EXPEDITION REPORT

Expedition dates: 7 April – 17 May 2008
Report published: December 2008

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Authors:
Lisa Steiner
Whale Watch Azores

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Whale Watch Azores

Matthias Hammer (editor)
Biosphere Expeditions

Abstract

In 2008 Biosphere Expeditions concluded its fifth 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 the three islands of Faial, Pico and São Jorge. The expedition ran from 7 April until 17 May and concentrated on six main projects as below.

Sightings of all cetacean species were recorded. 184 sightings of 11 different species of cetacean and 1 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 whale photo-identification that has been ongoing since 1987 in the Azores, continued, with 75 identifiable individuals photographed from 133 encounters, including 30 animals seen in previous years.

Baleen whale photo-ID

Baleen whales, including blue, fin, sei and humpback, have been seen with increased frequency over the last few years, however this year there were fewer sightings. This expedition photographed all baleen whales encountered, where possible, identifying 3 blue, 7 fin and 3 humpback whales. No sei whales were observed during the expedition this year. 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.

Dolphin photo-ID

Dolphin photo-identification, which began in 1987 continued. 12 groups of bottlenose dolphin and 2 groups of Risso's dolphin were photographed. In addition 2 groups of pilot whales were photographed. Most of these photographs will be analysed at a later date, but some of the Risso's photos were sorted during the expedition on shore days, showing re-sighted groups of resident Risso's dolphins.

Europhlukes

Europhlukes is a European-wide 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 photos taken during the expedition and compared with sperm whales sighted in previous years and in other areas of the Atlantic. 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 program, POPA, was successfully collected for a fourth 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 no loggerhead turtles were caught, although several were sighted. No other species of turtle was observed.

Sumário

No 2008 Biosphere Expedições conclíram seu quinto 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 7 Abril até 17 Maio e concentrou em 6 projetos principais. Os vistas de todas as espécies cetacean foram gravados. 184 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 75 indivíduos identifiable fotografados de 133 encontros, includindo 30 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, mais este ano vimos menos do esta typo da baleia. Esta expedição fotografou toda baleen das barbes encontradas, assim distante identificando 3 baleias azul, 7 baleias comum e 3 baleias de bosse. Não vimos os sardinheiras este ano. 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.

Golfinho foto-ID

A Foto-identificação do golfinhos, que começou em 1987 continuou. 12 grupos do roaz e 2 grupos do moleiros foram fotografados. Além um 2 grupoos 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 os 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 rabo da cachalots foram feitas das fotos feitas durante o expedição e comparadas com as cachalots avistadas em anos precedentes e em outras áreas do Atlântico. 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 0 as tartarugas vulgar foram travadas. Diversos outros foram avistados mas não capturados. Nenhuma outra espécie da tartaruga foi observada.

Contents

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.

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 7 April to 17 May 2008. 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.

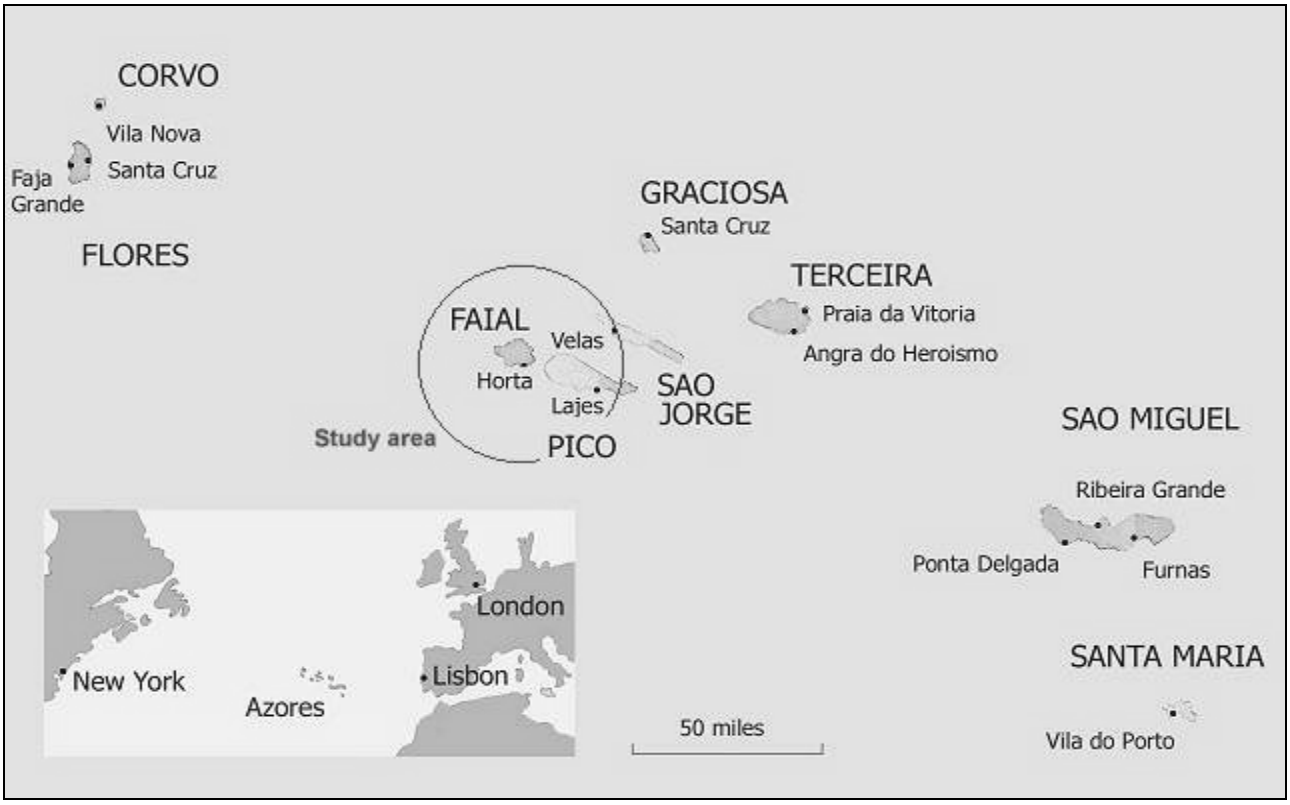
The Azores archipelago, which sits near the middle of the Atlantic Ocean, about 1400 kilometres off the coast of Portugal, is one of the prime whale and dolphin hotspots in the world and around 30% of the world's known cetacean species have been recorded there. For management purposes the International 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. An overview of Biosphere Expeditions' research sites, assembly points, base camp and office locations is at Google Maps.

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:

7 - 19 April | 21 April - 3 May | 5 - 17 May 2008.

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. Breakfast and lunch were self-catering and a local restaurant provided dinner. 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 liferaft, 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 and a sprained ankle.

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

This expedition was led by Ronald Seipold. Ronald graduated from the University of Berlin with a Masters Degree in Business Administration and then spent several years working in different branches of industries leading organisational and IT related projects. He then decided to go for a total change of career & lifestyle and focus on his passion for travelling, wildlife and the outdoors. After a 100 day intensive training course with COLT (Canadian Outdoor Leader Training) he qualified as an outdoor leader, radio operator, sea kayak and canoeing guide, backcountry first-aider, etc.. Ronald then began leading and instructing groups in the outdoors primarily in Scandinavia and Canada as well as working for outdoor camps and lodges. Ronald joined Biosphere Expeditions in 2007. His favourite activities are mountaineering, canoeing and climbing.

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:

7 - 19 April

Anke Christoph (Germany), Barbara Kagerer (Germany), Bettina Petzold (Germany), Ulrike Richter (Germany), Gisa Scheschonka (Germany), Noor van Overbeek (The Netherlands).

21 April - 3 May

Gerard Fritz (Luxemburg), Francoise Fritz-Zirves (Luxemburg), Gaby Meier (Switzerland), Angelika Mette (Germany), Toria Parsons (UK).

5 - 17 May

Melanie Barraclough (The Netherlands), Bart Blazejewski (Poland), Marcia Fick (USA), Dany Golz (Germany), Heidemarie Helling (Germany), Iwona Ososka (Poland), Doris Staab (Germany), Petra Stärker (Germany), Patty Tse (China), Tammy Williams (UK).

1.8. Expedition Budget

Each team member paid towards expedition costs a contribution of £1290 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	27,480
Expenditure	
Base camp and food includes all board & lodging, base camp equipment	6,861
Transport Includes boat fuel & oils, taxis	3,927
Equipment and hardware includes research materials & gear etc purchased in UK & Azores	346
Biosphere Expeditions staff includes salaries, travel and expenses to Azores	4,003
Local staff includes whale lookout and other locally staffed services	256
Administration includes registration fees, sundries etc	256
Scientific services & logistics organisation Payment to Whale Watch Azores including boat wear & tear allowance	6,282
Team recruitment Azores as estimated % of PR costs for Biosphere Expeditions	4630
Income – Expenditure	**919**
Total percentage spent directly on project	**97%**

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 and Motorola 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.

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2. Whale, dolphin & turtle study

Lisa Steiner & Chris Beer
Whale Watch Azores

2.1. Introduction

The Azores is a group of nine islands located about 900 nm off the coast of Portugal. 24 species of cetacean have been seen around 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, which is why the expedition takes place in April and May.

Baleen whales have been seen fairly regularly migrating past the islands in April, May and June, but it is unknown where they have come from or where they are migrating to. It is thought that they are travelling north to feed in the waters around Iceland, Greenland, Norway or even Nova Scotia for the summer. Photo-identification of the animals passing the Azores enables us to match photos with photos taken elsewhere hopefully to determining some of these migration routes.

Although sperm whales were caught around the Azores all year round, it has been thought that there are 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 some females and calves are present in the archipelago all year round.

Photo-identification of sperm whales began in the Azores in 1987 and over 3000 individuals have been identified since then. The Europhlukes matching program makes matching individuals much faster than it was manually.

Some bottlenose and Risso's dolphin are resident in 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 12 m motor catamaran, was used to go to sea on days when weather conditions permitted this. Vigias, local lookouts, were located on the cliffs about 150 m above sea level. They would begin to look for whales at around 07:30 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 up to 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 expedition members were on camera duty, data sheets, hydrophone monitoring, filling in the log or collecting water temperatures when required. On two slots a crew member may have had to do more than one job.

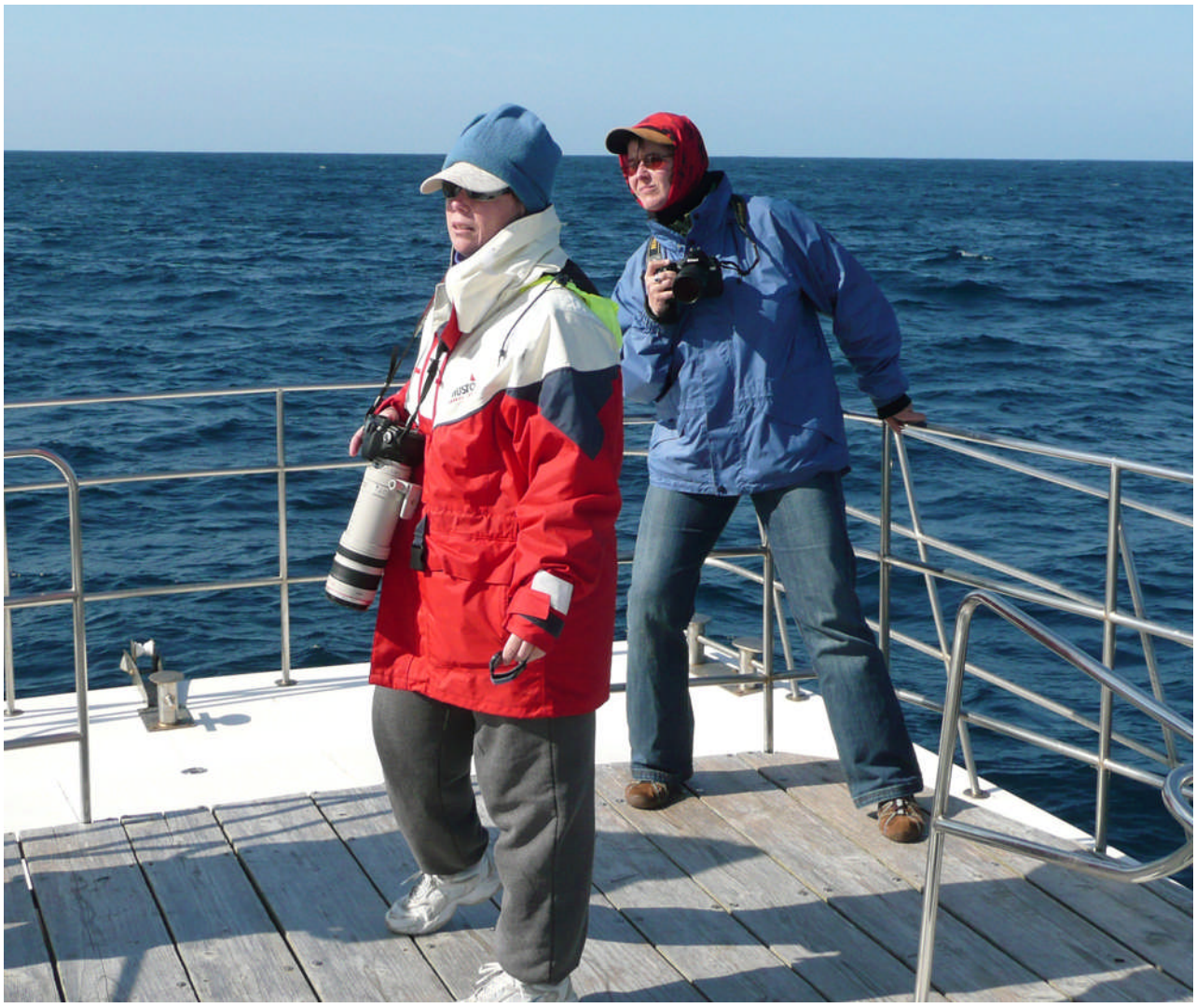


Fig. 2.2a. Camera duty. “They must be around here somewhere!”

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 chevrons (white markings below and behind the blow hole) and dorsal fins. Bottlenose and Risso’s dolphin were paralleled in order to obtain dorsal fin photographs for identification of individuals. Two cameras were used to obtain the ID photographs: a Canon 30D with a Canon 100-400mm lens and a Nikon F70 with a 70-300mm lens (Fig. 2.2a).

Other dolphin sighted were approached for species identification and then the boat would usually move on to look for other animals if they were not one of the main target species. Data collected for non-sperm whale 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 by and large not enough time was spent with the animals to break them down further. If the animals were travelling, a direction of travel 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.

Data collected for sperm whale sightings included: date, start and end time, cue (how the whale was spotted - a blow, the back, the vigia told us or a splash), number of whales, number of calves (the calves also count in the whale column), visible callous (a growth on the top of the dorsal fin which indicates the whale is female) or if the whale was male, position, fluke heading, defecation, if any skin was collected or recordings made and the presence of other whale watching boats.

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, as well as positional data being recorded.

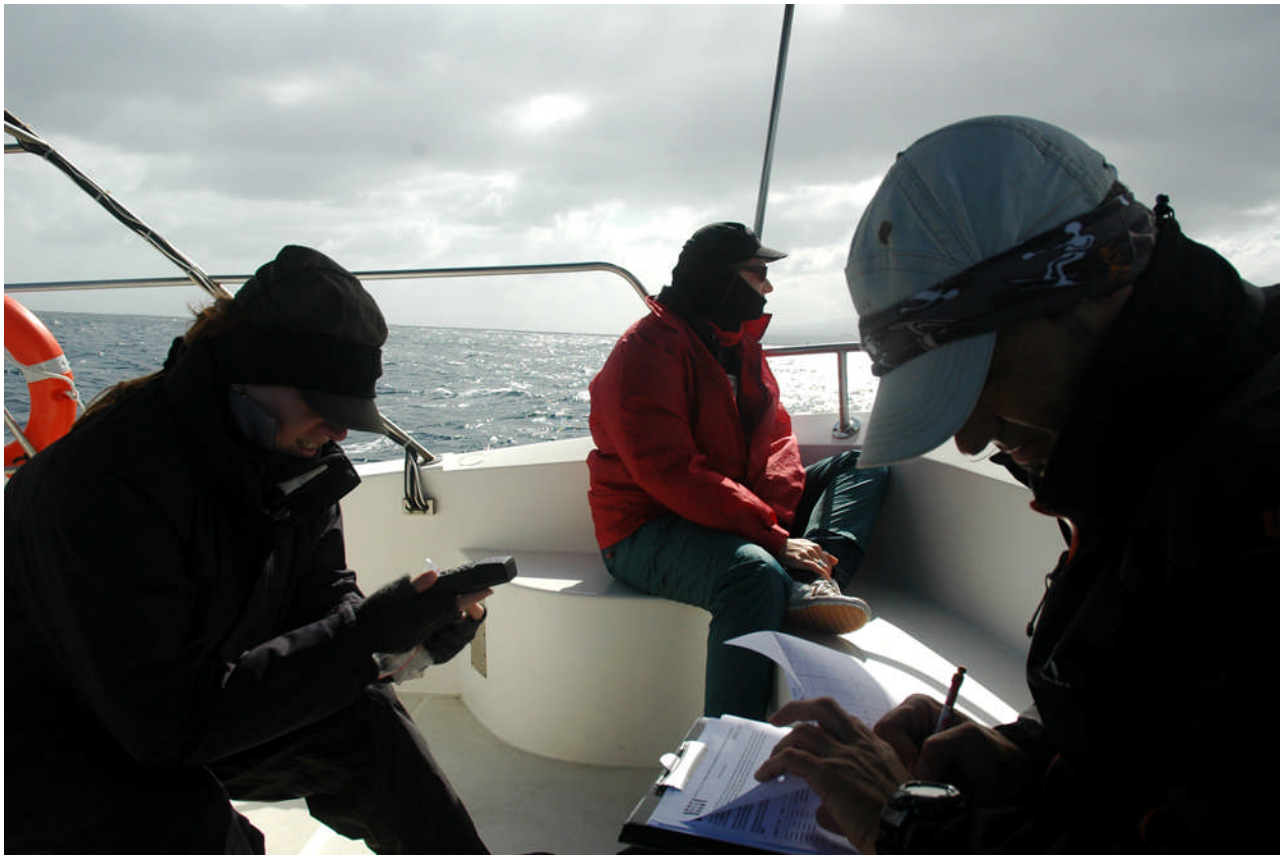


Fig. 2.2b. POPA duty.

Once the boat returned to port, there was a debriefing on board to show, amongst other things, where the boat had been during the day (Fig 2.2c).

Fig. 2.2c. Debriefing back in port.

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

2.3.1. Effort

Physeter would normally leave the harbour around 09:00 and return around 16:00, weather permitting. The boat went to sea 25 days during the expedition and spent between 1.25 and 7.25 hr per day on the water, with an average of 5.2 hr. A total of 151.5 hr (75.25 hr in April and 49.5 hr in May) with sea conditions less than sea state 5 were recorded. A comparison of the yearly effort since 2004 is presented in Fig.2.3a.

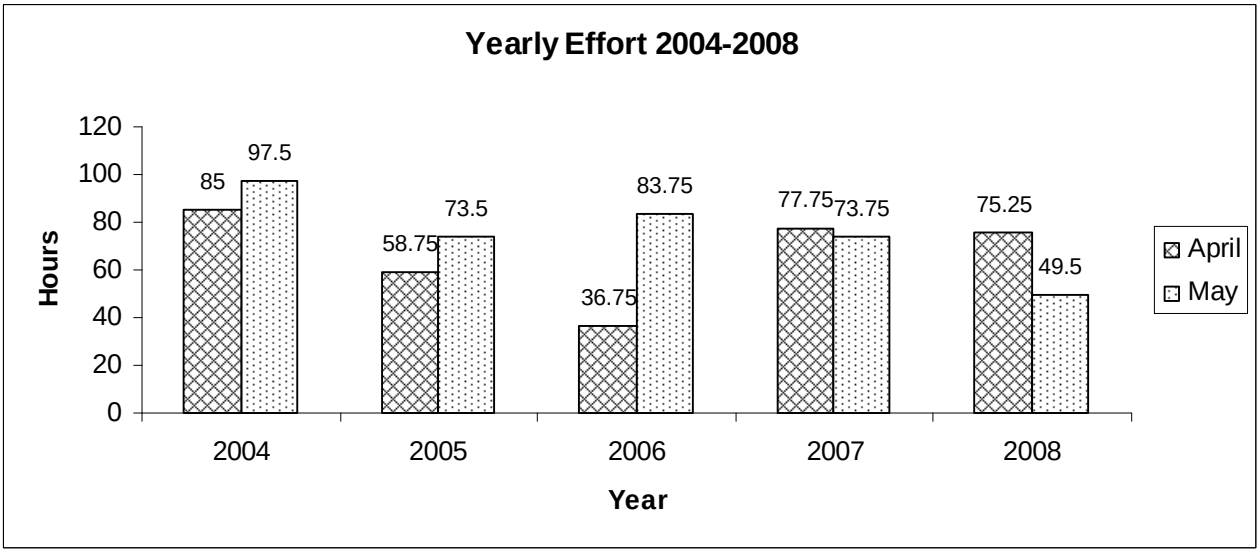


Fig. 2.3a. Yearly effort.

2.3.2. Encounters

During the expedition 51 groups of non-sperm whales were seen and 133 sperm whale encounters took place (Table 2.3a.).

Table 2.3a. Species encountered.

COMMON, *Delphinus delphis*	22
BOTTLENOSE, *Tursiops truncatus*	12
RISSO'S, *Grampus griseus*	2
STRIPED, *Stenella coeruleoalba*	1
PILOT WHALE, *Globicephala machrorhynchus*	2
BLUE, *Balaenoptera musculus*	4
FIN, *Balaenoptera physalus*	3
HUMPBACK, *Megaptera novangliae*	2
CUVIER'S BEAKED WHALE, *Ziphius cavirostris*	1
UNKNOWN BEAKED WHALE, *Mesoplodon sp.*	2
SPERM, *Physeter macrocehpalus*	133

These encounters resulted in a relative sightings frequency as shown in Fig 2.3b. Sperm whales were the species encountered most at 72.3%, followed by common dolphin and bottlenose dolphin. These three species accounted for 91% of all sightings. Sperm whales have been omitted from the chart below to give a better scaling.

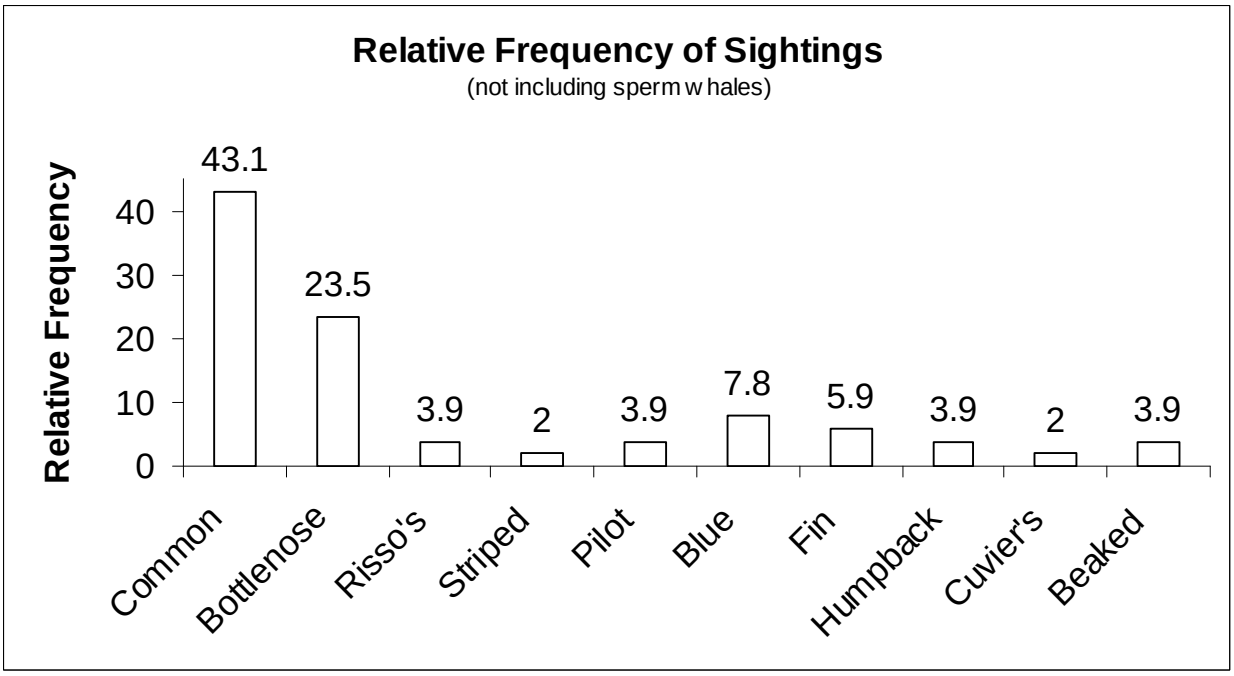


Fig. 2.3b. Species sightings frequency (excluding sperm whales).

2.3.3. Species sightings

Common dolphin

This species was encountered 22 times. The group size ranged from 2 to 300 and the average group size was 76.7 (Fig 2.3c). This group size is not significantly lower than the average group size of 108 for existing data from June-September. Calves were first observed on 10 April and seen 8 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 significant difference between group sizes observed in April and May.

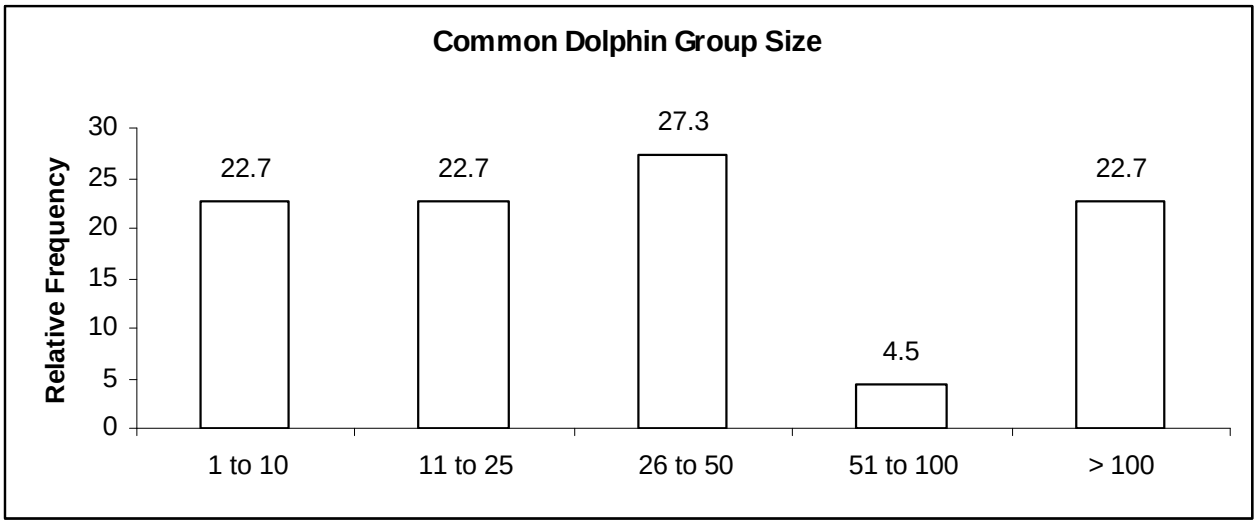


Fig. 2.3c. Common dolphin group size.

The most common behaviour observed by common dolphin was bowriding followed by milling, then travelling. They were seen feeding 6 times (Fig. 2.3d).

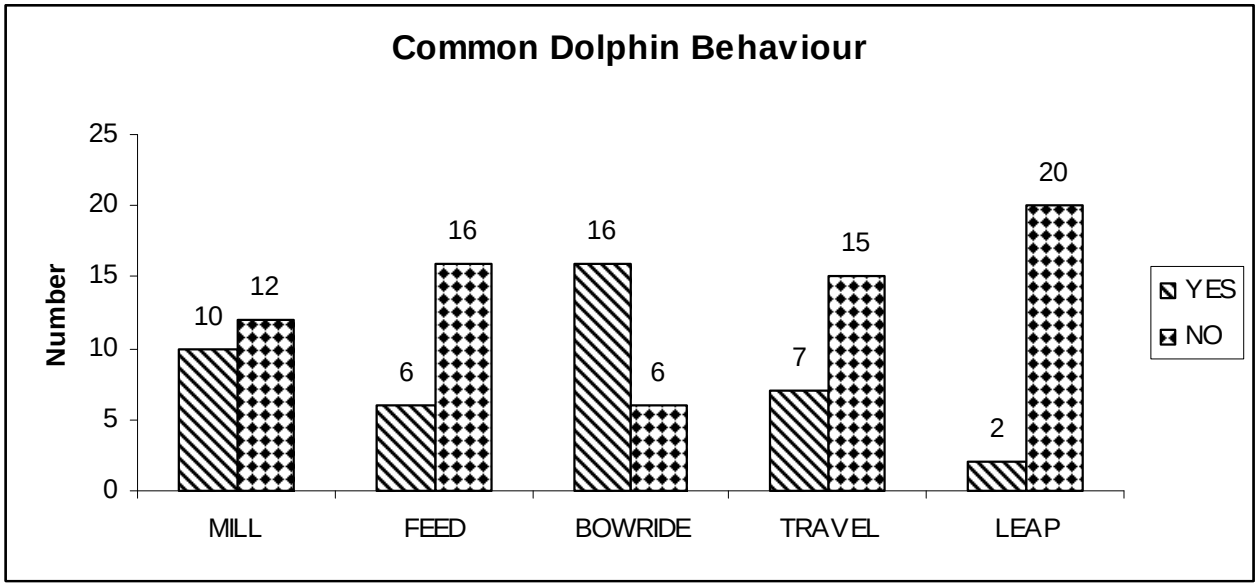


Fig. 2.3d. Common dolphin behaviour.

Bottlenose dolphin

This species was observed 12 times. The group size ranged from 2 to 150 and average group size was 27.9 (Fig. 2.3e). This is almost exactly the same as the average of 27.3 seen when considering previously collected data. Calves were only seen on 3 of the sightings from both April and May. Group size was marginally significantly larger when calves were present, but given there were only 3 sightings of calves, this is difficult to analyse. There was significant difference in group size between April and May, but again considering there were only 2 sightings from May this statistical difference can not be assumed to be a true reflection of the situation.

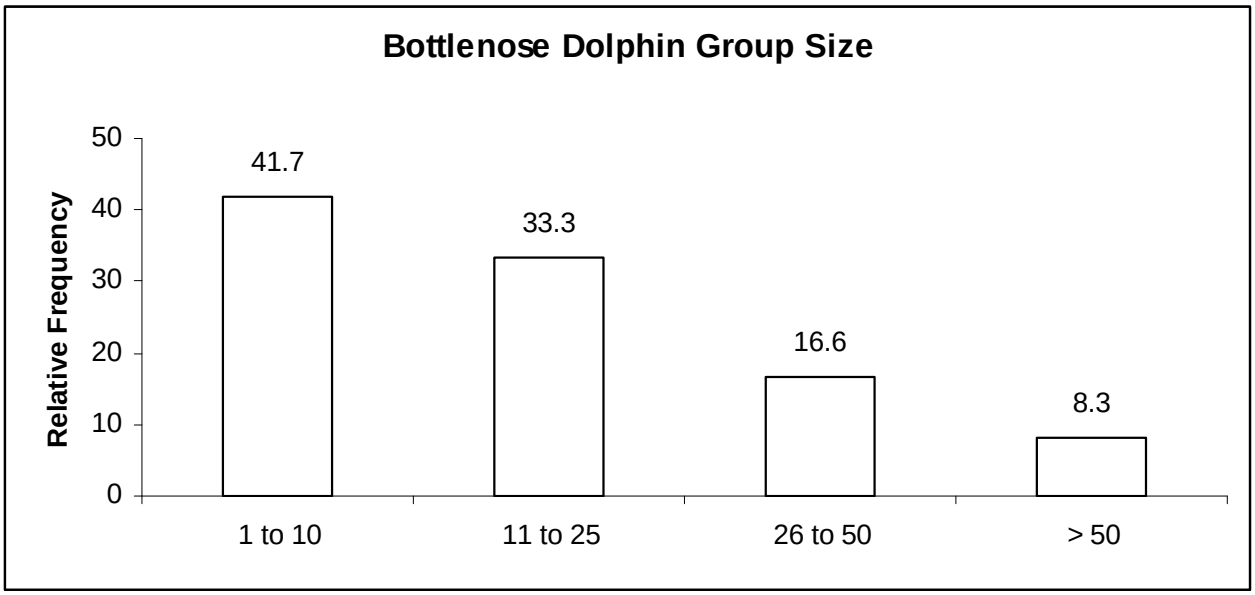


Fig. 2.3e. Bottlenose dolphin group size.

Bottlenose dolphins were most frequently observed milling and bowriding (Fig. 2.3f).

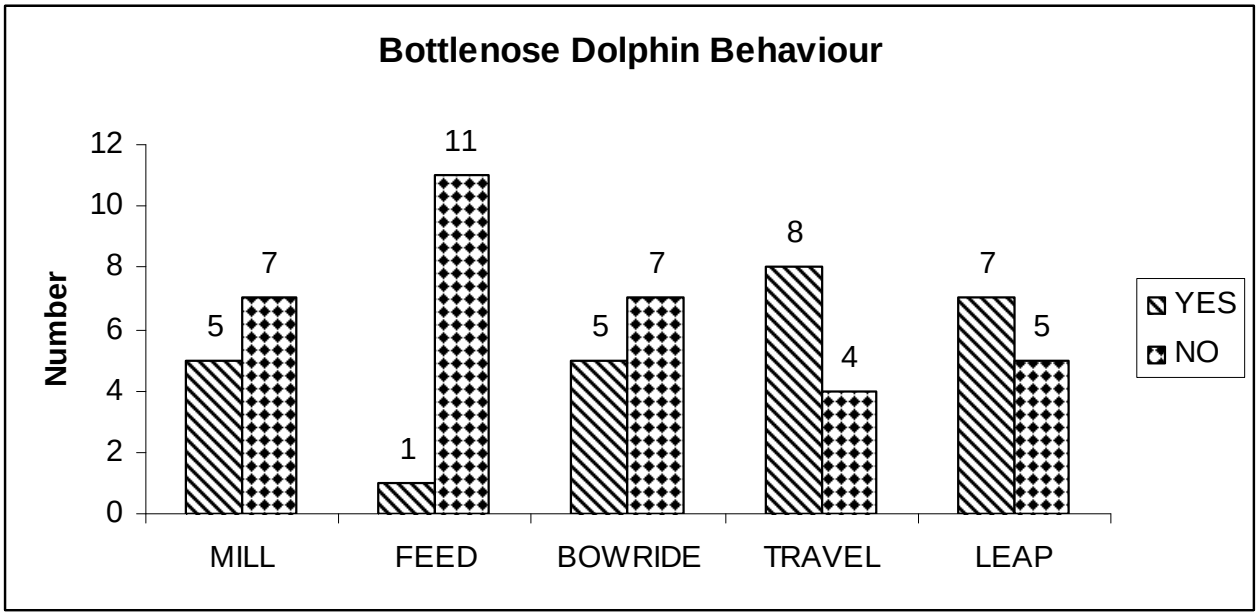


Fig. 2.3f. Bottlenose dolphin behaviour.

Photo identification pictures were taken for all groups observed and some of the residents were definitely seen. However, these photos will be analysed at a later date.

Risso's dolphin

This species was observed only twice, once in April and once in May. One group had 15 animals and the other 35. Calves were not seen in either encounter. With only 2 sightings, analysis can not be done on significance of group size related to month.

Several animals were seen from previous years, including "Spooky" and "Iron" as well as 2 animals that have not yet been named "S12b" and "M37b", (Fig. 2.3g). "Naked Lady" and ""F Nick", popular with past expeditions, were not seen during the 2008 expedition, but they have both been seen since the end of the expedition.

"S12b"

"Iron"

"M37b"

"Spooky"

Fig. 2.3g. Resident Risso's dolphins.

Behaviour of Risso's during both encounters was travelling. Some socialising was also observed, indicated by a few breaches (Fig. 2.3h). We also observed bowriding (when animals swim right in front of the boat) during the May encounter. Bowriding is very unusual for this species, but two of the animals (Spooky & Picolo) from this group are known to bowride occasionally.

Fig. 2.3h. Risso's breaching.

Striped dolphin

Striped dolphins were observed once in April. There were only 4 animals in the group, which is a very small group size for this species. The average group size we have observed in the past has been 118. There were calves seen in the group. The animals were milling during the 5 minutes that we observed them. It may be that there were more animals in the area that were not seen at the time.

Short-fin pilot whale

One group of 40 and another of 2 pilot whales were observed on 15 May. The sightings were about 3 minutes apart. It is possible that the 2 animals were part of the larger group. On both occasions the whales were travelling. Calves were present in the larger group (Fig. 2.3i). Photo identification will be done using the dorsal fins at a later date (Fig. 2.3j).

Fig. 2.3i. Pilot whale calf and mother

Fig. 2.3j. Pilot whale ID photograph

Sperm whale

Sperm whales are one of the main target species of the expedition. They were encountered 133 times comprising 206 animals (not all different individuals). The average group size was 1.57, ranging from 1 to 5, which is similar to that encountered during other parts of the summer.

Calves were observed 37 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. 75 individuals were identified in total, 45 new animals and 30 from previous years. We had a few outstanding sperm whale days with 17, 16 and 13 individually identified sperm whales from one day's worth of encounters!

This year's IDs include whale number 1598, first observed in 1991 as well as 1840 and 1879 both seen in several years since 1994. These three animals were all observed together during last year's expedition as well as 2008 (Fig 2.3k).

1840

1598

1879

Fig. 2.3k. Sperm whale ID photos.

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

Fin whale

Fin whales were observed 3 times this year. Average group size was 2.33; groups of 1, 2 and 4 were seen. Calves were not observed. Milling behaviour was observed with the single individual and travelling from the groups of 2 and 4 animals. No feeding was recorded this year.

After analysis of the photo ID pictures, 7 individuals were identified (Fig. 2.3l) using the chevron marking behind the blowhole and the dorsal fin. No matches were found between years after preliminary analysis. The photos will be sent to other research groups around the Atlantic studying fin whales to see if there are any long-range matches.

Chevron

Dorsal Fin

Fig. 2.3l Fin whale chevron and dorsal fin used in identification

Blue whale

Blue whales were seen 4 times throughout the expedition. Only single animals were observed and no calves were present. Using the mottling along the side surrounding the dorsal fin, 3 individual whales were identified (Fig. 2.3m). There were no re-sighted individuals between years. All blue whales were observed travelling during the encounters. ID photos are sent to Richard Sears to match with the Atlantic catalogue of blue whales.

Fig. 2.3m. Blue whale id photo

Humpback whale

Three humpback whales were observed in 2 encounters one in April and another in May. ID photos were obtained of all 3 animals (Fig. 2.3n). The whales were feeding during both encounters, once only 50 m off the rocks. During the second encounter we observed a lobtail, when the whale smashes its tail on the surface of the water, possibly to herd fish (Fig. 2.3o).

Fig. 2.3n. Humpback whale id photos

Fig. 2.3o. Humpback whale lobtail

Unidentified Beaked Whales

We had 2 sightings of unidentified beaked whales, once in April and once in May. They may have been Sowerby's, Blaineville's, Gervais' or True's. Unfortunately on both occasions the single individual was only seen very briefly.

Cuvier's Beaked Whale

Cuvier's beaked whale was observed once in May. There were 3 animals travelling NW. This species can be identified by the distinctive "goose beak" shape to the head. At least 2 of the animals were males, identified by the presence of 2 teeth on the lower jaw (not often observed) and a high level of scarring on the body. The individual pictured below shows signs of fresh scratches, usually caused by males fighting over access to the females and a tooth is also visible at the front of the jaw (Fig. 2.3p).

Fig. 2.3p. Cuvier's beaked whale showing the "goose beak" shaped head, the tooth at the front of the jaw and fresh scars

Sightings during the expedition.

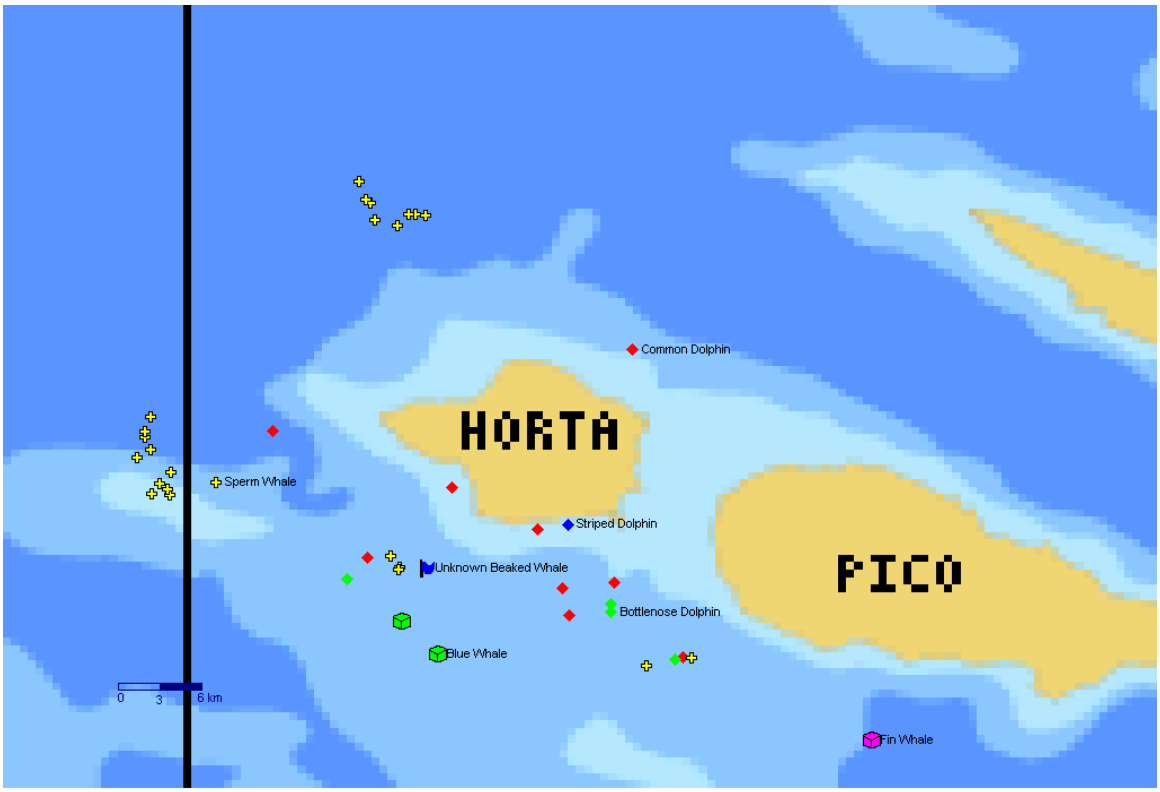


Fig. 2.3q. Sightings during slot 1 (7 - 19 April 2008).

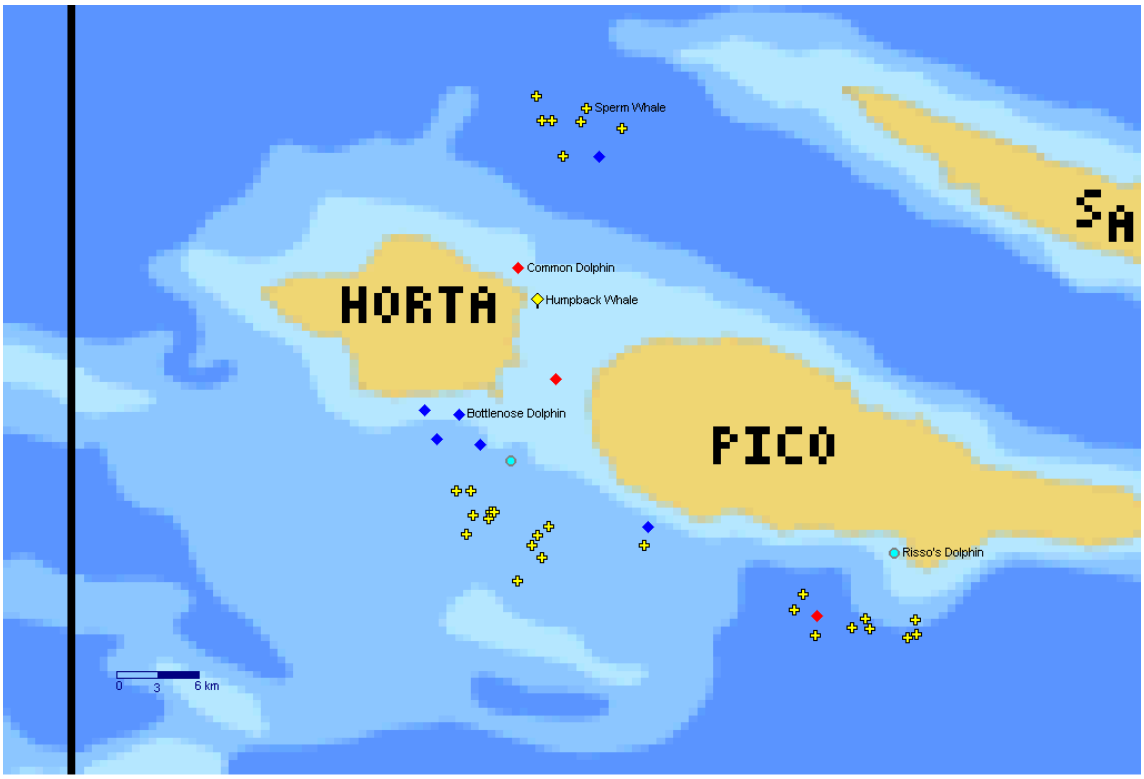


Fig. 2.3r. Sightings during Slot 2 (21 April - 3 May 2008).

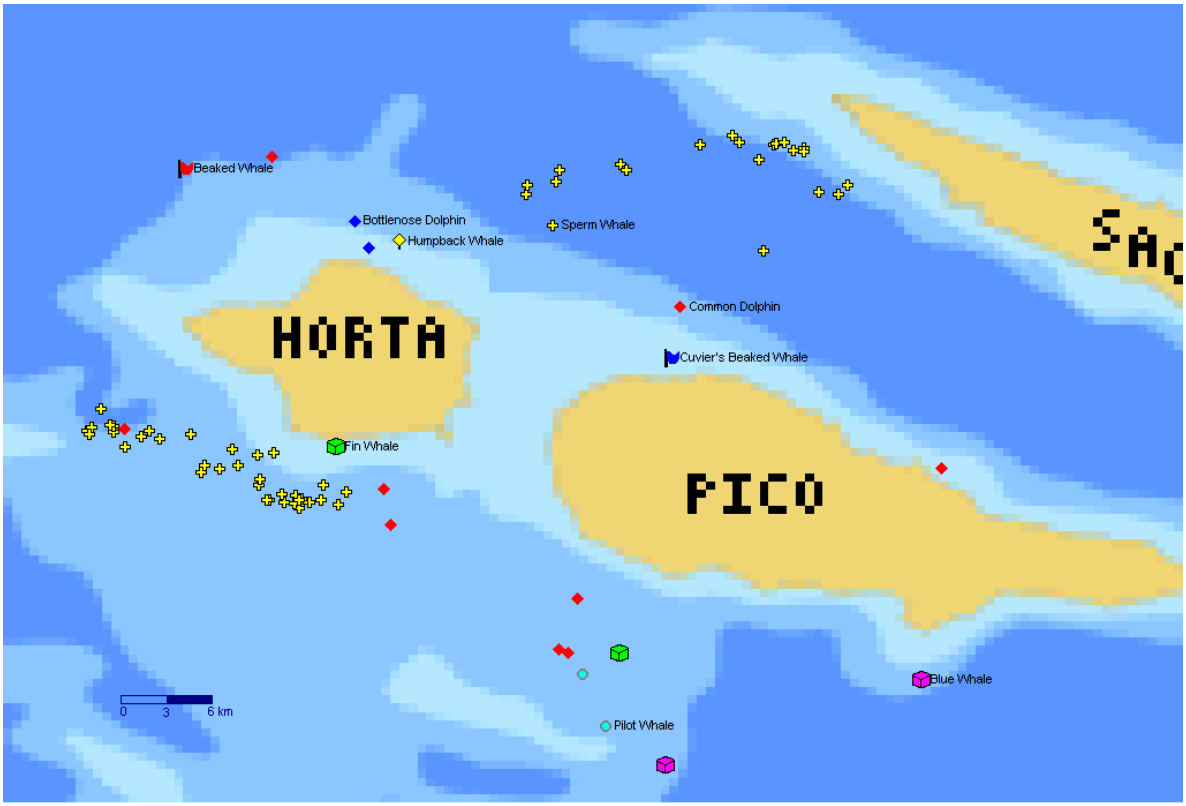


Fig. 2.3s. Sightings during Slot 3 (5 - 17 May 2008).

2.4. Discussion & conclusions

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

We observed fewer baleen whales than in 2007, possibly due to a lower abundance of krill present close to the coast and some of the fin and sei whales arrived a bit later this year, while some blue whales were observed before the start of the expedition. Photo-ID of the baleen whales was successful with 3 blue and 7 fin whales identified. A preliminary analysis of the blue and fin whale photos shows no matches to the Europhlukes catalogue. The blue and fin whale photos have been sent to Richard Sears, who has a large catalogue of North Atlantic blue and fin whales. He works out of Nova Scotia, Gulf of St. Lawrence where large numbers of blue and fin whales feed during the summer months. Including last years photos, he now has a catalogue of 96 blue whales sighted in the Azores. We are hopeful of a match between these areas eventually because a few of the baleen whales tagged by the University of the Azores have moved towards Labrador, in the Western North Atlantic, rather than straight north up to Iceland. Group sizes of baleen whales observed here support what is generally known, i.e. that large baleen whales are usually seen singly or in small pods.

Sperm whales were again sighted frequently, including many females with suckling calves, as has been observed during previous expeditions. Before Biosphere Expeditions began, we expected that it would be mainly large males that would be encountered at this early part of the summer, but this has again proven not to be the case. Males were observed 43 times this year (not all different individuals). This year several males were sighted alone or in pairs, which is normal for the very large males and we also observed one group of 10 bachelor males swimming together. The bachelor groups form when the males leave the family pod and before they start to swim alone or in pairs. Data collected at this time of year are valuable to see if some of the same individuals remain in the archipelago for long periods of time or if we see the same individuals repeatedly throughout the summer.

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 animals re-sighted again this year reinforce the idea that groups of sperm whale females remain together for long periods of time. Usually when one animal from a group has been seen before, the rest of the animals in the group can also been seen. Sometimes it is not possible to identify all the animals of a group on a given day, but repeated sightings of the same group over time give more chances to catalogue all of the individuals from that group. Currently all IDs from 1987 to present are being compiled for analysis of social structure of sperm whale groups found in the Azores with the University of St. Andrews. We are looking at long term relationships between individuals and patterns of residency around the archipelago. We have already seen one individual in 2008 which was first identified in 1987! And several animals from 1988 are still present in the same group. A collaborative project is also underway with the University of the Azores looking at the sightings of sperm whales with respect to environmental data collected by the university.

Sightings in April and May of bottlenose and Risso's dolphin support the idea that at least some groups of these two species are resident around the islands and present year round. Some of the photographs of Risso's dolphin have already been analysed and they confirm that the two groups seen are two of the resident groups. This year's expedition did not see the same animals as the last two year's expeditions. Risso's dolphin photo-ID pictures have again been sent to the Risso's Project, on the south coast of Pico, for comparison with their catalogue of resident animals they see frequently throughout the summer. Since our boat covers a larger area of the sea than the Risso's project, this collaboration enables us to obtain an idea of how far the Risso's dolphins range from their usual area and what other habitats might be important to them.

In conclusion, this expedition was a success for the fifth year. Sightings were good, if not abundant. Unfortunately the weather conditions during this year's expedition were not favourable. Quite a few days were spent out at sea in sea-states of 3-4 making spotting the animals difficult for observers on both boat and land. Re-sighting individual sperm whales from previous years continues to show the value of the Europhlukes computer matching programme. We are able to identify individuals sighted on the day they are seen, rather than waiting until the end of the summer to do the matching manually. Re-sightings of Risso's dolphin are also a positive outcome from the 2008 expedition. Because we do not observe Risso's dolphin for long periods of time, the individuals are not easy to recognise, but with continued re-sightings we are starting to recognise individuals in real time. Expedition members gained experience in recognising individual dolphins on the computers and could then transfer that knowledge to the sea.

If there are extra shore days in future, a catalogue of the individual dolphins should be compiled and possibly be issued to expedition members prior to arrival (or one catalogue kept on the boat for comparison while at sea).

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 as it has been so far. If the same animals predictably visit the islands each spring, it may be possible for whale watching companies to lengthen their season. It may also be possible to gain an understanding of interactions between animals over time. If, on the other hand, different individuals are seen every year, this might indicate that the baleen whale sightings are not a predictable resource and rather depend on local conditions and food availability. In order to accomplish this, more analysis time is required on the computers comparing multiple photographs during the expedition. Future expeditions will continue to build on this valuable expanding database of baleen whale photo-IDs. Collaboration will be sought from other organisations working around the Atlantic, outside of Europhlukes, to obtain more photographs for comparison.

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 10 April and 16 May 2008 in Faial Island (Azores, Portugal). Onboard of the vessel “Physeter”, several participants 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). Some maps were already produced with data from previous years, as shown below.

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 observed.

Birds	Number of individuals observed
Calonectris diomedea borealis Cory’s shearwater	1244
Sterna hirundo Common tern	2
Larus cachinnans atlantis Common gull	17
Puffinus (assimili) baroli Macaronesian shearwater	2

Table 3.2b. Species of whales and dolphins observed.

Whales	Number of individuals observed	Dolphins	Number of individuals observed
Megaptera novaeangliae Humpback whale	3	*Delphinus delphis* Common dolphin	759
Mesoplodon sp. Beaked whale	5	*Stenella coeruleoalba* Striped dolphin	15
Physeter macrocephalus Sperm whale	1	*Tursiops truncatus* Bottlenose dolphin	298
		Grampus griseus Risso's dolphin	40
		Globicephala macrorhyncus Short-finned pilot whale	42

Table 3.2c. Species of sea turtles observed.

Turtles	Number of individuals observed
Caretta caretta Loggerhead turtle	3

Figure 3.2a. Seabird sightings recorded by the expedition between 2004 and 2007 (by Patricia Amorim).

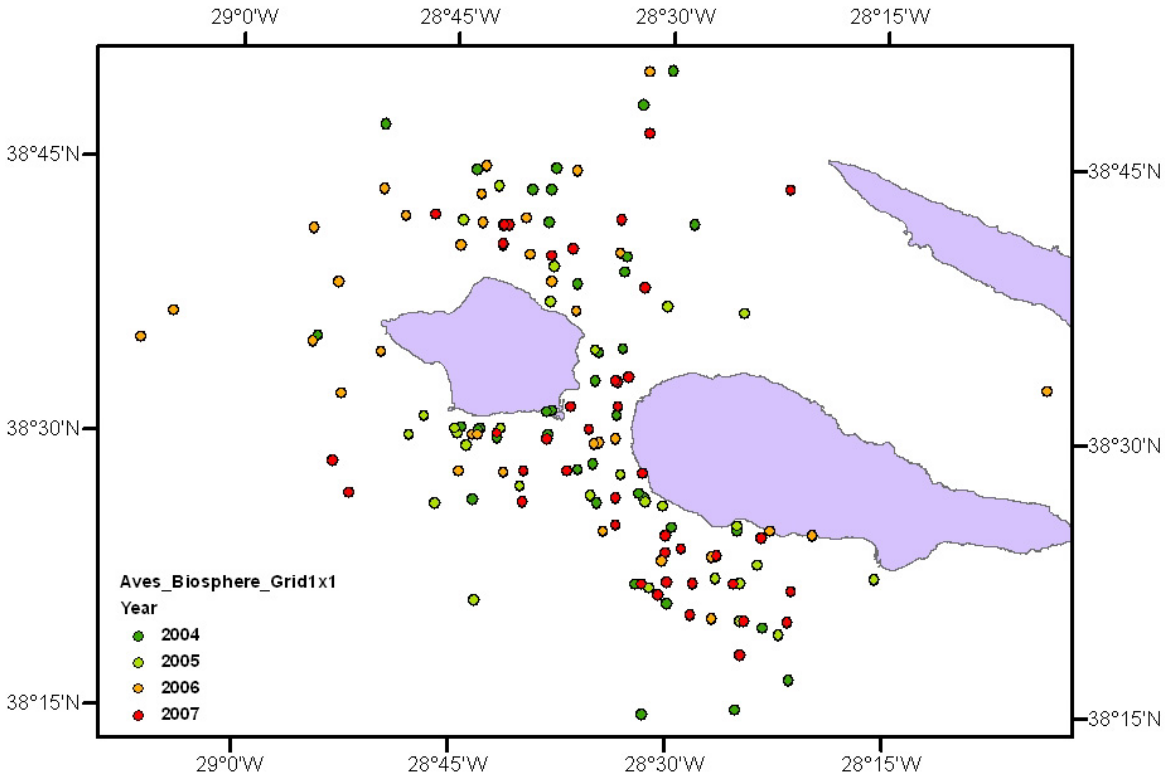
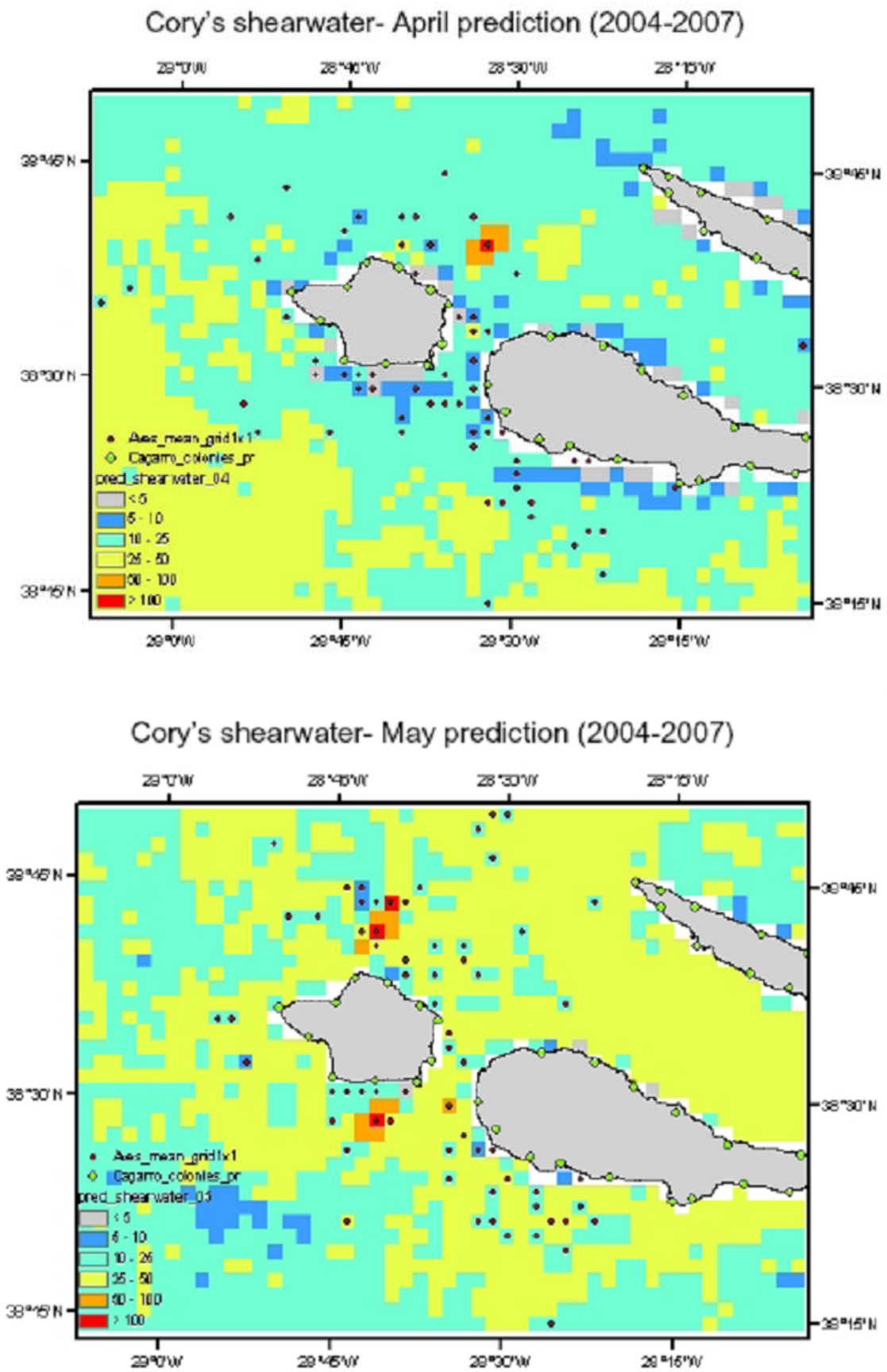


Figure 3.2b. Shearwater abundance predictions in April and May between 2004 and 2007 (preliminary results by Patricia Amorim).



4. Expedition leaders' diary: Azores 2008 by Ronald Seipold

29 March

Hello everyone and welcome to the Azores 2008 diary. I'm Ronald, your expedition leader, and you will be hearing from me regularly over the next few weeks. We're packing up at the moment and next week Matthias and I will fly to Horta to set everything up for you. Matthias, by the way, is Dr. Matthias Hammer our founder and managing director who will be with us during the first few days.

I look forward to meeting you all in Horta soon. My Azores mobile number (FOR EMERGENCY USE ONLY OR IF YOU ARE ABOUT TO BE LATE FOR ASSEMBLY) is +351 96 2338060 and I'll see you either at the airport or the Azores Ecolodge.

If you are still trying to swot up for the expedition, remember to read the published reports from previous expeditions available via www.biosphere-expeditions.org/reports.

So long

Ronald Seipold
Expedition Leader

6 April

While I am writing this diary I can see the beautiful Pico mountain directly out of the window of my room. No clouds and a sunny morning. This has not always been the weather we've had during the last few days preparing our expedition. The weather is extremely variable (this is the Azores, you know ;) and to be honest the forecast for the next few days is not very promising, so we might have to stay onshore on Monday and Tuesday, using the time to really get to grips with the datasheets and jobs onboard and to do some data entry work for Lisa & Chris.

Anyway, everything is prepared and Lisa, Chris and I are looking forward to welcoming you "on board" to start this year's expedition in the Azores.

Save travels.

8 April

Team 1 has arrived safely on the island, albeit a couple of them without their luggage. Lucky then that the weather is so atrocious at the moment (see webcams on http://www.climaat.angra.uac.pt/WebCams/main.htm and click on Horta) that we can't go out, so today is given over to intense training on cetaceans, data collection, safety on board, how not to get blown away by the wind just by walking to the harbour, etc ;) The forecast for tomorrow is equally as bad, but we live in hope…

Anyway, the team has settled in nicely and as I write this are all ears for one of Lisa's talks on whales and how we are helping in their conservation here.

11 April

Yesterday we had to contend with another on-shore day, even though the sky cleared up in the afternoon. So we started to work on photo identification of pictures taken last year. We worked in the morning and then took some time off in the afternoon to look around Horta, for example hiking up to Monte Carneiro, a viewpoint hill next to Horta. And the lost luggage was finally found.

Believe it or not: eventually we were able to go out by boat on Thursday. After going through the safety instructions in the morning, we headed to the south of Faial when one of the lookouts on land spotted blows about 10 miles off the coast. Just a few minutes on our way, we ran into our first sighting of this year's expedition: two blue whales! What an amazing encounter to start with and more than ample compensation for the unpleasant weather conditions of the past few days.

Following blue whales quite some concentration by the whole team, because there is only little time left between spotting this species and the whales disappearing again for another dive. Just after about four minutes and three blows, they had gone again for the next 10 minutes dive. Following them slowly, the vessel was rocked around by the bouncy sea causing our first team member to take some time out to feed the fish ☺ and recovering in time to witness two groups of common dolphins in the afternoon.

Today we started into a clear, almost windless and sunny morning! Mount Pico was snow-capped and we enjoyed walking in the sun along the seaside to the harbour.

Our day out on the water started with a sighting of sperm whales! We followed them for quiet some time noting their blow rates. They breathe very regularly during their time at the surface (about 8-12 minutes) before they start a deep dive of around 45 minutes. Very often this dive is announced by a fluke sticking into the air, which is key for photo identification. After the sperm whales, we met several schools of common dolphins, bottlenose dolphins and even striped dolphins.

The afternoon was sperm whale time: about 10 different individuals along with 3 calves so the water was thick with these beautiful animals. "You can't see the ocean for sperm whales" was our motto of the day. Lisa and Anke were able to take perfect photos of all the flukes and, as a bonus on top of this already great day, one of the calves breached (i.e. jumped out of the water and made a big splash) three times pretty close to our boat! What a day!

14 April

On Saturday we started the day setting our course for the south of Pico, where our vigia (onshore local lookout) told us there were whales. On our way we had to face more waves than expected. Because it would have been a long way to go and the weather forecast stated even more wind, Chris decided to return to the port.

Having no rain, we took the rest of the day off and rented a mini van for a tour around the island of Faial visiting several points of interest. Unfortunately the low clouds meant we didn't have any views from the top of the main volcano (the caldeira). But we did go for a vigorous walk to another caldeira in the far west of the island.

Strong winds during the night made it impossible to go out because of the big waves. So we stayed onshore doing more computer work. As one result of this photo-ID and data entry session we were able to identify 10 different individuals of sperm whales that we encountered Friday last week. Seven of them matched with sightings back to 2003 and hadn't been identified before. Needless to say that we were all pretty pleased with our days' work ;)

In the early evening a lovely smell was coming out of the kitchen. Chris started to prepare a meal with shrimps, chicken and curry - it was delicious. Thank you Chris.

This morning we started with fairly strong winds, but braved the waves anyway, staying within the shelter of Pico and Faial. No sightings were posted by the lookouts on land and because of the shallow sea in between the islands we could not use the hydrophone to locate the sound of whales, so no sightings to report for that morning and for the afternoon we had to return to the harbour because of the worsening weather.

After having lunch and a galao (milk with espresso) at Peter's Café, Chris decided to give it another try. We still had unpleasant weather conditions with cloudy sky and moderate visibility but the wind and waves had come down. That gave us the chance of going up to the very far north-west part of Faial. But again we did not have any sightings until we made it back to Horta. That's nature but, as Lisa said, this does not happen very often at all. And yet we are still in good spirits with a smile on our face, also due to Chris' jokes and stories that get more bizarre every day!

The weather forecast for the next two days looks promising, so we are all hoping for more results to come.

17 April

On Tuesday we were out on the water for the whole day. Without any information from the vigias in the morning, Chris set a course for the south of Pico when we had our first encounter. Two common dolphins showed up and some time after this, a single bottlenose dolphin jumped just in front of us and was not seen again.

With the help of our hydrophone we figured out that there were sperm whales around, when Lisa received a call from a vigia who had spotted baleen whales not too far ahead of us. On our way we had an unexpected encounter: the first fin whale of slot 1! While the whale surfaced for a pretty long time, we learnt to differentiate between a blue and a fin whale: besides the smaller size of a fin whale, it’s mainly a bright patch near the jaw that is only located on the right hand side, as well as the colourisation of the back body is more even and darker in comparison with a blue whale.

After the fin whale left us, we continued to follow the direction of the clicks given by the hydrophone and finally succeeded in finding a small group of sperm whales. For photo-ID reasons and also for taking blow rates you have to decide which individual you want to follow. Then Chris manoeuvres the catamaran directly behind and we start our jobs on board. But then several times, shortly after we were ready to go, the chosen sperm whale disappeared for a shallow dive leaving us behind with no photos taken and no meaningful blow rate statistics. This kind of game continued in the afternoon when we had another encounter with sperm whales. Fortunately this time we got our opportunity and the photos turned out to be perfect for identification purposes.

Against expectations, Pico mountain was visible from Faial on Wednesday morning, surrounded by just a few fancy, reddish clouds on a sunny morning. Raring to go, we left Horta harbour, when we got thrown about by the sea leaving the shelter of the islands. Already heading back to the north, we came across approximately 150 to 200 common dolphins, spread out widely in several groups.

We still had to brave waves up to 4 meters in the very north of Faial, but the gap between them enlarged and the conditions became more bearable. Nevertheless it takes a lot of concentration to keep on looking out for any cetacean. As there was also no help from the vigias, our hope of being successful that day started to drop when Noor spotted a blow in the rough sea! And, believe or not, it was a sperm whale. Well done Noor. We counted four individuals, two calves and a young teenager.

Unfortunately the weather forecast for today proved true and we had to stay onshore because of high waves. Working on photo-ID in the morning, Lisa came had some good news: some of the sperm whales were identified as individuals known since 1999, an exciting result.

Continuing a Biosphere Expeditions tradition, we took the chance a clear sky in the afternoon to start our 2008 mural in the harbour of Horta. Up to now we have produced a unique piece of art: a white rectangle J. This is just the start and hopefully it will be completed by the team members of the next slots.

19 April

We started Friday by celebrating Anke’s birthday with a whale-shaped cake. With swells of over 4 meters it was the one and only cetacean we got to see that day :(

Today we went out for one last time and following a vigia’s advice and using our hydrophone, we had the first encounter in 2008 with male sperm whales, not very far south of Faial. Even though there was not much time to follow each of them, we got our fluke photos. What a great farewell! Many thanks to Lisa and Chris.

And here is the summary of our encounters during the first slot:

Bottlenose dolphin: 4 / 18 (encounters / no. of animals)
Common dolphin: 9 / 408
Striped dolphin: 1 / 4
Beaked whale: 1 / 1
Blue whale: 2 / 2
Fin whale: 1 / 1
Sperm whale: 25 / 41

Thanks everybody for your contribution, enthusiasm and your excellent work.

We are now going to prepare everything for the next slot and Lisa, Chris and I look forward to meeting the new team members starting on Monday.

23 April

After all the introductions team two left Horta harbour yesterday in the late morning. Our first encounter was a large school of common dolphin with up to 200 individuals. Widely spread out into several smaller groups they were feeding by circling fish. Several hundred shearwaters tried to benefit from the feeding frenzy by stealing fish.

With the boat bopping up and down a lot whilst collecting data, many of us got seasick and suffered for science ☺ and we also came across 30 to 40 bottlenose dolphins. Gerard and Lisa did a great job and got lots of good pictures of dorsal fins for photo identification. On our way back to Horta we came across a whole bunch of jellyfish and some flying fish. Further on we saw more common dolphins.

The second day out brought more common and bottlenose dolphins and a loggerhead turtle during turtle time! The first sighting of 2008. Well done Gabi and Lisa now has to buy that round she promised.

We ended our day relaxing in the sun outside Peter's Café.

P.S. for slot 1: the unidentified bird of last week was a Manx shearwater (smaller than a Cory's with a black and white colouration).

26 April

We spent some hours on computer work, cropping and matching photos, until we made it out to sea again in the afternoon. Almost back from an afternoon without a sighting and close to the harbour, a vigia radioed in, reporting that he had seen a humpback whale two miles from the coastline north of Faial, close to Ponta dos Cedros. Chris decided to give it a try. Leaving the shelter of the island it became choppier and we were not able to find the whale, so disappointed had to turn around. Close to the eastern lighthouse suddenly a blow was spotted, belonging to two humpback whales that surfaced just 300 meters away from our boat. This is the first sighting of a humpback this year and only the second time ever that Chris and Lisa have seen two of them together. We stayed with them for almost an hour, close to the coastline in shallow water, watching them surface several times after a dive. They were kind enough to show us their tail flukes, getting us photos number eight and nine since from the Azores for identification. You should have heard Lisa cheering when she the pictures later.

The day had to come eventually and it was today: nice warm, sunny and calm. We started quite early when Lisa got a call from a vigia just before 8 o'clock, reporting that there are sperm whales south of the islands. So we left the harbour heading directly towards that area to find ten (!) sperm whales. Team members of the first slot may remember Lisa and Chris mentioning how rare it is to see two male sperm whales close together. But today was our day because 1.) all ten whales were males, 2.) six of them stayed very close to each other, socializing for a long time, 3.) they even came close towards the boat and 4.) we got a fluke photo of every single individual whale (= 10 in one day!) for photo-ID. Even one of these points would have been a rare incidence and Lisa said that outstanding sightings like this will more than likely just happen once in your life. Not a bad day then ;)

29 April

Sunday was another sperm whale day. We spent almost four hours with the whales south-east of Pico. On checking the ID-photos, Lisa found that we some of the sperm whales were the same as the day before.

In the afternoon a vigia spotted some Risso's dolphins in a bay close to the coastline, an area where Risso's are seen quite regularly to jot down another first encounter of the year. The team was fascinated by these big dolphins (up to 3 - 4 meters) that are so different: older Risso's dolphins get almost white bodies and bright noticeable marks (scars that stay) on their darker dorsal fins appear very artistic and make a unique pattern on each dolphin. The also have a round head that gives them a kind of permanent smile. Gerard and Lisa got loads of photos of the dorsal fins as the animals were so close to the boat.

On our way back to the harbour, we met two smaller schools of bottlenose dolphins, two individuals jumping acrobatically just in front of the boat.

After three long, busy days and a forecast for choppy seas, the team had the day off yesterday, exploring Faial. Besides the almost mandatory visit to the caldeira and the volcano dos Capelinhos, we took the chance of inspecting a vigia viewpoint. We also met one of them by coincidence in a tiny bar, in the middle of nowhere. Up to this moment a vigia was to us nothing more than a anonymous voice on the radio.

Today we went out to sea again, to the very far west of Faial. Lacking information from the vigias, we used our hydrophone. Unfortunately not a single click or whistle of a cetacean was located the entire day. And yet we had another exceptional encounter: Angelika spotted our second loggerhead of the slot! This big turtle allowed us to watch it for a while but then took a deep dive when we came too close. It didn't take long and we sighted a second one, so now this slot holds another record: two turtles, within turtle time, in one slot! Well done everybody.

2 May

On Wednesday we left the house early to be witness an unusual event: there is a boat out to set a new world record for a powerboat to circumnavigate the globe, running on 100% renewable biodiesel fuel, and with a net zero carbon footprint. Whatever you think of biodiesel, the start of this attempt was April 27 in Sagunto/Spain and the very first refuelling stop on their way around the world was Horta. We had just left the harbour to meet the spaceship-like 24 meter tri-hull boat ('Earthrace') out at sea when it came around the pier.

After meeting up with Earthrace and having a good look around the inside of the boat, we switched back to Physeter for work. Using the hydrophone, it took us a while to locate clicks of whales and then managed to follow several sperm whales that were joined by a smaller school of bottlenose dolphins later. It was very special to watch the dolphins playing amongst a female whale with a youngster by her side. By the time we got back, Earthrace had already left, heading for Puerto Rico, 2315 nautical miles away, where she is expected for the next fuel stop (after only 121 hours out at sea) on 5 May.

The weather conditions on Thursday forced us to stay onshore. Besides some data entry and matching photos, everybody enjoyed a relaxing day. In the evening Chris cooked for us and again it was a delicious meal.

Today was our last day out at sea – time is flying by. Chris manoeuvred us directly south of Pico to an area where a vigia had spotted a sperm whale. With the help of the hydrophone we were able to locate the whale underwater, also hearing him coming up from a deep dive. About ten minutes we followed him by also noting the blow rates, when this big male sperm whale went down into the abyss again, showing us his huge fluke.

Just some minutes before 'turtle time', Lisa spotted a big loggerhead turtle! Chris tried to catch it, but every time the boat got close, it took off. That's part of the game, I guess.

Some time later we received another call from a vigia who had seen a baleen whale about 15 miles out at sea. Although we tried hard to find the whale(s), we couldn't. On our way back towards the coastline of Pico we came across a school of Risso's dolphins. About 40 animals, widely spread out around the boat, kept the camera persons busy. As a special farewell, one dolphin showed us several breaches in a row – very close to the boat. Thank you for another outstanding day.

4 May

Time is flying by and I haven't yet realized that another slot is already over. Thank you everyone for the last two weeks of work! I think we all have some unforgettable moments to take away such as the encounter with the big male group of sperm whales socializing as well as our two encounters with this very special species of "stoned" (as we named the Risso's) dolphins. And don't forget the new record of turtle sightings.

When it comes to numbers, here's a summary of our encounters during the second slot: Bottlenose dolphin 6 / 142 (encounters / no. of animals), common dolphin 3 / 255, Risso's dolphin 2 / 60, humpback whale 1 / 2, sperm whale 40 / 56.

The team members of slot 2 have now left and we are getting everything prepared for the next slot. I look forward to meeting all team members and hope for a lot of sightings. With wildlife you never know what's next...

8 May

Slot 3 left the harbour of Horta Thursday afternoon and our first encounter was a school of bottlenose dolphins welcoming us with an acrobatic show. What a promising start.

It's a tradition that we celebrate a team member's birthday with a whale-shaped cake. Wednesday it was Marcia's turn – congratulations. Unfortunately I had forgotten to brief all cetaceans around the Azores about Marcia's birthday, with the result that we had no sighting that morning ;(Because of the choppy sea we had to return early. Lisa took the chance of telling us more about how to identify the different species of cetaceans.

Sometimes you have to be patient before getting your reward. Such as today, when we couldn't spot any cetaceans for the entire morning, until we finally spotted a loggerhead turtle. Shortly afterwards a tremendous flock of Cory's shearwaters caught our attention. It must have been more than a 1000 birds! Getting closer we saw an uncountable number of common dolphin, spread out widely. Then we noticed a splash two hundred meters away and, believe it or not, it was a humpback whale. This was number 3 of this year's expedition and only number 10 ever in Lisa's humpback catalogue. Accompanied by umpteen birds the whale and several dolphins hunted fish, probably mackerel. Several times we noticed the smell of fish as well as fish oil on the surface of the sea. And then to top it all off, the whale started his acrobatics show close to the boat: breaching, jumping, lob-tailing – just incredible! One explanation for this behaviour is that the whale tries to get rid of the annoying dolphins – good for us.

On our way back, we met a big, old windjammer that sported the skull and crossbones. What a beautiful ship and perfect end to a great day!

11 May

Friday morning a vigia radioed in that there are baleen whales around the south coast of Pico. So we went out to encounter fin whales, a total of four adult animals. From a distance it's not easy to tell fin from blue whales. The best way to identify a fin whale is to get parallel to the whale on the right hand side (and only on this side!). If the jaw on that side is white, you've got a fin whale. So we followed them at a distance of just 50 to 100 metres as they surfaced several times after a dive.

As we were told by a vigia about some sperm whales on the north side of Faial, we took the long way through the channel up to the north. With the help of the hydrophone we listened to their vocalisations. Our patience paid off and we eventually got four new IDs on three female sperm whales and a calf.

As a result of a weather front the waves started to pick up, so Chris decided to manoeuvre the catamaran into the shielded area close to the coast of Faial. Just before heading back to Horta, Tammy and Lisa saw a big splash in the distance, probably of a breaching whale. Despite all our efforts of spotting the animal again, it was not seen again.

Yesterday the team had a day off. We rented a car to go around the island hitting most of the sightseeing spots. Everybody appreciated this change and got a pretty good look around Faial.

Today we had a warm and sunny day but the waves around the islands prevented us from leaving the harbour. So we took the chance to finish off this years' annual Biosphere Expeditions painting at the dock. In the afternoon all team members worked hard cropping photos of flukes and dorsal fins, so they can be used for matching with other database entries. In the evening we had dinner at base and then some drinks in a bar.

The forecast is promising and we are ready to take to the sea again. Hard life this ;)

14 May

The weather improved, so we started on Monday with calm seas and just a bit of wind. Not knowing what to expect of the day, we came across an enormous group of bottlenose dolphins. We estimated about 150 (!) individuals – a group size that is very unusual with bottlenose dolphins. Then there were three (!) turtle encounters. But unfortunately no turtle allowed us to capture it. Finally we had another encounter with a small school of common dolphins on our way back. Not a bad day's work!

Yesterday the weather was perfect with no wind and a calm sea. Following the advice of a vigia we headed north-east towards Sao Jorge. We did not have to wait long until the first blow of a sperm whale was spotted. On our way to the whale, some common dolphin showed up. It took us a while to recognize that there were hundreds of dolphins around, widely spread out and moving into all directions.

After we too our photo IDs of the sperm whale's fluke, we continued our way towards Sao Jorge coming across another group of sperm whales and then more as our day was dominated by sperm whales with 20 encounters, 35 animals and, as Lisa figured out later, 16 (!) different IDs in total. Apart from the large numbers, we were lucky to see two big males, a mother and a calf fluke together and also a sperm whale breaching several times in a row!

But that was not all. On our way back to Horta we had an extraordinary encounter: Curvier's beaked whales! These animals are extremely shy and therefore very rarely seen (it was only the third sighting of Curvier's since Lisa and Chris started working in the Azores). Totally out of character, all four whales came towards us, close enough to identify the characteristics of this species easily: 5 to 7 meters long, grey-brown body and a bright to almost white, head shaped like a goose. Two teeth protrude from the male's lower jaw. What a busy and extraordinary day!

Today was an on-shore day for the team and everybody took the opportunity to visit Pico. Pretty exhausted from walking but happy to have seen another part of this beautiful island, all team members were back in time for dinner.

16 May

Thursday we left the harbour with information from a vigia about sperm whales that were spotted south of Pico. On our way, we were welcomed by a very big school of common dolphins and about 1000 shearwaters. Following the coastline of Pico several miles out at sea, we were told by a vigia that a baleen whale had been spotted nearby and soon after we spotted a blue whale – the first encounter of slot 3 with this species! But unfortunately Chris didn't get the time to manoeuvre the catamaran alongside the whale to ensure the best spot for photo IDs as the whale disappeared for a dive. Despite everybody's effort, we lost the whale that might have changed its direction under water to surface again far away from us.

Back on track to find the sperm whales, Doris spotted a big blow in the distance – it must have been "our" blue whale, but again we were not able to get close. But then we almost ran into a group of pilot whales (30 adults and 10 calves), the first encounter of this year! Pilot whales are toothed whales, reach a size of 4 to 7 metres, have round head (no beak), are almost black and show a very calm behaviour and are therefore easy to observe. A little later we spotted two more pilot whales staying together with two common dolphins – they must have lost their own groups :)

And, believe it or not, here comes more: following information from a vigia who spotted baleen whales, we had another remarkable encounter as we spotted two fin whales! Allowing us to follow them close for a pretty long time, we were able to get an excellent impression of their size and Lisa and Bart got excellent photos. Just another incredible day!

Today was our last day out at sea and it was again a special day, as we had 45 (!) encounters of sperm whales, counting 48 adults and 12 calves. Now Lisa has a lot of work to do checking the number of IDs. What a brilliant farewell.

Tomorrow I will come back to you to summarise the encounters of the third slot.

17 May

Perfect timing: today is Lisa's birthday with a little celebration at the end of this year's expedition.

I would like to give you a summary of the encounters during slot 3: Bottlenose dolphin 2 / 175 (encounters / no. of animals); common dolphin 10 / 1026; humpback whale 1 / 1; sperm whale 69 / 103; fin whale 2 / 6; pilot whale 1 / 40; Curvier's beaked whale 1 / 3; blue whale 1 / 1; unknown beaked whale 1 / 1.

All in all this slot was lucky to see six different species of whales! And for sure our encounters with the rarely seen Curvier's beaked and pilot whales and a breaching sperm whale will be unforgettable.

More information and results will come along with the Biosphere Expeditions Azores Report within the few next months, so watch this space.

I hope you will agree with me when I say that it was a great experience, with fantastic sightings. I would like to thank all team members who helped making this expedition possible and a success due to your patience and hard work. And not to forget Lisa and Chris: special thanks to a special two-person-team that helped us being part of an amazing maritime project.

I myself have to realise that it's all over now. Perhaps see you on another expedition sometime in the future. It would be a pleasure! So good-bye everybody, I hope you've enjoyed the diary, take care and 'Merry Christmas' ;>