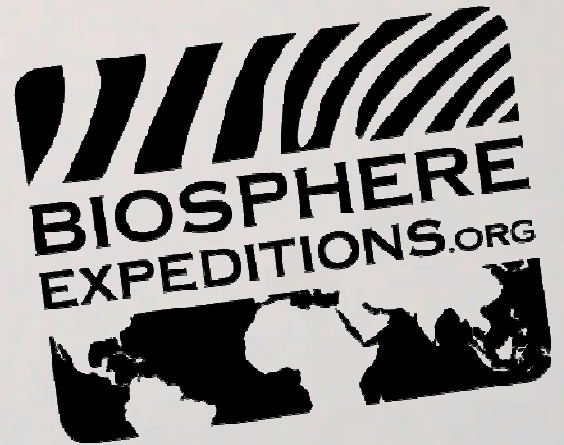


EXPEDITION REPORT

Expedition dates: 4 – 27 April 2009
Report published: September 2009

Photo-identification and surveys of cetaceans
in the central group of the Azores islands.



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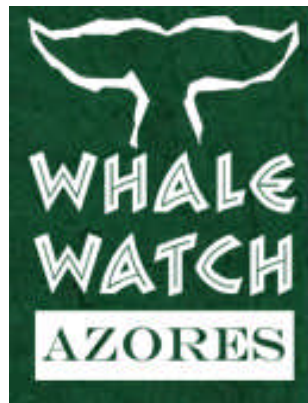
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EXPEDITION REPORT

**Photo-identification and surveys of cetaceans
in the central group of the Azores islands.**

**Expedition dates:
4 - 27 April 2009**

**Report published:
September 2009**

**Authors:
Lisa Steiner
Whale Watch Azores**

**Chris Beer
Whale Watch Azores**

**Matthias Hammer (editor)
Biosphere Expeditions**

Abstract

In 2009 Biosphere Expeditions concluded its sixth 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 4 April until 27 April and concentrated on six main projects.

Sightings of all cetacean species were recorded. 146 sightings of 7 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 whales photo-identification that has been ongoing since 1987 in the Azores, continued, with 57 identifiable individuals photographed from 101 encounters, including 7 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 only 1 group of baleen whales was sighted during the expedition. The sei whales observed were photographed for analysis.

Dolphin photo-ID

Dolphin photo-identification, which began in 1987, continued. 9 groups of bottlenose dolphin and 4 groups of Risso's dolphin were photographed. In addition 1 pod of pilot whales was also 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 the 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 processed and 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 sixth 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 a few were sighted. No other species of turtle was observed.

Sumário

A Biosphere Expeditions 2009 concluiu o seu sexto ano, bem sucedido, de estudos em cetáceos em foto-identificação e sua distribuição nos Açores. A expedição foi baseada na Horta na ilha do Faial e o trabalho foi conduzido em torno das três ilhas Faial, Pico e São Jorge. Esta expedição ocorreu entre 4 Abril e 27 Abril e concentrou-se em seis projectos principais.

Foram registadas todas as observações de cetáceos, no total 146 observações de 7 espécies diferentes de cetáceos e de 1 espécie de tartaruga.

A foto-identificação dos cachalotes, das baleias de barba, golfinhos roazes e dos golfinhos de Risso continuou.

Foto-identificação do Cachalote

Desde 1987 que está em curso nos Açores um programa de foto-identificação de cachalotes, com os 57 indivíduos identificados e fotografados em 101 encontros, incluindo 7 animais vistos nos anos anteriores.

Foto-identificação das baleias de Barba

As baleias de barba, incluindo a baleia-azul, a baleia-comum, a sardinheira e a baleia de bossas, foram vistas com frequência que tem vindo a aumentar nos últimos anos. Porém, este ano, apenas avistamos um grupo de baleias de barbas de expedição. As sardinheiras observadas, foram fotografadas e estas fotos serão analisadas em um outro dia.

Foto-identificação dos Golfinhos Roazes e Rissos

Continuámos a foto-identificação de roazes, que começou em 1987. Conhecem-se 9 grupos de roazes e 4 grupos de Rissos que foram fotografados. Além de 1 grupo de baleias piloto que foi igualmente fotografado. A maioria destas fotografias serão analisadas, mas algumas das fotografias dos Rissos foram classificadas durante a expedição nos dias de terra, mostrando grupos re-avistados de Rissos residentes.

EUROPHLUKES

Europhlukes é um projecto Europeu que reúne investigadores diferentes de diversos países para partilhar dados e retratos da foto-identificação de várias espécies. Todas as fotografias da identificação serão enviadas à base de dados.

As extracções das caudas dos cachalotes foram feitas das fotos tomadas durante a expedição e comparadas com os cachalotes avistadas nos anos anteriores e em outras áreas do Atlântico. Não foram encontrados “combinações”. Até agora nenhuma das fotografias coincide com as encontradas em outras áreas.

POPA

O levantamento de dados foi colectado com sucesso pelo sexto ano, para o Departamento da Oceanografia e Pescas (DOP) da Universidade dos Açores, para o Programa de Observação dos Pescas nos Açores, POPA. A embarcação “Physeter” é a única embarcação da “não-pesca” no programa. A informação foi colectada aleatoriamente ao longo de transectos para as observações de cetáceos, as contagens de tartarugas e de aves e dos parâmetros ambientais.

Tartarugas

As tartarugas caretta são capturadas e etiquetadas nos Açores desde 1988, para um projecto conjunto entre a Universidade de Florida e a Universidade dos Açores. Durante esta expedição, nenhuma tartaruga marcada embora tenham sido avistadas algumas. Nenhuma outra espécie de tartaruga foi observada.

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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 4 to 27 April 2009. 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.

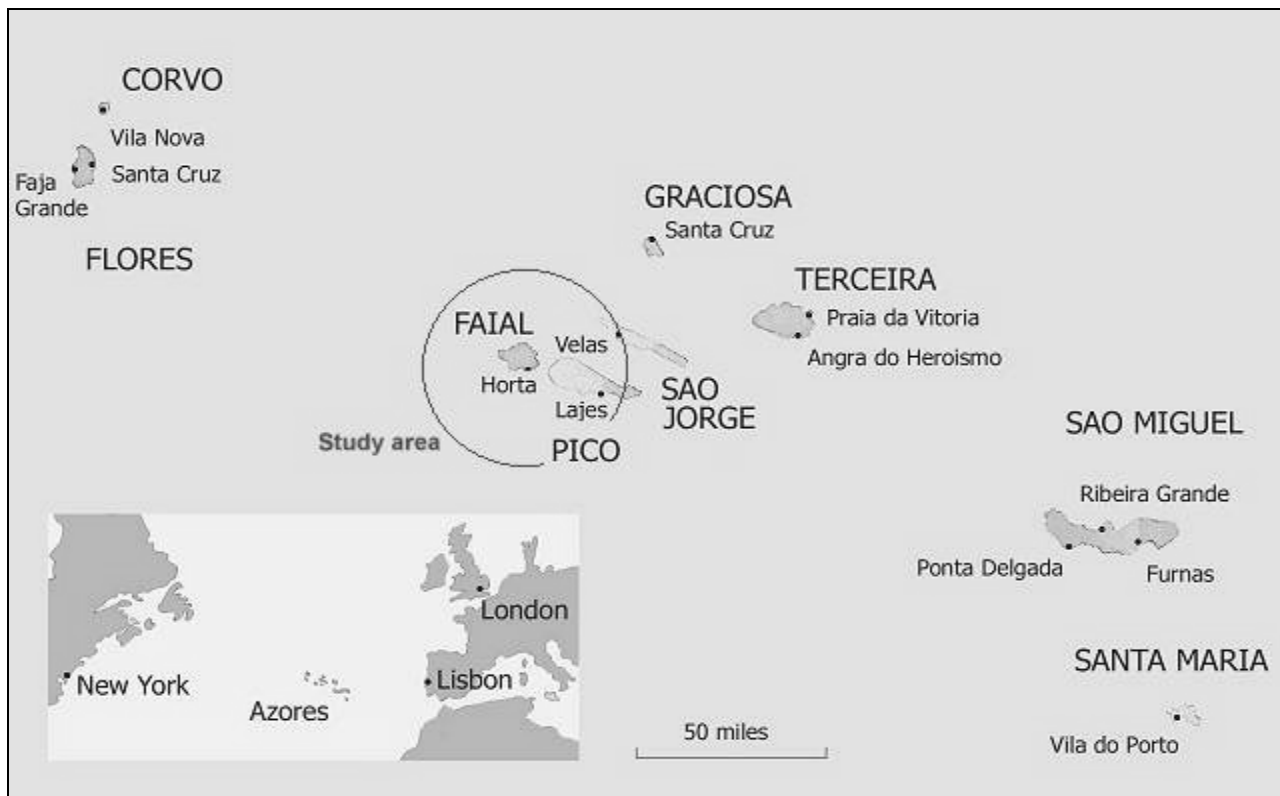
The Azores archipelago, which sits near the middle of the Atlantic Ocean, about 1400 kilometres off the coast of Portugal, is one of the prime whale and dolphin hotspots in the world and around 30% of the world's known cetacean species have been recorded there. For management purposes the International 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 - 13 April | 18 - 27 April 2009.

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 (with country of residence):

4 – 13 April 2009

Mona Frolova (Russia), Tessa Heine (Germany), Lisa Hele (UK), Adam Summers (UK).

18 – 27 April 2009

Tim Burns (UK), Robert Burton, (UK), Jodi Dockman (Canada), James Gaillard (UK), Viveka Gaillard (UK), Bryan Koplín (USA), Laurent Marin (France), Karin Schulz (Germany), Gunther Sostmann (Germany), Jonas Sostmann (Germany).

Also: journalist Martin Amanshauser (Austria).

1.8. Other Partners

Partners included EUROPHLUKES (a European cetacean photo-ID system and research database), the University of the Azores, POPA (the Observer Programme for the Fisheries of the Azores), the University of Florida as well as the local community of whale spotters (vigias).

1.9. Expedition Budget

Each team member paid towards expedition costs a contribution of £1090 per person per 9 day 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	15,035
 Expenditure	
Base camp and food includes all board & lodging, base camp equipment	3,962
Transport Includes boat fuel & oils, taxis	1,998
Equipment and hardware includes research materials & gear etc purchased in UK & Azores	102
Biosphere Expeditions staff includes salaries, travel and expenses to Azores	2,981
Local staff includes whale lookout and other locally staffed services	536
Administration includes registration fees, sundries etc	138
Scientific services & logistics organisation Payment to Whale Watch Azores including boat wear & tear allowance	3,454
Team recruitment Azores as estimated % of PR costs for Biosphere Expeditions	3,890
 Income – Expenditure	 - 2,026
 Total percentage spent directly on project	 113%*

*This means that in 2009, the expedition ran at a loss and was supported over and above the income from the expedition contributions by Biosphere Expeditions.

1.10. 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, Swarovski Optik, Cotswold Outdoor, Motorola and Gerald Arnhold for their sponsorship.

We would also like to thank our partners EUROPHLUKES, the University of the Azores, POPA, the University of Florida, as well as the local community of whale spotters (vigias).

1.11. 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.

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. Whale, dolphin & turtle study

Lisa Steiner & Chris Beer
Whale Watch Azores

2.1. Introduction

The Azores is a group of 9 islands located about 900 nm off the coast of Portugal. 28 species of cetacean have been seen in the islands over the last 20 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 usually takes place in April and May. This year only the first 2 slots of the expedition ran, so no work was conducted in May.

Baleen whales have been seen fairly regularly migrating past the islands from March to June, but it is unknown where they have come from or where they are migrating. 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 to hopefully determine some of these migration routes. So far, there has only been one match between a photo taken in the Azores to one taken in Iceland.

Although sperm whales were caught in 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 Europlukes matching programme 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 usually 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. On the first slot crew members may have had to do more than one job.



Fig. 2.2a. Camera duty

Sperm whales were approached from behind in order to obtain fluke photographs. The sei whales were also approached from behind, but moving further forward to obtain photographs of 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: a Canon 30D with a Canon 100-400mm lens and a Nikon F70 with a 70-300mm lens (Fig. 2.2a).

Other dolphin sighted would be 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 generally 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 (Fig. 2.2b).



Fig. 2.2b. Datasheets

When loggerhead turtles were sighted, their position was recorded on the POPA forms (Fig.2.2c). If an animal was caught, it would be measured and tagged for the University of Florida/University of the Azores turtle tagging programme, as well as positional data being recorded.



Fig. 2.2c. POPA duty.

When the boat returned to port, there was a debriefing on board to show where the boat had been during the day.

Results were analysed using EXCEL data analysis tools: summary statistics to obtain average group sizes and ranges.

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 11 days during the expedition and spent between 3 and 8 hours (hr) per day on the water, with an average of 6.4 hr. A total of 70.25 hr with sea conditions less than sea state 5 were recorded. A comparison of the yearly effort since 2004 is presented in Fig.2.3a.

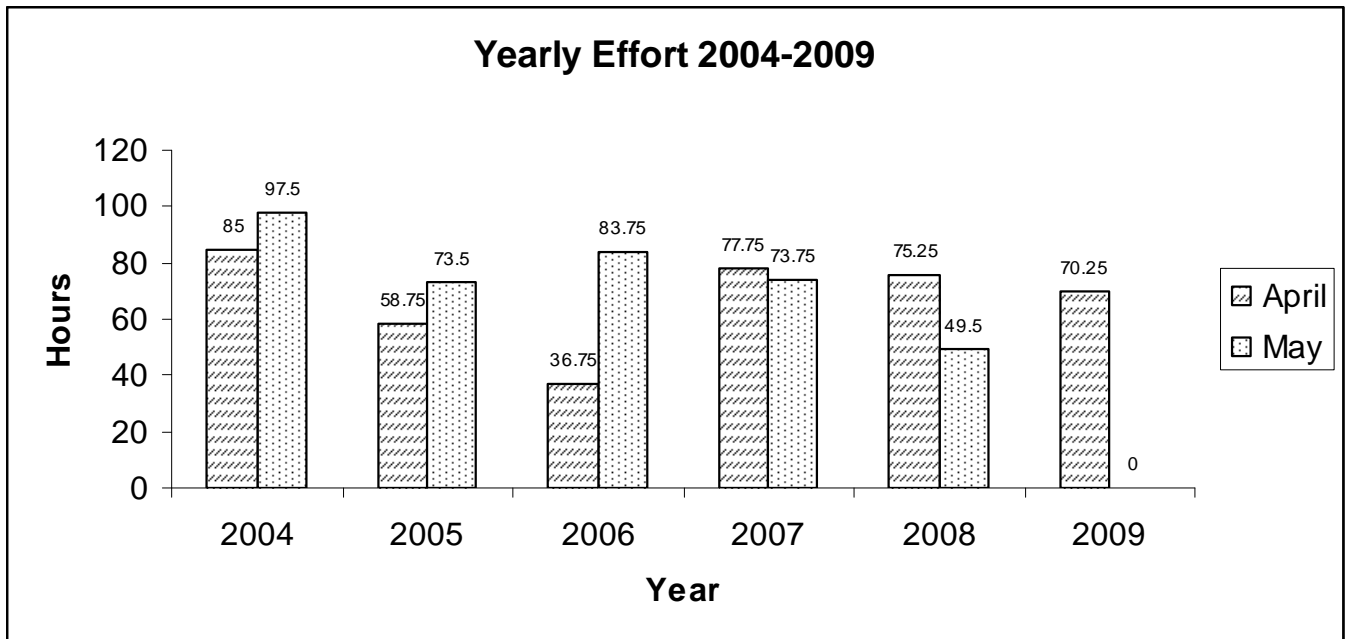


Fig. 2.3a. Yearly effort.

2.3.2. Encounters

During the expedition 45 groups of non-sperm whales and 101 sperm whale groups were encountered (Table 2.3a.).

Table 2.3a. Species encountered.

COMMON, <i>Delphinus delphis</i>	27
BOTTLENOSE, <i>Tursiops truncatus</i>	9
RISSE'S, <i>Grampus griseus</i>	4
STRIPED, <i>Stenella coeruleoalba</i>	3
PILOT WHALE, <i>Globicephala machrorhynchus</i>	1
SEI, <i>Balaenoptera borealis</i>	1
SPERM, <i>Physeter macrocephalus</i>	101

These encounters resulted in a relative sightings frequency as shown in Fig 2.3b. Sperm whales were the species encountered most at 69.2%, followed by common dolphin and bottlenose dolphin. These 3 species accounted for 93.9% of all sightings. Sperm whales have been omitted from the chart below to give a better scaling.

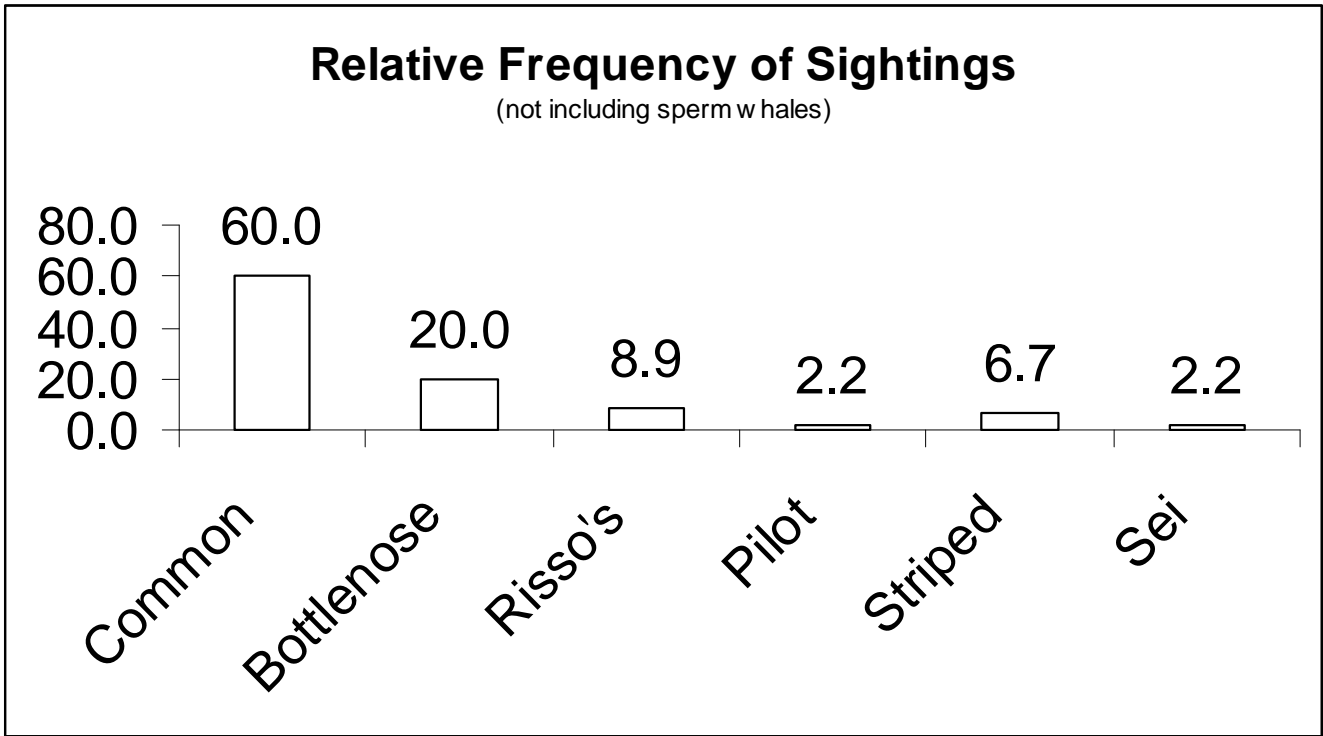


Fig. 2.3b. Species sightings frequency (excluding sperm whales).

2.3.3. Species sightings

Common dolphin

This species was encountered 27 times. The group size ranged from 2-300 and the average group size was 70.7 (Fig 2.3c). This group size is not significantly lower than the average group size from existing data for June-September. Calves were first observed on 7 April and seen 13 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. Calves were seen on 13 of the sightings. Group size was significantly larger when calves were seen in the group: an average of 103.8 versus 39.9 when no calves were present in the group.

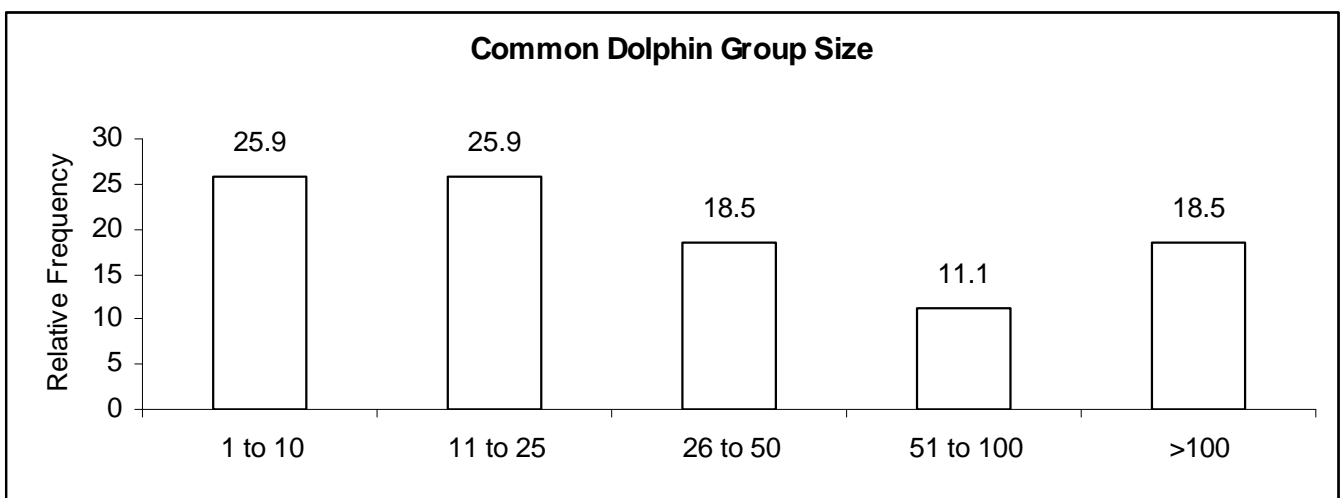


Fig. 2.3c. Common dolphin group size.

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

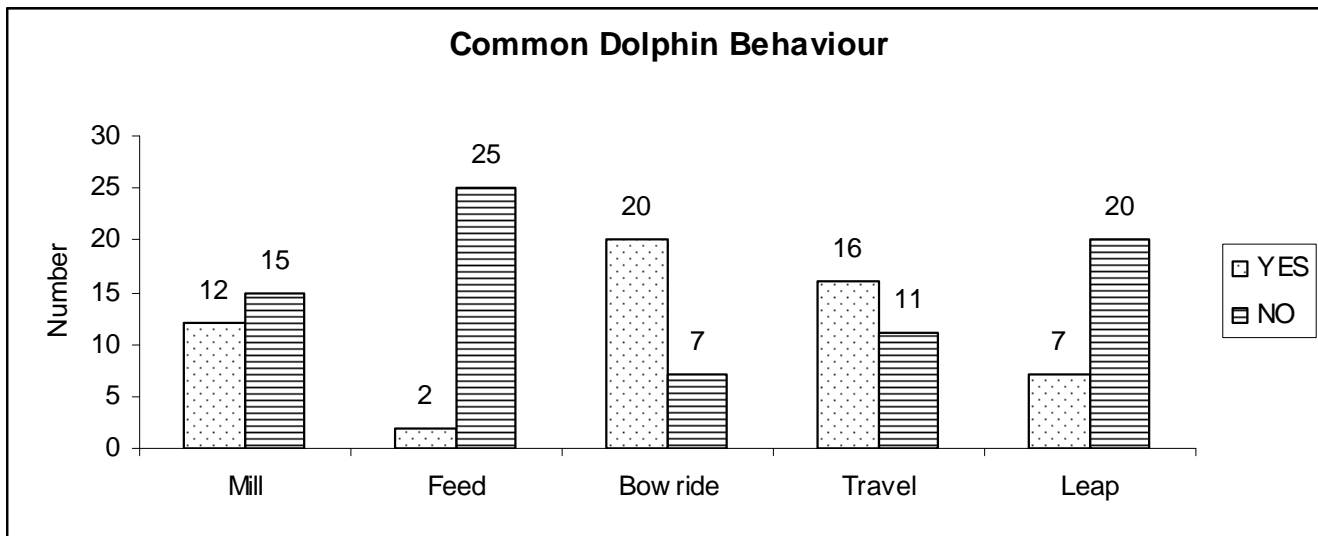


Fig. 2.3d. Common dolphin behaviour.

Bottlenose dolphin

This species was observed 9 times. The group size ranged from 6-300 and average group size was 96.9 (Fig. 2.3e). This is higher than the average of 27.3 seen when considering previously collected data. Calves were seen on 7 of the sightings. Group size was significantly larger when calves were present, but given there were only 2 sightings without calves, this may not hold true with more observations.

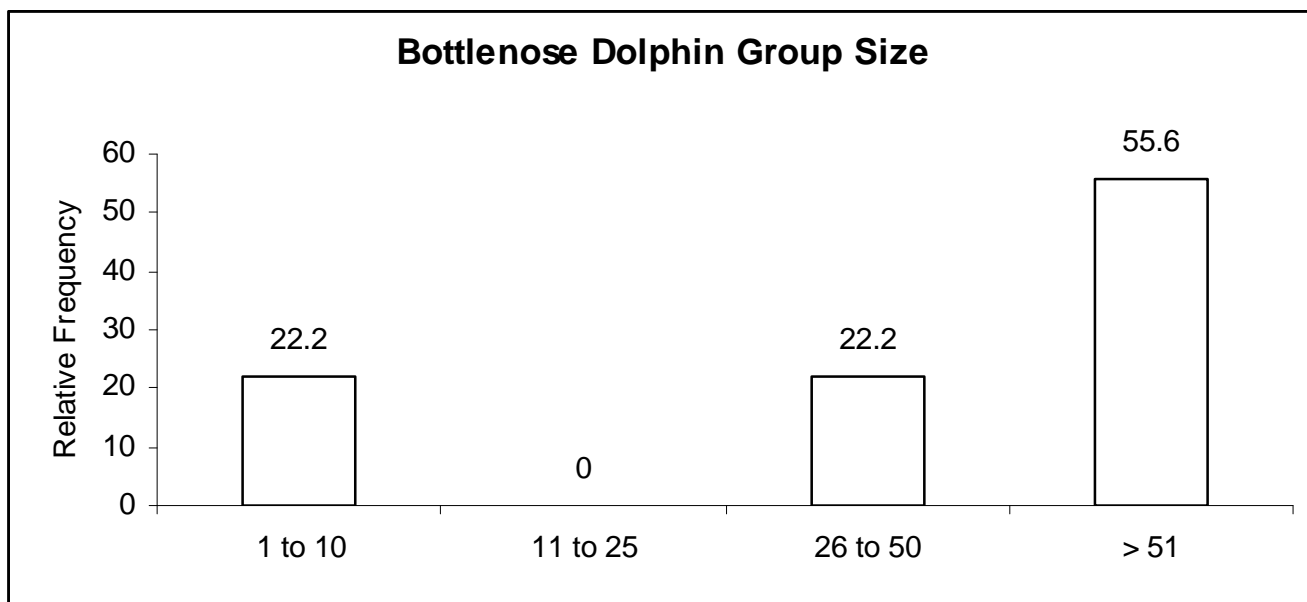


Fig. 2.3e. Bottlenose dolphin group size.

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

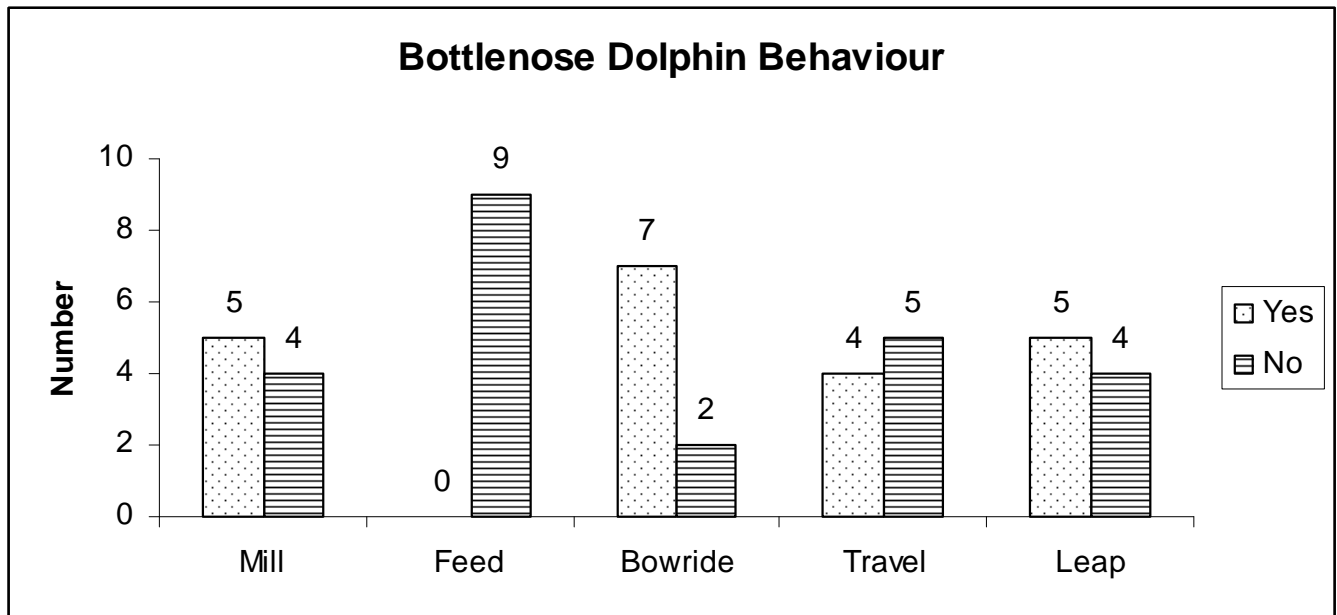


Fig. 2.3f. Bottlenose dolphin behaviour.

Photo identification pictures were taken for all groups observed and some of the residents were definitely seen. Further analysis of photos will be done at a later date.

Risso's dolphin

This species was observed 4 times. Average group size was 17.8 ranging from 6 to 30. Calves were seen on 3 of the 4 encounters.

Several animals were seen from previous years, including "Storm" and "Cross", (Fig. 2.3g). "Naked Lady" and "F Nick" popular with past expeditions, were not seen during the 2009 expedition, but they have both been seen since the end of the expedition.

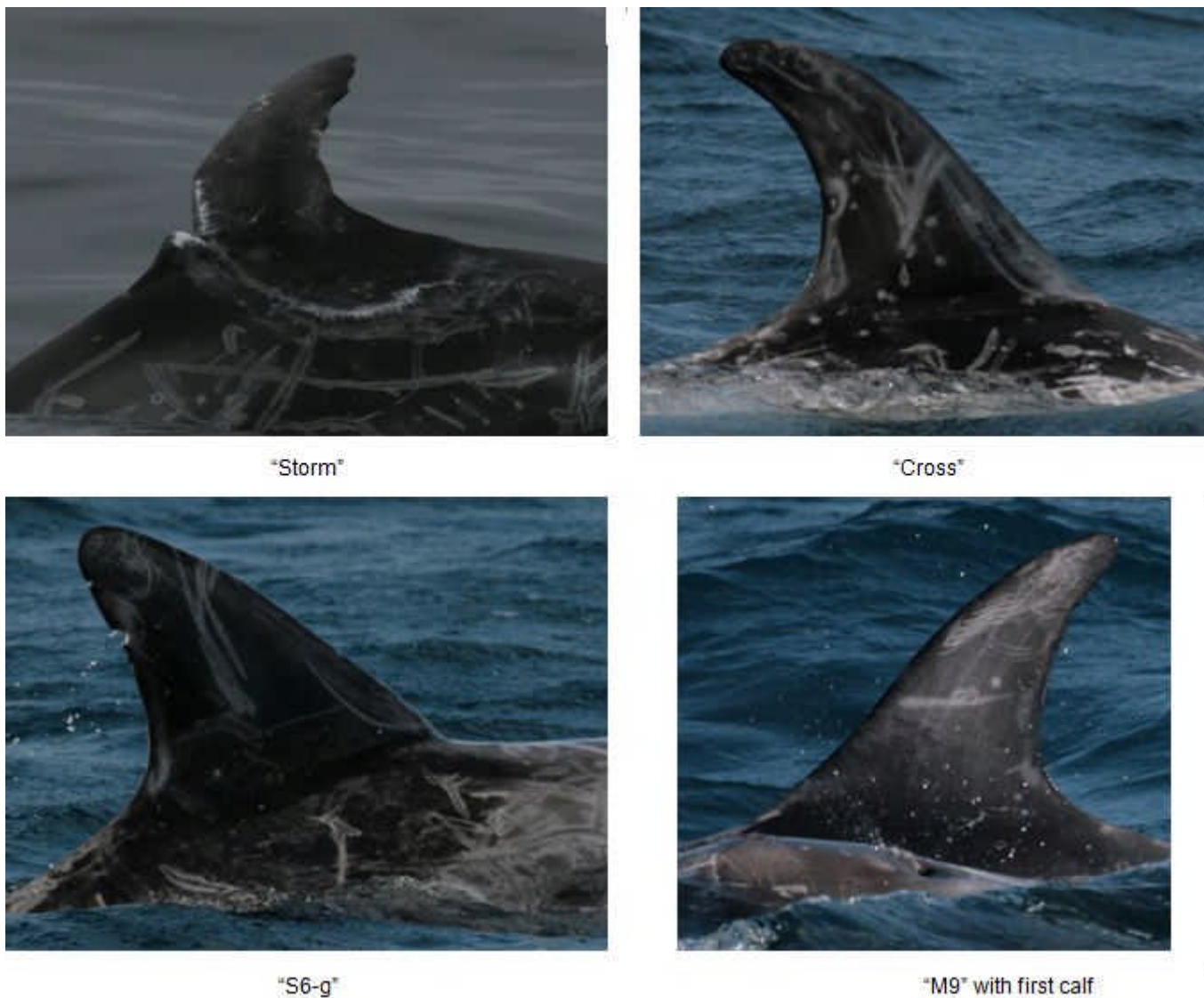


Fig. 2.3g. Resident Risso's dolphins.

Behaviour of Risso's during 3 of the 4 encounters was travelling, on the remaining encounter the group was milling.

Striped dolphin

Striped dolphins were seen 3 times. Average group size was 63.3, which does not differ significantly from the average group size we have observed in the past. There were calves seen with every group. Two travelling groups also bowrode while the group that was milling did not.

Short-fin pilot whale

One group of 40 short-fin pilot whales was observed on the last sea day of the expedition on 26 April. Calves were present in the group (Fig. 2.3h). Photo identification will be done using the dorsal fins at a later date (Fig. 2.3i).



Fig. 2.3h. Pilot whale calf and mother.



Fig. 2.3i. Pilot whale id photograph.

Sperm whale

Sperm whales are one of the main target species of the expedition. They were encountered 101 times comprising 161 animals (not all different individuals). The average group size was 1.58, ranging from 1-6, which is similar to that encountered during other parts of the summer. Calves were observed 27 times. Photographs were taken of all whales that 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. 57 individuals were identified in total, 50 new animals and 7 from previous years. We had a few outstanding sperm whale days with 10 individuals identified on 3 days and 12 on another day. This year's IDs include 1605, previously observed in 1991, as well as 2044 and 2059 both seen in a few different years since 1995 (Fig 2.3j).

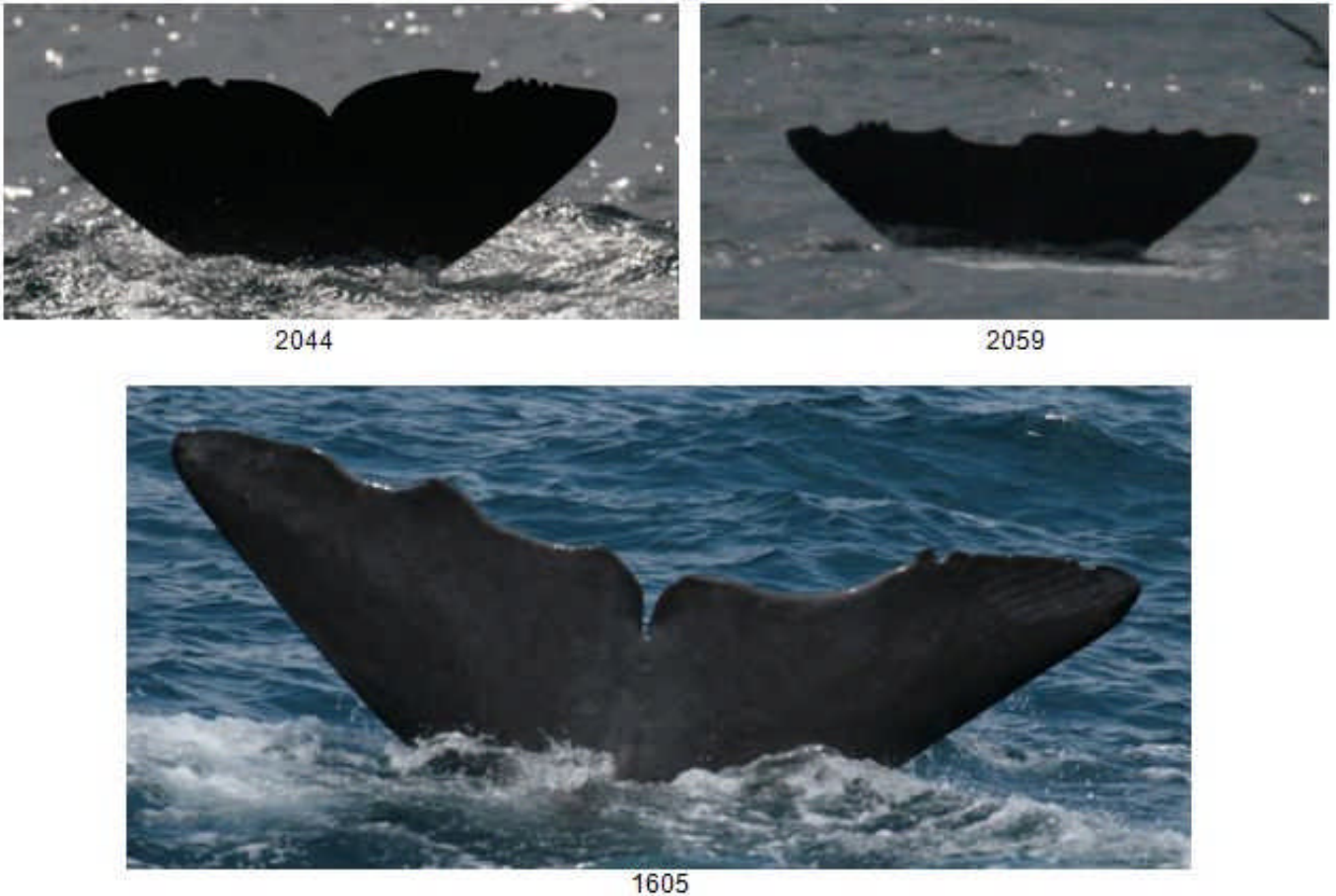


Fig. 2.3j. Sperm whale ID photos.

Attempts at skin collection were unsuccessful due to weather conditions that were not suitable for entering the water.

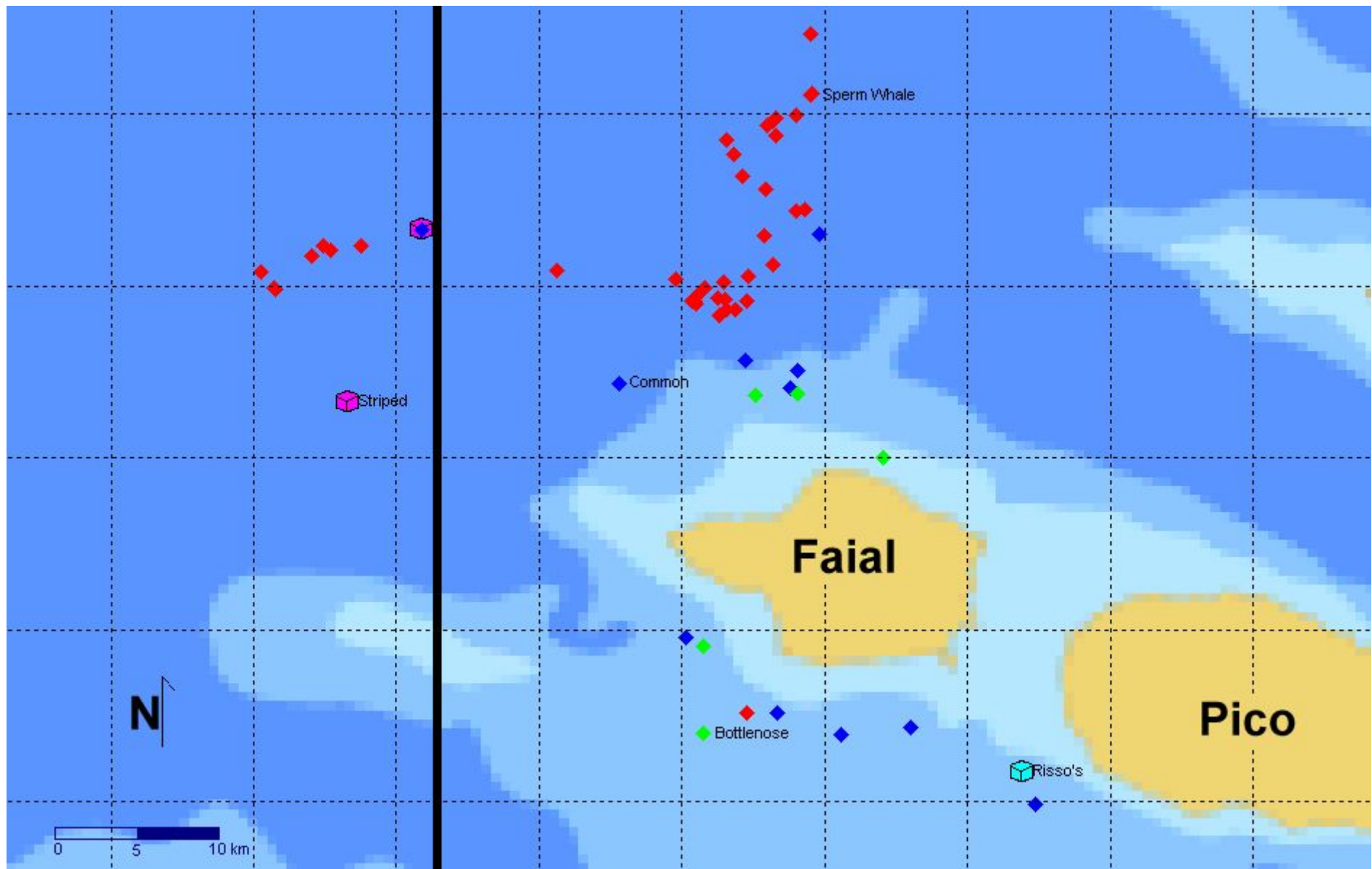


Fig. 2.3j. Sightings slot 1 (4 - 13 April 2009).

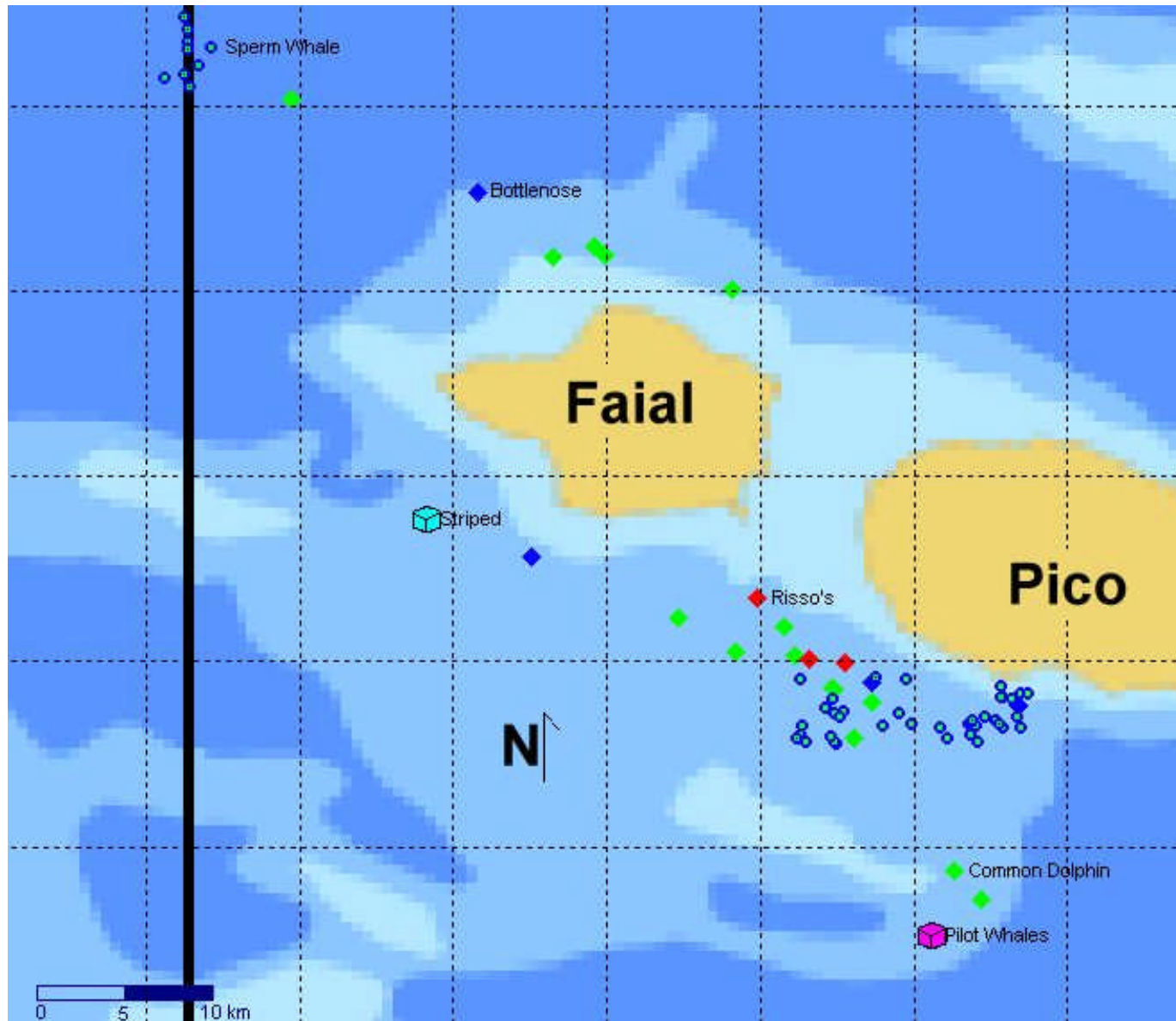


Fig. 2.3k. Sightings slot 2 (18 - 27 April 2009).

Sightings during the expedition

The sightings shown above are in usual locations for cetaceans. Since we use the lookouts to locate the animals, we spend more time in areas where there are animals and less time searching for them. The sightings made far to the west of Faial on both slots were of animals located using the hydrophone, in an area that the lookouts cannot see. This area was often used by the whalers when there was a lookout at Capelinhos on the western tip of the island (this lookout is no longer used, because the volcano now blocks the view). We venture out there occasionally if the lookouts have not spotted animals in other areas. Weather is another factor that plays a part in where we search for animals. Sometimes we are unable to work in an area due to adverse conditions, even if there are cetaceans present and have to work in a restricted area, such as the south of Pico in strong north-easterly winds.

2.4. Discussion & conclusions

April is 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 usually 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.

This year there was only 1 sighting of baleen whales during the expedition, possibly due to a lower abundance of krill close to the coast or slight changes in the migration path the whales used. Sightings of blue whales were a bit earlier this year (Feb/Mar) and sei whales arrived a bit later this year (several sightings in June/July). At the time of writing (August 2009) we have not observed any fin whales in 2009. Photo-ID of the sei whales we observed was successful with 7 individuals identified. A preliminary analysis of the photos shows no matches to the *Europhylukes* catalogue.

Sperm whales were again sighted frequently, including many females with suckling calves, as has been observed in 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 14 times this year (not all different individuals). This year most of the males were sighted alone or in pairs, which is normal for the very large males. One male was interacting with a social group of females, and they may have been mating, although this was not observed. 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 if we see the same individuals repeatedly throughout the summer. There is some indication that more “unknown” individuals are present at the early part of the season with the “known” animals arriving later. An attempt will be made to analyse this statistically over the winter months.

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 have 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. This is to be presented at the Marine Mammal Society conference in Quebec in October 2009 and published shortly. The Friends of Biosphere Expeditions have kindly made a financial contribution towards Lisa Steiner's attendance of this conference. 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 (depth, slope and tide as a few examples).

Should sperm whales in the Atlantic ever become a target for whaling again in the future, these data can be used to show that the Azores are a breeding ground and may require sanctuary status. Our data also show links between the Azores and Norway and also to the Canaries, but no links to the Caribbean or Gulf of Mexico, indicating that the animals should not be treated as one very large population, as they are currently, but rather split into smaller groups around the ocean and must be considered separately when considering any quotas.

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 in the islands and present year round. Some of the photographs of Risso's dolphin have already been analysed and they confirm that the groups seen are resident groups. This year's expedition did not see the same animals as the last two 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 sixth year. Sightings were good and several days of sperm whales kept us occupied collecting data. More sperm whales than baleen whales were observed and there were fewer dolphins around than in previous years. Reports from some of the yachts arriving into Horta indicated that more dolphins were observed further offshore this year (and that continues to be the case to the present time). The weather conditions during this year's expedition were reasonable. Although a few days were spent out at sea in sea-states of 3 or more; making spotting the animals, especially dolphins, difficult for observers on both boat and land. Re-sighting individual sperm whales from previous years continues to show the value of the Europhlukes matching programme alongside digital cameras. 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 2009 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 some 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).

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 4 April and 7 May 2009 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 (four individuals sighted), baleen and toothed whales, dolphins and several species of seabirds (see figures 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).

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

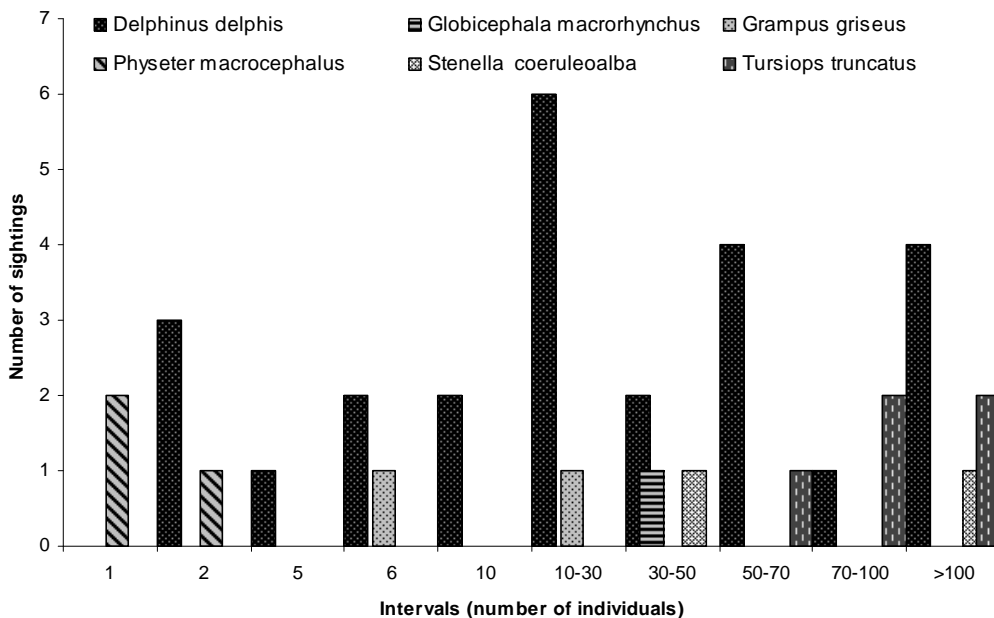


Figure 3.2a. Species of cetaceans observed.

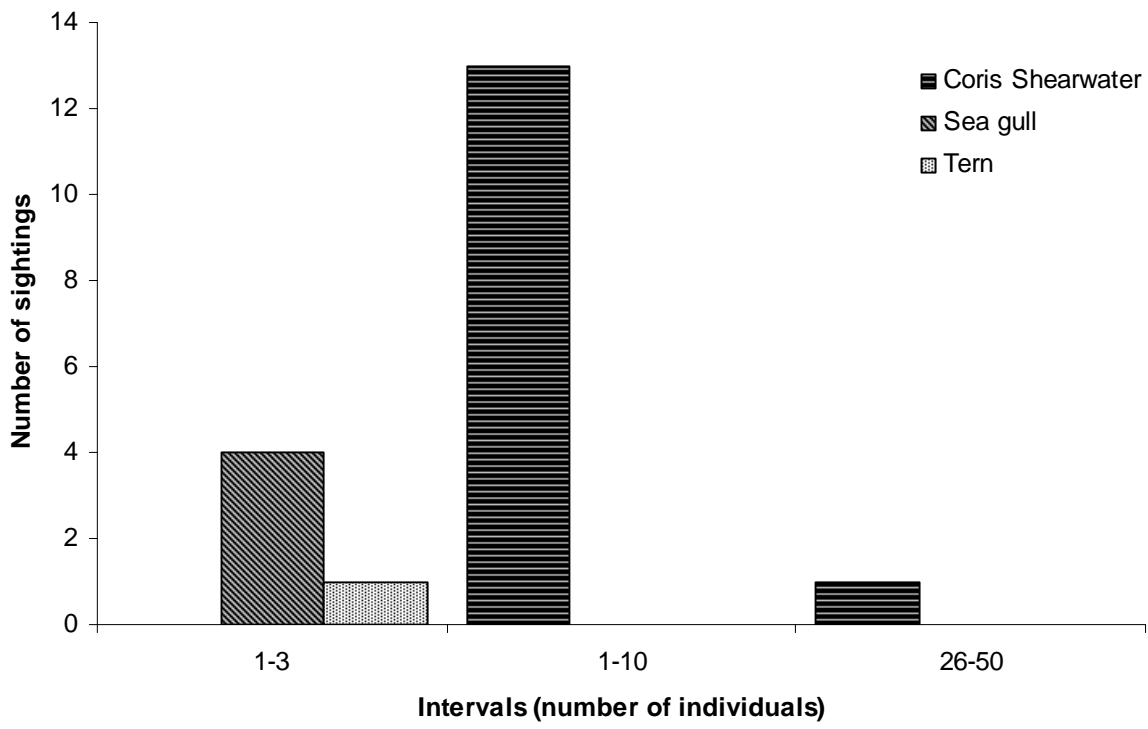


Figure 3.2b. Species of seabirds observed.

4. Expedition leaders' diary: Azores 2009 by Ronald Seipold

2 April

Hello everyone and welcome to the Azores 2009 expedition. I'm Ronald, your expedition leader, and you will be receiving a diary from me regularly over the next few weeks. At the moment I am preparing all the equipment and organizational needs and leaving for Horta to set everything up for you.

Lisa and Chris (our scientist and skipper) just reported blue whale and dolphin sightings over the last two weekends. What a promising start to this year's season.

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 latest at 16.00 at the Azores Ecolodge on Saturday (please see dossier page 18 for details). Please remember not to turn up before 13.00 as you may find the place empty and locked up or us frantically running around trying to get things ready ☺

And for any last minute swatting up, more information and published reports from previous expeditions are available via www.biosphere-expeditions.org/reports.

So long & see you soon

Ronald Seipold
Expedition leader

5 April

Here's a first brief sign of life of the first slot at the Azores. Everybody has arrived safely on the island. We are not missing any luggage and even the weather turned better on Saturday. (For those who have to stay at home and like to get an impression on what the weather looks like in Horta, see the webcam on www.climaat.angra.uac.pt/WebCams/main.htm and click on Horta).

We have finished most of our training sessions and after a last heavy shower during the night, we left the harbour today around midday with a bit of sunshine and just low wind and waves. Our first (half) day out at sea is to get us all used to the different jobs and to the boat. Barely out of the harbour, a lookout on land sent us north of Faial where he spotted blows of several sperm whales just some miles away from the coast line. On our way Lisa was able to catch a glimpse of a masked booby, a bird species that has only been seen once around the Azores in 2008 – so today with this second sighting we were able to prove conclusively the presence of this species in the area! Afterwards we spent quite a long time following various sperm whales whilst we all learned to use the hydrophone (a tool to listen to underwater noises such as the diagnostic 'clicks' from sperm whales). In the end we were able to identify six different individuals. We saw a calf suckling, some head outs and side flukes.

On our way back we had three more random sightings of common dolphins – two smaller schools and a huge one with over 200 individuals.

Wasn't that as a perfect start? And the weather forecast for the next few days looks promising...

9 April

Monday morning we surprised Lisa (our team member) with a cake in the shape of a whale. It was her birthday! Stuffed full of cake and with even more cake for the afternoon at sea we left the harbor in the morning, still on time. The weather was nice again but the sea, compared to yesterday, a bit choppier. Tessa and Mona had to fight some seasickness but in the end noone had to feed the fish within this slot – well done ;)

It was a sperm whale day again! As the day before, the lookout sent us to almost the same spot. On our way we ran into a big group of 80 – 100 bottlenose dolphins. But we couldn't stay that long because the sperm whales are our main target. And it was more than worthwhile: several different individuals including a calf and big males! Males are much larger than females and the much harder to follow too. And as a special 'hello' to Lisa one male breached twice not too far away from the boat!

On the way back we had another encounter with a very large school of common dolphins who felt like performing for Lisa. We took some time to watch them playing around - jumping, chasing the boat, bowriding. So Lisa, I hope it was a day to remember.

Next day – same procedure: the vigas spotted sperm whales south of Faial. Was this to become our third day in a row? On our way along the coast line Lisa (team member) spotted common dolphins that were later on joined by striped dolphins and a shark. Still behind “our” sperm whales we continued all the way down to the new volcano area when we finally found the whales around midday north-west of Faial. And again we came across different individuals, which gives us a high number of IDs. Lisa (the scientist) has already started to work on finding matches with sightings of former years and the first results look pretty promising.

More unusual sightings on the way back too: a second shark, a school of 100 common and about 200 striped dolphins close together as well as a random sighting of sperm whales – and this really does not happen often at all. Finally another group of bottlenose dolphins playing around. With a lot of good photo-IDs and a little bit late we finally returned to Horta harbor.

Lisa (scientist) got in touch with some bird specialists to confirm the masked booby. Unfortunately the photo shows a gannet – so we have to take back the previous announcement ;(

After some excellent days out at sea we had to put up with two days onshore. The weather was not totally bad but the waves were up to 3.5 m, which is too high to spot animals or have a comfortable ride in our catamaran. So Wednesday was a day off, time to sleep in a bit and to explore Horta including some of its museums. The forecast towards the end of the week is looking better, so keep your fingers crossed for us.

13 April

Despite the lack of decent weather over the last three days and the scarcity of sun, we still managed to head out and get some work done. It has been a very special week for sperm whales. We came across a group, spread out and surrounded by whale watching boats, which meant the sperm whales did a lot of shallow dives and are not really “cooperative”: no flukes – no photo-identification, no other data of interest. So it was time to release our hydrophone again to follow the clicks. We kept on going and going until we were almost west of Sao Jorge. For 90 minutes no whale showed up but we finally spotted the first one and stayed with several more for the rest of the day.

On Saturday we began to follow a male sperm whale. As before, this one was not really cooperative. The day was calm and around midday we observed a group of about 30 Risso's dolphins close to the coast (good protection for the calves), south of Pico. This species of dolphins is very different from the others. They are larger (up to 3 to 4 meters) and their head is almost round, which gives them a kind of permanent smile. Dark when young, they become increasingly white because of all their marks and scratches. Often the dorsal fin stays darker than the rest of the body, so the scratches and other marks give them a unique pattern that can appear as a kind of 'artwork'.

Back at the harbour we all appreciated the sun coming out. We spent extra time outside Peter's Cafe to drink galao and warm up.

No one could believe our last day at sea had arrived. How time has flown! Chris decided to leave the harbour in a northerly direction. After leaving Pico and Faial behind us, a viga called to inform Lisa about sei whales south of Faial (close to the airport). We had to go all the way back through the “channel” and around Faial. It was more than worth the effort, though. Our first baleen whale of this years' expedition was indeed a sei whale within a group of about seven different individuals. To ensure the best spot for photo identification, Chris maneuvered the catamaran alongside of the whale to enable pictures to be taken of the dorsal fin. It's important to show the length between the dorsal fin and the blow hole. The whales gave us plenty of time to obtain really good photo-IDs.

Towards the afternoon the wind strengthened and the sky became increasingly dark. Time to return a bit earlier. Soon after we arrived back at the harbour, the group went down to the next pier to continue a Biosphere Expeditions tradition. They started the 2009 edition of our mural in the Horta harbour. A spot was chosen next to the other BE drawings and a part of the ground was prepared with the first layer of paint. Over the past few days the group had already worked on hundreds of ideas and was now keen to get the final design on the ground. And because no team member had to leave on an early flight on Monday it was decided to continue with this work the next morning.

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

Bottlenose dolphin: 5 / 310 (encounters / no. of animals)

Common dolphin: 11 / 696

Striped dolphin: 2 / 140

Risso's dolphin: 1 / 30

Sperm whales: 44 / 68 (!!!)

Sei whale: 1 / 7

On the numbers front, there were an impressive amount of encounters and animals: (63 encounters in total with approx. 1251 animals). That is one of the reasons we were not bored on board at all. I hope there will be more memorable moments for all of you. Thanks to everybody for your contribution, enthusiasm and your excellent work.

Please don't forget to use our pictureshare service www.biosphere-expeditions.org/pictureshare.

And as promised: I will upload some photos about our BE drawing in the harbour so that you will be able to see the final result of 2009!

We are now preparing for the next slot and Lisa, Chris and I look forward to meeting the new team members on Saturday.

If travel plans permit, we would like to start in the early afternoon. I will be at Peter's Café between 12:00 and 13:00 for lunch, so please join in if you wish. If you prefer to have your lunch individually please try to be at the lodge no later than 14:00. And: if you are interested in exchanging photos while still in Horta, please bring along a personal USB stick – it's easy and worthwhile!

19 April

All team members of the second slot have arrived safely on the island, unfortunately Jodi without her luggage which finally arrived on Sunday afternoon. Yesterday and today we worked through all the training sessions. The weather outside was less than desirable: visibility is poor (we haven't been able to see Pico mountain since the start of the second slot) and the sea is pretty choppy. But after some safety instructions on board we left Horta harbor today about midday to see how all the theory works out in practice.

We headed north to the shelter behind Faial. Because of the rough sea we had to stay close to the coastline and so we couldn't use our hydrophone to detect sperm whales. It took some time until we had our first encounter: a small school of common dolphins crossed our way. Later in the afternoon we had another random sighting. This time we had a school of about 60 common dolphins that stayed with the catamaran so everybody had enough time to watch them bow riding or jumping.

I don't want to forget to mention that nobody got seasick despite being out at sea the first day under rough conditions. Well, that gives us hope that nobody will suffer over the next few days.

As I write this, everybody is joining one of our evening sessions. Today the team members are listening to one of Lisa's talks on cetaceans (whales and dolphins) and how to identify them and everybody is looking forward to the next few days.

23 April

On Monday we spent eight hours at sea! As we didn't receive any call from the vigias, we headed north to the area where we had all our sperm whale sightings during the first slot. It also meant we could use the natural shelter of Faial to avoid high waves.

During the day we had several sightings of common dolphins – one school of about 300 individuals – and bottlenose dolphins as well. With the help of our hydrophone we were able to locate sperm whales far to the north-west of Faial, about 20 miles away from Horta. We spent the afternoon following two females with calves, a huge male sperm whale and we had two or three additional encounters. Unfortunately we just had two flukes for photo identification as they kept on shallow diving for most of the time. But still it was a satisfying day out at sea. As it was a really long day all team members felt pretty tired in the early evening.

Tuesday the weather started to change, a front was expected to come through. As it still looked not too bad in the morning we prepared ourselves to leave for a half day out at sea again but as no vigias spotted any cetaceans we decided to stay on-shore. Most of the team members went for trip to Pico island.

The weather forecast was very accurate – overnight the bad front came over us. Wednesday it rained all day long. No visibility and the wind made it impossible to leave the harbour. The group split up into a variety of activities throughout the day: sleeping, going out to explore several museums of Horta, data entry and some hours of computer work such as cropping and matching photos, In the evening Bryan worked hard on preparing a marvelous dinner at our home base including a fantastic desert. Thank you Bryan! Afterwards half of the group went out to a handball match to support the local team.

Thursday morning the weather looked really promising, so we prepared ourselves to be out at sea again. Unfortunately Chris then realised that one of the engines was completely out of oil – a leakage caused this major problem. Therefore Lisa organized an alternative for us: friends of hers offered us the use of their boat instead but we had to wait for them to come back from a diving tour. As we were ready to go we had to face the fact that the wind had picked up again and it was too choppy to leave the harbour. A bit disappointed we walked back to our base to listen to another presentation of Lisa's about the Europluke programme. After lunch, sitting in the sun, we all hoped to leave with the boat but it was not to be because the waves were still too high. So, the afternoon was used to drive up to the dramatic caldeira (1031 m), a famous volcanic crater at the heart of Faial with a stunning view over Horta. A second group decided to go for a longer tour to have a look at Capelinhos on the far western side of the island where a year long eruption extended Faial 1975 by 2.4 km of newly formed land. The volcano ejected more than 30 million tons of ash and lava and even today the black layer of ash appears like a moonscape.

The weather forecast for the next days is much more promising – we live in hope!

26 April

It was “just” a gasket that caused the problem with the engine of our boat. Bad luck, but Chris spent a whole day until late evening in finding and solving this problem. Thank you Chris! Being patient sometimes pays off and we were rewarded on Friday, our first day out at sea again after three days of on-shore time. By midday we had sighted common dolphins, Risso's dolphins, a shark and a group of sperm whales. As we spent several hours with the sperm whales we managed to obtain ten different photo-IDs. We also had six sperm whales together at the surface and all pretty close. And there was this very exciting moment when a big male sperm whale turned around to approach the catamaran up to just about five meters. Wow ! Then we had another encounter with a big school of common dolphins and a small group of Risso's dolphins. Lisa spotted a sunfish too (Molidae family, molas or ocean sunfishes, unique fish whose bodies come to an end just behind the dorsal and anal fins, giving them a "half-a-fish" appearance. They are also the largest of the ray-finned bony fishes, with the ocean sunfish *Mola mola* recorded at up to 3.3 m in length and 2 t in weight.)

On Saturday it was mostly sunny with low wind. We headed south of Pico where we had been the day before. On our way to an area where a vigia had spotted whales and dolphins, we came across a group of Risso's dolphins, very likely the same ones we had seen on Friday.

Then we came across a huge group of about 300 bottlenose dolphins, spread out widely around the boat. At times we could see about 30 to 40 dolphins close together causing splashes all over – really impressive. Good fortune seems to be with us after our on-shore days as we had another afternoon with many different sperm whales and good fluke photos. But the highlight of the day was a sperm whale that breached four times in a row just in front of the catamaran! Believe it or not, the last jump was just about 30 meters away from the boat! Just overwhelming. Later in the day we had a big group of bottlenose dolphins again, some of them close to sperm whales. This time the dolphins were much more active, so we were treated to high jumps, loops and lob tailing.

On our way back Jodi spotted a shark during 'turtle time' and Tim detected a blow in the distance, so we got a random sighting of another two sperm whales. A day that probably can't be surpassed. For the last day all team members had baleen whales on their wish list.

In the late afternoon all team members helped to complete and finish our Biosphere Expeditions drawing at the pier.

Sunday was the nicest weather during this year's expedition: sunny all day long and almost flat seas. Of course we didn't expect anything better than the day before, but besides several encounters with common dolphins (one group with an exceptionally pale young calve – probably an albino) and even more sperm whales, we notched up a "new" species: pilot whales. A group of 35 to 40 individuals let us stay with them for while to observe these majestic cetaceans.

And, believe it or not, we saw four (!) loggerhead turtles, although not during 'turtle time'. Unfortunately they seemed to be aware of us trying to catch them for measurement and tagging. It's astonishing how fast they can dive if they get chased. Great to have such a memorable ending of an expedition.

Despite of the bad weather in the middle of the second slot, the number of encounters/animals is pretty impressive:

Bottlenose dolphin: 3 / 506 (encounters / no. of animals)

Common dolphin: 13 / 1057

Risso's dolphin: 3 / 41

Pilot whales: 1 / 40

Sperm whales: 65 / 108 (!!!)

I can't believe that another year of our Azores expedition is already over. It was a pleasure for me to work together with Lisa and Chris again. Thanks to everybody for all your excellent work, support and contribution. Hope to see you again on one of our other expeditions.

Bye for now – Ronald

Please don't forget to use our pictureshare service www.biosphere-expeditions.org/pictureshare. And as I promised slot1: within the next few days you will find some photos on pictureshare of the final result of our BE drawing on the pier. Don't worry, it's all good...