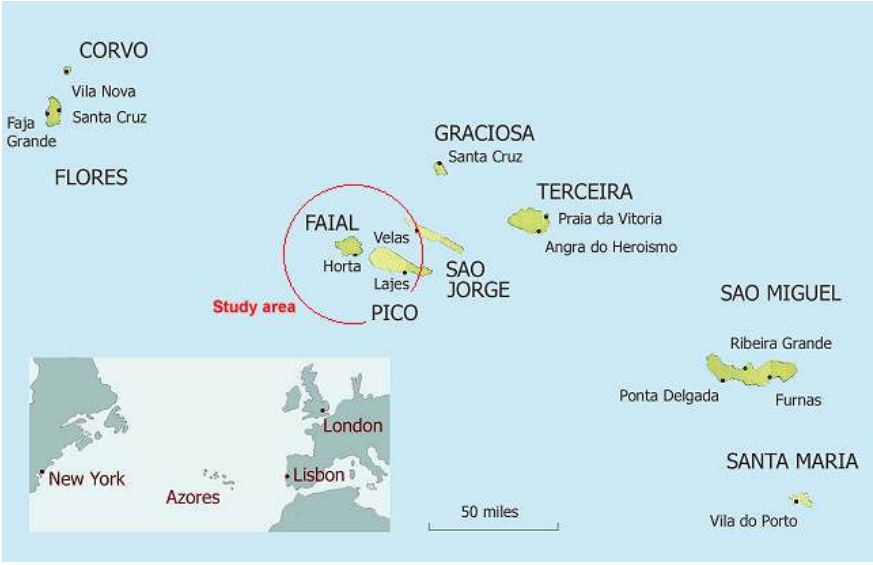
Expedition report

Surveying whales, dolphins and turtles around the Azores archipelago in the Atlantic Ocean



Expedition dates: 17 April – 27 May 2006

Report published: October 2006

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Abstract

In 2006 Biosphere Expeditions concluded its third successful year of cetacean photo-identification and distribution studies in the Azores. The expedition was based in Horta on the Island of Faial and work was conducted around three islands of Faial, Pico and São Jorge. The expedition ran from 17 April until 27 May and concentrated on six projects.

Sightings of all cetacean species were recorded. 229 sightings of eleven different species of cetacean and one species of turtle were recorded during the expedition period. Photo-identification of sperm whales, baleen whales and bottlenose and Risso's dolphin continued.

Sperm Whale Photo-ID. Sperm whales photo-identification that has been ongoing since 1987 in the Azores, continued, with 45 identifiable individuals photographed, including eight animals seen in previous years.

Baleen Whale Photo-ID. Baleen whales, including blue, fin, sei, humpback and minke whales, have been seen with increased frequency over the last few years. This expedition photographed all baleen whales encountered, so far identifying 19 blue, 48 fin and one humpback whale with work continuing on the sei whales. These will be compared to photographs taken around the Atlantic over the winter months to see if any animals have been sighted in any other regions or re-sighted within the Azores.

Dolphin Photo-ID. Dolphin Photo-identification, which began in 1987 continued. 20 groups of bottlenose dolphin and 15 groups of Risso's dolphin were photographed. In addition a group of pilot whales was photographed. Most of these photographs will be analysed later, but some of the Risso's photos were sorted during the expedition on shore days, showing some re-sighted groups of resident Risso's dolphins.

Europhlukes. Europhlukes is a pan-European project that has brought together different researchers from several countries to share data and photo-identification pictures of various species. All photo identification photographs will be forwarded to the database. Sperm whale fluke extractions were made from the remaining photos in the database to compare with sperm whales sighted during the expedition. No matches were found to any other regions.

POPA. Data collection for the Department of Oceanography and Fisheries (DOP) of the University of the Azores, for the Tuna Boat Observer programme, POPA, was successfully collected for a third year. The expedition vessel "Physeter" is the only non fishing vessel in the programme. Information was collected for random cetacean sightings along transects, as well as designated turtle and bird counts and environmental parameters.

Turtles. Loggerhead Turtles have been collected and tagged in the Azores since 1988 for a joint venture between the University of Florida and the University of the Azores. During this expedition four loggerhead turtles were caught, measured and tagged for this project and three others were sighted but not captured. No other species of turtle was observed.

Sumário

No 2006 Biosphere Expedições conclíram seu terceiro ano bem sucedido de estudos cetacean da foto-identificação e da distribuição nos Açores. A expedição foi baseada em Horta no ilha de Faial e o trabalho foi conduzido em torno de 3 ilhas de Faial, de Pico e de Sao Jorge. A expedição funcionou de 17 o Abril até o 27o Maio e concentrou em 6 projetos principais. Os vistas de todas as espécies cetacean foram gravados. 229 vistas de 11 espécies diferentes do cetacean e de 1 espécie da tartaruga foram gravados durante o período da expedição. A foto-identificação de cachalots, baleias de barbes e golfinhos de roaz e de moleiros continuado.

Cachalot Foto-ID. Foto-identificação das baleias de Sperm que foi ongoing desde 1987 nos Açores, continuados, com os 45 indivíduos identifiable fotografados, including 8 animais vistos em anos precedentes.

Baleia de Barbe Foto-ID. As baleias de Barbe, including baleias azul, baleias comum, sardinheira, baleia de bosse e baleia ana, foram vistas com freqüência aumentada sobre o último poucos anos. Esta expedição fotografou toda baleen das barbes encontradas, assim distante identificando 19 baleias azul 48 baleias comum, e 1 baleia de bosse, com o trabalho que continua nas sardinheiras. Estes estarão comparados às fotografias feitas exame em torno do Atlântico sobre meses do inverno para ver se algum animal for avistado em quaisquer outras regiões ou re-avistado dentro dos Açores.

Golfinho Foto-ID. A Foto-identificação do golfinhos, que começou em 1987 continuou. 20 grupos do roaz e 15 grupos do moleiros foram fotografados. Além um grupo das baleias piloto foi fotografado. A maioria destas fotografias serão analisadas em um outro dia, mas algumas das fotos do Risso foram classificadas durante a expedição nos dias em terra, mostrando alguns grupos re-avistados de moleiros residente.

Europhlukes. Europhlukes é um projeto europeu que trouxe junto os investigadores diferentes de diversos países compartilhar de dados e de retratos da foto-identificação de várias espécies. Todas as fotografias da identificação da foto serão enviadas à base de dados. As extrações da solha da cachalots foram feitas das fotos restantes na base de dados para comparar com as cachalots avistadas durante a expedição. Nenhum fósforo foi encontrado a todas as outras regiões.

POPA. O levantamento de dados para o departamento do Oceanography e dos Pescas (DOP) da universidade dos Açores, para o programa do observador do barco do atum, de POPA, foi coletado com sucesso por um terceiro ano. A embarcação "Physeter" da expedição é a única embarcação non pescando no programa. A informação foi coletada para sightings cetacean aleatórios ao longo dos transects, além contagens designadas da tartaruga e do pássaro e parâmetros ambientais.

Tartarugas. As tartarugas vulgar foram coletadas e etiquetadas nos Açores desde 1988 para um colaboração entre a universidade de Florida e a universidade dos Açores. Durante este expedição 4 as tartarugas vulgar foram travadas, medido e etiquetado para este projeto e 3 outros foram avistados mas não capturados. Nenhuma outra espécie da tartaruga foi observada.

Contents

1. Expedition Review

M. Hammer (editor)
Biosphere Expeditions

1.1. BACKGROUND

Biosphere Expeditions runs wildlife conservation research expeditions to all corners of the Earth. Our projects are not tours, photographic safaris or excursions, but genuine research expeditions placing ordinary people with no research experience alongside scientists who are at the forefront of conservation work. Our expeditions are open to all and there are no special skills (biological or otherwise) required to join. Our expedition team members are people from all walks of life, of all ages, looking for an adventure with a conscience and a sense of purpose. More information about Biosphere Expeditions and its research expeditions can be found at www.biosphere-expeditions.org.

This expedition report deals with an expedition to the Azores that ran from 17 April to 27 May 2006. The expedition was part of a long-term research project to elucidate the life histories and migration patterns of whales, dolphins and turtles across the oceans and assist with the formulation of effective conservation strategies.

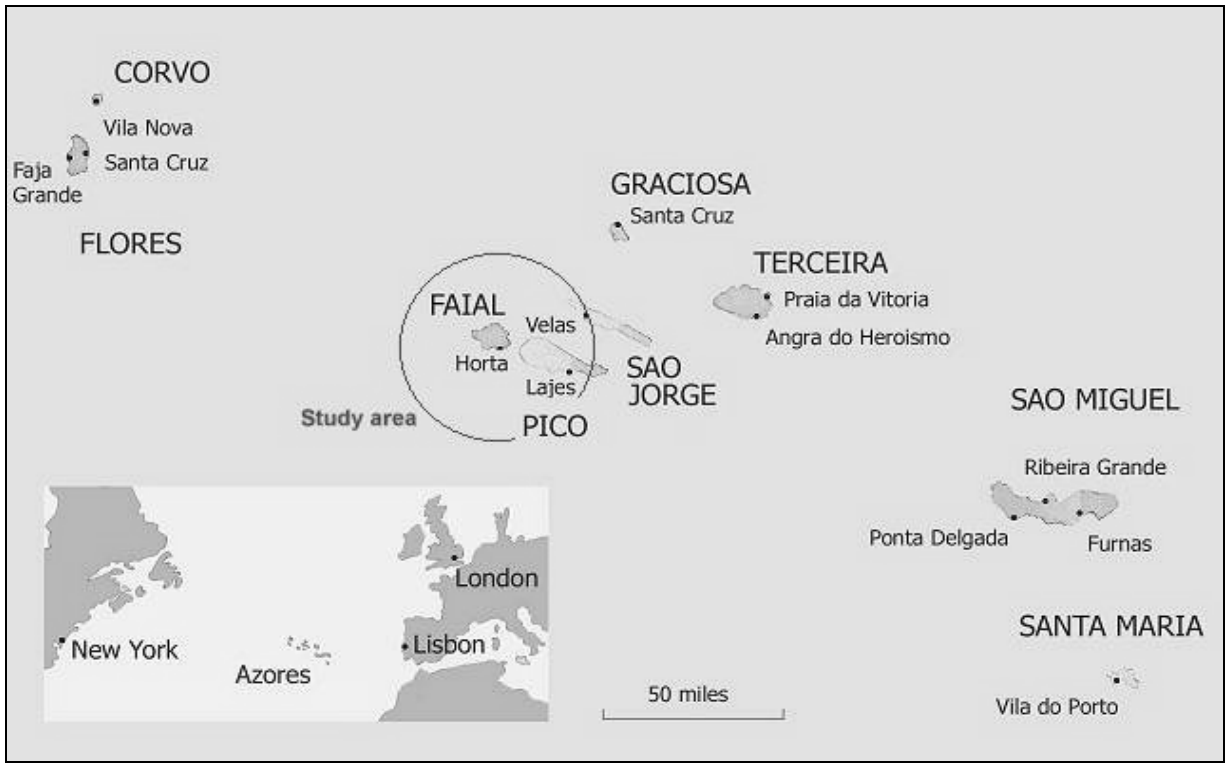
The Azores archipelago, which sits near the middle of the Atlantic Ocean, about 1400 kilometres off the coast of Portugal, is one of the prime whale and dolphin hotspots in the world and around 30% of the world's known cetacean species have been recorded there. For management purposes the International Whaling Commission (IWC) has included the Azores archipelago in the East Greenland and Iceland stocks, but there is little evidence to support this.

In 2004 the expedition initiated the first long term concerted study on baleen whales in the Azores. These animals in particular have not been studied around the Azores and accurate knowledge of the origins of the baleen whales passing the archipelago from March to May will help to determine which stocks they come from and assess more accurately their true numbers (which are often inflated in efforts to set hunting quotas).

The expedition also continued existing sperm whale, bottlenose and Risso's dolphin studies. The sperm whale study is part of a larger migration and social study, and the dolphin study is in the early stages of assessing animal numbers and migratory behaviour around the archipelago. Loggerhead turtles were also studied and tagged as part of an international research project studying their life history and migration around the Atlantic.

1.2. Research Area

The Azores Archipelago, Europe's westernmost point, is a group of nine distinct islands, lying on the same latitude as New York and Lisbon, around 1600 kilometres off the coast of Portugal (of which they are part). Lying on the mid-Atlantic ridge, the islands display spectacular volcanic scenery, with large blue-green crater lakes, impressive black lava sea cliffs, and, towering above them all, the highest mountain in Portugal on Pico.



Map of the Azores

The Azores were discovered in 1427 by Portuguese explorers and colonised shortly after by people of mainly Portuguese and Flemish descent. During the 20th century the islands were an important stopover point for undersea communications cables, trans-Atlantic flights and yachtsmen. Their main income is from agriculture and fishing and tourism has all but passed by the islands.

1.3. Dates

The expedition ran over a period of six weeks divided into three two-week slots, each composed of a team of international research assistants, scientists and an expedition leader. Slot dates were:

17 April - 29 April | 1 May - 13 May | 15 May - 27 May 2006.

Dates were chosen to coincide with the migration of baleen whales past the archipelago.

1.4. Local Conditions & Support

Expedition base

The expedition team was based on the island of Faial. Base was near the harbour in an urban ecolodge and consists of modern en suite, single and twin rooms, in a guesthouse style building. Many of the meals were self-catering though local restaurants were used for some meals. Vegetarians were catered for.

Field communications

The boat carried two radios for communication with other boats. There were telephones at base and mobile phone coverage on the island and for a few kilometres out to sea.

Transport, vehicles & research vessel

Team members made their own way to the Horta assembly point. From there onwards and back to the assembly point all transport, vehicles and boats were provided for the expedition team, for expedition support and emergency evacuations.

Our research vessel, the *Physeter* (after the Latin name for sperm whale), was a modern offshore motor catamaran with large fore and aft decks and equipped with liferafts, lifejackets, emergency beacon, two radios, radar, fish finder and other safety features.

Medical support & insurance

The expedition leader was a trained first aider, and the expedition carried a comprehensive medical kit. The standard of medical care in the Azores is high and further medical support was available at a hospital in town. All team members were required to carry adequate travel insurance covering emergency medical evacuation and repatriation. Emergency evacuation procedures were in place but did not have to be invoked. There were no serious medical incidents, just a few minor cases of sea-sickness.

1.5. Local Scientists

Biosphere Expeditions was working with Lisa Steiner and Chris Beer of Whale Watch Azores on this project.

Lisa Steiner graduated in Marine Science in 1988 at University of Miami and joined the IFAW (International Fund for Animal Welfare) cetacean research vessel “Song of the Whale” two weeks later, which at the time was based in the Azores. Since then Lisa has spent all her summers working on cetaceans around the Azores and at other times has also studied them in Alabama, Hawaii, Cape Verdes, Bermuda, Scotland and Madeira. She has published numerous research papers on cetaceans.

Chris Beer, Lisa's husband, is a marine engineer and qualified yachtmaster. He has worked on square rig ships with Operation Raleigh (now Raleigh International) and on the "Song of the Whale", where he met Lisa. Chris has also worked for Encounter Overland, leading expeditions from London to Kathmandu and back, around India, Tibet and the Middle East. He has also published research papers together with Lisa.

1.6. Expedition Leader

Pere Morera was born in Barcelona and educated in Spain and the United States. He graduated in animal biology and physiology, and then focused his postgraduate studies on marine mammals, specialising in cetaceans. Since leaving his native Catalonia a few years ago, Pere has developed his career as a wildlife biologist and naturalist in several countries including northern Norway, Iceland, Canada and Sweden, combining his passion for the animal world and outdoor activities. As a freelance writer and photographer his work has been published in magazines such as National Geographic. Pere joined Biosphere Expeditions in 2004 as part of the scientists team on the Azores expedition, and at present he does expedition leading as well as PR and marketing work for Biosphere in Spain.

1.7. Expedition Team

The expedition team was recruited by Biosphere Expeditions and consisted of a mixture of all ages, nationalities and backgrounds. They were:

17 – 29 April 2006

Diane Bouchee (Canada), Ayesha Chibb (UK), Alan Cole (UK), Claudia Hammer (Germany), Amanda Harris (USA), Anine Madsen (Denmark), Claude Magniez (France), Mathias Wilhelm (Germany).

1 – 13 May 2006

Amanda Atherton (UK), Kym Barlow (UK), Patricia Baumgartner (Switzerland), Tracy Carpenter (UK), Lorna Lueck (UK), Toja Patsch (Austria), David Richardson (UK), Andreas Schramm (Germany), Naomi Tenhoeve (UK), Gesa von Negelein (Germany).

15 – 27 May 2006

Matthew Andrews (UK), Margaret Andrews (USA), Barbara Buckley (UK), Paul Buckley (UK), Ran Elfassy (China), Delian Gaskell (China), Catherine Gould (UK), Neal Metcalfe (UK), Emily-Jane Morley (UK), Birgit Rathje (Germany), Kerstin Zinke (Germany).

1.8. Expedition Budget

Each team member paid towards expedition costs a contribution of £1200 per person per two week slot. The contribution covered accommodation and meals, supervision and induction, special non-personal equipment, all transport from and to the team assembly point. It did not cover excess luggage charges, travel insurance, personal expenses like telephone bills, souvenirs etc., as well as visa and other travel expenses to and from the assembly point (e.g. international flights). Details on how this contribution was spent are given below.

Income	£
Expedition contributions	34,851
Expenditure	
Base camp and food includes all board & lodging, base camp equipment	7,546
Transport Includes boat fuel & oils, taxis	3,644
Equipment and hardware includes research materials & gear etc purchased in UK & Azores	227
Biosphere Expeditions staff includes salaries, travel and expenses to Azores	2,897
Local staff includes whale lookout and other locally staffed services	848
Administration includes registration fees, sundries etc	443
Scientific services & logistics organisation Payment to Whale Watch Azores including boat wear & tear allowance	5,068
Team recruitment Azores as estimated % of PR costs for Biosphere Expeditions	4,900
Income – Expenditure	**9,278**
Total percentage spent directly on project	**73%**

1.9. Acknowledgements

This study was conducted by Biosphere Expeditions which runs wildlife conservation expeditions all over the globe. Without our expedition team members (who are listed above) who provided an expedition contribution and gave up their spare time to work as research assistants, none of this research would have been possible. The support team and staff (also mentioned above) were central to making it all work on the ground. Thank you to all of you, and the ones we have not managed to mention by name (you know who you are) for making it all come true. Biosphere Expeditions would also like to thank members of the Friends of Biosphere Expeditions and donors, Land Rover, Cotswold Outdoor, Globetrotter Ausrüstung and Buff for their sponsorship.

1.10. Further Information & Enquiries

More background information on Biosphere Expeditions in general and on this expedition in particular including pictures, diary excerpts and a copy of this report can be found on the Biosphere Expeditions website www.biosphere-expeditions.org.

Enquires should be addressed to Biosphere Expeditions at the address given below.

2. Whale, dolphin & turtle study

Lisa Steiner & Chris Beer
Whale Watch Azores

Please note: Each expedition report is written as a stand-alone document that can be read without having to refer back to previous reports. As such, much of this section, which remains valid and relevant, is a repetition from previous reports, copied here to provide the reader with an uninterrupted flow of argument and rationale.

2.1. Introduction

The Azores is a group of nine islands located about 900 km off the coast of Portugal (see above for a map and description of the archipelago).

24 species of cetacean have been seen in the islands over the last 15 years. Sperm whales were commercially hunted here until 1985. With the cessation of whaling, whale watching was a natural successor, but did not begin in earnest until the late 1990s. Little work has been done around the Archipelago before June or after September, which is why the expedition took place in April and May.

Baleen whales have been seen fairly regularly migrating past the islands in May and June, but it is unknown where they have come from or where they are migrating. It is thought that they travel north to feed in the waters around Iceland for the summer. Photo-identification of the animals passing the Azores will enable us to match photos with those taken in Iceland or elsewhere.

Although sperm whales were caught in the Azores all year round, it was thought that there were not many female sperm whales and calves around during the winter months. Working in April has given us the opportunity to see that females and calves are present at this time of year. In future, we would like to expand the effort to include the winter months to see if females and calves remain in the Archipelago all year round.

Photo-identification of sperm whales has been going on in the Azores since 1987 and roughly 2500 individuals have been identified since then. The Europhlukes matching software makes matching individuals much faster than it was possible previously with manual systems.

Some bottlenose and Risso's dolphin are resident around the islands year round. By photographing individuals we can start to see patterns of habitat use by different groups of dolphin at different times of year and compare ID photos to existing catalogues to determine what home ranges might exist for these resident individuals. This requires a lot of time spent matching ID photos on the computer to identify individuals and their groups.

2.2. Methods

Physeter (Latin for sperm whale), a 12m motor catamaran, was used to go to sea on days when weather conditions permitted. Local lookouts called 'vigias' were located on the cliffs about 150 m above sea level. They began to look for whales at around 7:30 to be able to direct the boat on departure at 09:00. If the lookouts did not sight any whales, the boat was equipped with a towed hydrophone to locate sperm whales acoustically. The boat also had four additional lookouts onboard, three on the bow and one in the stern searching for cetaceans. Two expedition members were dedicated to filling in POPA forms (transects and bird and turtle surveys). Other crew were on camera duty, data sheets, hydrophone monitoring, filling in the log or collecting water temperatures when required.

Sperm whales and humpbacks were approached from behind in order to obtain fluke photographs. Blue, fin and sei whales were also approached from behind but moving further forward to obtain photographs of the chevrons (white markings below and behind the blow hole) and the dorsal fins. Bottlenose and Risso's dolphin were also paralleled in order to obtain dorsal fin photographs for identification of individuals. Two cameras were used to obtain the ID photographs, one by Lisa Steiner and the other by an expedition team member. Other dolphins sighted were approached for species identification and then the boat would usually move on to look for other animals if the animals were not one of the main target species.

Data collected for sightings included: start and end time of the encounter, position of the sighting as well as number of animals, presence or absence of calves and general behavioural state (milling, feeding, bowriding or travelling). Only four categories of behaviours were differentiated, because generally not enough time was spent with the animals to break it down further. If the animals were travelling, a direction was noted.

In addition, environmental information was also recorded, including: water temperature, wind speed and direction, sea state (Beaufort scale), and visibility.

The number and behaviour of birds associating with the dolphins or whales was also recorded as was the presence of other whale watching vessels.

When loggerhead turtles were sighted their position was recorded on the POPA forms. If the animal was caught, it was measured and tagged for the University of Florida/University of the Azores turtle tagging programme. GPS positional data was also recorded.

Results were analysed using Excel data analysis tools: summary statistics to obtain average group sizes and t-tests to compare group sizes in different months or in the presence or absence of calves.

2.3. Results

Effort

Physeter normally left the harbour around 09:00 and returned between 16:00 and 17:00, weather permitting. The boat went to sea for 20 days during the expedition and spent between 1.75 and 8 hours per day on the water, with an average of 6 hours. A total of 36.75 working hours in April and 83.75 working hours in May in sea conditions less than sea state 5 were recorded.

Sightings

During the six-week expedition 229 different groups of whales and dolphins were encountered (compared to 267 different groups on the eight-week expedition in 2004 and 227 on the six-week expedition in 2005).

Table 2.3a. Species encountered during the 2004 (eight weeks), 2005 (six weeks) and 2006 (six weeks) expeditions.

Species	Encounters		
	2004	2005	2006
COMMON, *Delphinus delphis*	65	60	21
BOTTLENOSE, *Tursiops truncatus*	22	24	20
RISSO'S, *Grampus griseus*	14	9	15
STRIPED, *Stenella coeruleoalba*	9	2	4
PILOT, *Globicephala macrorhynchus*	1	0	1
BLUE, *Balaenoptera musculus*	5	2	21
FIN, *Balaenoptera physalus*	16	1	35
SEI, *Balaenoptera borealis*	7	2	12
MINKE, *Balaenoptera acurostrata*	2	0	0
HUMPBACK, *Megaptera novangliae*	5	2	1
BEAKED, *Mesoplodon sp.*	2	0	0
PYGMY SPERM, *Kogia breviceps*	1	0	0
UKNOWN BALEEN, *Balaenoptera sp.*	1	1	1
SPERM, *Physeter macrocehpalus*	117	124	98

The 2006 encounters resulted in a relative sightings frequency as shown in Fig. 2.3a. Sperm whales were the species encountered most often followed by fin whales and then blue whales, common and bottlenose dolphin, accounting for 85.14% of all sightings.

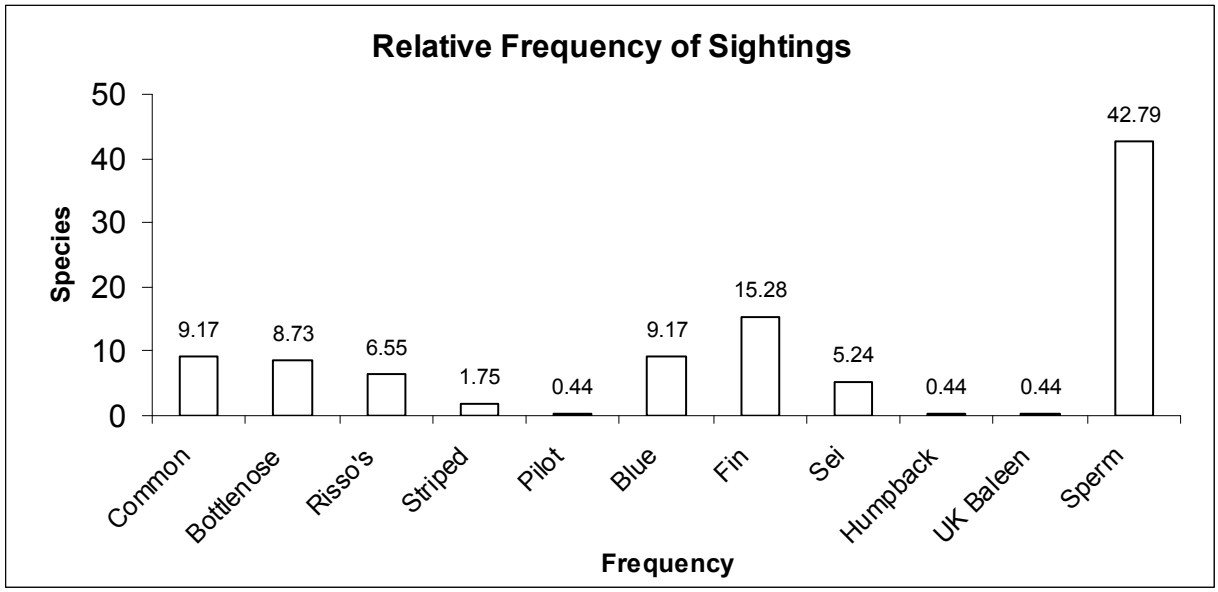


Figure 2.3a.

Common dolphin

This species was encountered 21 times. The group size ranged from 1-200 and the average group size was 47.2 (Fig 2.3b). This group size is lower than the average group size of 108 for existing data from June-September, but consistent with 46.67 found during the 2004 exhibition. Calves were first observed on 27 April and seen seven times in total during the expedition. Several calves were observed with the foetal folds visible on their flanks, a sign that the animal is not more than a month old. Group size with calves present was not significantly larger than when there were none and there was no difference between group sizes observed in April and May.

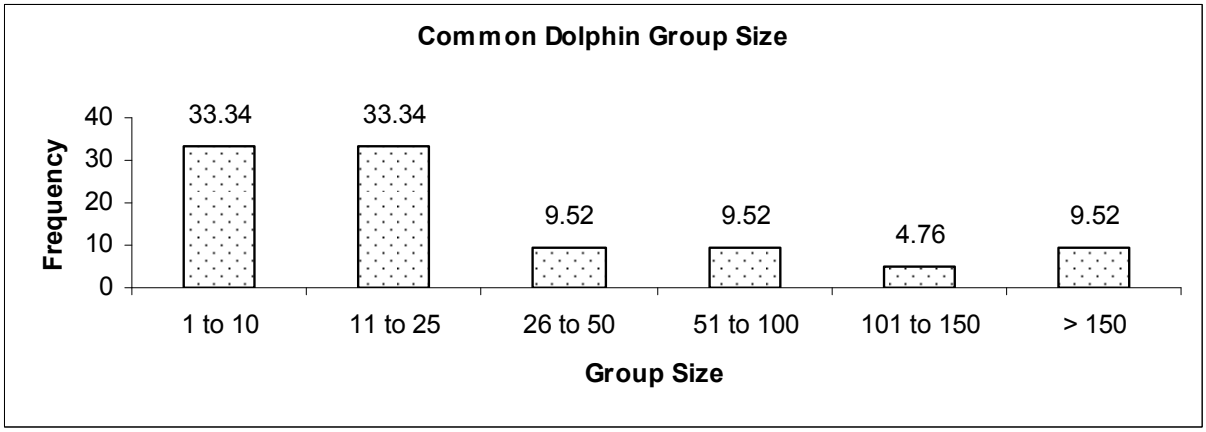


Figure 2.3b.

The most common behaviour observed by common dolphin was bowriding followed closely by milling. They were only seen feeding twice (Fig. 2.3c).

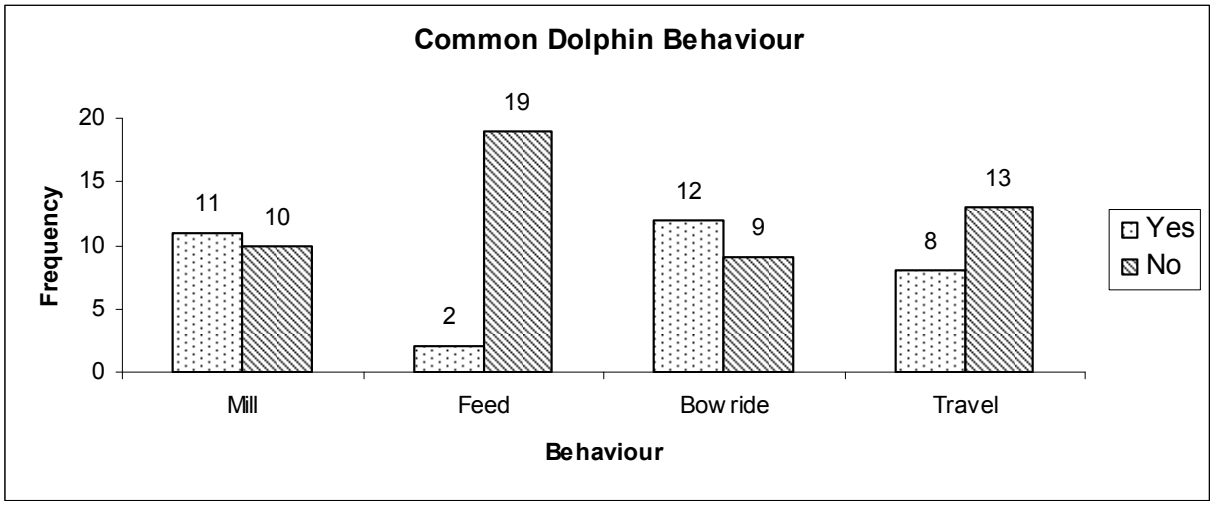


Figure 2.3c.

Bottlenose dolphin

This species was observed 20 times. The group size ranged from 2-150 and average group size was 37.6 (Fig. 4). This is slightly larger than the average of 27.3 seen when considering previously collected data. Calves were seen on just below 50% of sightings from both April and May. Group size was not significantly larger when calves were present and there was also no significant difference in group size between April and May.

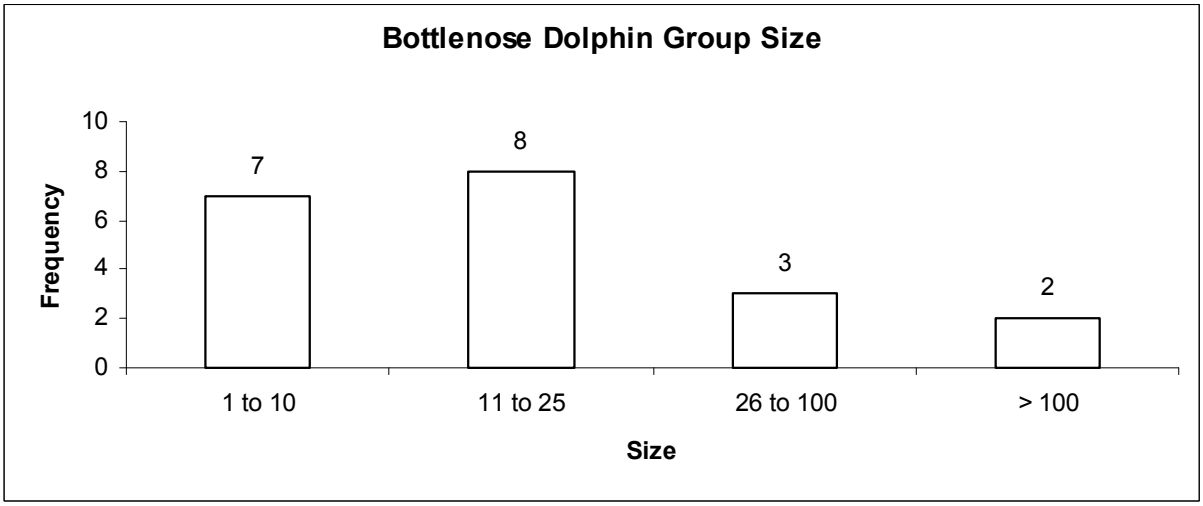


Figure 2.3d.

Bottlenose dolphin were most frequently observed milling, followed by bowriding (Fig. 2.3e).

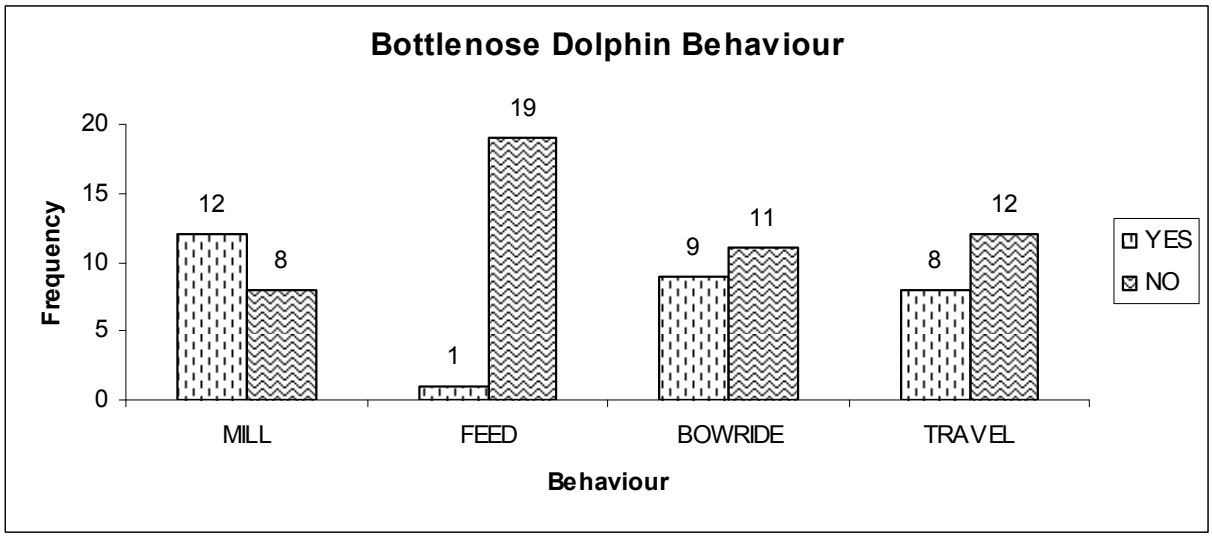


Figure 2.3e.

Photo identification pictures were taken for all groups observed (Fig 2.3d). These photos will be analysed at a later date.

Figure 2.3f. Bottlenose dolphin ID photos.

Risso's dolphin

This species was observed 15 times, group size ranged from 2-30 with an average of 12.8, which is similar to the average group size of 15 observed for other months of the summer (Fig. 2.3g). Calves were seen consistently through April and May signifying an earlier calving period than for bottlenose dolphin. There was no significant difference between group size when calves were present or not, there was also no significant difference between group size observed in April and May.

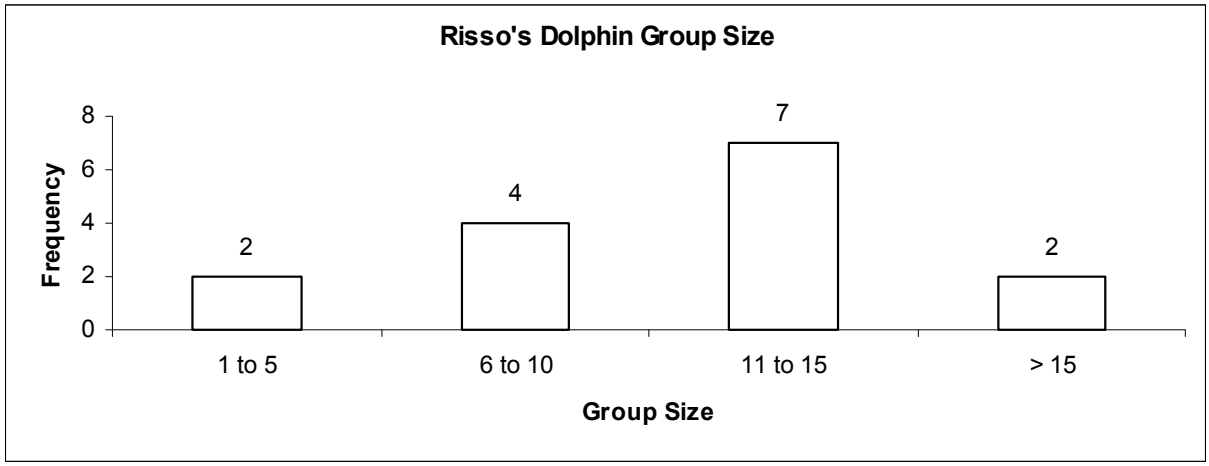


Figure 2.3g.

Several animals were seen from previous years, confirming residency of this species. In addition a white calf was observed, christened "Whitey". Risso's dolphin calves are normally dark coloured with white heads, so this is unusual (Fig. 2.3h).


"Naked Lady"


"Spaghetti"


"F Nick"


"Whitey"

Figure 2.3h. Risso's dolphin ID photos.

Behaviour of Risso's during encounters varied almost equally between milling and travelling. Feeding for this species is difficult to determine, and was not recorded (Fig. 2.3i).

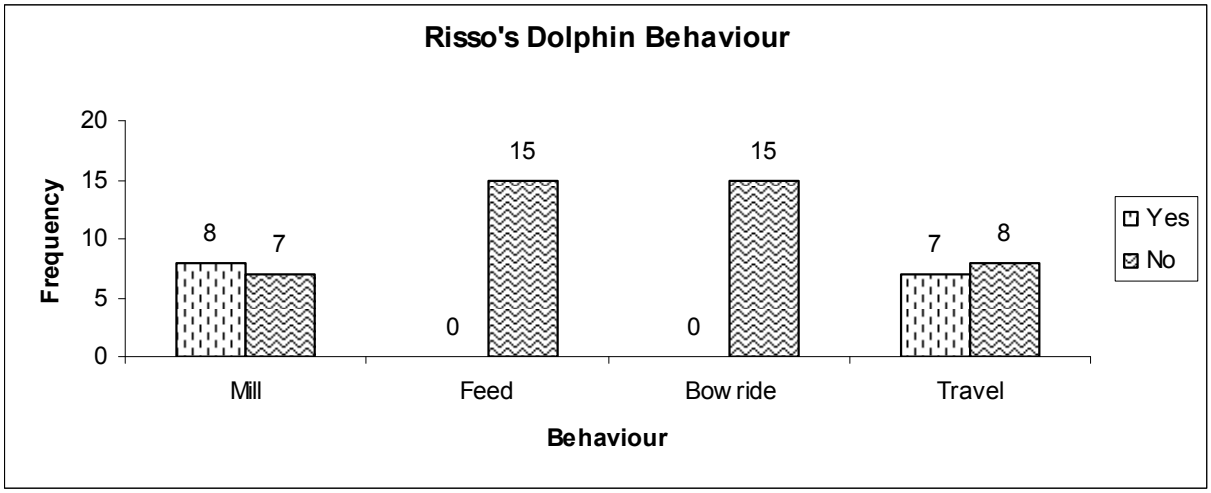


Figure 2.3i.

Striped dolphin

Striped dolphins were only observed four times, twice in April and twice again in May. Average group size was 90, ranging from 40-200. This is close to the average of 118 that has been seen over the rest of the summer, but with only four sightings comparisons are difficult to make. Calves were seen on all occasions. The behaviour of the dolphin on each occasion was milling with leaps seen on three of the four sightings (Fig. 2.3j).

Figure 2.3j. Leaping striped dolphin.

Short-fin pilot whales

One group of 20 pilot whales was observed twice on the 5 May. On both occasions the whales were travelling to the northwest. Calves were present in the group. Photo identification will be done using the dorsal fins of the whales (Fig. 2.3k) at a later date.

Figure 2.3k. Pilot whale ID photo.

Sperm whales

Sperm whales are one of the target species of the expedition. They were encountered 98 times. The average group size was 1.68, ranging from 1-8, which is similar to that encountered during other parts of the summer. Calves were observed eight times and seen in both April and May. Photographs were taken of all whales, which fluked up. Individuals can be recognised by the nicks and scallops formed on the trailing edge of the tail due mainly to wear and tear as the flukes beat through the water. 45 individuals were identified. 37 new animals and eight that had been seen in previous years, including 1645 and 2500 that were re-sights during the 2004 expedition and 1592 first seen in 1991 (Fig. 2.3l).

1645

2500

1592

Figure 2.3l. Sperm whale ID photos.

Attempts at skin collection were unsuccessful due to high numbers of jellyfish and weather conditions that were not suitable for entering the water.

Fin whale

Fin whales were observed 35 times this year. Average group size was 1.94 (Fig. 2.3m).

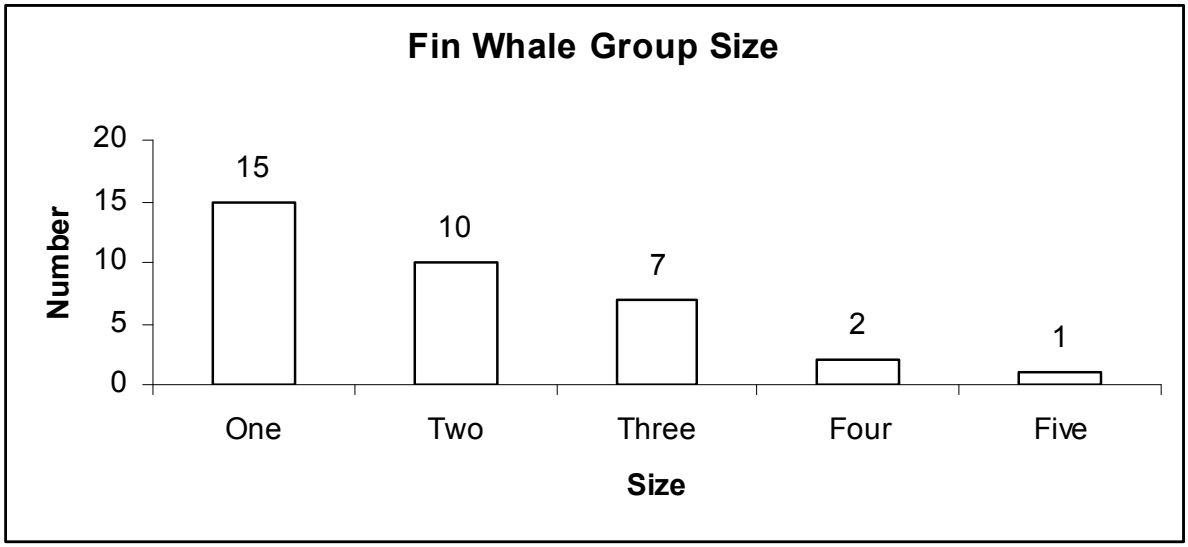


Figure 2.3m.

Fin whale behaviour varied between feeding and travelling (Fig. 2.3n). Occasionally krill and fish were observed in the water where the whales were lunge feeding (Fig. 2.3o).

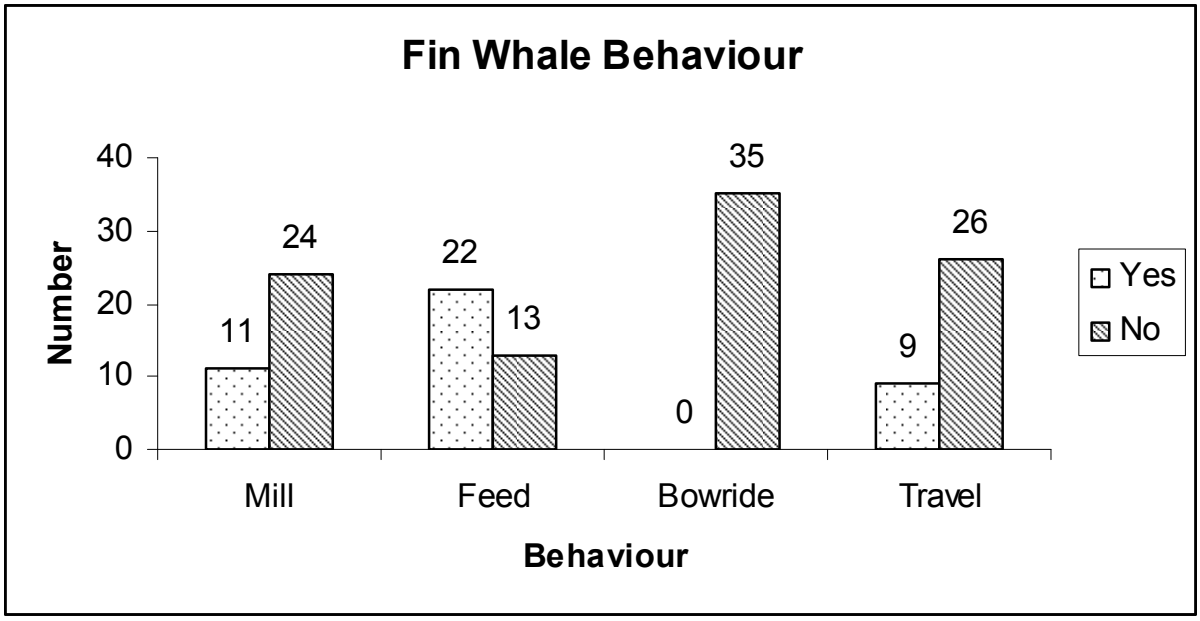


Figure 2.3n.

Figure 2.3o. Lunge feeding fin whale.

After preliminary analysis, 48 individuals were identified. Three individuals were observed on 16 May and again on 19 May 2006 (Fig. 2.3p).

Fin Whale “R”

Fin Whale “S”

Fin Whale “T”

Figure 2.3p. Group of fin whales seen 16 and 19 May 2006.

Sei whale

Sei whales were sighted on twelve occasions. Average group size was 3.4 ranging from 1-6. There were no groups with 4 animals (Fig 2.3q). Calves were not seen during any of the encounters.

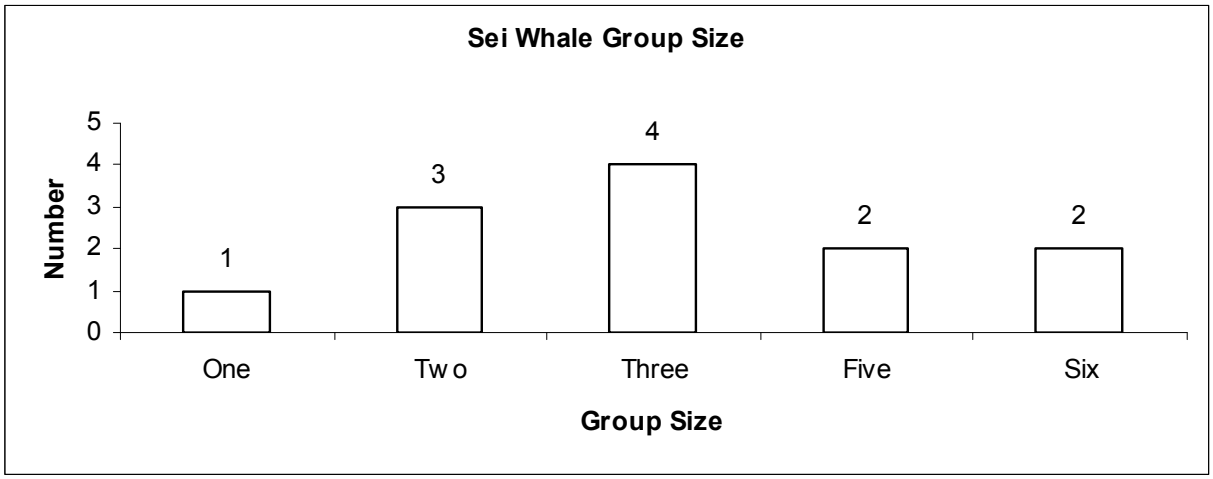


Figure 2.3q.

For the majority of encounters sei whales were observed travelling (Fig. 2.3r), but on two occasions they were feeding in the same area as fin whales (Fig. 2.3s).

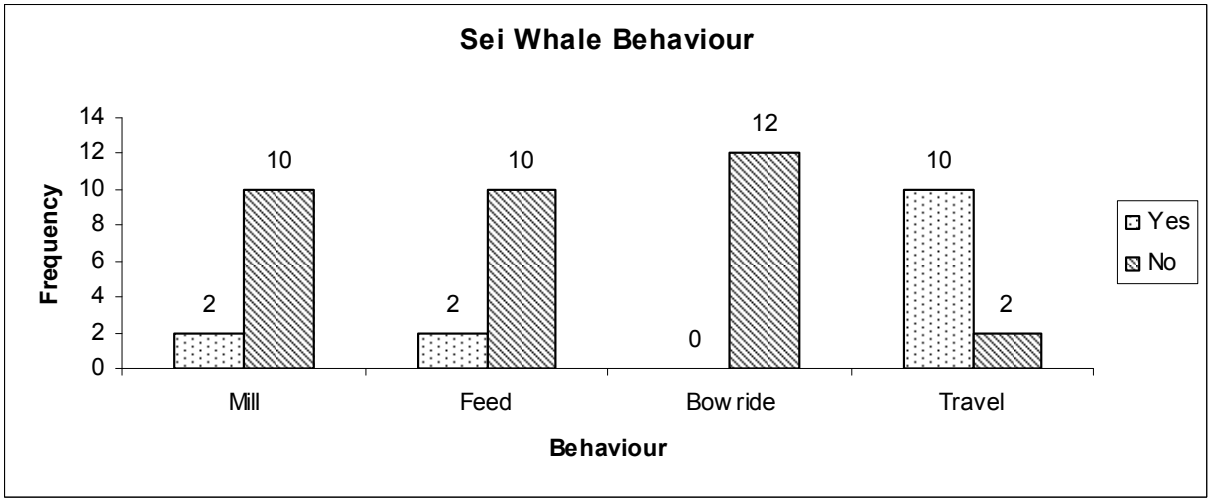


Figure 2.3r.

Figure 2.3s. Feeding sei whale.

Blue whale

Blue whales were seen 21 times throughout the expedition. Average group size was 1.33 ranging from 1-3. Animal were most commonly observed alone (Fig. 2.3t). 19 individual whales were identified. A blue whale calf was observed on 16 May. Twice it was not swimming close to its mother and approached the boat for a closer look (Fig. 2.3u)

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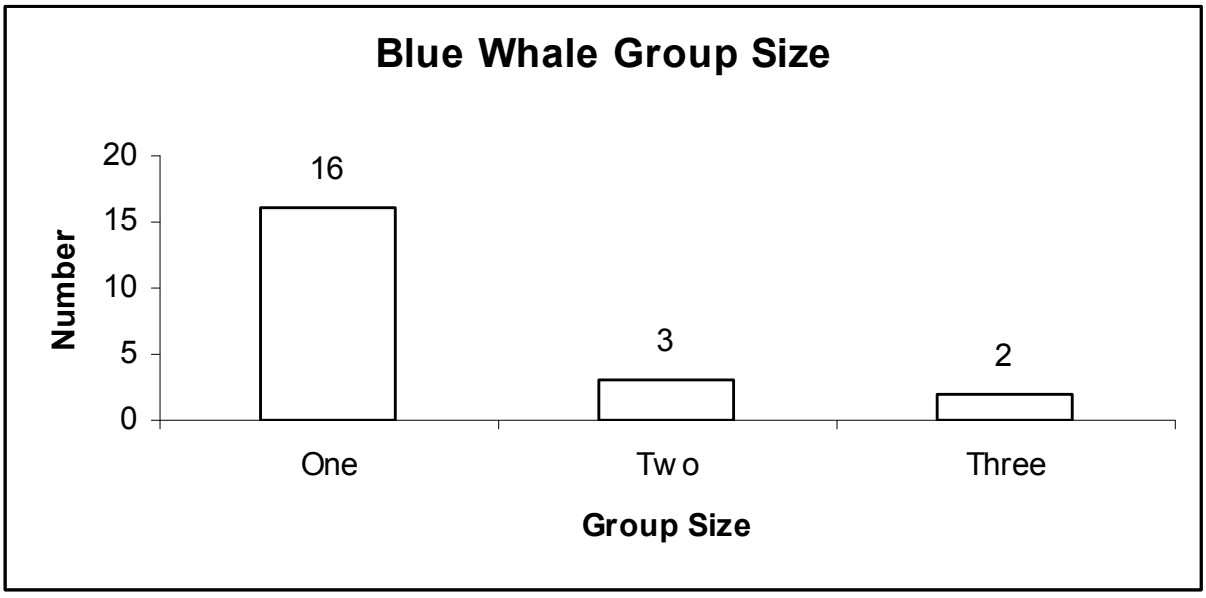

Figure 2.3t.

Figure 2.3u. Baby blue whale comes for a closer look.

Blue whales were observed feeding during most of the encounters (Fig 2.3v)
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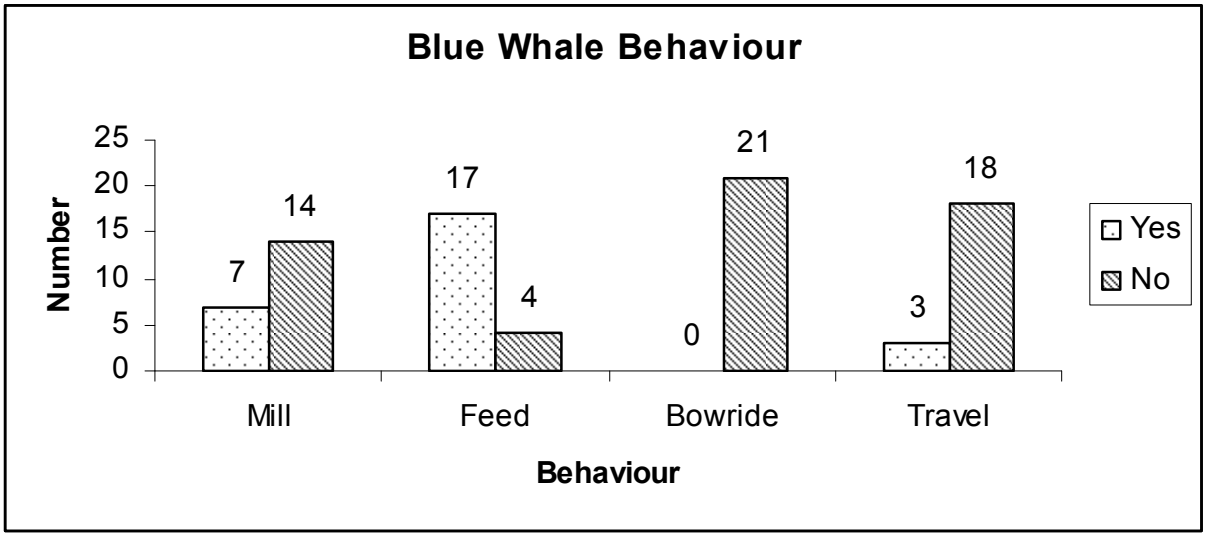

Figure 2.3v.

Humpback whale

One individual humpback whale was observed twice in one day. On both occasions the whale was feeding, lifting its tail flukes for identification upon diving (Fig. 2.3w).

Figure 2.3w. Humpback whale ID photo.

2.4. Discussion and conclusions

April and May are a productive time in the Azores. Biosphere Expeditions are playing an important role in collecting vital information for the investigation at a time of year when little or no work has been done in the past. Many species of cetacean can be observed. In fact, the variety of cetaceans is greater at this time of year than the rest of the summer. Although sightings of baleen whales are unpredictable, the use of lookouts on the cliffs greatly enhances the chances of sighting them.

The increase of baleen whale sightings during this year's expedition is most likely due to an abundance of krill in the area, which the whales were observed feeding several times. As it is likely that the animals will remain in an area until the food is gone, the feeding of the fin whales explains why three individuals were observed three days apart.

Photo-ID of the baleen whales was extremely successful with large numbers of blue and fin whales identified. The photos will be compared to photos taken elsewhere in the Atlantic, but this analysis is not yet complete. A preliminary analysis of the blue whale photos shows no matches to the Europhlukes catalogue. The photos will be sent to Richard Sears, who has a large catalogue of North Atlantic blue and fin whales. He works out of Nova Scotia where large numbers of blue and fin whales feed during the summer months. Group sizes of baleen whales observed here support what is generally known, ie that large baleen whales are usually seen singly or in small groups.

Prior to 2004, only a single humpback had been seen in the Azores in 1996. Humpback whales found in the eastern part of the Atlantic are thought to breed around the Cape Verde Islands and feed in Icelandic waters, but this has yet to be shown with a photographic match between these areas. All humpback photos have been sent to two catalogues: the catalogue held by the College of the Atlantic, of all North Atlantic humpbacks and the catalogue held by the Irish Whale and Dolphin Group, which holds most photos taken in the Cape Verdes and around Ireland. Analysis is under way and any matches will be made known to Biosphere Expeditions.

Sperm whales were again sighted frequently, including females with suckling calves as was observed in previous expeditions. Two social groups of females, calves and juveniles, of up to seven whales were observed. Before Biosphere Expeditions began, we expected to see mainly large males during the early part of the summer, but this has again proven not to be the case. Males were observed 15 times this year (not all different individuals) and there was one sighting of a group of seven and another sighting of a group of eight animals. Data collected at this time of year is valuable in elucidating whether some of the same individuals remain in the Archipelago for long periods of time. Seeing re-sighted animals this early in the season shows that some of the sperm whales that return to the area do not have a seasonal preference and can be seen in all months or possibly move around the Archipelago all year round. The three animals re-sighted above were observed together on 2 June 2004, along with another whale re-sighted this year, 2698, confirming that groups of sperm whales remain together for long periods of time. Currently all ID photos from1987 to present are being compiled for analysis of social structure of sperm whale groups found in the Azores.

One interesting note is a group of sperm whales observed in the channel between Faial and Pico. Prior to this observation, no sperm whales had ever been seen in this area. The depth of this channel is only 200 m maximum and at its shallowest the channel is only 8 m deep, which is much shallower water than sperm whales normally frequent. The group observed appeared to be transiting from the south to the north of Faial and were not observed diving.

Sightings in April and May of bottlenose and Risso's dolphin support to the idea that some groups of these two species are resident around the archipelago and present year round. Some of the photographs have already been analysed and they confirm that a few of the groups seen are the same as those seen last year, as well as some of the same individuals being observed in April and May during the expedition. Risso's dolphin photo-ID pictures have once again been sent to the Risso's Project, on the south coast of Pico, for comparison with their catalogue of resident animals they see throughout the summer and have seen for the past four years. The sightings made earlier in the year also provide insights into calving times for bottlenose, common and Risso's dolphin that are seen in all months of the summer, indicating that Risso's dolphin have the earliest calving period.

In conclusion, this expedition was a success for the third year. Sightings went beyond expectations, despite the variable weather conditions. Re-sighting individual sperm whales from previous years shows the value of the Europhlukes program. Re-sightings of Risso's dolphin are also a positive outcome from the 2006 expedition.

In future years matching of the baleen whales seen this year to new photographs will prove if it is the same individuals that are passing the islands each year or many different animals. In order to accomplish this, more computers with capability to view multiple photographs for matching will be provided to complete more of the data analysis during the expedition. Further expeditions will continue to build on this expanding database of valuable baleen whale photo-ID.

Work for the future should also include some GIS analysis, if funding for the software and training can be acquired. This will allow all the sightings to be plotted onto digital charts of the islands and enable us to look at the habitats, which the whales and dolphins are utilising, for example depth, water temperatures, slope of the bottom and currents that may indicate what parameters are used by the cetaceans in choosing an environment.

Thank you to all expedition members for your assistance.

3. Observer Programme for the Fisheries of the Azores (POPA)

Miguel Machete
Department of Oceanography and Fisheries of the University of the Azores / IMAR – Sea Institute

3.1. Introduction

The Biosphere Expeditions research project took place between 18 April and 26 May 2006 around Faial Island (Azores, Portugal). Onboard the vessel "Physeter", several expedition team members had the opportunity to collect some information on marine life of the Azores. During the expedition period, members of Biosphere Expeditions recorded the occurrence of several marine species such as marine turtles, baleen and toothed whales, dolphins and several species of seabirds (see tables below). The information recorded during the expedition will be processed and included in the database of the POPA (Observer Programme for the Fisheries of the Azores). Below are basic results of the study conducted during the expedition.

POPA was launched in 1998 with the main goal of certifying the tuna caught around the Azores as a "Dolphin Safe" product. This label is attributed by the NGO Earth Island Institute to catches made without mortality of cetaceans. POPA has built an extensive database with information collected by the observers on board the tuna fishing vessels. This database includes information on tuna fisheries (e.g. location of fishing events, catches, and fishing effort), weather conditions (e.g. SST, wind and visibility), live bait fisheries (e.g. location of fishing events, catches, gears used), cetaceans (e.g. occurrences, interaction with fishing events and association with other species), birds and sea turtles (e.g. occurrences). POPA is also responsible for "Friend of the Sea" tuna fishery certification.

3.2. Results

Table 3.2a. Species of marine birds spotted.

Species	Approximated number of individuals observed
Calonectris diomedea borealis Cory's shearwater	1735
Sterna hirundo Common tern	2
Larus cachinnans atlantis Common gull	10

Table 3.2b. Species of whales and dolphins observed.

Whales	Apprx. Nº ind	Dolphins	Apprx. Nº ind	Dolphins (cont.)	Apprx. Nº ind
Balaenoptera borealis Sei whale	3	*Delphinus delphis* Common dolphin	110	*Globicephala macrorhynchus* Pilot whale	30
Balaenoptera physalus Fin whale	8	*Stenella coeruleoalba* Striped dolphin	100		
Balaenoptera musculus Blue whale	2	*Tursiops truncatus* Bottlenose dolphin	311		
Physeter macrochepalus Sperm whale	12	*Grampus griseus* Risso's dolphin	108		

4. Expedition leaders' diary: Azores 2006 by Pere Morera

14 April

Hi there everybody! It's 4 pm here in Horta and this is the first time I have 15 minutes to sit down and write a few lines since we got here yesterday. Loads of things to go through… You might be wondering who is "we", right? Well, I'm Pere (Morera), the expedition leader for the Azores this year, and I am here together with Claudia (Hammer), another staff member from Biosphere, who is going to be of great help for the first few days of the expedition.

During the last 24 hours, we have been settling into our base, Residência A Casa do Lado, a beautiful Azorean residence right in the centre of the village, together with our scientists Chris and Lisa, who just moved in few days ago. All together we are working hard so that everything is ready for the arrival of the slot 1 team members. Shopping is done, your twin/two double rooms almost ready, and Physeter, our research vessel, already in the water all waiting for you to arrive.

While I am writing these lines from my room at base, I can see the beautiful mountain of Pico (it's actually a volcano) with its summit covered in snow. Make no mistake, it is already spring here and even though there's snow at the top of Pico, the weather is rather mild. But still remember to bring some windproof clothes for our time out on the ocean, because it can get quite chilly and wet in the wind and the spray. Shorts, T-shirts and sun hat are essential to survive under the Atlantic sunshine that we are already enjoying here. Don't forget your sunglasses, or you will suffer when trying to spot the first whale!

I will keep you updated as things go on. We are looking forward to meeting you on Monday either at Horta airport or at Peter Café Sport, the meeting point for all sorts of sailors and characters wandering around these waters.

See you soon

Pere.

16 April

Just very quickly and to wet your appetite. Chris, Lisa, Claudia and I went out to test the boat and we saw three sei whales, three Risso's dolphins, two fin whales and guess what... FIVE BLUE WHALES! Great for us, but this probably means that we've used up the entire expedition's blue whales quota all in one day, sorry!

Anyway, apart from selfishly using up everyone's quota, we've also been busy setting up and designing your schedule (attached). Please remember that this is an indication only and that you need to stay flexible at all times as the weather and the animals will probably wreak havoc with our best-laid plans.

18 April

All the team members arrived yesterday morning to Horta as planned without mishaps but a bit tired after travelling for few hours. They settled in at base and we all had some time for a short scouting around the streets of the village and to familiarize ourselves with the places we might visit the most (local market, bakery, the marina, supermarket, Peter's bar, etc.).

Today has been the day of talks and introductions to the research methods, equipment, and the target species of the project, being as well the first time most of the team members found out about their tolerance to rough conditions out on the ocean. Well, it is fair to say that we had some choppy seas for a while this afternoon that made it a bit difficult for some of us, although most of the team seemed to handle the situation pretty well – nobody felt forced to feed the fish ;->

Today's sightings were of sperm whales, one of the most common species in these waters and the largest of the toothed whales (up to 18 metres long!), and we were lucky enough to meet a group of 5 bachelors just about 7 miles out from the southern coast of Pico, our neighbouring island. People had the chance to train on the data collection procedures and they did pretty well. It is quite common for the team members to take a while before they get comfortable all the techniques, but it seems like we have some potential masters among us! Well done everybody! The weather has been nice so far (although it is raining cats and dogs while I write these lines late at night…), we have got great sightings of the whales, and F.C. Barcelona has just won against Milan on the semi-finals of the Champions League… what else can we ask for in order to have a better start of the expedition? [Editor's comment: Pere is from Barcelona!].

22 April

It has been almost a week of expedition work now, and we can say without a doubt that this has been one of the most successful starts that Biosphere has had here in the Azores so far when it comes to data collection and whale encounters. With sunny days and weak wind we have been able to go out every day leaving harbour around nine and coming back by around 16.30. We have been taking advantage of such nice weather, as the forecast for the next few days predicts rain and strong winds. Having said that, we have had around 53 encounters of sperm whales (39 of them today!) and 24 of other cetaceans up to this moment. The team has been really good in recording all the data resulting from today's sightings, not that easy when you are surrounded by sperm whales and information comes from all over. Another special mention to the camera work the day before yesterday with the photo-identification (we took around 170 pictures!).

We have seen almost 10% of the whole cetacean species that are known to science worldwide, and that is 7 species (sperm whales, bottlenose dolphins, Risso's dolphins, striped dolphins, blue whales, fin whales, and sei whales) of the total 82 (bit controversial, so the number increases depending on the literature you consult and the scientist you talk to). Apart from the cetaceans themselves, today has been the first time we have spotted a loggerhead turtle (almost during turtle survey, which would have meant a round of drinks on Lisa… be careful when betting…), and all the team members had a close encounter when Chris lifted her up to the aft deck for telemetry and tagging. Other sightings so far include two different sharks (not sure about the species yet), one sunfish (really big one waving its fin at us), and a gannet, a beautiful marine bird that usually lives in higher latitudes. Well, Alan spotted some sort of land with Ayesha's help when returning to Horta last Thursday, but I am afraid that should not count as anything special as it was the island of Faial itself that they saw ;-) … Maybe it was the effect of being out on the ocean for about 8 hours under the sun that made them feel really excited about it… Maybe not… Who knows...

Just about time to go to Marinhero, the restaurant where we usually have dinner. Everybody looks forward to this moment of the day, especially after the hours of hard work out on the ocean. So I am going to leave it here, but promise to come back to you in two or three days with more information.

25 April

Sunday 23rd was the last day we could go out to sea due to weather conditions. Just a few hundred metres out of the harbour we had our first encounter of the day, a group of friendly bottlenose dolphins (around 25) that were leaping and travelling through the strait between the islands of Faial and Pico. We could feel the change of weather as sea conditions were rougher than the days before (pretty choppy). If you add to this the fact that most of us went out the night before until late for few drinks and laughs at Peter's, the resulting trip was a bit special… Our lookout on land told us through the radio that a group of sperm whales was heading south a few miles off the coast of Faial, so we set course towards the whales. A couple of hours later, the team spotted the first blows and we could get photo-id pictures of the individuals together with other valuable data. Once in the area and having seen the first group of seven males, it was rather difficult to distinguish the blows of other potential whales from the white horses on the top of the waves, so we decided to make use of the hydrophones that we have on board to search for more whales by listening to their sounds and clicks. It did not take long until we heard some echolocation sounds (clicks) of other sperm whales, and after tracking them for a few minutes (sperm whales can be under water for up to 2 hours!) we finally had them at the surface and could take more data. We had a total of 16 encounters, which is not bad at all. It was a very active day for the person in charge of the acoustic survey, so we found out that there were several whales in the area and we could hear and record their socializing sounds (codas) every now and then. These recordings are to be processed and analysed by a PhD student in the UK that collaborates with our scientists Chris and Lisa. On our way back to the harbour we were really lucky and spotted another sunfish swimming close to the surface. These fish look a bit like a huge lentil (flat bodies with thin edges and thick core) with two pectoral fins opposite one another on the edges. Did you know that they can be up to 3 metres long from the tip of one fin to the other, and weight up to 2500 kg? Really big guys!

The wind has been picking up since then, and we have enjoyed a couple of onshore days. Claudia left us yesterday morning and she is now back again in Germany taking care of the German Biosphere Expeditions office. Thanks for your help and your company during these days! After Claudia's departure, we went for a trip around the island on a 4x4 car and could stand inside one of the old volcanoes that Faial has not far from Horta. Pretty impressive. Although it was a bit chilly and quite foggy, we had a great time listening to the expert comments of our driver Manuel on the culture, history, and other anecdotes of the island. After dinner we changed Peter's for International Café for a few drinks and a bit of fun. Diane and Ayesha could feel the presence of a ghost in the ladies' lavatory, but do not panic when getting there, I would not be too worried about it as it may had been the effect of a drink or two.

Today we have been going through some scientific work in the library: extracting whale flukes on the computers and comparing them afterwards with other pictures from the big Europhlukes database (we have not got any match so far), entering the data recorded during the last few days, etc. Team members are already missing going out to sea, but if I had to predict our plans for tomorrow I would not know what to say. We are supposed to go out again as the forecast seems to be good enough. However, right now the wind is howling outside and it has been raining for the last 12 hours… Does not seem too promising… Let's see how it goes… If tomorrow we stay onshore due to weather conditions (Captain's decision), we might have the chance to visit the Greenpeace flagship that arrived yesterday evening at Horta. I will let you know if we make it out to sea or not.

29 April

As I suspected on my last diary entry, the weather last Wednesday 26th was not good at all, and we postponed our departure until 13.30 due to strong winds and heavy rain until the sea conditions improved a bit and allowed us to go out and do some work. We first tried to survey the waters off the south coast of Pico and Faial, but had to change course and head north because the waves were too big there (more than 3 metres high!).

Despite the bouncy sea we managed to spot five fin whales and take data on three of them. Unfortunately, we only could stay out for three hours. Once back at the harbour, we were lucky enough to get onboard "Esperanza" (which means "hope" in Spanish), the Greenpeace flagship that arrived in Horta from Cape Town during one of their conservation campaigns. Russell Leaper, a cetacean scientist who works for IFAW (International Fund for Animal Welfare) and friends with Chris and Lisa, showed us around the boat and told us about the acoustic surveys that they are conducting in the Azores. That visit together with the fact that F.C. Barcelona passed the Champions League semi-final and is now ready for the great final in Paris against Arsenal, made a happy ending for a difficult day of research.

Thursday 27th was the last day for one of our team members, Ayesha, who had to leave us a day early. It seemed that the whales knew about it, because we had a long and very productive day out on sea (a bit more than eight hours sailing!). As often happens after a storm, the ocean was completely calm and we had crystal clear water with turquoise touches all around. Really beautiful. The lookout told us just after we left the harbour that there were baleen whales south of Pico, so we set up our course towards them. Just to start with, we had an amazing encounter with an enormous fin whale (second largest animal on Earth, up to 24 metres long) that surfaced about 20 metres away from us - we could see the whole body under the water and managed to get very nice pictures! Two blue whales followed being very active and fluking twice each (something rather unique, as they usually do not fluke). One of the blue whales came up at the surface just about 50 metres away from us, and that created complete silence onboard, as it was a breathtaking moment for all of us. It is not every day you happen to have the largest creature on Earth (bigger than the largest dinosaurs) almost at the reach of your hand. But that was not all, as we had more encounters with a group of bottlenose dolphins and some spermies a few miles off the village of Lajes do Pico. After few minutes tracking the spermies and taking data on them, we met a group of three sei whales (big baleen whale up to 17 metres long).

Unfortunately, during that encounter we had the wind against us and we could smell their stinky breath a couple of times. The smell was so bad that some team members even volunteered for brushing their baleens just in order to avoid such an experience in the future. But if you think that was the end of the day, better think twice. While sailing east few miles off Pico, we crossed along with a group of Risso's dolphins, up to 30 individuals! It was a resident group according to Lisa, as she could recognize through the photo-id technique one individual called "spaghetti" that had been seen several times before. While being with the Risso's, we spotted two mega blows far away from where we were and decided to go there. Once we got to that area, we had an amazing surprise as we found ourselves surrounded by spermies and blue whales all over. We had more than ten animals in the area, and five of them were blue whales! I have never seen anything like it, and Chris and Lisa agreed on saying that was something exceptional and very rare. Just in case there was somebody not happy enough with the event, we had one of the most fantastic moments in our lives: a gigantic blue whale came up at the surface about 15 metres away from the boat, and everybody kept completely quiet for a moment. Nobody took pictures. Nobody could say anything for a couple of seconds. Then the joy exploded. What an amazing experience!! On our way back to the harbour we had more encounters: a blue whale first, then a huge fin whale feeding together with a group of common dolphins leaping in front of the vessel. When we thought we were done for a fantastic day, another blue whale came up less than 100 metres away from us and of course, we recorded data on it. What a day, it seemed like somebody had opened the box where the big baleen whales are kept in the ocean :-) Back in the harbour, the team members started drawing what is going to be our picture on the dock, and it is fair to say that they did a great job (it's a tradition here for sailors to leave paintings on the harbour walls).

Friday was the last day for the rest of the team members. Even though we started with a dead calm sea (almost like a mirror), the wind picked up and we ended up having to return to the harbour a bit earlier than usual, around three. However, it was a good day as well with 13 spermies (one of them slapping its tail at the sea surface in front of us for almost a minute!) and about four fin whale encounters. As a final farewell party for the first slot, on our way back to the harbour we met a group of about 30 bottlenose dolphins that did amazing acrobatics just few metres away from us. Just to top it all off we also had to rescue a French sailing boat that had a rope tangled in the propeller and could not manoeuvre properly to get into the harbour of Horta!

Today all the team members have left us and it is only Chris, Lisa, and myself at base getting everything ready for the arrival of the second slot members. Cannot wait to get out to sea again, especially when it seems like we are having all these animals around. However, you never know what is going to happen in the wild, and that is the magic of the whole thing. Thanks to everybody from the first slot for a job well done and being great company!

3 May

The second slot arrived last Monday ready for the action, all willing to get out to sea. Naomi was the first person so far that had problems with her luggage at her arrival to Horta airport, but it is now solved and she got her rucksack yesterday afternoon. As it was holidays here in the Azores, everything was closed, even our usual restaurant O Marinheiro. Our scientists Chris and Lisa delighted us with an excellent "spaghetti bolognaise" and garlic bread, really good meal to compare favourably with the ones we get at the restaurant.

Once we had gone through the presentations and introductions, as well as training on data forms, equipment and the jobs, we finally jumped into the vessel to get everybody out and let them find their sea legs while getting familiarized with the research procedures. It was a bit rough out there with a moderate breeze and small waves up to 1.5 metres. We had lots of whitecaps and it was rather difficult to spot anything in these conditions. After trying our best for about three hours and on our way back to the harbour, just when we thought that it was going to be what I call a "bum trip" (no sightings of any kind at all), we came across a group of friendly common dolphins that became the first species of cetaceans ever seen for some of our team members. Unfortunately, that was the only sighting we had yesterday, but the lack of cetacean presence is already valuable data for the project itself. Better days when it comes to the amount of sightings will hopefully come soon.

The weather has been getting worse during the last three days, and today it has been impossible to go out. We have stayed at base instead, working on fluke extractions and matching the whale photographs that people from slot 1 took during the last couple of weeks with other photographs from past encounters. The team members have got some spare time to enjoy the village of Horta and its surroundings. Some went to the botanical garden; others to the near hills where the old windmills keep standing imperturbable to the weather inclemency; and some stayed around the village enjoying the local museums and tiny streets full of friendly people. The forecast for tomorrow does not look good at all, and it seems like we will have another onshore day. I think that team members are already making their plans to visit the island with one of these all-road vehicles, trying to get a better idea on how the island looks like and maybe even trekking into one of the volcanoes on the island. The wind is supposed to calm down a bit on Friday, and hopefully that will be the first full day for slot 2 out on the ocean. Will let you know more in due course.

6 May

The second slot has not been lucky so far when it comes to the weather. Friday was the first day people could actually practice the research techniques out on the ocean, with calmer seas but still big swells resulting from the bad previous days. Early in the morning we left the harbour and headed south east. Not far from Pico we met a group of Risso's dolphins and a group of bottlenose dolphins. These are two common species in these waters that we see quite regularly. In fact, that same day we saw another group of bottlenose dolphins later in the afternoon. For the first time on the expedition, we came across a pod of short-finned pilot whales, a dolphin group member with a jet black stocky body, rounded forehead and dorsal fin, which can reach up to 6.5 metres when adult. We sailed next to them for a little while and they became quite popular with the team members, as we encountered them twice that day. The swell was not helping the lookouts onboard at all, but the experienced Portuguese Vigias (Portuguese for
lookout) on land, most of them old whalers, could spot baleen whales about 6 miles off the coast. We recorded data on three fin whales and one sei whale. That made five different species in one day, which was already pretty good, but we had even more. Just before returning to the harbour and after lots of searching with the hydrophones, we had an impressive encounter with a fairly big group of striped dolphins, about 80 different individuals, displaying different sorts of behaviour just a few metres away from the boat. They usually get bothered by our presence, but luckily for us, they seemed to enjoy it that time. Later at night, the team members started exploring the night life in Horta, and came to the conclusion that Peter's is probably the most entertaining and lively place.

Today we left the harbour like any other day without knowing exactly what the ocean was going to surprise us with, but I am sure that people could not imagine what we had at the end. With some rain and lots of clouds but calm seas, we set our course towards the south of Pico, a really productive area when it comes to marine life. Just to start with, we had about 50 different common dolphins (lots of them were little calves) with us for a few minutes, and even though they are not one of our target species for the project, we all enjoyed the sightings a lot. Once more with the help of the Vigias, we could spot two adult sei whales and a juvenile with a young blue whale all together off the coast of Pico. That is quite an unusual encounter, as it is not common to see sei whales and blue whales together in the same group. During the time we spent together with the whales, the team members could experience what I already told you few days ago in the diary - that cetaceans all in general have a really stinky breath resulting from the huge amount of fish they eat and the bacteria that stays in their digestive cavities.

A bit later, we received the message that a blow of a baleen whale had been seen close to the south coast of Pico, and we headed towards it. What a great surprise when we realized that the blow belonged to our first humpback whale of the expedition! Humpback whales are not common in the Azores; our scientists Chris and Lisa have seen them in these waters six times since they started in late 1980s, so we were all really happy when we could see the animal just a few metres away from us showing its fluke when diving down for food. After about one hour of searching with the hydrophones for the clicks and sounds of other whales, we finally saw a big fin whale together with few common dolphins. The whale was apparently just moving randomly, probably feeding, but it did not give any sign of what we were about to see. We took the photo-id pictures of the animal and recorded all the data needed for the project, but just when we started pulling back the hydrophone in order to sail back to the harbour, we witnessed one of the most impressive shows in nature. The fin whale breached out of the water four times and only a few hundred meters away from us!! Try to imagine the second largest animal ever on earth, a 70 ton animal jumping out in the air! It is hard to describe. Nobody managed to get proper footage of it, but that was not important at that moment. I have been working with cetaceans for a few years now and have seen other species breaching before, a common behaviour usually described for sperm whales, humpback whales or other smaller cetacean species. However, I have never seen a fin whale breaching before and it is something that will stay with me forever. What an astonishing sighting!

On our way back to Horta we managed to spot another group of common dolphins and the same humpback that we saw in the morning, this time just about half a mile away from the harbour. Kym skippered the boat for a little while and she created a brand new way to manoeuvre boats. Slot 2 call it "kymming", which is basically head for the horizon in an erratic way no matter what the proper course is supposed to be. :-) Well done, Kym, no matter what they say!

The weather forecast for the next few days predicts an increase of the wind and a bit of sun. Seems like tomorrow we will still be able to go out, although Monday is going to be another story…

11 May

These last few days we have had a bad weather front a few miles north of the archipelago that has affected our work a lot, causing strong winds and big waves that impede the detection of the whales up at the surface. We could go out on Sunday just when the wind was picking up, and even though it was misty and we had very bad visibility (the lookouts on land could not see anything at all), we managed to detect the presence of sperm whales in the area by listening to their echolocation sounds through the hydrophone, a task that was performed with great skill by Chris and David. Without the use of the hydrophone, we would not have had the nine encounters with spermies, and tracking their movements would have been impossible. David did an amazing job recording the codas (socializing sounds) of the sperm whales in the area, data that will certainly be of great value to the PhD student working on it. Team members were really happy to add sperm whales to their list of species seen so far. We also came across a group of sei whales (two adults and a juvenile) twice, so it ended up being a productive day out on the sea.

Tuesday was the last full day on the sea so far, with only one sighting of a small loggerhead turtle (again, just 10 minutes before turtle time!) that we managed to catch and record data on. Even though the vigia told us that baleen whales had been seen early in the morning south of Faial, we never found them anywhere. The strong wind from North West and the sea state made it really difficult for us to detect signs of cetacean presence in the area.

The swell did not help at all either, creating waves up to 4 metres every now and then. Crazy weather. We knew that it was going to be difficult to encounter animals that day, but we wanted to give it a try anyway. We did not have sightings but people enjoyed the waves, especially Andreas who was in the front deck most of the time, and Amanda who ended up polishing the upper deck seat with her trousers going from one edge to the other like a spinning top with the waves. We had a "Keira" night later in the evening encouraged by Chris, President of Keira's fan club in Horta, when we all went to the Horta cinema to see the movie "Pride and Prejudice", an English classic with Keira Knightley starring. Excellent end for a difficult day on the sea.

The effect of the front offered the chance for a little more shore time as the sea was rather rough. We stayed on shore Monday, yesterday and today due to the weather. Fortunately, the strong wind with forces up to 4 and 5 cleared the skies of clouds, and that has given us a good opportunity to see more of the islands and the village of Horta. Some have taken the ferry over to Pico for a jaunt around the island while others have spent time here in Faial, continuing the job of the dock painting that the first slot started few days ago, or walking up along the headland - Tracy and Lorna took a taxi to the western part of the island and had a nice walk around up the volcanoes and little forests. Yesterday in the afternoon, once we came back from a three hour attempt on the ocean (we managed to spot one fin whale and one blue whale during that time and then had to go back due to the bad weather conditions), some of went to visit the old whaling museum in Horta and learned a lot about the old days there from a warm-hearted old man who guided us around. At base camp there was also scientific work to do, extracting whale flukes on the computers, inputting the cetacean sightings, log and blow rates and consolidating the photos.

The weather forecast for the next few days does not look that bad, but still with some strong wind from the southwest. Let's see what the ocean has in store for us tomorrow, our last day to get to the sea with this slot.

13 May

Earlier in the week the weather wasn't great at all as you already know, and we were only able to make a couple of sorties. Everyone was pretty excited yesterday morning when we finally could make it to the sea. We had the last venture out on the ocean to say goodbye to the dolphins. We had very strong winds from the southwest that once more spoiled a little bit our interests towards data collection. We set up course north of Faial where we were sheltered by the volcano from the wind, and that allowed us to encounter a group of bottlenose dolphins and a group of Risso's. There were no baleen whales or spermies to wave the second slot goodbye, but we were lucky enough to see flying fish a few times and a huge amount of Cory's shearwaters feeding in one area (a few hundred of them, very impressive).

Slot 2 has just left, and I am again sitting alone in my room, looking at Pico and recovering from the BBQ party we had last night at base as a farewell event! It is always hard to say goodbye. Thanks a lot slot 2 for a great time!

14 May

Chris, Lisa, and I are making all the preparations for the next slot this weekend. Today it has been raining heavily in Horta, so we decided to do some statistics about what we have achieved so far in the expedition, very simple stuff just for your information.

Remember that you (all the team members) will get a report around six months after the end of the expedition with proper and detailed information about the research, financial issues, etc. This here is just a glimpse of what we have been going through up to this moment, a summary anyway for the statistics freaks like me :-)
So far we've had 148 encounters since the beginning of the expedition, 40 of them were of baleen whales (including the big rorqual whales) and 108 of toothed whales (including dolphins and spermies). Within the toothed whale group, 75 of the total 108 encounters were with one of our main target species, the sperm whales, so you can see that they are pretty common in these waters.

During these 148 encounters, we have seen 1464 individuals, 59 of them baleen whales, and the rest (1405) were toothed whales, with the common dolphin as the most numerous cetacean species in these waters (we have seen 713 individuals so far!). We probably saw the same individuals more than once during the expedition, so these 1464 individuals are the ones we have seen during the encounters, without paying attention to the absolute number of different individuals. We will be able to derive exact amount of animals once we have gone through the photo-id pictures. However, for some species this is going to be impossible because we encounter too many animals at the same time to photograph them all (e.g. common dolphins or striped dolphins).

When it comes to the animals, we have come across 10 different species, 4 of them within the group of baleen whales (mysticetes) and 6 belonging to the toothed whales (odontocetes). The list goes as it follows:

Mysticetes:

Blue whale (13 encounters, 17 individuals)

Fin whale (18 encounters, 25 individuals)

Sei whale (6 encounters, 14 individuals)

Humpback whale (2 encounters, 2 individuals, which was the same animal seen twice, we already know this from the photo-id pictures)

Non-identified whale (1 encounter, 1 individual at a distance.

Odontocetes:

Sperm whale (75 encounters, 126 individuals)

Bottlenose dolphin (8 encounters, 135 individuals)

Risso's dolphin (6 encounters, 71 individuals)

Pilot whale (2 encounters, 40 individuals)

Striped dolphin (3 encounters, 320 individuals)

Common dolphins (14 encounters, 713 individuals)

This is the information for the whole expedition, but if you want to know about your slot in particular, just keep reading.

Slot 1 had 114 cetacean encounters, 30 of which were of baleen whales and 84 of toothed whales (66 of them were sperm whales!). They saw 1002 individuals, 958 of which were of toothed whales (457 common dolphins!), leaving the remaining 44 individuals as baleen whales (including the non-identified one that we could only spot from the distance). They observed 8 different cetacean species in total: blue whale, fin whale, sei whale, sperm whale, bottlenose dolphin, Risso's dolphin, striped dolphin, and common dolphin. They also came across a sunfish and a loggerhead turtle. During the first slot we also had the busiest day of all, April 22nd, when we had 39 sperm whale encounters with 48 individuals, and 2 encounters with 2 groups of striped dolphins with up to 242 individuals!

Slot 2 went out to the ocean much less than slot 1 due to weather conditions, but they saw more species, the same ones like slot 1 did, plus humpback whale and pilot whales. The numbers for slot 2 are as follows: 34 encounters (24 of toothed whales and 10 of baleen whales), 462 individuals (15 baleen whales and 447 toothed whales, 256 of which were common dolphins). We did not see sunfish this time but had probably the most amazing sighting of all, the breaching fin whale. A loggerhead was caught as well, and we could add a pair of flying fishes to the list of unusual sightings.

I think we can be very happy with what we have got so far, but this is not all. In just few hours the new team members will arrive and keep on going with the project from where we left it on Friday. Let's hope for better weather and lots of sightings. Never know what's going to happen next with "Mother Nature" though.

Ok then, this is it for now, I hope you enjoyed the numbers. I certainly did. I will come back to you in a couple of days once the new team members have gone out to the ocean for a couple of times. Good night everybody!

18 May

Since the arrival of the third slot last Monday we have all been profiting from clear skies and lots of sun with a little bit of wind and not too choppy seas.

After the training sessions, we went out to sea Tuesday afternoon knowing that there were some baleen whales north of Faial. The lookouts really know how to do their job! We got to the area and a friendly baby blue whale (a few metres in length) showed up relatively close to the boat. The animal was just moving around, apparently without an adult looking after him. Whilst being with the blue whale, we saw other blows at a distance and they happened to be four fin whales that stayed around for a little while, sometimes getting to within 20 metres of us - seemed like they were not bothered by our presence at all. Nice beginning for slot 3.

The baby blue showed up once more, this time really close to us (just about 10 metres!), maybe trying to inspect the boat as he was shallow diving underneath us. Matthew did a great job spotting everything that was blowing within a few hundred meters around us. Seems like Tuesday was the day for the big guys, because we saw three more fin whales and the baby blue whale together with its mum. Then just before heading back to Horta and leaving the area, we saw a baleen whale breaching twice a few hundred metres ahead of us!

Not bad at all! We are not sure what species it was, but it was a baleen whale for sure because of the size of the animal, the fact that it had a pointy nose, and a grey and white body. It could not have been a spermie because they have round heads and grey-dark bodies. This is the second time that I have seen one big baleen whale breaching just few hundred metres from the boat, and I still think that it is one of the most impressive things to experience in nature. Finally and to complete an excellent start for slot 3, on our way back to the harbour we saw a juvenile sperm whale.

Yesterday was a good day too. First we came across a group of bottlenose dolphins just a few hundred metres away from the lighthouse to the north of Faial, the one that was destroyed by the earthquake in the 1990s. Then a blow at a distance in the middle of the channel between Faial and Pico caught our attention and forced us to leave the dolphins; a group of six sperm whales were travelling north between the islands, at a depth of just 200 metres (rather shallow for these animals who can go down to 2500 metres to hunt their favourite prey, the giant squid). This was the first time Chris and Lisa saw a group of sperm whales in that area since they got here in late the 1980s, so it was a unique sighting that the team really appreciated. We started the day with calm seas, but by noon and in the south of Faial we had strong winds and big swells, so we decided to go back to Horta for lunch and wait for the wind to calm down. It was a good decision, as the ocean was much better a few hours later and we managed to observe a group eight of Risso's dolphins that became really popular among the team members (easy to spot, nice to photograph). We also spotted a turtle in the area, just a few minutes before turtle time (seems like we are not going to manage to get it in the turtle survey time), although she escaped from us just when Chris was about to catch her. But that was not everything for us, as we spotted three fin whales together with a blue whale about four miles off the northern coast of Faial with the help of our lookout on land, and a group of bottlenose dolphin close to an adult fin whale (big guy) that was feeding on krill surrounded by a big group of common dolphins (more than 200 individuals!).

Today we had a beautiful day with lots of sun, a bit of wind and no clouds at all. Once again, we started with calm seas and as the day went by it became choppier. We decided to go to the waters north of Faial following the advice of our lookout, and after few minutes we literally found ourselves in the middle of whale nation, surrounded by sperm whales all over. It was hard to decide which one to follow, and even harder to control their blow rates, but Neal, Cathy, Ran and Matthew did an extraordinary job and managed to get loads of data out of the 33 encounters that we had today, the second best day of the expedition so far when it comes to the amount of encounters. We also saw a couple of loggerhead turtles that once more escaped from Chris's net at the very last moment, some Risso's dolphins, bottlenose and common dolphins. Quite an amazing day.

21 May

Friday was the last day we went to the ocean this week, and had an unusual and rather special sighting once more. We were told by the vigia that baleen whales were wandering around the waters between the islands of Pico, São Jorge and Faial, so we set our course to that area. It was a beautiful day, with lots of sun, clear sky, and rather rough seas. Once in the northern waters of Faial, we encountered a couple of big fin whales swimming west, oblivious to the whale watching boats that were trying to get a good look of them. When we were still collecting data on them, we saw some more blows a bit further away and decided to leave this first group for the sake of the animals (too many boats that might end up stressing the animals).

Once we got there, we saw another group of adult fin whales swimming together pretty fast towards the open waters west of the central islands of the archipelago. We had in total eight fin whales in the area, something that has never seen before as Lisa pointed out at the end. Pretty amazing. We had really close encounters with them, sometimes just few metres away from Physeter, our research vessel. Unfortunately for the team, we were downwind most of the time and with the whales in front of us, people could experience what the other slots have experienced already, the rotten breath of cetaceans. Well, I think they have stinky breath, although some of the team members of this third slot thought that it was not that bad - come on Barbara, it's really bad! The waves were getting bigger as the day went by, making it difficult for us and the lookouts to spot animals in the ocean. However, we managed to notice a group of Risso's surfing and having a bit of fun not far from the northern coast of Faial, and a tiny little loggerhead that we caught but were unable to tag due to its small size. The animal was so small that Chris had real problems trying to catch it with his net, as the turtle slipped away through the actual holes of the net a couple of times.

Yesterday we stayed onshore doing some computer work and having some time off, which was appreciated by the team members. They had good fun naming the different Risso's dolphins we have been seeing the last few days - Paul and Lisa could not stop laughing at the names and descriptions that Matt and Barbara came up with. Neal and Birgit, our computer experts, managed to install Java on one of our machines and fix all the problems we had with it during the expedition, so we finally could have one more computer running the fluke extracting and matching software. Great job! In the afternoon, Kerstin went hiking around the hills near Horta, whilst Cathy and Emily had a tour around the Scrimshaw Museum in Peter's with some tourists. Catherine was luckier and had Peter's son, José, as a tour guide in the same place while he was answering the questions of a foreign journalist. Sneaky you.

Today the team has a day off. Ran and Delian rented a couple of mountain bikes and went around the island and to the top of the Caldera enjoying the physical exercise. Matt was a bit lazier and did the same tour on a scooter that he rented for a good price down in the harbour. It might be that cheap after all if the owners find out about the scratches on the machine resulting from an insignificant incident he had when falling off in a small secondary road in the middle of the island ;-) Cathy and Emily went together on the popular off-road tour that the previous two slots have done as well, and the rest enjoyed Terry's talks and expertise about Faial, its volcanoes and its people, while being in one of his taxis around the island (they got a six hour trip!). In the afternoon we went down to Peter's to celebrate the inauguration of the new sea front street, named after Peter whose real name was José Azevedo, a whole institution in Portugal who passed away last January. His son, owner of the Café Sport, organised a great party with free drinks and free pork sandwiches for everybody in town, and it seems like tonight there's going to be some traditional music and dances as well. We are having dinner tonight at base - Chris is cooking a delicious meal with chicken and curry -, but the whole team is looking forward to go down to Peter's after that for some extra fun.

Seems like the weather is improving and we might be able to go out again tomorrow. The team members are ready for some more action after two days of more relaxed time.

24 May

On Monday we started the day setting our course to the north of Faial, where our vigia told us there were baleen whales. Seems like a popular area for the whales according to our last sightings. With slot 1 and 2 we spent most of the time around the southern coast, but the north coast of Faial and Pico is now the hot spot. Heading north was our aim that morning, but unfortunately, we never managed to get to the whales as the swell was too strong (about 4 metre waves!). Chris decided that it was too risky for the team, so we set a new course to the south expecting calmer seas. Pretty close to the southern coast of Pico, we came across with a group of Risso's dolphins and two groups of friendly bottlenose dolphins that bow rode for a while with us.

Before lunchtime, we had a phone call from a Dutch couple, friends with Chris and Lisa, who study Risso's dolphins from their research centre in southern Pico. Apparently, a dead Risso's dolphin had been found not far from Riberas (the small village where they live) and they needed our help pulling in the animal into the harbour of São João (the closest village in Pico to that point) for a necropsy. Their boat was definitely too small to pull the animal back from few miles out in the ocean. Just for your information, Risso's dolphins can grow up to 4 metres in length and weight up to 500 kg.

After this unusual event, we started searching for whales with the hydrophone in the water, heading south once more in order to get some distance from the coast. While being on transect, we spotted a loggerhead turtle with a 41 cm shell, managed to catch her and do all the telemetry involved in the turtle project that we run together with the University of Florida. Later on we saw another turtle, much smaller, that swam away before we could do anything. Unfortunately, none of these sightings were of course in turtle time (when we are making the effort to find them), and I am afraid we won't manage to get Lisa's free round of drinks.

We did not hear anything at all on the hydrophones apart from dolphin whistles and water noise, no sperm whale codas or clicks at least within 5 miles from us. On the way back to the harbour of Horta, we spotted again a large group of friendly bottlenose dolphins (they were everywhere surrounding us) that played some acrobatics for us. Nice way to say goodbye for that day.

Yesterday we stayed onshore due to a sudden change of weather with lots of wind and rain. Some of the team members went to the whaling museum located in the old whaling station at the bottom of Monte Vigia. Some others decided to go on with the computer work and finished with all the extractions and matching (well done everybody!). In the afternoon, four of us decided to rent scooters and ride around the island for a bit of fun. And it was fun indeed, despite of the amount of rain that totally soaked us when we were still about 30 kilometres away from Horta.

Yesterday was Cathy's birthday and we all celebrated it with a nice dolphin cake at the regular restaurant, O Marinheiro. She was really surprised and I dare say happy about it, as she was not expecting us to know about it. Glad that you enjoyed it, Cathy!

Today we benefited from very calm seas. We left the harbour being told by our vigia that baleen whales had been spotted aournd the south coast of Pico. On our way we came across a group of Risso's and common dolphins. Once in the area where the baleen whales were supposed to be, we searched for them for a long while without succeeding. In fact, none of the other whale watching boats that operate in the same area saw baleen whales around, so we decided to put the hydrophone in the water and search for other whales. Unfortunately, no whale sound could be identified by the person in charge of the hydrophone that day, and we decided to head north instead. Right in the strait between Faial and Pico we saw a large group of common dolphins, and just about few hundred metres off Horta harbour a group of 15 Risso's dolphins made its appearance. Quite an unusual sighting, as Risso's are rather shy and don't stay around these waters for long time. Our vigia got in touch with us once more letting us know that baleen whales had been seen to the north of Faial, so we set up course towards them. Right at the end of the strait we observed another group of eight Risso's dolphins, and that was the moment when we realized how lucky we were for having seen so many Risso's in one day (more than 30 individuals!).

In order to find the baleen whales we had to sail the remarkable distance of 20 miles away from Faial. It was definitely worth it, as we encountered about nine adult fin whales milling and moving around without paying attention to our presence. However, despite the fin whale encounters, it is fair to say that we had a big dolphin day, with lots of individuals and interesting sightings. Neal and Delian did a great job on the most productive day for POPA, filling in eight data sheets with more than seven random encounters!

The weather forecast is good for the last two days of the expedition, so we will be ready for whatever it comes next.

25 May

Today we started with calm seas, some clouds and a bit of rain. To be honest, it did not look like a very promising day for data collection, but we could not be more wrong. The vigia told us that baleen whales had been seen early in the morning 9 miles north off the strait between Pico and Faial. Obviously, we headed towards the animals and on the way, we came across a group of striped dolphins jumping and swimming around. This was the first encounter with these beautiful animals for slot 3, so they were pretty excited about it and their active spectacular nature.

Once in the area where the baleen whales were supposed to be, we spotted different groups of fin whales, a total of six adult individuals. But that was not everything, as the team members were lucky enough to come across a group of six sei whales. The whales were travelling fast towards the north-west, disappearing every now and then, but we managed to follow the group for a bit more than 20 minutes.

While being with the sei whales, we got a radio call from one of the whale watching boats operating in the area that collaborate with Chris and Lisa when it comes to sharing sighting locations. They said to us that something spectacular was going on not too far from the south-west coast of São Jorge, something involving big baleen whales. We were not far from that spot, so we decided to go there attracted by the interesting things we just heard, and once there, we got one of the best sightings so far, another great show from these amazing animals and "Mother" nature, something that will stay in our minds for a long time without doubt. When getting to the area we could see red patches in the water surface, things that we could not identify from the distance but that we recognize as huge amounts of krill jumping out of the water trying to avoid the voracity of the mackerels and other fish once we got closer. All of a sudden, we saw this huge animal coming out of the water with its mouth wide open, creating a dead silence among us. Wow, we were once more witnessing one of the most spectacular shows in nature: baleen whales feeding just a few metres away from us!

Naturally, we spent as much time as we could in that spot, with a total of eight sei whales and three fin whales feeding on fish and krill (they had the whole lot!), showing their massive bodies and their powerful strength as they swam fast towards the clouds of fish and krill. Nobody has seen this behaviour here in the Azores before, nothing has been reported so far, so we were just witnessing one of the most relevant events in the area for the last 15 years or so.

Baleen whales feed on different sort of krill and small fish like mackerel, anchovies, sardines or herring. Some species like fin whales can sometimes also feed on cephalopods depending on their feeding location. Their diets vary depending on the specific species, focusing more on krill (small shrimp-like animals) or on different species of fish. The species that we saw feeding belong to the family of the rorquals, and they are batch feeders, so they basically use gulps and lunges to draw in mouthfuls of prey that they strain afterwards from the water through their baleen (filtering). That process involves a massive gular expansion, so that their pouch extends enormously, filled with water and prey. Their body volume increases up to 600% in blue whales, taking in at least 60 cubic metres and 70 tons of water, maybe much more. It was just amazing and it totally made our day. After this experience, we started heading back to Horta with a huge smile on our faces, completely satisfied with our day. That was the second time Chris and Lisa saw this natural behaviour, but never before in the Azores.

Now people are looking at their pictures and movies they managed to get out of the show, and I decided to write about it as an extraordinary entry for the diary. Today surely deserves a whole entry for itself.

27 May

Yesterday was the last day out on the ocean for the Azores expedition 2006. Once more, we used the information given by our vigia to set up course to the south of Pico where baleen whales had been observed first time in the morning. The seas were calm (force 2 on the Beaufort scale that measures the sea state related to wind strength) and the sky was covered by hundreds of clouds. Once we reached the target area, we saw three blue whales travelling north-west amazingly fast. We got all the data we needed and the vigia got in touch once more to let us know that the blue whales were followed by a group of sei whales a few miles behind them. So we set up our new course direction south-east and after a few minutes we met five sei whales travelling fast in the same direction. An unusual sighting of a marlin swimming around was recorded as well during the time we spent with the sei whales.

Once more, our lookout called us to let us know that another group of fin whales and sei whales were following this last group a few miles more to the east. A few minutes later, we saw a group of three big sei whales travelling in the same direction but never came across the fin whales. Another message saying that bottlenose dolphins had been seen not far from the village of São Mateos in southern Pico made us change our heading after the sei encounter. A huge of group of bottlenose dolphins (around 150 of them) were indeed in the area milling and having fun with the small waves that our vessel creates when moving, bow riding and socializing for the pleasure of the team members. We stayed with the dolphins for 50 minutes! They certainly became very popular and one of the favourite species for most of the team members.

After that encounter we put the hydrophone in the water and even though we could not hear them, we came across four sperm whales a few miles off São João, a totally random and unexpected sighting. It is not very often that we cannot detect the whale presence under the water before we can actually see them at the surface.

A bottlenose dolphin encounter followed not far from Lajes do Pico, right before we started heading back to Horta. The weather improved and the clouds disappeared, allowing the sun to shine like never before during the expedition. The water temperature increased from 18ºC up to 21ºC that same day!

On our way back to Horta we came across another group of bottlenose dolphins, probably the same big group that we saw a few hours earlier in that same area. We also saw a tiny little loggerhead turtle within turtle time according to the POPA people and Chris, 15 seconds out of turtle time according to Lisa. She is the boss, so we had to agree on her criteria, and missed the last chance to get the free round of drinks she was supposed to pay to the team if we spotted a turtle during turtle time. Bad luck for us, maybe next year team members will be luckier than us.

The vigia got in touch once more to let us know that five sei whales were travelling west not far from our position, so we took a look at them and got the photo-IDs. The lookouts really know how to do their work, and they definitely deserve the money they earn. Without their help, our work would be much more difficult and we would spend lots of time searching for the animals. Our encounter numbers would decrease for sure too.

But that was not everything, we still saw another group of bottlenose dolphins (smaller group than the previous one) and came across another loggerhead turtle that swam away from us before Chris could put his net in the water.

This was it, a brilliant day with lots of sightings and different species, an accurate summary of what the whole expedition has been this year.

In the afternoon, we had a farewell barbecue party at base, and later on most of us went to Peter's for a last round of drinks, probably the last one for most of us.

Today, after all the cleaning and tidying, the team members left us hopefully feeling very satisfied with the work done, happy with the experience and full of different stories and anecdotes to tell to their friends and family. The whole experience has been really rewarding for all of us. Thanks slot 3! Thanks everyone!

28 May

This is the last report for the Azores expedition 2006 after all the team members left yesterday. Before I start packing and clearing up all the equipment we have been using, I would like to let you know a bit more about the results achieved, just a glimpse of the numbers that describe our work during these last two months. Remember that you (all team members) will get an expedition report with all the details concerning the research, financial stuff, etc. As I said to you before, this is mainly for the number lovers and people who like to analyze everything (sorry, but I won't go into detail, Lisa will for the final report).

First of all I would like to say that slot 3 has been really good when it comes to the amount of data collected and animals observed. The weather has improved during these last two weeks in comparison with slot 2, so slot 3 had just three onshore days. As I did few days ago with the first two slots, I am going to summarise in numbers what this third slot has achieved: 81 cetacean encounters (51 of toothed whales and an amazing 30 of baleen whales!) with a total of 1024 individuals, the most successful slot in terms of animals observed. Of these 1024 individuals, 944 were toothed whales (466 bottlenose dolphins!) and the rest (80) were baleen whales. This slot has seen lots and lots of baleen whales indeed, something rather unusual at this time of the year according to our scientists' experience. The baleen whales start their migration up to higher latitudes right at the end of the winter / beginning of spring, leaving their breeding territories and looking for food. The Azores archipelago is in the middle of the Atlantic and most of the baleen whales we have seen are on their way up to their feeding grounds. We have been really lucky with the amount of animals we have managed to spot this year. It is not so common at all.

Slot 3 has observed the same species as slot 1, ie blue whales, fin whales, and sei whales (watching them feeding with the fin whales has been just stunning) when it comes to baleen whales. Then sperm whales, bottlenose dolphins, Risso's dolphins, common dolphins and striped dolphins when it comes to toothed whales. Leaving apart the cetaceans, the team members of slot 3 got the remarkable amount of 8 encounters with loggerhead turtles! Not bad at all, considering that during the whole expedition 10 turtles were spotted. Flying fishes, a marlin, and a dead Risso's dolphin (the one that the Dutch scientists found south of Pico) complete the list of unusual sightings for this last slot. Not bad at all, isn't it?

Now if we take a look at the general numbers for the whole expedition, we can see that this has been the most successful year so far for Biosphere Expeditions in the Azores. The numbers are clear enough: 229 encounters, 70 of them were of baleen whales (an equivalent of 30% of the total!) and 159 of toothed whales. Within the toothed whale group, 97 of the total 159 encounters were with sperm whales, representing the 61% of the total for the group. Considering these numbers, it is pretty easy to understand why it is one of the main target species for Chris' and Lisa's studies.

During these 229 encounters, we have seen 2488 individuals, 139 of them baleen whales, and the rest (2349) were toothed whales, with the common dolphin as the most numerous cetacean species in these waters (we have seen a total of 992 individuals!), closely followed by the bottlenose dolphins (601 individuals, 466 of them during the last slot!). As I said in my last expedition summary a few days ago, we probably have seen the same individuals more than once, so these 2488 individuals are the ones we have seen during the encounters, without making reference to the absolute number of different individuals. Lisa and the following expedition team members next years will be able to derive exact numbers of animals when going through the photo-ID pictures. As you know, this is a long term project.

When it comes to the animals, the general record for the expedition when talking about the species spotted is the same as slot 2, a total of 10 different species, 4 of them within the group of baleen whales (mysticetes) and 6 belonging to the toothed whales (odontocetes). The exact numbers are as follows:

Mysticetes:

Blue whale (20 encounters, 27 individuals)

Fin whale (35 encounters, 68 individuals)

Sei whale (12 encounters, 41 individuals)

Humpback whale (2 encounters, 2 individuals - same animal seen twice)

Non-identified whale (1 encounter, 1 individual at the distance)

Odontocetes:

Sperm whale (97 encounters, 164 individuals)

Bottlenose dolphin (20 encounters, 601 individuals)

Risso's dolphin (15 encounters, 192 individuals)

Pilot whale (2 encounters, 40 individuals)

Striped dolphin (4 encounters, 360 individuals)

Common dolphins (21 encounters, 992 individuals)

I think we can be very happy with the data gathered during the expedition. As I said earlier, this has been an amazingly successful expedition, with a great amount of data for Chris and Lisa.

The sun is shinning outside, no more clouds at all, just like the first day I got here almost two months ago, and the first time I arrived on the Azores in 2004. It has been very special for me to be back here again, lots of different feelings had run through my head during the last few weeks. Right now, I am happy with the success of the expedition, a job well done, and the feedback from the team members. At the same time, I feel a bit sad for the conclusion of what has been a marvellous experience. Well, it's time to start packing, so all I have left to say is thank you to all team members for your help, enthusiasm and valuable contribution to the project.

Thanks Lisa for sharing your passion and knowledge with us. Thanks Chris for a great time and for "saving us from certain death" hundreds of times during the last weeks. Basically thank you very much to all the people who have made this expedition possible.

Ok then, this is it, the real end of the expedition. I reckon I might need a rest. And afterwards, I might to believe that Chris' jokes are actually funny ;-)

I hope you have enjoyed the diary. It has been pleasure to write. Hope to see you around maybe on another expedition some time in the future.

Merry Christmas to everybody!

Pere