

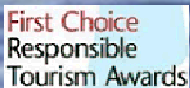


EXPEDITION REPORT

Expedition dates: 4 – 25 April 2011

Report published: March 2012

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



BEST VOLUNTEERING ORGANISATION
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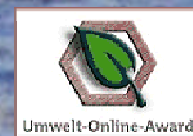
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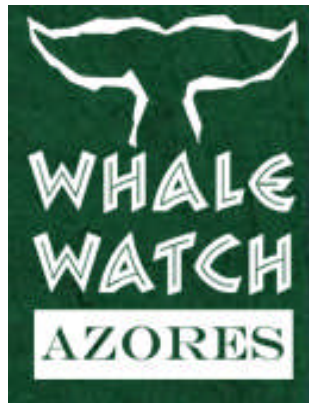
BEST IN SUSTAINABLE TRAVEL
USA



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Germany



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

**Expedition dates:
4 – 25 April 2011**

**Report published:
March 2012**

**Authors:
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Whale Watch Azores**

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University of the Azores**

**Matthias Hammer (editor)
Biosphere Expeditions**

Abstract

In 2011 Biosphere Expeditions concluded its eighth 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 to 25 April and concentrated on six main projects.

Sightings of all cetacean species were recorded. 128 sightings of 9 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 34 identifiable individuals photographed from 78 encounters, including 8 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. This year there were not as many encounters with baleen whales as in previous years, with only a few blue, fin and sei whales encountered. ID photos were taken during all encounters and these will be analysed at a later date.

Dolphin photo-ID

Dolphin photo-identification, which began in 1987 continued. 6 groups of bottlenose dolphin and 5 groups of Risso's dolphin were photographed. Most of these photographs will be analysed at a later date.

Europhlukes

Europhlukes is a European-wide project that 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 seventh 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 2 were sighted.

Sumário

A Biosphere Expeditions 2011 concluiu o seu oitavo ano com sucesso em estudos de cetáceos, com foto-identificação e sua distribuição nos Açores. A expedição foi baseada na Horta, ilha do Faial e o trabalho foi conduzido em torno das três ilhas Faial, Pico e São Jorge. Esta expedição ocorreu entre 4-25 Abril e concentrou-se em seis projectos principais.

Do total de todas as observações de cetáceos foram registadas no total 128 observações de 9 espécies diferentes de cetáceos e 1 espécie de tartaruga. Deu-se continuidade à foto-identificação de cachalotes, baleias de barba, golfinhos roazes e golfinhos de Risso.

Foto-identificação de Cachalotes

Desde 1987 que está em curso nos Açores um programa de foto-identificação de cachalotes, com 34 indivíduos identificados e fotografados em 78 encontros, incluindo 8 animais vistos nos anos anteriores.

Foto-identificação das baleias de Barba

Os registos de baleias de barba, incluindo a baleia-azul, a baleia-comum, a sardinheira e a baleia de bossas, têm vindo a aumentar nos últimos anos. No entanto este ano não houve tantos como encontros com baleias de barba como nos anos anteriores, resultado de poucos avistamentos de baleias-azul, baleia-comum e sardinheiras. As fotos da identificação foram capturadas durante todos os encontros e serão analisadas no futuro.

Foto-identificação dos Golfinhos Roazes e Rissos

Continuámos a foto-identificação de roazes, que começou em 1987. Conhecem-se 6 grupos de roazes e 5 grupos de Rissos que foram fotografados. Estas fotografias serão analisadas num futuro próximo.

EUROPHLUKES

Europhlukes é um projecto Europeu que reúne investigadores diferentes de diversos países para partilhar dados e imagem 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 avistados nos anos anteriores e em outras áreas do Atlântico. Não foram encontradas “combinações”. Até agora nenhuma das fotografias coincide com as encontradas em outras áreas.

POPA

O levantamento de dados foi colectado com sucesso pelo sétimo 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 de “não-pesca” no programa. A informação foi colectada aleatoriamente ao longo de transectos para as observações de cetáceos, as contagens de tartarugas, 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 foi capturada, mais 2 foram avistadas.

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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 5 to 25 April 2011. 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, which coincides with the migration of baleen whales past the archipelago, 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 1400 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 10-day slots, each composed of a team of international research assistants, scientists and an expedition leader. Slot dates were:

4 - 13 April | 16 - 25 April 2011.

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 consisted 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 there was 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 life raft, 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, but there was one badly sprained ankle from an incident on the boat and one sore neck from a minor car accident in town.

1.5. Local Scientists

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

Lisa Steiner graduated in Marine Science in 1988 at the 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.

1.6. Expedition Leader

Jennifer Kraushaar qualified as a vet at the University of Giessen in Germany. As part of her training, she spent time at various wildlife clinics in Australia and Canada. Her work as a vet also took her to Asia where she spent some months working with injured elephants. Jennifer has also completed a one-year course in safari field guiding in South Africa. Her field work experience includes research with lions and field guiding in the Greater Kruger National Park and hands-on chimpanzee work with the Jane Goodall Institute. Back in Europe, she has trained and treated sledge dogs in Norway. For Biosphere Expeditions she has been mainly involved with the Namibia big cat expedition, but also on many other projects.

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 2011

Kristin Alberti (Germany), Susanne Borkert (Germany), Anh Chu (Singapore), C. Walter Clarke (USA), Sandra Clarke (USA), Simone Draeger (Germany), Uwe Draeger (Germany), Achim Frueh (Germany), Sylvia Gerst (Germany), Elke Hermann (Germany).

16 – 25 April 2011

Rebeca Febles (Spain), Annette Herbig (Germany), Kai Herbig (Germany), John Highet (UK), Christof Krug (Germany), Phillip Page (UK), Emily Simmons (UK), Claire Wallace (UK), Ann Windle (UK), Ben Windle (UK).

1.8. Partners

Our main partner on this project is Whale Watch Azores, a whale watching and research group founded by our local scientists and operating from Faial Island. Other partners include 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 (for research into turtles) as well as the local community of whale spotters (vigias). Corporate support comes from Land Rover & Swarovski Optik.

1.9. Expedition Budget

Each team member paid towards expedition costs with a contribution of £1180 per person per 10 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	24,150
 Expenditure	
Base camp and food includes all board & lodging, base camp equipment	4,323
Research vessel & transport Includes fuel, oils, wear & tear for research vessel, taxis on land	3,087
Equipment and hardware includes research materials & gear, etc.	163
Biosphere Expeditions staff includes salaries, travel and expenses to Azores	1,874
Local staff includes whale lookout and other locally staffed services	522
Administration includes registration fees, sundries, etc.	348
Scientific services & logistics organisation Payment to Whale Watch Azores	1,653
Team recruitment Azores as estimated % of PR costs for Biosphere Expeditions	4,887
 Income – Expenditure	 7,293
 Total percentage spent directly on project	 70%

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, as well as donors and grant-givers.

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). Thank you also to Ben Rees for reviewing the draft report.

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.

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2. Whale, dolphin & turtle study

Lisa Steiner
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.

Baleen whales have been seen fairly regularly migrating past the islands from March to June over the last several years, 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 been one match between a blue whale photo taken in the Azores to one taken in Iceland and two humpback whales have been observed in the Azores and the Cape Verdes.

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 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. Most of this work will be done in the future by MSc or PhD students.

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 began 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 on board, 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 (Fig. 2.2a), hydrophone monitoring, filling in the log or collecting water temperatures when required. On occasion crew members may have had to do more than one job.



Figure 2.2a. Data sheet duty

Sperm whales were approached from behind in order to obtain fluke photographs. The baleen whales were also approached from behind but moving further forward to obtain photographs of dorsal fins as well as chevron (fin whale) and mottling (blue whale) patterns. 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 50D with a Canon 100-400 mm lens and a Nikon F70 with a 70-300 mm lens.

Other dolphin sightings were approached for species identification and then the boat usually moved 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, 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, or recordings made and the presence of other whale watching boats.

When loggerhead turtles were sighted, their position was recorded on the POPA forms (Fig. 2.2b). If an animal was caught, then it was measured and tagged for the University of Florida/University of the Azores turtle tagging programme. Positional data were also recorded.



Figure 2.2b. POPA duty.

When the boat returned to port, there was a debriefing on board to show where the boat had been during the day and later sperm whale photos were matched to the catalogue (Fig. 2.2c).



Figure 2.2c Matching sperm whale photos.

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

2.3. Results

2.3.1. Effort

The *Physeter* normally left the harbour around 09:00 and return around 16:00 weather permitting. The boat went to sea 12 days during the expedition and spent between 2 and 7 hours per day on the water, with an average of 5.25 hr. A total of 63 hr with sea conditions below sea state 5 were recorded. A comparison of the yearly effort since 2004 is presented in Fig.2.3a. It should be noted that prior to 2009, expedition slots were 13 days and have since been reduced to 10 days. Also note that in 2009 and 2011 there were no expedition slots in May.

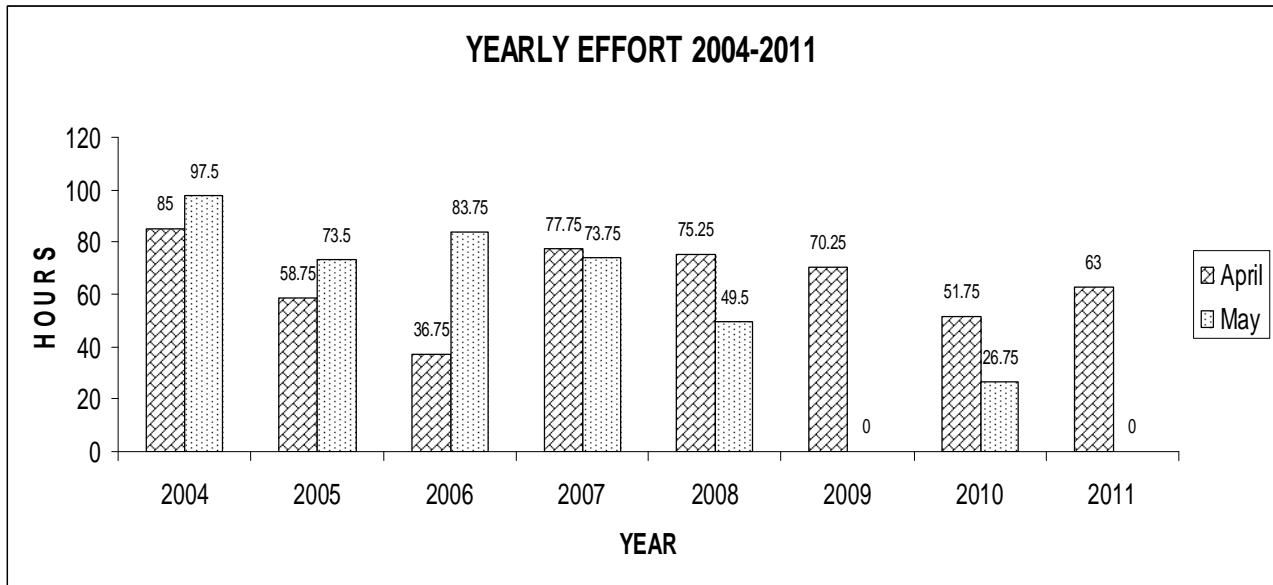


Figure. 2.3a. Yearly effort.

2.3.2. Encounters

During the expedition 50 groups of non-sperm whales and 78 sperm whale groups were encountered (Table 2.3a.).

Table 2.3a. Species encountered.

COMMON DOLPHIN, <i>Delphinus delphis</i>	30
BOTTLENOSE DOLPHIN, <i>Tursiops truncatus</i>	6
RISSE'S DOLPHIN, <i>Grampus griseus</i>	5
STRIPED DOLPHIN, <i>Stenella coeruleoalba</i>	2
BLUE WHALE, <i>Balaenoptera musculus</i>	4
FIN WHALE, <i>Balaenoptera physalus</i>	1
SEI WHALE, <i>Balaenoptera borealis</i>	1
BEAKED WHALE <i>Mesoplodon sp.</i>	1
SPERM, <i>Physeter macrocephalus</i>	78

These encounters resulted in a relative sightings frequency as shown in Fig. 2.3b. Sperm whales were the species encountered most at 60%, followed by common dolphin. These two species accounted for 84% of all sightings. Sperm whales were omitted from the chart below to give a better scaling.

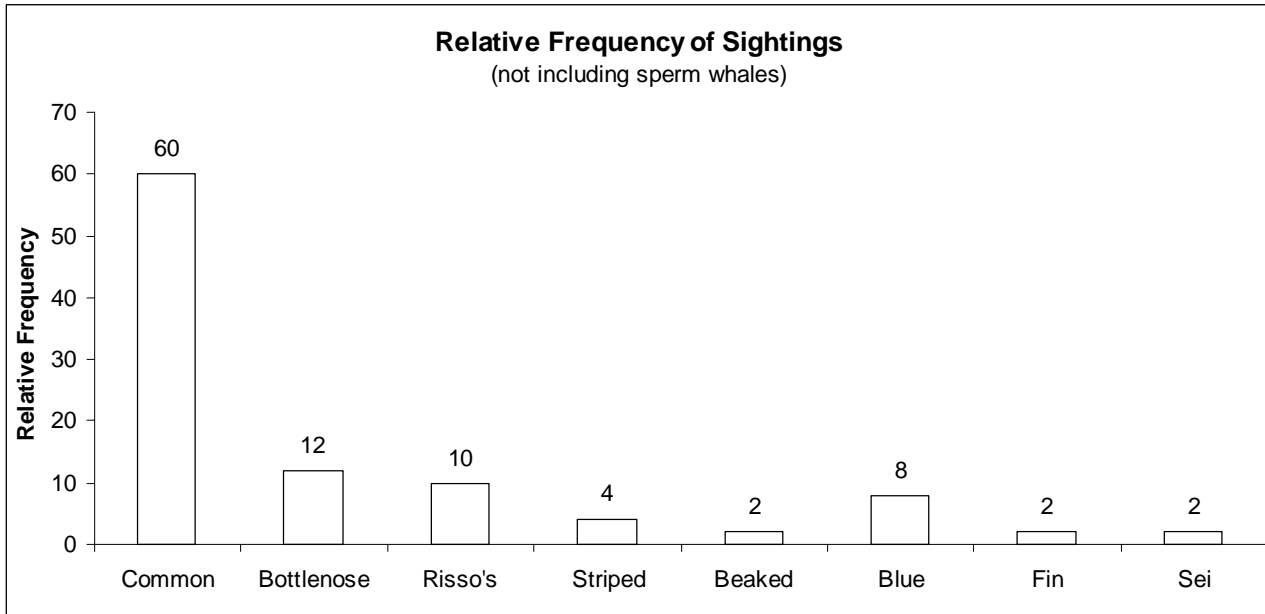


Figure 2.3b. Species sightings frequency (excluding sperm whales).

2.3.3. Species sightings

Common dolphin

This species was encountered 30 times. The group size ranged from 2-500 and the average group size was 88.2 (Fig. 2.3c). This group size is similar to the average group size from existing data for June-September. Calves were first observed on 10 April and seen 9 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 few months old. There was no significant difference in group size when calves were seen in the group: an average of 129 versus 70 when no calves were present in the group. This is a different result than that found in most other years, but the same as in 2010. It is most likely due to the relatively small number of groups with calves observed.

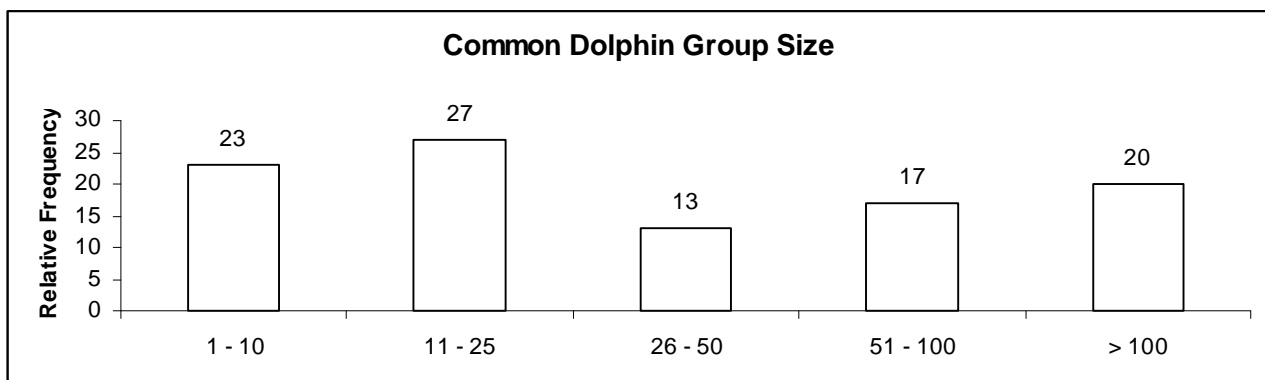


Figure 2.3c. Common dolphin group size.

The most common behaviour observed by common dolphin was bowriding followed by travelling then milling. They were not seen feeding (Fig. 2.3d).

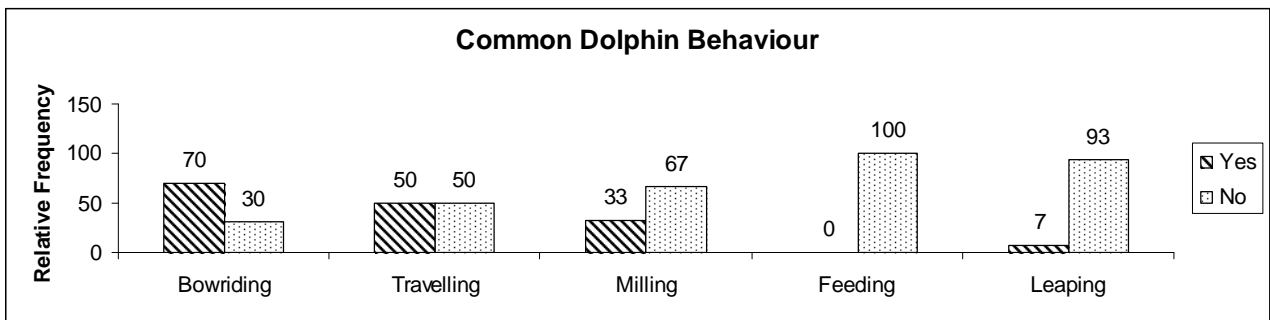


Figure 2.3d. Common dolphin behaviour.

Bottlenose dolphin

This species was observed six times. The group size ranged from 2-100 and average group size was 26 (Fig. 2.3e). This is similar to the average of 27.3 seen when considering previously collected data. No bottlenose dolphin calves were seen during the expedition.

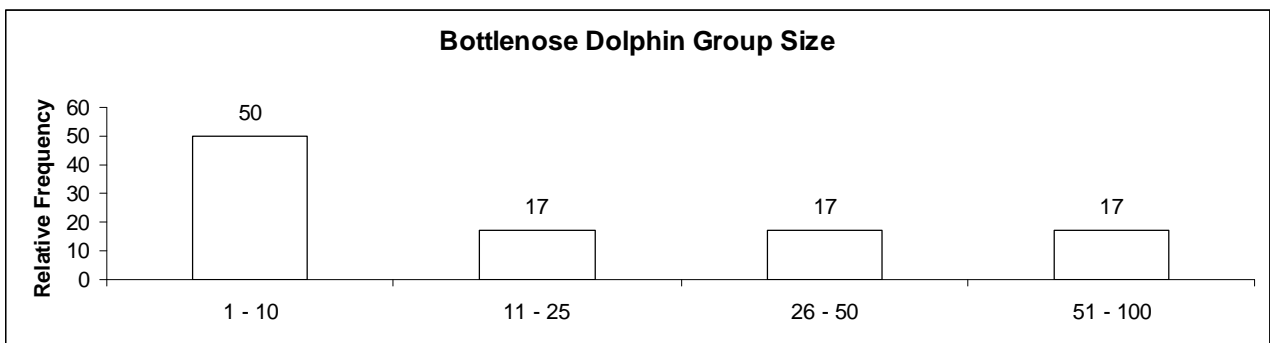


Figure 2.3e. Bottlenose dolphin group size.

Bottlenose dolphins were most frequently observed bowriding and then travelling (Fig. 2.3f). No feeding was observed.

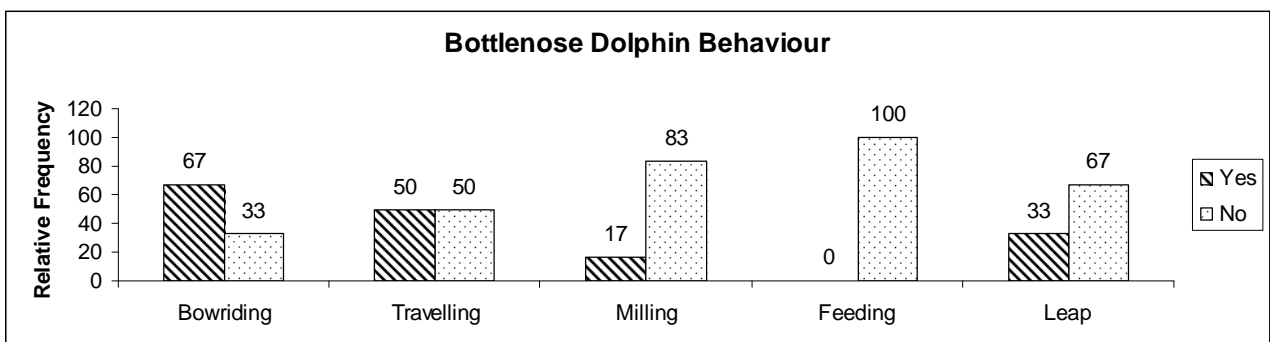


Figure 2.3f. Bottlenose dolphin behaviour.

Photo identification pictures were taken for the groups observed and some of the resident animals were seen (Fig. 2.3 g). However, these photos will be analysed at a later date.



Figure 2.3g. Bottlenose dolphin photo ID.

Risso's dolphin

This species was observed five times. Average group size was 4 ranging from 1 to 9. No calves were seen.

Only a few of the usual resident animals were seen during this expedition (Fig. 2.3h). "Naked Lady", popular with past expeditions, was seen briefly on 12 and again on the 17 April. The bottom right animal I have nicknamed "Tui" due to the scratch markings on the fin reminiscent of the Tui logo. Judging by the colouration patterns on their bodies, all the Risso's observed were older adults. Risso's dolphin become whiter as they age and these were in the 3rd or 4th category out of 4, adult-marbled or adult-white. The fact that no calves were observed may indicate that these individuals are males.



Figure 2.3h. Risso's dolphin dorsal fin photo ID.

Behaviour of Risso's during 3 of the 5 encounters was travelling, on the remaining two encounters the group was milling.

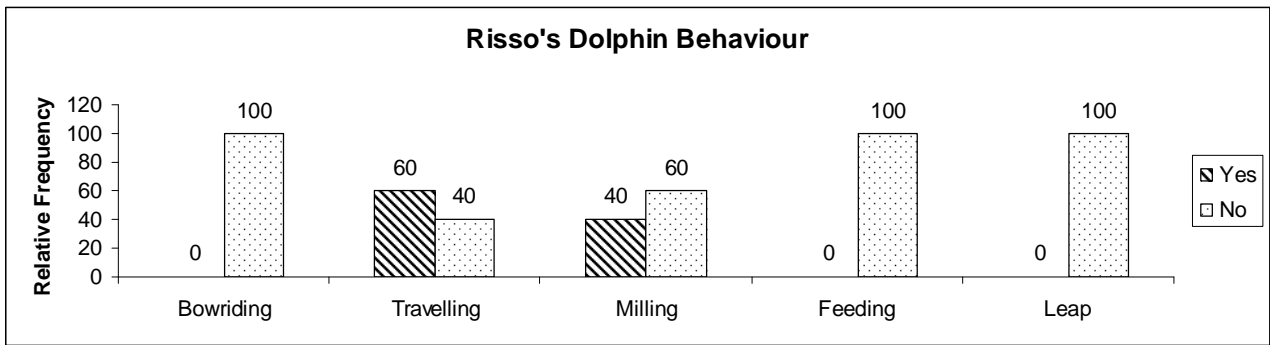


Figure 2.3i. Risso's dolphin behaviour.

Striped dolphin

Striped dolphins were also only seen two times. Average group size was 45. Calves were seen during both encounters. One group was milling and the other travelling and bowriding. No feeding or leaping was observed.

Beaked Whales

A group of 3 beaked whales was observed on 23 April. The species was not able to be confirmed.

Sei whale

Sei whales were encountered once. Two individuals were seen travelling to the West. ID photos were taken of the dorsal fin of one individual (Fig. 2.3j). No photos were obtained for the second individual. These photos will be analysed at a later date.



Figure 2.3j. Sei whale photo ID.

Blue whale

Blue whales were observed on four occasions. Three sightings were of single individuals travelling and the other was a mother and calf also travelling. Identification photos (Fig. 2.3k) were taken of all the animals and sent to Richard Sears for matching to the Atlantic catalogue. No matches were found.



Figure 2.3k. Blue whale photo ID.

Fin whale

Fin whales were seen once. A group of 4 individuals was observed travelling. No calves were in the group.

Photo identification pictures of the chevrons and dorsal fins were obtained (Fig. 2.3I) and these photos were sent to the College of the Atlantic for matching to their Atlantic catalogue. No matches were found.



Figure 2.3I. Fin whale photo ID.

Sperm whale

Sperm whales are one of the main target species of the expedition. They were encountered 78 times comprising 140 animals (not all different individuals). The average group size was 1.79, ranging from 1-12, which is similar to that encountered during other parts of the summer. Five different large males were seen and females with calves were observed 17 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. 34 individuals were identified in total, 26 new animals and 8 from previous years. We had a few outstanding sperm whale days with 13 individuals identified on 1 day and 8 on another day! This year's IDs include "1333", previously observed in 1990, 2005, 2007, 2008 and 2009, as well as "2639" seen in 2003, 2004 and 2007, 2010. Whale "3273" seen in 2005, 2007 and 2008 was also observed (Fig. 2.3m).



1333



3273



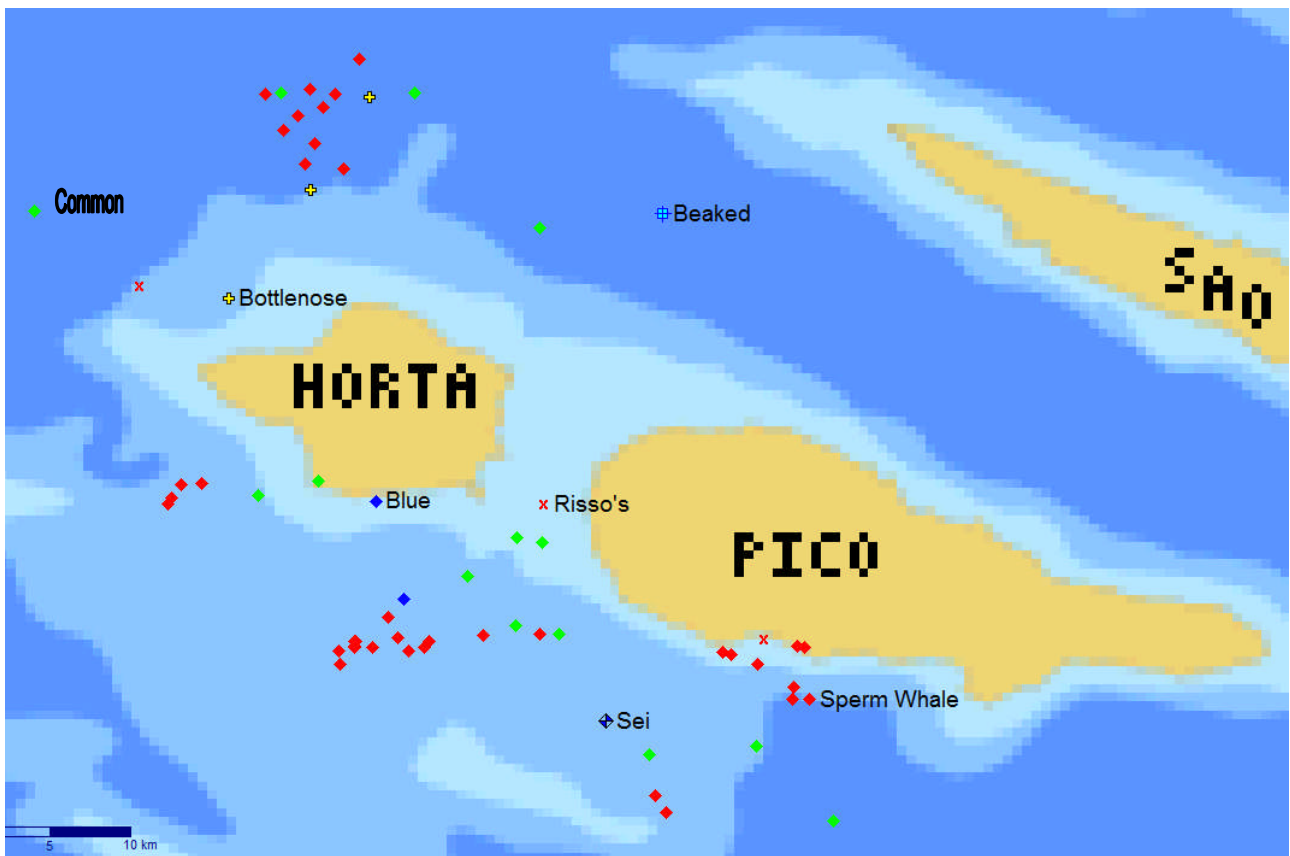
2639

Figure 2.3m. Sperm whale photo ID.

Sightings during the expedition.



Slot 1



Slot 2

Figure 2.3n. Sightings during the expedition.

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 usually greater at this time of year than any other time of the summer. Sightings of baleen whales are unpredictable, but the use of lookouts (vigias) on the cliffs greatly enhances the chance of sighting the animals.

There were not many sightings of baleen whales this year. There were, however, several sightings after the expedition finished. The difficult thing about planning the timing for the expedition, is “predicting” when the baleen whales will be passing. A few years ago, the bulk of the sightings occurred before the expedition began, this year it occurred in May/June. The sighting of the blue whale calf is a promising sign that this species may yet recover from the depletion suffered during the whaling era (but note that blue whales were not actually hunted in the Azores)

This year’s ID photographs were sent to the respective catalogues (apart from sei whales), but no matches were found. It is important to continue the photo-ID project, because as more photos are added to the catalogues from around the Atlantic, the pieces of the puzzle may finally start to come together and give us an idea of where the baleen whales are coming from and where they go to feed. To date there has been one match from the Azores to Iceland for a blue whale (although not my photo) and a few inter-Azores photos. There have also been two humpback whales sighted in the Azores that have also been seen in the Cape Verde Islands. I always get a big thank-you from the people responsible for the catalogues and they continue to tell us what an important contribution our baleen whale photos are, since the Azores may be a route marker for animals travelling north. Most researchers will not risk coming to the Azores to find baleen whales, because their migration patterns are just too unpredictable as seen by our success (or lack thereof) in finding them. The researchers could come to the islands for a couple of months and not find a single animal. We have the luxury of already being in place and with the vigia (lookout) network, if the animals are present, we can take advantage of any opportunities that present themselves.

This year’s sightings of the resident bottlenose and Risso’s dolphin were in line with previous years. We saw resident individuals of both species, although the Risso’s dolphin were not the same residents that were seen on previous expeditions. This year we came across groups of males instead of females and calf nurseries that have been sighted previously. A researcher studying Risso’s dolphins did see the groups of females, just further down the coast of Pico than we went.

Sperm whales were again sighted frequently, including females with suckling calves, as has been observed in previous expeditions, as well as several big males. Before Biosphere Expeditions began, we expected that it would be mainly large males that would be encountered in this early part of the summer, but this has again proven not to be the case, although we do tend to see more males in the spring than the rest of the summer. Males were observed 9 times during this expedition (not all different individuals). This year most of the males were sighted alone at the surface, only twice were pairs of males observed together. But the others may actually have been in groups of 2 or 3, since a few different males were seen on the same day. This is normal for very large males, the older they get, the more solitary they become.

In October 2009, I presented a poster on the movements of male sperm whales around the Atlantic at the Marine Mammal Conference in Quebec (with assistance from the Friends of Biosphere Expeditions). 3 of the males seen in the Azores were matched to animals re-sighted in Norway in 2007 and 2008. This has given us the first indication of where the males we observe may go when they are not in the Azores. This collaboration with biologists working in Norway is continuing, but none of our males from this year's expedition matched to Norway or elsewhere.

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. There is some indication that more "unknown" individuals are present in the early part of the season with the "known" animals arriving later. It would be very interesting to see which individuals are present in the archipelago over the winter. Maybe some groups prefer to summer in the Azores and others the winter. The weather in the winter is the main obstacle to investigating this theory.

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 they 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. We have been collaborating with two whale watching companies that operate out of Saõ Miguel as well as renewed collaboration with one of the companies from the South of Pico for the last couple of years. Several matches exist between the catalogues, indicating that there is movement of the animals around the archipelago. In 2011 collaboration began with SEACAC, a research organisation in the Canary Islands. This collaboration has already provided several matches between the areas. Two of these animals have been sighted in the Azores, seen in the Canary Islands and returned to the Azores! This shows that some female sperm whales undertake a limited migration. This work will hopefully be published in the near future.

In 2009 a doctoral thesis by Ricardo Antunes was completed at St. Andrews University, using the Azores photo-ID database of individuals from 1987 to 2007. This was used to analyse the social structure of sperm whale groups found in the Azores, looking at long-term relationships between individuals and patterns of residency around the archipelago. He has shown that there are differences between the groups of sperm whales observed here to those in the Pacific. The groups of animals we observe in the Azores are more stable and associations of individuals last for a much longer period of time than they do in the Pacific. This is most likely due to food availability in the different areas.

Two collaborative projects are currently underway with the University of the Azores looking at the sightings of the sperm whales as well as the baleen whales with respect to environmental data collected by the university (depth, slope and tide as a few examples).

In conclusion, this expedition was a success for the eighth 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 quite a few dolphin sightings. 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; make spotting the animals, especially dolphins, difficult for observers on the boat as well as the vigias on 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. This is also a very satisfying way to end a day's work of observations!

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 5 and 25 May 2011 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 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” / “Dolphin Safe” tuna fishery certification.

3.2. Results

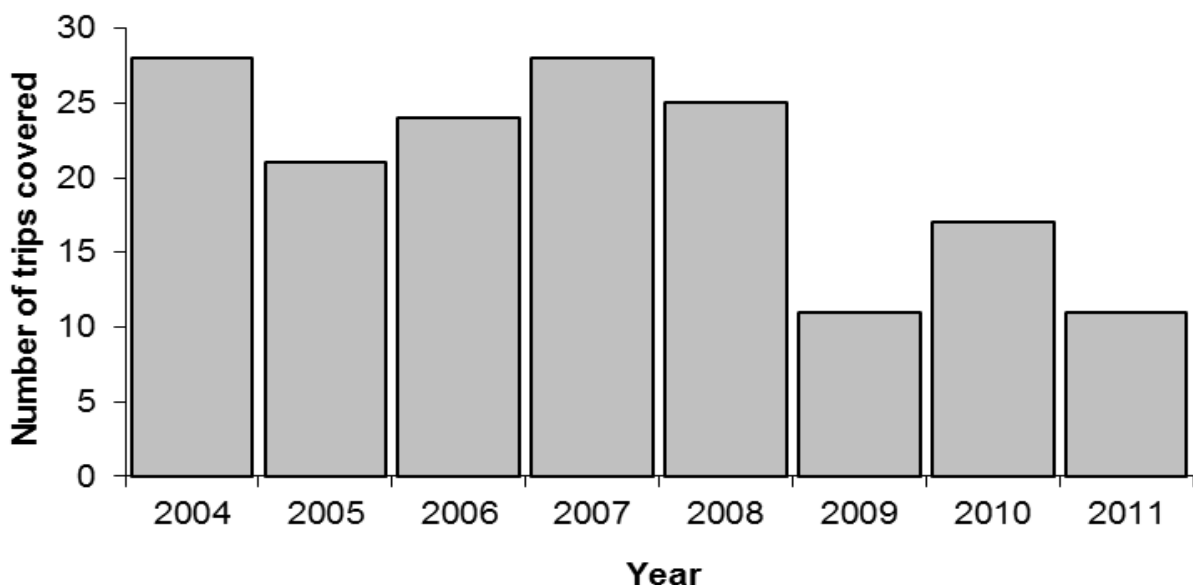


Figure 3.2a. Trip coverage in the 2004-2011 period.

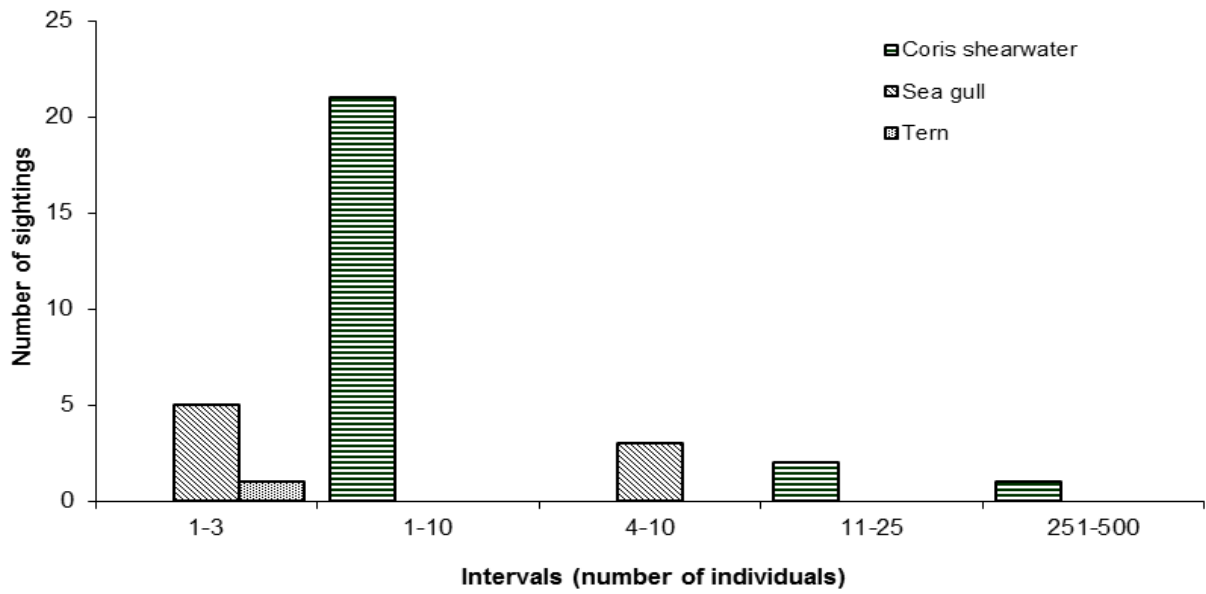


Figure 3.2b. Species of seabirds observed in 2011.

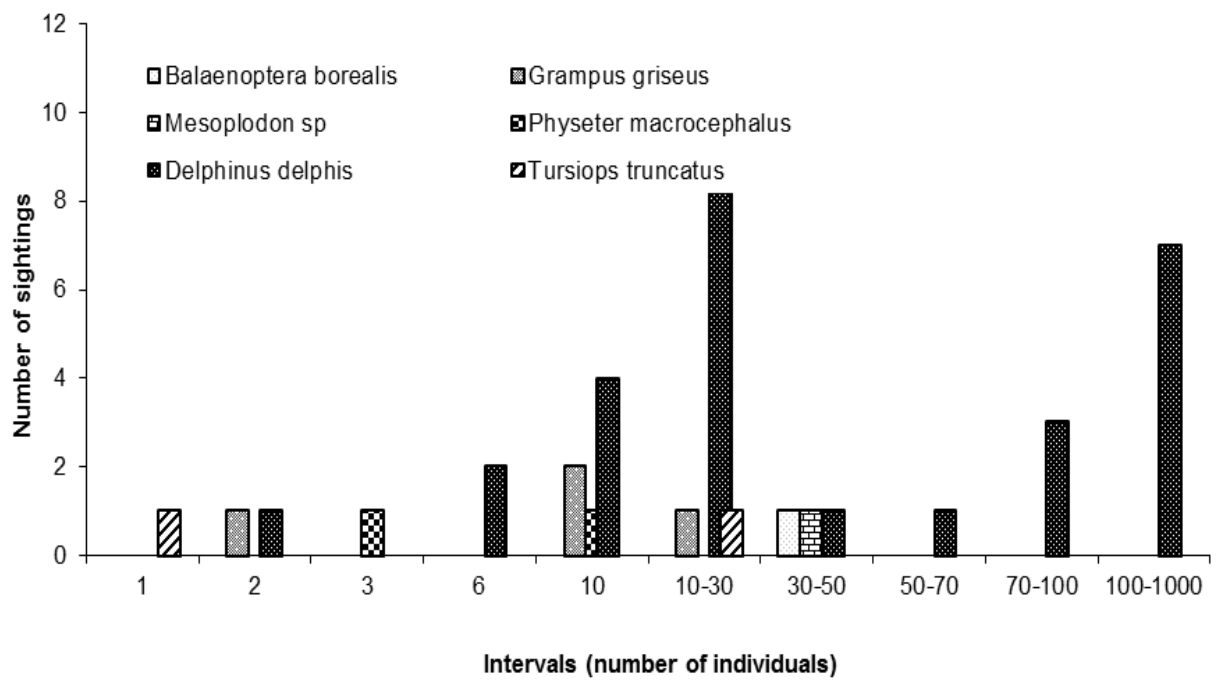


Figure 3.2c. Species of cetaceans observed in 2011.

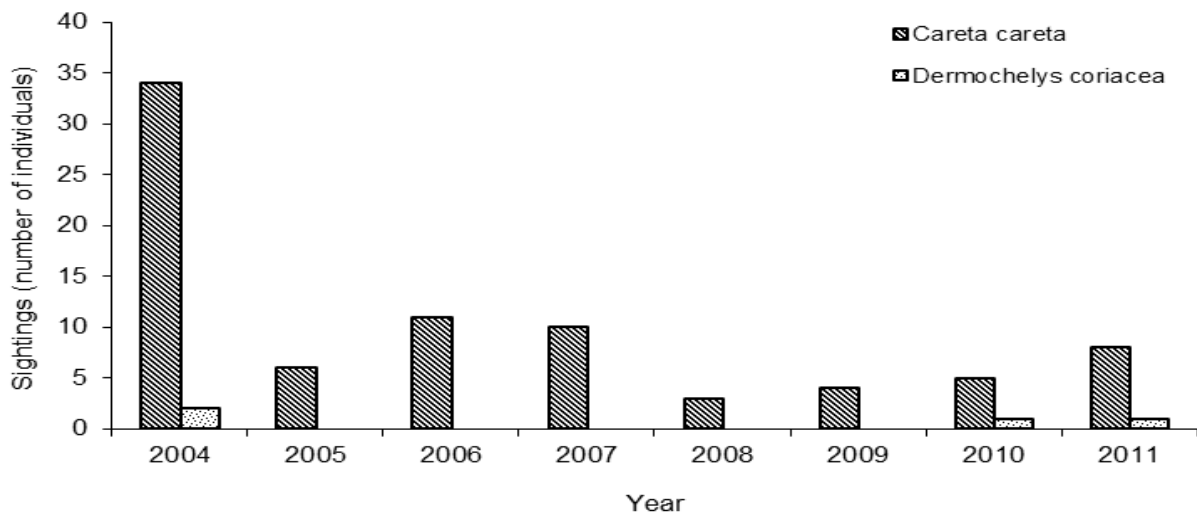


Figure 3.2d. Species of turtles observed in the 2004-2011 period.

3.3. Discussion

POPA has proved that accidental capture of cetaceans in the tuna fishery in the Azores is highly insignificant and no records of mortality of cetaceans have ever been reported (Silva et al., 2002*). But the POPA programme's relevance extends well beyond the "Dolphin Safe" issue. In recent years the POPA dataset (which includes data collected by Biosphere Expeditions) has been frequently requested for several research projects regarding the ecology, biology and fisheries of target and associated species. A recent example of this is the inclusion of POPA data in the OBIS-SEAMAP map database. OBIS-SEAMAP is a spatially referenced online database, aggregating marine mammal, seabird and sea turtle observation data from across the globe.

Besides the scientific outputs, the data collected by POPA observers are also available for NGOs, government and to the fishing industry. The 'Friend of the Sea' (FoS) Organisation has requested such data to evaluate tuna fisheries in the Azores in order to aid its decision about its certification as a sustainable and environmental friendly fishery (which was obtained in 2001 and has been retained since). The tuna canning industry is investing in eco-labelling promotions, consumer information products and packaging, and frequently asks POPA to support their initiative with scientific information. Certifications such as 'Dolphin Safe' and 'Friend of the Sea' are important to the industry.

Finally, fishermen and boat owners regularly consult POPA to benefit from data collected in previous years in order to make their activities more sustainable and less harmful to the environment.

* Silva, M.A., Feio, R., Prieto, R., Gonçalves, J.M. & Santos, R.S. (2002) Interactions between cetaceans and the tuna fishery in the Azores. *Marine Mammal Science*, 18(4): 893–901.

4. Expedition leaders' diary by Jenny Kraushaar

25 March

Hello my name is Jenny and I will be your expedition leader on this year's Azores expedition - Fascinating creatures of the deep: Studying whales, dolphins and turtles around the Azores archipelago in the Atlantic Ocean.

I am writing this from Germany, where I have just packed up the gear and gone through the pre-expedition briefing (see video clip on www.facebook.com/biosphere.expeditions1 - and you don't need a Facebook account to watch this, just click on the link and go to the "Wall") and I look forward to flying to Horta next week. This will be my first time on this particular expedition, after many months of leading the Namibia project. If you are worried about seasickness, you are not alone, as I have a tendency to feed the fish too ;) so we can be green together. I keep telling myself that Nelson too suffered from seasickness...

See you soon

Jenny Kraushaar
Expedition leader

3 April

A quick hello from the sunny harbourside at Horta (also see video diary at www.facebook.com/biosphere.expeditions1). Our local scientist Lisa is busy preparing the last datasheets and we are currently getting the boat ready for our 2011 expedition. The whales are around already and Lisa can't wait to get out, collecting new data as soon as possible. As the planes weren't on time over the last couple of days due to fog, please let us know about any delays as they happen by sending me a text or giving me a call on + 351 96 2338060. If you are already on the island, you are welcome to meet for lunch at around 11.30 at Peter's Cafe Sport. Otherwise we will meet at 13.00 the latest, at our base, Casa do Lado, as per the instructions in the dossier.

Until then...

Jenny (& Lisa)

6 April

With fog causing a few delays, happily everyone still managed to arrive in Horta on the afternoon of our first day. After a hot cup of tea we got stuck into our training, learning about the datasheets, boat safety and whale differences. A little unlucky with the weather, we only visited our catamaran, the "Physeter", without taking her out to sea. We did however receive all the instructions we need for being on board. The evening proved what a great team spirit there is amongst the team when everyone ordered the same dinner. The forecast looks good for wednesday and the baleen whales are close to the islands, so everyone is excited to head out and count their first whale blow rates.

9 April

Everyone went on the boat for the first time on a lovely sunny day on Wednesday and only 45 minutes later we spotted a bottlenose dolphin followed by a school of common dolphins. The waves continued to grow, but it was worth the ride, as we also came across four fin whales and a blue whale!

After an onshore day due to bad weather, on Thursday, we observed two more two blue whales on Friday. We've also learned how to match the flukes and dorsal fins of "our" cetaceans to a pan-European catalogue to check if our cetaceans have been seen elsewhere and we are now waiting for the matches to come back. It's a bit like working on a Scotland Yard DNA or fingerprint matching murder mystery and good fun.

12 April

The last couple of days have been very successful. We went out in mostly calm seas and our last day on board was all sunshine and smiles. The sperm whales kept us busy as 13 individuals came up within one hour. Susanne was lucky having Uwe as an assistant for counting all the whale blows around the boat and Elke put in a sterling effort to get good shots of the flukes for our photo ID catalogue. The evenings were spent at Peter's Café wondering how to spot a turtle within turtle time. This first group has had a remarkable run, sighting the three biggest whale species within a week: 20 different individuals of sperm whales, 4 fin whales, 3 blue whales, plus more than 1000 dolphins (common, striped and bottlenose) and even Risso's dolphins. Great work everyone and thanks for all your efforts.

16 April

Welcome to Faial, group 2. The forecast was good for Sunday, so we did most of the training on the first day, on Saturday, and then applied our new skills on board the day after. Rebecca and John were the first on POPA duty and experienced how busy it can get with datasheets. The day was very calm and we came across turtles, sunfish, Risso's dolphins, sei whales, sperm whales, common dolphins and even a flying fish! It was an amazing day. On Monday we decided to do some data entry and get some more information about whales and dolphins on shore as 32 knots of wind were just too much. We were also successful with matching flukes as two of "our" Sunday sperm whales have previously been recorded in 2003 and 2008 and one group 1 whale in October 2010. These kind of finding are very important for finding out about migration routes, group composition, etc. of sperm whales. Since sperm whales are true creatures of the deep, next to nothing is known about this,

So each piece of the puzzle we can add is important.

21 April

After a day onshore, hiking at the (volcanic) caldeira, exploring the volcano in a sandstorm and visiting the whaling museum at Horta, we left the harbour on Wednesday finding sperm whales which arrived here in December. A male group of Risso's dolphins that we only expected in September also came along to say hello.

In the evenings everyone is busy preparing the next day's jobs. On Thursday we decided to go out despite the stormy weather and were rewarded by coming across a female blue whale with a calf. So John fulfilled his lifelong ambition to see the biggest creature that has ever lived on Earth. In spite of the extremely arduous conditions, "all the brothers were valiant" (Captain Ahab, Moby Dick).

25 April

The sun appeared over Faial during the last few days and we were able to spot more sperm whales out at sea. Rebecca was very brave and joined us on board even with an injured foot. After we had prayed in the last week for a humpback whale to appear, we came across a creature we couldn't quite 100% identify, so we decided to trust our judgement and counted it as a humpback.

We also want to send a big hello to slot 1: we managed to finish the painting at the harbour (see picture on www.facebook.com/biosphere.expeditions1).

In the evening everyone was enthralled by a Spanish card game called "BURRO", where we definitely improved our reaction skills. On the last evening we celebrated our great results at Peter's and finished the last bottles of wine with smiles at Casa do Lado.

Thanks to all of you for all your efforts and a great & successful expedition. Hopefully we'll see you on another expedition soon.

Jenny Kraushaar
Expedition Leader