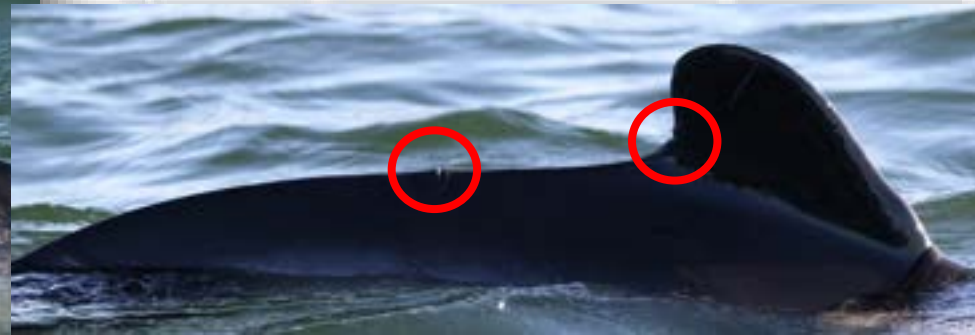
Grouping individuals within a sighting

Matching Left and Right sides

- The most highly marked fins usually present no problems when matching the left and right sides of the dolphin



- However, less well marked individuals may be less obvious and you need to use other cues to match them



Grouping individuals within a sighting

- This is where these images come in useful!



Grouping individuals within a sighting

Matching Left and Right sides

- Some individuals may have no markings on their fins, but have scars or scratches that can provide enough information to match both sides

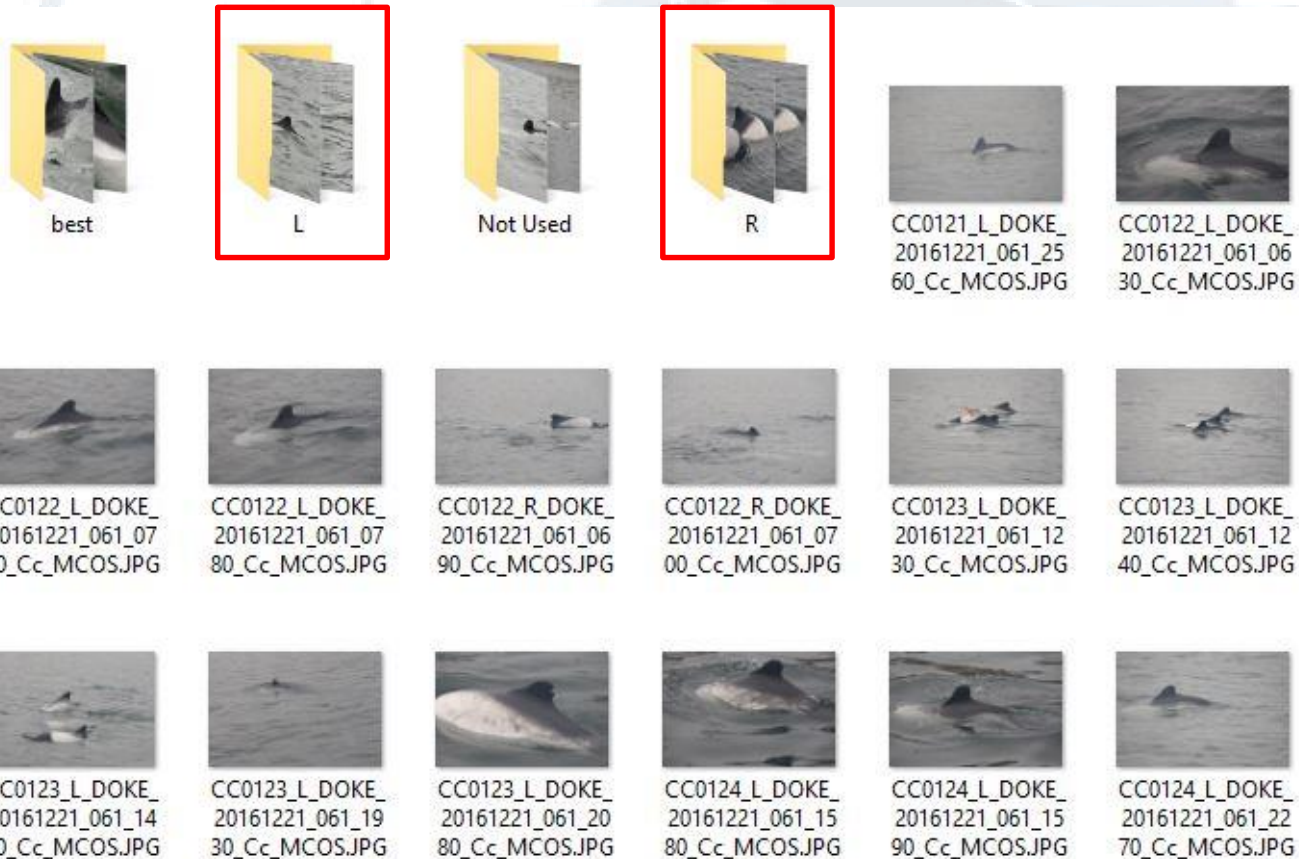


Grouping individuals within a sighting

Unmarked individuals

Some individuals have no distinguishing marks. When this happens, two more folders are created in the sighting folder named 'L' and 'R' depending if the left or right side is showing.

It is usually not possible to associate the two sides of plain individuals

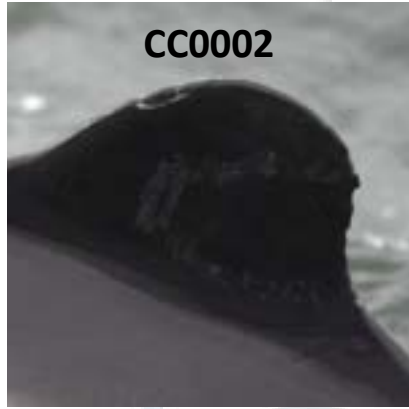


Comparing fins

CC0001



CC0002



CC0007



CC0008



CC0013



CC0017



CC0019



CC0022



CC0023



CC0025



CC0035



CC0040



Who is who?



Who is who?

1)



CC0023

2)



CC0081

3)



CC0081

4)



CC0077

Who is who?

CC0035



CC0022



CC0041



CC0056



Similar fins



CC0023



CC0077



CC0078



CC0081

Changes over time

2017.01

CC0092



2017.12

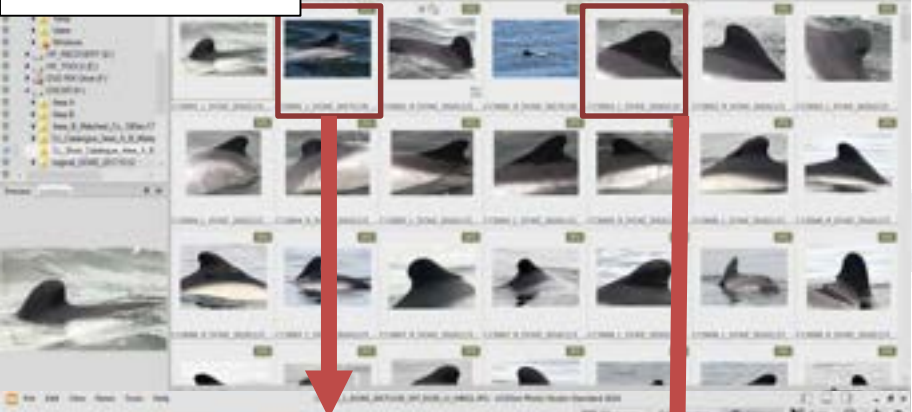




Comparing a sighting to the database

The catalogue contains the most recent and best quality photos of an individual

Catalogue



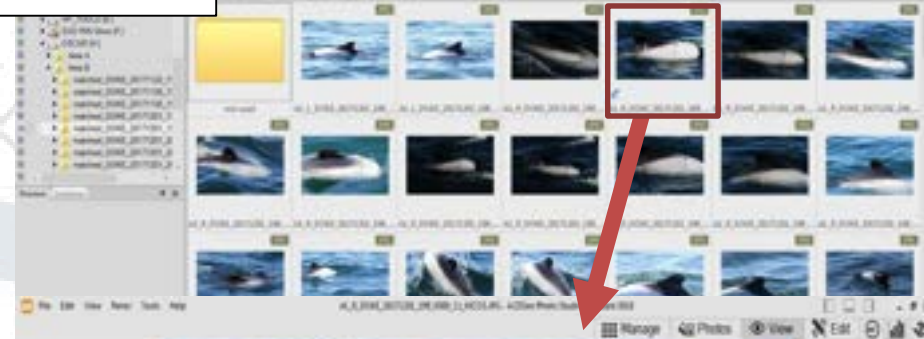
CC0001



CC0002



Sighting



A1



Comparing a sighting to the database

When you find a match

- When you are confident you have found a match between the catalogue and a sighting, you need to rename the individual. The temporary ID code, e.g. A1, A2 etc., is replaced by the name, e.g. CC0001.



Comparing a sighting to the database

Finding new individuals

- Once we are confident that an individual is not in the catalogue, they can receive a new name code and can be added in.

NOTE: Each sighting folder needs to be checked by another member of project staff before this occurs. Until this happens, the temporary ID remains in place.



CC0188_L_DOKE_20161219_048_3980_Cc_MCOS.JPG



CC0188_L_DOKE_20161219_048_3970_Cc_MCOS.JPG



CC0188_L_DOKE_20161219_048_3790_Cc_MCOS.JPG



CC0188_L_DOKE_20161219_048_3780_Cc_MCOS.JPG



CC0188_L_DOKE_20161219_048_3680_Cc_MCOS.JPG



CC0188_L_DOKE_20161219_048_3670_Cc_MCOS.JPG



CC0188_L_DOKE_20161219_048_3620_Cc_MCOS.JPG



CC0188_L_DOKE_20161219_048_3610_Cc_MCOS.JPG



CC0107_L_DOKE_20161219_048_2580_Cc_MCOS.JPG



A19_L_DOKE_20161219_048_0220_Cc_MCOS.JPG



A18_L_DOKE_20161219_048_1280_Cc_MCOS.JPG



A17_L_DOKE_20161219_048_0570_Cc_MCOS.JPG

Changes over time

	Long lasting	Reliable	Easy	Total
Injuries	3	3	3	9
Skin disease	2	3	3	8
Pigmentation	3	3	1	7
Shape	3	2	2	7
White Patch	3	2	2	7
Notches	2	2	3	7
Scars	2	2	3	7
Scratches	1	3	2	6

Fin distinctiveness value

Code	Description	Example
HM (highly marked)	D1: Very distinctive; features evident even in distant or poor quality photos	Deformed Multilated Big chunk missing Tip missing >1 notch >2 nicks
	D2: distinctive; average amount of information content	1 nick AND >1 small nicks >4 small nicks Peculiar shape
LM (low marked)	D3: distinctive; little amount of information	1 nick only 3 small nicks
NID (non identifiable)	D4: very little/no information	1-2 small nicks Clean fin

Summarising data

1	Idpr	Proje	Subproje	Arr	Di	Mon	Year	DateGi	Sigh	G	pe	DolphinCod	New	rking	Ag	Gender	
2	1	DOKE	Focal1	A	21	11	2016	20161121	1	7	4	5	La	001-A1	new	NID	A
3	2	DOKE	Focal1	A	21	11	2016	20161121	1	7	4	5	La	LA0001	new	LM	A
4	3	DOKE	Focal1	A	21	11	2016	20161121	1	7	4	5	La	LA0002	new	LM	A
5	4	DOKE	Focal1	A	21	11	2016	20161121	1	7	4	5	La	LA0035	new	LM	A
6	5	DOKE	Focal1	A	21	11	2016	20161121	1	7	4	5	La	LA0023	new	NID	A
7	6	DOKE	Focal1	A	21	11	2016	20161121	2	10	5	5	La	LA0001		LM	A
8	7	DOKE	Focal1	A	21	11	2016	20161121	2	10	5	5	La	LA0007	new	LM	A
9	8	DOKE	Focal1	A	21	11	2016	20161121	2	10	5	5	La	LA0010	new	LM	A
10	9	DOKE	Focal1	A	21	11	2016	20161121	2	10	5	5	La	LA0012	new	LM	A
11	10	DOKE	Focal1	A	21	11	2016	20161121	2	10	5	5	La	LA0014	new	LM	A
12	11	DOKE	Focal1	A	21	11	2016	20161121	3	na	3	3	La	LA0016	new	HM	A
13	12	DOKE	Focal1	A	21	11	2016	20161121	3	na	3	3	La	LA0017	new	LM	A
14	13	DOKE	Focal1	A	21	11	2016	20161121	3	na	3	3	La	LA0031	new	NID	A
15	14	DOKE	Focal1	A	21	11	2016	20161121	4	5	2	2	La	LA0018	new	LM	A
16	15	DOKE	Focal1	A	21	11	2016	20161121	4	5	2	2	La	LA0019	new	LM	A
17	16	DOKE	Focal1	A	23	11	2016	20161123	9	2	2	2	La	LA0019		LM	A
18	17	DOKE	Focal1	A	23	11	2016	20161123	9	2	2	2	La	LA0044	new	LM	A
19	18	DOKE	Focal1	A	23	11	2016	20161123	10	na	12	12	La	010-A1	new	NID	A

Pic_L	Pic_F	Pic_Cat	No_Pic_Cat	Best_pic	FocusClarit	Contra	Angl	Visibilit	Q_t	Pic_Quali	Matche	Cheke
0	3	18,19,20	3	18	1	2	2	2	7	Q3	MGAR	MCOS
2	5	10	1	10	5	3	1	0	9	Q4	MGAR	MCOS
1	1	6,7	2	6	5	3	1	8	17	Q5	MGAR	MCOS
2	3	13,15	2	15	3	3	1	0	7	Q3	MGAR	MCOS
4	0	21,22,23,24	4	24	3	3	1	0	7	Q3	MGAR	MCOS
1	0	35	1	35	5	3	1	0	9	Q4	MGAR	MCOS
7	1	4,23	2	23	3	3	1	2	9	Q4	MGAR	MCOS
9	3	22, 27, 28	1	22	3	2	1	0	6	Q2	MGAR	MCOS
5	1	1,36	2	36	3	1	1	0	5	Q2	MGAR	MCOS
5	4	34,24	2	34	3	2	1	0	6	Q2	MGAR	MCOS
7	0	26	1	26	1	2	1	0	4	Q1	MGAR	MCOS
9	0	24	1	24	1	1	1	2	5	Q2	MGAR	MCOS
9	0	17,18,19	3	17	1	1	1	0	3	Q1	MGAR	MCOS
0	6	8	1	8	1	3	1	0	5	Q2	MGAR	MCOS
3	3	2,12	2	12	3	2	2	0	7	Q3	MGAR	MCOS
2	13	35	1	35	3	2	1	0	6	Q2	MGAR	MCOS
4	18	4, 15, 16, 24, 3	1	14	5	1	1	2	9	Q4	MGAR	MCOS
0	1	235	1	235	3	2	1	0	6	Q2	MGAR	MCOS



Thank you for your attention



Grant Munro
Austral biodiversity



Acknowledgments to



Land owners and citizens:

- Alan White & Jacqui Jennings at West Point Island
- Ali & Marlene Marsh at Shallow Harbour
- Andy Pollard the General Manager of Falklands Bill Pole-Evans & Shirley at Bold Cove
- Adrian & Lisa Lowe at Murrel
- Byron Holdings, Lewis Clifton and Martin Beaton at Weddell Island
- Bobby & Lindsay Short at Walker Creek
- Daniella Whitney & Leon Mitchell at Mount Kent
- David Ford at Port Louis
- Gilberto Castro & Suzie Clarke managers at Fitzroy Farm
- Huges Delignieres & Marie-Paul Guillaumot at Dunbar
- Jerome Poncet at Beaver Island
- John and Charlene Rowlands managers at New Island
- Karen Jones at Bold Cove farm
- Keith Alazia manager of Goose Green farm
- Ken & Bonnie (Bonita) Greenland at Darwin
- Kennet & Josie McKay at Chartres
- Landholdings who own Goose Green and Fitzroy farms
- Lee & Martha Molkenbuhr at Johnson's Harbour
- Lewis Clifton at Weddell Island
- Michael & Jeanette Clarke
- Mike & Donna Evans at Spring Point

- Myles & Karen Lee and Critta & Beccy Lee at Port Howard
- Neil & Glenda Watson at Long Island
- Rob & Lorraine McGill at Carcass Island
- Roddy & Lilly Napier
- Steve Pointing veterinarian
- Steven & Chris Poole at Lively Island
- Trudi McPhee & Charles Dickson at Brookfield
- Vernon Lee

Interns & Assistants

- Caroline Weir
- Connor Bamford
- Jenni Sol
- Lorna Hamilton
- Marcello Cazzola
- Sasha Cleminson
- Veronica Iriarte

SMSG

- Paul Brewin
- Steve Cartwright

British Navy:

- Commander W. Dawson Royal Navy at East Cove Military Port

Other

- Work Boat Services
- Consolidated Fisheries LTD
- Martech (Paul Ellis)
- SAERI crew