

Considerations about regulations of boat-traffic off the south coast of Pico/Azores



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Table of contents

	page
Preface	2
1 Preamble	3
1.1 The Azores-archipelago	3
1.2 Home of Cetacean	3
1.3 Development from Whaling to Whalewatching	3
2 Materials and Methods	4
2.1 Observationtime and –area	4
2.2 Observationmanner: Boatbased observations	4
2.2.1 Boatypes	4
2.2.2 Time and duration of expeditions	5
2.3 Observationdata	5
2.3.1 Definition: Sighting	5
2.3.2 Obsevation-logs	5
2.3.2.1 Sighting’s coordinates	5
2.3.2.2 Species	5
2.3.2.3 Group-size	5
2.3.2.4 Group-structure	5
2.3.2.5 Behavior	6
2.3.2.6 Further Data	6
2.3.3 Nautical Map	6
2.3.3.1 Sightings	6
2.3.3.2 Determination of depth	7
2.3.3.3 Classification	7
2.3.4 Table and graphs/charts	7
3 Results	7
3.1 General results	7
3.2 Observed Species	8
3.3 Observation times	9
3.4 Observated Areas	9
3.5 Behaviour	10
4 Consideration about boat-routes	10
4.1 Preview	10
4.1.1 Whalewatching-organizations	10
4.1.2 Whalewatching-rules	11
4.1.3 Databasis	12
4.2 Possible Threats for cetacean caused by boat-traffic	12
4.3 Boat-routes-courses	12
4.3.1 Route 1	12
4.3.2 Route 2	13
4.3.3 Route 3	13
4.3.4 Temporally Consideration	13
5 Discussion	13
5.1 Possible sources of error	13
5.1.1 Difficulty of the vigias	14
5.1.2 Summary	14
Literature	15
Appendix	from 17

Preface

People were always fascinated by whales and dolphins. All times there have been stories and narrations about lone dolphins, that lived close to man. There even were some close friendships between dolphins and humans.

Nevertheless people started killing whales and so they were nearly exterminated. After many species were threatened with extinction most of the nations noticed that they have to quit with whaling. Today the IWC (International Whaling Commission) controls the abundance of the prohibition of whaling. Due to this the populations slowly recover.

Over the past years whalewatching has become very important all over the world. That's how it is possible for us to learn more about cetaceans and to protect them.

Many people make money with whalewatching and in some areas it is an important branch of the tourist-economy, because whalewatching is very popular.

But excessive whalewatching can be very dangerous for cetaceans, because it can lead to negative affects on their behaviour.

We are very interested in whales and we would love to become marine biologists someday. That's why we went to the Azores for two weeks last summer. There we worked together with Dr. Christina Schnug on a research project concerning the whale populations off the island Pico. While our stay we had the chance to sight whales and dolphins and get to know the work of marine biologists.

Every second day we had an expedition and collected data about whale-sightings which we analyzed the other days. With that way we could help Dr.Christina Schnug with her own scientific work.

Repeatedly we noticed that there were a lot of whalewatching-boats around a whale or a pod of dolphins. This means possible stress for the cetacean.

We think that it is important to do something against it, because it's necessary to protect the whales.

So we had the idea to do this research project, which might help to protect the whales of the Azores and give the basis for whalewatching-tourism there, which is important for the locals.

Preamble

1.1 The Azores-archipelago

9 islands of volcanic origin, being located in the middle of the Atlantic ocean about 1400 km off the coast of Portugal and building up the highest elevation of the Mid-ocean Ridge, form the archipelago of the Azores. Although man had already settled down in 1427 there's still a lot of intact nature and due to the disconnection of the mainland many endemic species could develop.

1.2 Home of Cetacean

Advantaged of their location, the Azores are, at least temporarily, home to approximately 22 whale species, resident as well as transient ones. With high regularity wandering baleen whales like Blue whale (*Balaenoptera musculus*), Finback whale (*Balaenoptera physalus*) or Sei whale (*Balaenoptera borealis*) can be seen. Once a year they travel from the mating areas near the equator, where the females calve, too, to the nutrient-rich feeding grounds in the arctic waters. Thus they are only seen from April to June on the Azores, when they pass by the islands.

Other species are resident and therefore seen throughout the year in Azorean waters. One of these species is the sperm whale (*Physeter macrocephalus*). But only females and calves can be seen in summer-time, because they raise their calves in this region while male animals arrive in September, coming from Norway.

Other resident species are several dolphin species like Risso's dolphin, Bottlenosedolphin, Atlantic spotted dolphin and common dolphin.

Infrequently seen are Beaked whales, especially Sowerby's beaked whale and Northern bottlenose whale, as well as Pilot whales and Orcas.

Because of the geographical distinctiveness of steeply sloping shore, the Azores offer a great diversity of food for Cetacean, e.g. squid and other pelagic fish.

1.3 Development from Whaling to Whalewatching

Due to the high biodiversity and frequency of which whales can be seen, the Azores are one of the best spots for Whalewatching as well as research. However, not until 1986, when the last sperm whale was killed off the island of Pico, whaling was the most important basis of life of the people on the Azores. Since 1991 more and more whalewatching-organizations developed, predominantly on the isles of Pico and Faial.

This project concentrates on sightings off the southcoast of Pico, where there are altogether 5 whalewatching-organizations. During the data-collection offshore, it'd been repeatedly noticed, that many boats from different organizations and towns were present near one whale or dolphin pod and maybe even followed them. “[...] whale watching alone, if performed over longer periods in an unsustainable manner, can pose a serious threat to cetacean populations. This can lead to the assumption, that the use of whales for tourist purposes probably is just one more form of harmful exploitation of cetaceans [...]”¹ Thus it was made considerations about a boat-traffic regulation by dint of special boat-routes to protect the animals from possible negative impacts of whalewatching-tourism. The results are presented consecutively.

Materials and Methods

2.1 Observationtime and –area

The observationtime was the period between end of June and mid-September 2004. The used data was from 08th July 2004 to 19th September 2004.

The region of the observations was off the southcoast of Pico covering the area from 38°16' to 38°26' northern latitude and 27°52' to 28°38' western longitude. This reagon is 700 to 1800 m deep.

2.2 Observationmanner: Boatbased observations

The data was exclusively collected during boatbasesd observations. All trips started from Lajes do Pico (38°24' latitude, 28°15' longitude).

2.2.1 Boatypes

For the observation-trips the vessels of the whalewatching-organization AquaAcores from Lajes were used. This organization allocates 3 vessels of different size, which are also used for Tourism. The biggest one, “Abismo”, is 11m long and for 10 persons maximum. “Baleeiro” is 8m in length and intended for 8 persons while the smallest one is 6.4 m and for 6 persons. The vessels reach 13, 25 and 23 mph at most and 11 and the two smaler vessels 16-17 mph at an average. (see Appendix picture 1-3)

2.2.2 Time and duration of expeditions

Depending on weather there were trips twice a day at 10:00 a.m. and 2:00 p.m. One trip lasted 3 to 4 hours.

2.3 Observation data

2.3.1 Definition: Sighting

An observation was called a sighting, when there'd been at least one individual of the order of Cetacea of which the species could be defined without doubts and which could be observed at least 1 minute.

2.3.3 Observation-logs

The data collected during the whalewatch-trips was noted down in observation-logs for analysis afterwards. (see Appendix) Furthermore data of Portuguese observers was used.

2.3.3.1 Sighting's coordinates

The exact sighting locations were determined with the help of the Global Positioning System (GPS). If there wasn't a GPS aboard during a trip, the local skippers estimated the approximate position and the distance from shore. The coordinates were then determined afterwards.

2.3.3.2 Species

The species of sighted whales could be determined because of explicit characteristics like blow, color, painting, tail fluke, dorsal fin, shape of the head and size. (see Appendix)

2.3.3.3 Group-size

The group size of dolphin-pods was estimated by counting the animals seen at one time and setting the amount as one third of the pod. Then twice the visual-determined number was added.

Getting the number of whales was easier for you can get the exact number by counting the seen blows.

2.3.2.4 Group-structure

It was tried to determine the group structure of the seen pod or animals. Possibilities were "adult", when only adult animals were seen; "juvenile", when there'd been at least one

juvenile; “calves” with at least one calf in the group and “all” when at least one individual of adults, juvenile and calves were seen.

2.3.2.5 Behavior

As far as it was possible, the behavior of the observed animals was noted. The following behavior patterns were possible:

- (1) Resting = the animal/the group stays calm at one place without any noticeable
- (2) Feeding = especially dolphin pods; the group swims fast and formed up, contingently bait ball observable, typically hunting patterns can be seen
- (3) Travelling = the animals move fast in one direction without any other noticeable activities or interest in boats
- (4) Interested = the animals show interest in whalewatch-vessels. Signs can be spyhopping,
- (5) Avoiding = the individuals depart from the boats at a great pace, dive immediately when a boat arrives and might show signs like lobtailing or other activities to show, that they feel disturbed by the
- (6) Social Active = this behavior pattern includes activities like mating, breaching, wave-surfing or other high-activity patterns
- (7) No pattern = no behavior noticeable
- (8) Rest and Dive = the animals stay calm at first and dive finally
- (9) Dive = especially whales, e.g. Spermwhale, descends after a short time for possible hunting of because they might be disturbed by the boat. The tail fluke can be seen.

2.3.2.6 Further Data

Furthermore date, time, observation-duration, weather, wave-level, windspeed, winddirection and the name of the observing vessel was noted in the log.

2.3.3 Nautical Map

2.3.3.1 Sightings

The location of the sightings were marked in a nautical map of the region, using the determined coordinates. One dot accords to one sighting and different colors were used for different species (see Appendix)

2.3.3.2 Determination of depth

With the help of the mean aerodynamic chord shown in the nautical map the depth of the observation-location was determined and noted.

2.3.3.3 Classification

For better overview the observation-region had been classified in the following 10 subareas. (see Appendix)

subarea 1:	27°50'-28°00'	and	38°28'-38°22'
subarea 2:	28°00'-28°10'	and	38°28'-38°22'
subarea 3:	28°10'-28°20'	and	38°28'-38°22'
subarea 4:	28°20'-28°30'	and	38°28'-38°22'
subarea 5:	28°30'-28°40'	and	38°28'-38°22'
subarea 6:	27°50'-28°00'	and	38°22'-38°16'
subarea 7:	28°00'-28°10'	and	38°22'-38°16'
subarea 8:	28°10'-28°20'	and	38°22'-38°16'
subarea 9:	28°20'-28°30'	and	38°22'-38°16'
subarea 10:	28°30'-28°40'	and	38°22'-38°16'

2.3.4 Table and graphs/charts

The collected data was copied in a Table for better analysis, using a special code for the single information. Later the data was presented in different graphs and charts.

3. Results

3.1 General results

In 2004 387 sightings were registered. From these 355 were used as data base. From all of these sightings 209 were mornings and 146 afternoons.

The main whale species on the Azores are Sperm Whale (*Physeter Macrocephalus*), Risso's Dolphin (*Grampus griseus*), Common Dolphin (*Delphinus delphis*), Atlantic Spotted Dolphin (*Stenella frontalis*) and Bottlenose Dolphin (*Tursiops truncatus*). These whales were seen the most. Furthermore we noticed, that these patterns are repeated in the same or similar areas in regular intervalls.

The amount of sightings of the main species were 315, mornings 84 Sperm Whales (47 %), Risso's Dolphins 38 times (20 %), Common Dolphins 18 times (10 %), Bottlenose Dolphins 11 times (6 %) and Spotted Dolphins 31 times (17 %). Afternoons the Sperm Whale 66 times (49 %), Risso's Dolphins 27 times (20 %), Common Dolphins 9 times (7 %), Bottlenose Dolphins 13 times (10 %) and Spotted Dolphins 19 times (14 %) were spotted. Altogether the main species were seen 181 times mornings and 134 times in the afternoon.

3.2 Observed Species

In the year 2004 12 different types of whales were seen, certain whale types at the Azores were seen daily. (see Appendix diagram 1)

The Sei Whale (*Balanoptera borealis*) was seen four times this year and three times with up to ten fully grown animals. By the fourth sighting the size of the group was estimated at between 10 –50 including some calves. One can assume, that the size of a group is seldom more than 15 animals, as the Sei Whale never travels in large family groups.

Once Finback Whales (*Balaenoptera physalus*) were seen off the coast of Pico. The group of approx. ten animals had calves with them.

Regarding the Beaked Whales (*Ziphius*) it was possible to see the Northern Bottlenose Whale (*Hyperoodon ampullatus*), the Sowerby's Beaked Whale (*Mesoplodon bidens*) and the Cuvier's Beaked Whale (*Ziphius cavirostris*) 2004 on the Azores.

The most common was the Sowerby' Beaked Whale, altogether 13 sightings. Apart from that the Bottlenose Whale 5 times and the Cuvier's Beaked Whale only once. By every spotting only grown-up animals were present. The group size being between 1 – 10 animals.

2004 from the dolphin family (*Delphinidae*) Risso's Dolphins were spotted 64 times, Spotted Dolphins 50 times, Common Dolphins 27 times and Bottlenose Dolphins 24 times. The rather shy Striped Dolphin (*Stenella coeruleoalba*) was only spotted seven times. The size of the school was more than ten animals in every sighting. The Bottlenose Dolphins and the Striped Dolphins were seen in bigger groups of up to 200.

Sperm Whales were seen 150 times including 47 calves. Pilot Whales were only seen twice.

3.3 Observation times

Baleen Whales were only seen at the beginning of July. The reason being, that Baleen Whales only travel past and are only to be seen on the Azores in May and June. The other Beaked Whales are seen until the middle of July, the Sowerby's Beaked Whales until the beginning of August. These animals are very shy and little is known about their behaviour and their travelling routes and as a result we have no explanation about their sighting times.

Dolphins were seen during the whole observation time. The reason for this being, that they are resident groups and live in the area near the Azores the whole year. Although the sightings were not so frequent at the beginning of September, possibly because of stormy seas at this time and the animals searched for protection in small bays. Only the Risso's Dolphins could be seen until the end of the Observation period. The Risso's are particularly active by stormy seas as they use the waves to surf.

Another reason could be, that because of the bad weather no tours were possible and so no information could be registered.

Even if the tours took place it was more difficult to see dolphins due to the high waves.

Sperm Whales have been spotted during the whole time. Mostly the females spend the summer with their calves off the Southcoast of Pico, because it is deep enough to find food. Furthermore there are a lot of flat and protected areas, which can be used as a nursery. (diagram 5)

3.4 Observed Areas

The Sei Whale was found in grade square 2, twice in grade square 7 and in grade square 6. A Fin Whale was found in grade square 7.

Eight times a Sowerby's Beaked Whale was spotted in grade square 7, twice in the second grade square, three times in grade square 3 as well once in grade square 8.

The Northern Bottlenose Whale was seen once in grade square 2, four times in grade square 7 and the Cuvier's Beaked Whales was only seen once in grade square 1.

In grade square 2 and 3 Risso's Dolphins were seen frequently.

By Striped Dolphins the sightings were not regular. This dolphin was spotted in grade square 2, 4, 8 and 9 only once. In grade square 7 they were spotted three times.

Spotted Dolphins were seen in grade square 2, 4 and 7 10 times and 13 times in grade square 8.

Bottlenose Dolphins were often spotted in grade square 2, 3 and 4.

Common Dolphins were observed eight times in grade square 2 and seven times in grade square 4 and 7.

Sperm Whales were found mainly in grade square 2. They have been spotted 32 times there. In grade square 9 they were spotted 26 times and 24 times in grade square 8. In grade square 3 and 4 they were observed 19 times. (s. diagram 6 and marine charts)

3.5 Behaviour

From the behaviour patterns the following observations were recorded: Resting (1), Feeding (2), Travelling (3), Interested (4), Avoiding (5), Social active (6), Rest and Dive(8) respectively only Dive (9). Travelling was observed mostly by Sperm Whales, both Baleen Whales and every species of dolphin. Also in 12 out of 13 observations of Northern Bottlenose Whales and Sowerby's Beaked Whales one could see this behaviour. Altogether Travelling was spotted most with 155 times. Resting, Rest and Dive and Dive was a typical behaviour from Sperm Whales. So these 3 kinds of behaviour altogether were seen 75 times.

Social Active was seen 19 times by the dolphins that live at the acores and once by the Sowerby's Beaked Whale. Especially interested in touring boats were Sperm Whales, Risso's Dolphins, Bottlenose Dolphins and in small numbers Spotted Dolphins and Common Dolphins. This behaviour was recorded 39 times.

4 Consideration about boat-routes

4.1 Preview

4.1.1 Whalewatching-organizations

There are 3 organizations in Lajes do Pico, that offer whalewatching-trips for tourists. When arranging boat-routes the capacities of all the organizations must be considered.

AquaAcores: see 2.3.1

The french organization Espaco Talassa owns 4 Zodiacs of 7.3 m in length and capacity of 8-10 persons. The boats can go at a great pace and therefor can cover a great distance. Trips are twice a day at 10:00 a.m. and 2:00 p.m.. In the year 2004 they had 581 trips. (picture 4 and 5)

Furthermore the organization Fururismo offers trips with zodiacs. These started at 10:00 a.m. and 2:00 p.m. as well, but there is no data about frequency for the year 2004. (picture 6)

Additional boats from the two organizations from Madalena and from the island Faial drove to sightings off the southcoast of Pico from time to time. Thus, it were too many boats around one whale or dolphin pod, than it is said in the whalewatching-rules. Therefor only the organizations from Lajes are considered in the planned routes.

4.1.2 Whalewatching-rules

All boats must obey official rules during the trips in order to avoid stress for the animals. The most important rules are:

- There shouldn't be more than 3 boats at a time inbetween 150m around an animal or a group.
- The minimum distance of 50m towards whales and 100m towards calves must be kept, except for having an special scientific admission.
- It is forbidden to pass through a pod, to hunt or to encircle animals and to separate calves from their mothers.
- If the animals show explicit signs of disturbance, all boats have to leave immediately at a slow pace.
- There mustn't be more than 2 swimmers in the water at once. Boats must check whether there already are other swimmers in the water and must not let their own customers go into the water if this is the case, even if they offer the option "Swimming with dolphins" as well.
- Swimming with whales is forbidden except for having an special scientific admission.
- Skippers have to pay attention, that the general rules of swimming with dolphins are abided.
- There are special rules for spermwhale observations: the maximum speed of the vessel is predetermined and the boat must come in a 45°-angel from behind.

4.1.3 Databasis

Due to infrequently sightings, not all collected data is of use for establishing routes. For instance travelling baleen whales and rare beaked whales are not relevant for the considerations, for they're infrequent.

The routes are defined by frequently and at repeatedly similar locations sighted species. Only the 5 main species are considered, because they're seen the most.

Individuals of all 5 species were seen the most in the grid squares 2, 3, 4, 8 and 9. Therefore the routes should pass these areas. Spermwhales and Risso's dolphins were seen from beginning of July till mid-September, Spotted Dolphins and Common dolphins until beginning of September. Further on the amount of expeditions in the morning and in the afternoon were nearly the same.

Although it doesn't appear in the thesis, the data had been compared with the data from recent years and it was found out, that the main species had been seen in circa the same areas as in 2004.

4.2 Possible Threats for cetacean caused by boat-traffic

According to Fabian Ritter from M.E.E.R. e.V whalewatching could have different short- and longterm effects on cetacean. Short-term effects might be instant changes of behavior, separations of mothers and calves or collisions (see picture 7). Possible long-term effects are caused, when the disturbance and therefore the stress for the animals becomes frequently. Effects might be big changes in the behavior pattern, diseases, lower reproduction rates and migration from the affected areas.

Thus, too much boat-traffic could be harm both, the animals and the whalewatching-economy, for the latter is based on the whales that might migrate due to the frequently disturbance.

4.3 Boat-routes-courses

According to the records one can divide the area into three routes. One of the routes crosses the other two. (see page 35)

4.3.1 Route 1

Route 1 runs from Lajes do Pico further out to the sea, about 3 - 4 miles away off the coast till S. Mateus (38°24'5''/28°27'5''). After that it runs along the coast back to Lajes. One has the chance to see Risso's Dolphins and also fully grown Sperm Whales.

Occasionally one can see Common Dolphins and Spotted Dolphins, even Manta Reys (*Manta birostris*) were already seen in this area

4.3.2 Route 2

Route 2 runs from Lajes do Pico a few miles out to sea. After that it runs parallel with the coast towards S. Matheus and afterwards from Sao Jao ($38^{\circ}24'5''/28^{\circ}20'4''$) back towards Calheta ($38^{\circ}24'/28^{\circ}5'7''$). On the level of Ribeiras ($38^{\circ}24'5''/28^{\circ}20'4''$) there is the turning point of the route. Then it runs along the coast through the Bay of Ribeiras back to the harbour. It is a good chance to see Sperm Whales and Risso's Dolphins. Furthermore one can often watch Spotted Dolphins there, too.

4.3.3 Route 3

Route 3 runs along the coast of Calheta. It is very likely on this part of the route to see Risso's Dolphins, Common Dolphins and Spotted Dolphins. On the way back, which runs a few miles away from the coast, one can spot Sperm Whales and you have a big chance to watch calves, too. They often stay in this area, and especially the seldom Sowerby's Beaked Whale.

4.3.4 Temporally Consideration

It would be possible that per route two boats run twice a day with a half hour intervall, that makes 12 possible tours a day. Because of rotation between the organisations, for example one day one organisation runs route 1 and the next day another organisation runs route 1 and so on, there will always be the same chance for observation.

Discussion

5.1 Possible sources of error

It must be pointed out that there may are some sources of error concerning the collected data. Due to the fact that the boats only went to areas, where the Vigias had seen whales or dolphins, it is allegeable, why there aren't sightings far away from the coast. But this also shows that this areas are qualified for boat-routes, because they had always been approached. Furthermore it shouldn't be ignored, that it wasn't possible to collect data every day. That's why some expeditions were admitted, because the weather was too bad. This happend most in September. So you can't say how long you can sight the main species in this month. So it's

necessary to collect more data, to find proven regularities regarding sighting-area and -time of the species.

5.2 Difficulty of the vigias

The profession of the vigias (*port.* Look-out) is a very traditional activity. It's been used in whaling-time but still didn't lose its function. Nowadays the vigias on the look-outs tell the skippers via radio, when a whale or a dolphin pod is sighted. They give the skippers the exact position of the observation and so they can go there immediately. Although it seems contradictorily, they still are of very big use when establishing boat-routes. Today every organization has its "personal" vigia who doesn't tell the skippers from other organizations. When there are defined routes, the vigias along the coast could be free to tell every skipper who's going by this route the vigia is watching, when he's seen something. It's more efficient and still gives a high chance of seeing whales, higher than if the boats go along the routes without anybody telling them about sightings. Still, even though the vigias tell the approximate coordinates of the observation, the boats must follow the defined routes, but e.g. could go faster at the beginning when a whale or dolphin pod is been sighted at a farther distance.

5.3 Summary

Whalewatching is a chance for people to get in touch with those animals, which have fascinated us for thousands of years. Due to this contact, there is the chance of finding out more about their life and how we can protect them far better.

So far only man made the first contact with the cetacean. Requirements of the animals were only little or not at all considered. Boat-routes like those presented give the animals the chance, to decide themselves to do the first step or to stay away from the route-line and therefore won't be disturbed.

For tourists, whalewatching is the main reason to come to the Azores. So the Azores are interesting for the tourists because there you can see many different cetaceans.

The Whalewatching-tourism is increasing on the Azores and so it is very important for the local people living there.

Yearly new whalewatching-organisations are founded. But the cetaceans build up the basis for this kind of tourism. It is important to not run them away from the waters around the

Azores, otherwise there won't be a basis for whalewatching anymore. This already happened at the Canary Isles. The whales migrated from the coast, because there was too much boat-traffic. You used to see a lot of cetaceans at the Canaries and now sightings are rare.

To inhibit this at the Azores, people have to make thoughts about regulation of the boats-traffic.

One possibility is to establish the boat-routes, which we introduced to you in this work. In Morey Firth, Scotland such routes on a voluntary basis already work without problems. Also there is the question, if it is alright to allow more whalewatching-organizations to settle.

Moreover it is important to have somebody, who checks, whether the boats abide by the whalewatching-rules. Still, too many boats don't abide by the rule and for example go too near to the whales.

In August 2004 a conference took place at the isle of Pico, where it was decided that the several whalewatch-organizations want to work closer together. Especially scientists take advantage of this, because it relieves their work. This possible teamwork makes up a good basis for talks about defined boat-routes. But it is necessary to test the routes, to see how the whales react and if they do their job. At least it might work, as Morey Firth is giving very good evidence, and of course it's very important to protect the cetacean all over the world and especially in those "hot spots" like the Azores.

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<http://www.aquaacores.com> (Dezember 2004)

Appendix

Charts

Chart 1:

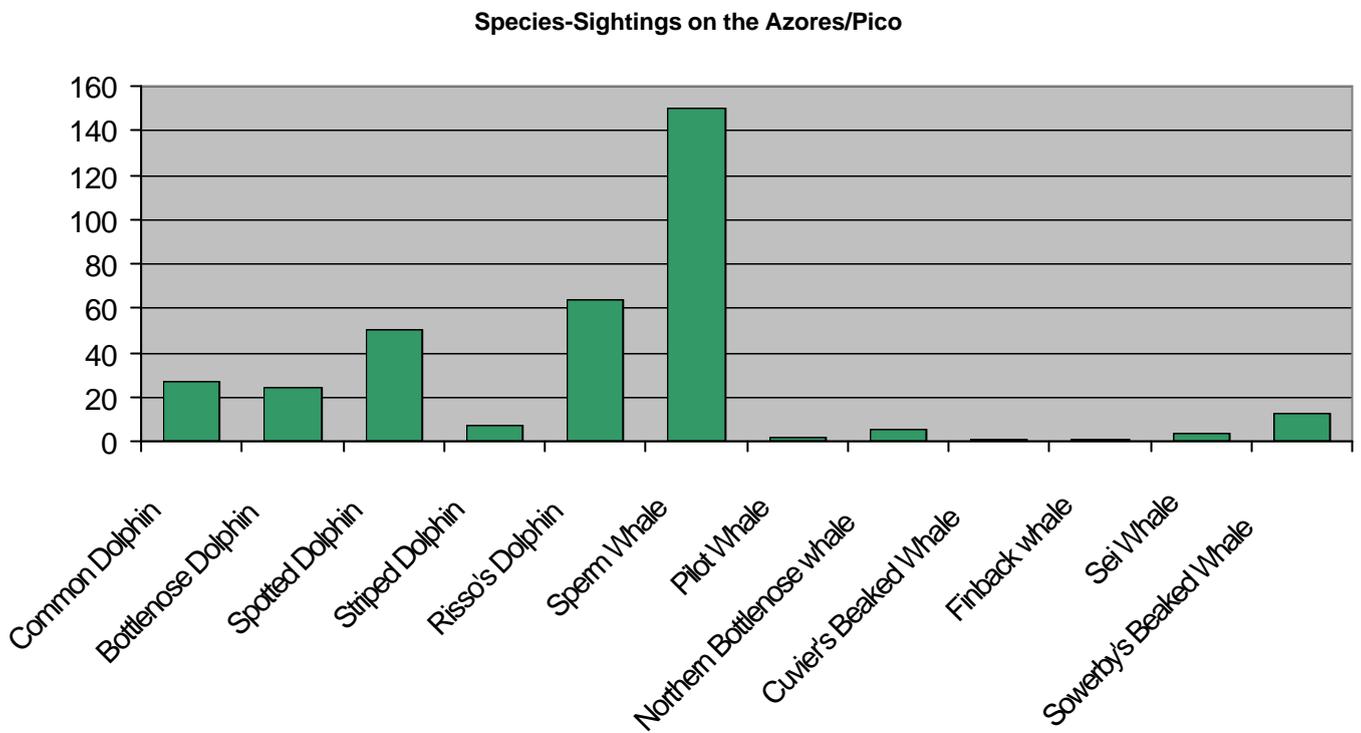


Chart 2:

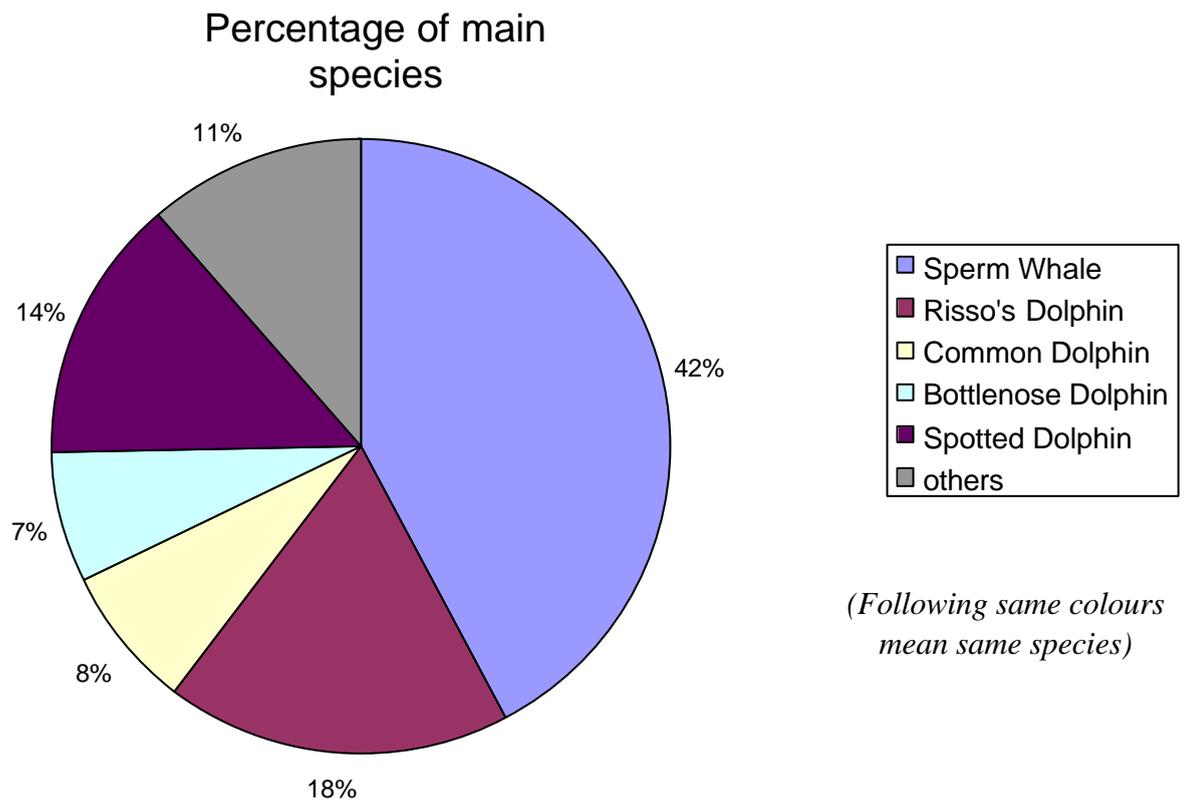


Chart 3:

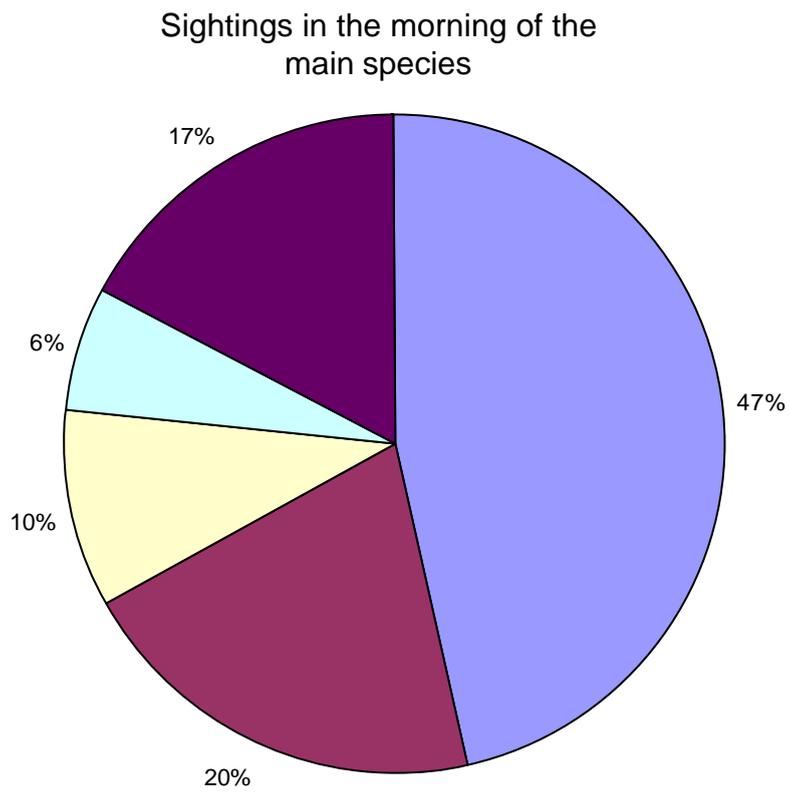


Chart 4:

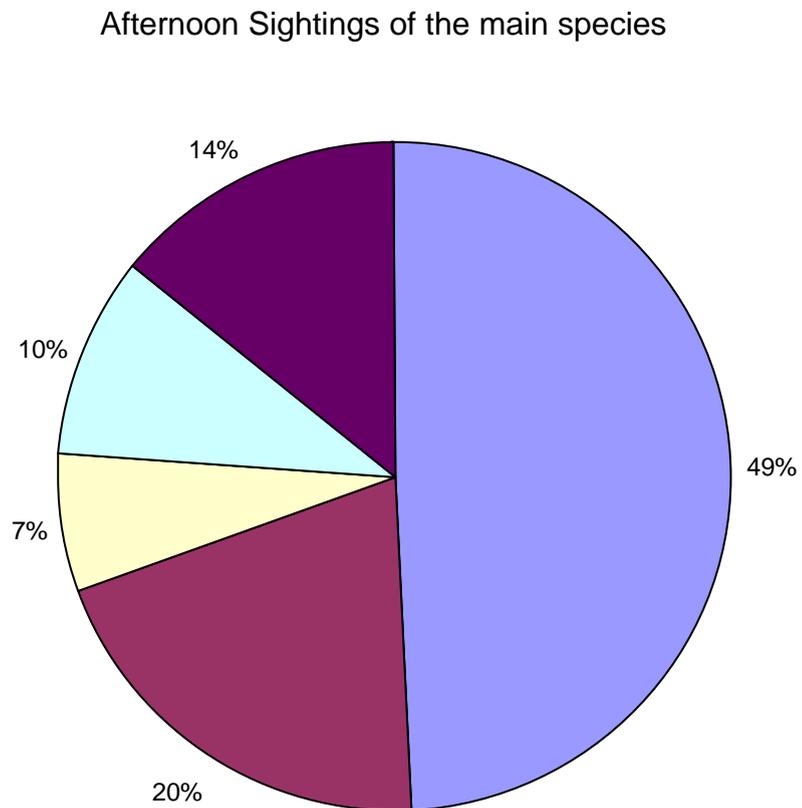
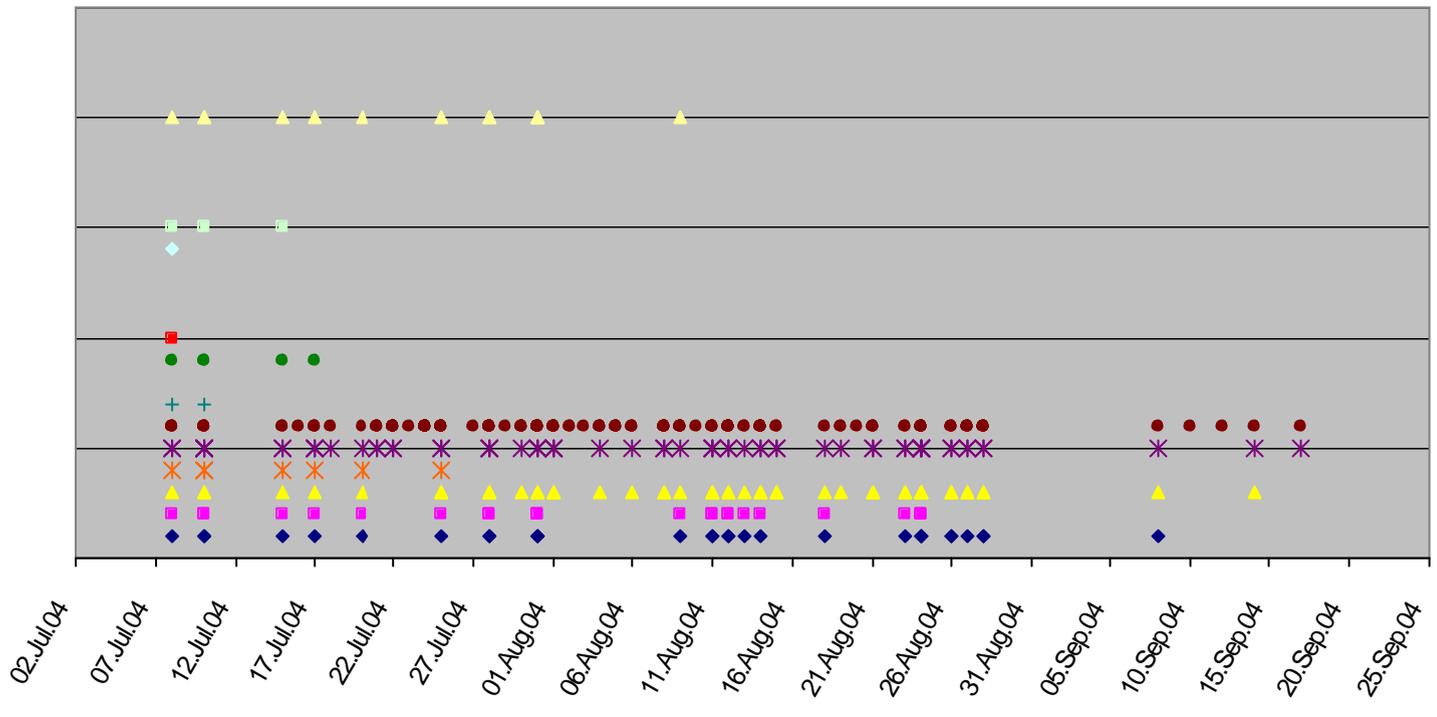


Chart 5:

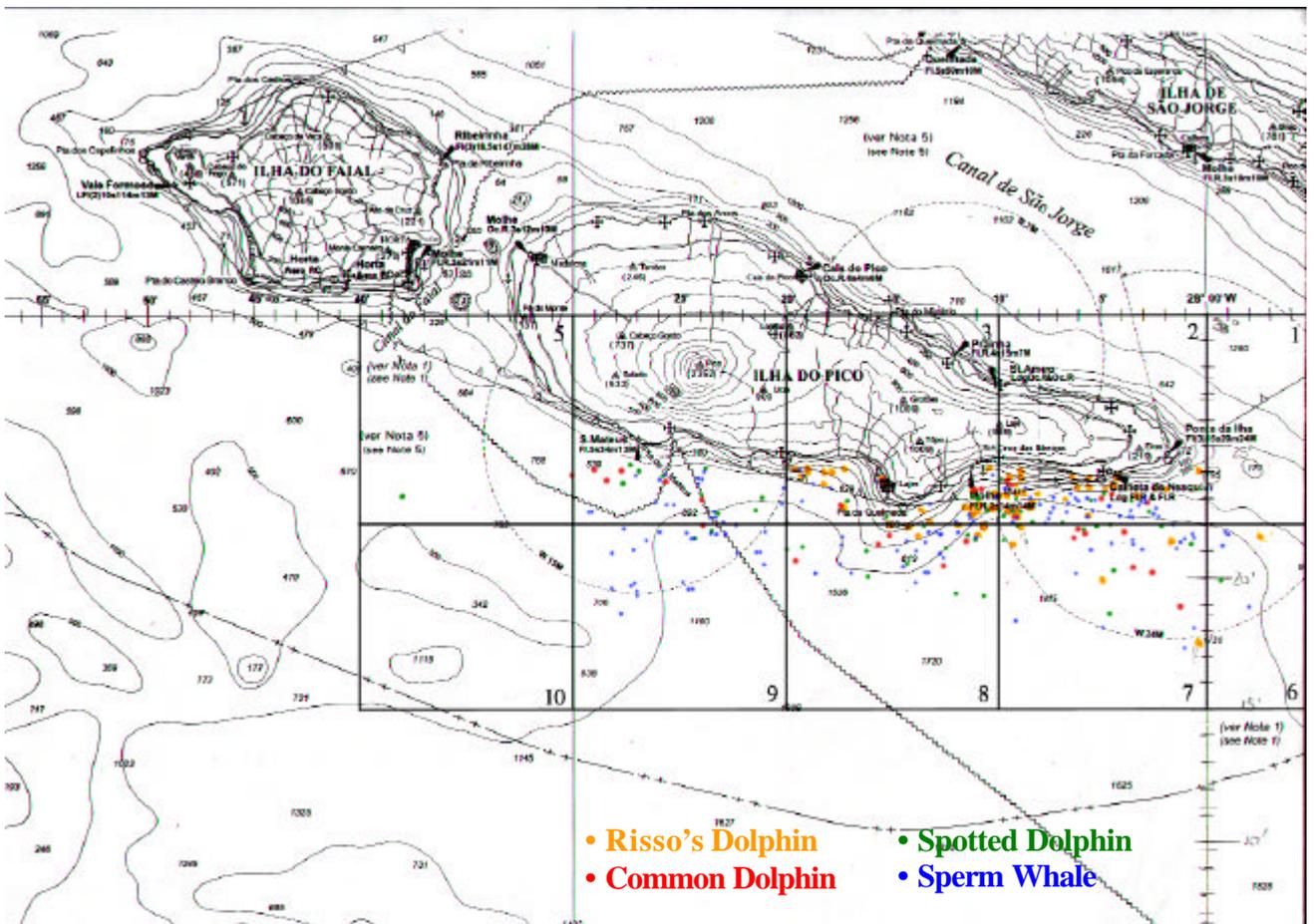
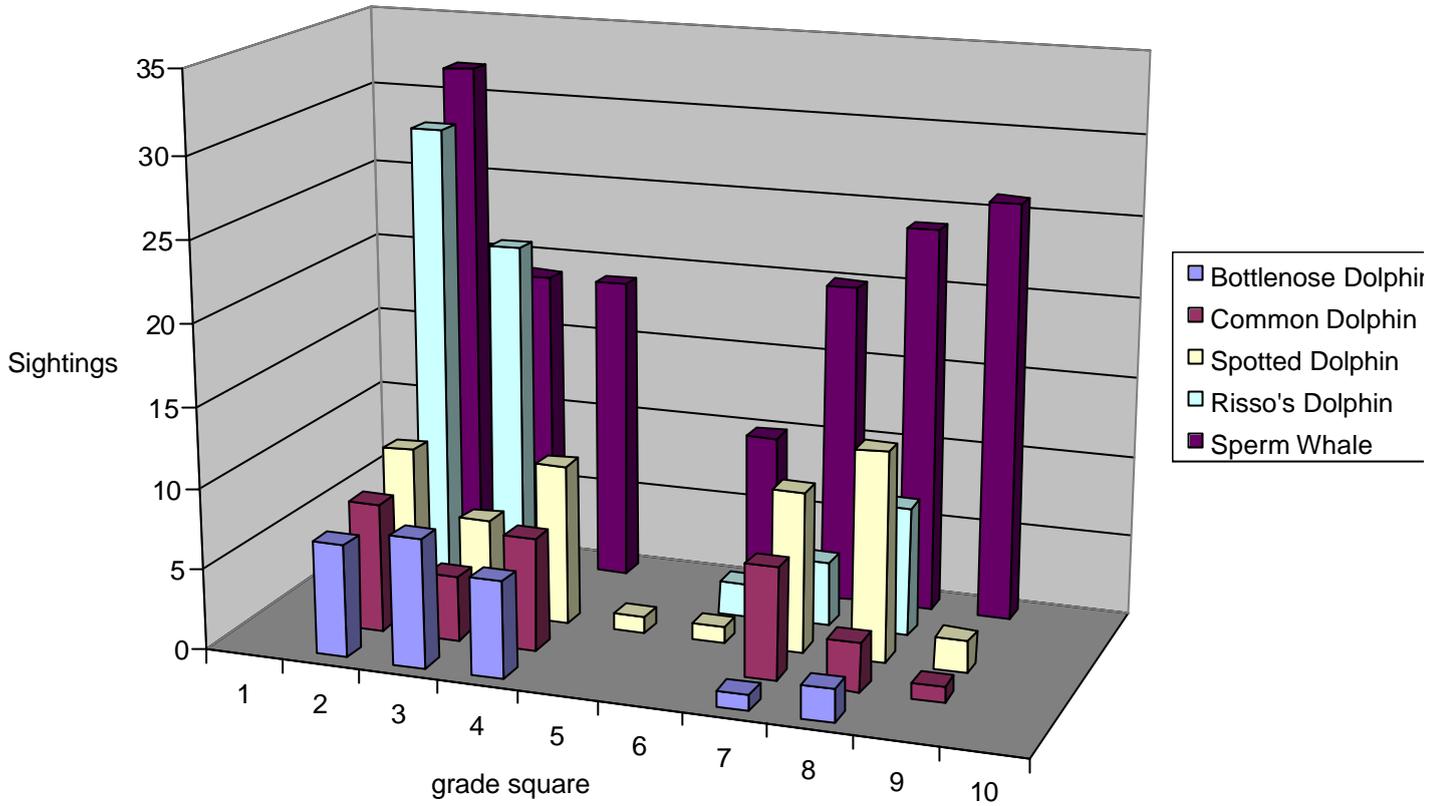
Daily Sightings of July 08 2004 to September 19 2004



- ◆ Common Dolphin
- Bottlenose Dolphin
- ▲ Spotted Dolphin
- × Striped Dolphin
- ✱ Risso's Dolphin
- Sperm whale
- + Pilot Whale
- Northern Bottlenose Whale
- Cuvier's Beaked Whale
- ◆ Finback Whale
- Sei Whale
- ▲ Sowerby's Beaked Whale

Chart 6:

Sightings of main species in grade squares 1-10



Pictures

Picture 1:



Picture 2:



Picture 3:



Picture 4:



Picture 5:



Picture 6:



Picture 7:



Determination of species with significant characteristics:



Sperm Whale



Blow of a Sperm Whale



Fluke tail of a Sperm Whale



Risso's Dolphins are assigned easily because of the colour, scars and head shape



Spotted Dolphins are easy to ascertain due to their spotted skin



Bottlenose Dolphins

Special behaviour patterns:

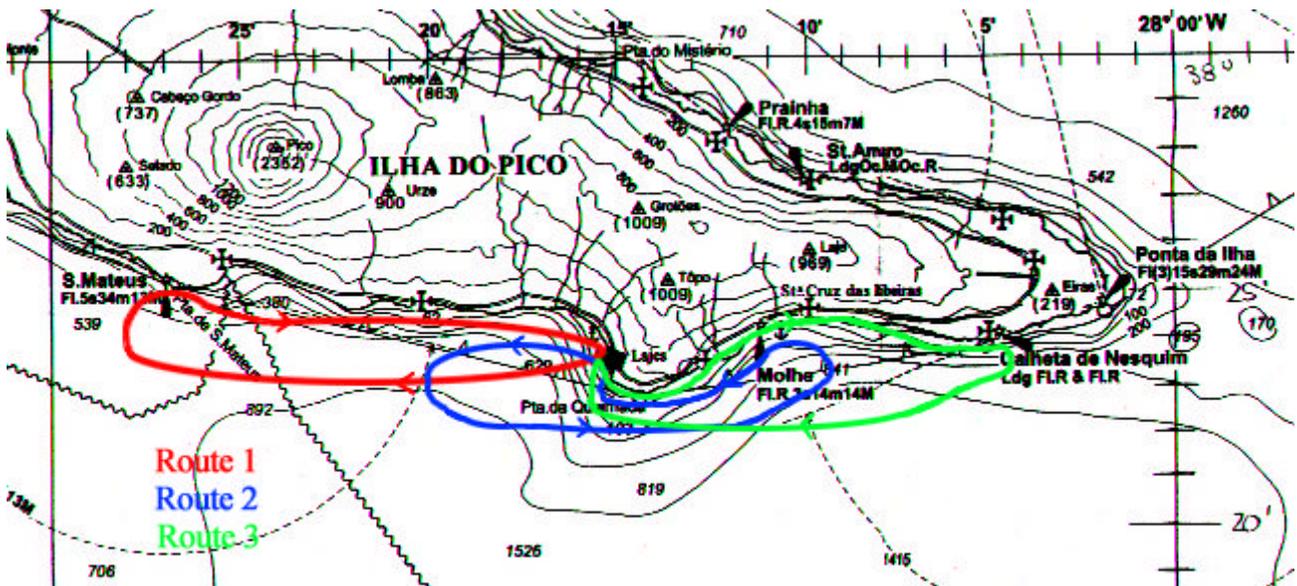


Lobtailing (*Sperm Whale - calf*)



Spy-hopping (*Spermwhale*)

Boat-Routes



Observation-log

Az 6 0028

X

Beobachtungsprotokoll		WHAQUA the dolphin experience
GPS N: 38.22.937z W: 028.06.723.	Tag: 28.7.04	Uhrzeit: 11:58 - 12:18
Beobachter:	Wetter:	Wellenhöhe:
Kamera & Objektiv:		Film:
Fotospezifisches:		
Art: Risso	Gruppengröße: 5-15	
Gruppenzusammensetzung: adult		
Verhalten: traveling 2 Schwimmer ~ 892 m Tiefe		

ws: 11
w: 0.7

wd: SWW
cc: 26

high (1)