

Basking Shark Photo-identification

By Martin How, The Shark Trust

Basking sharks are the largest animals to frequent the coast of the UK and Ireland, but are also among the most elusive. Their mottled grey hulking forms can regularly be seen cruising close to the shoreline on calm spring and summer days as they feed on plankton blooms that form at the water's surface, but until recently almost nothing was known about the way they lived. Over the last three years conservationists at the Shark Trust and the National Marine Aquarium in Plymouth, Devon, have been putting together a catalogue of photographic images of basking shark dorsal fins in order to help researchers further their understanding of these magnificent creatures.

Many of the images contained on the database have been submitted by members of the general public around Europe and the success of the project relies heavily on this kind of participation.

Growing up to 12 metres in length the basking shark (*Cetorhinus maximus*) is ranked second only to the whale shark of the tropics in terms of size. This species can be easily recognised by its cavernous mouth lined with five pairs of gills that almost completely encircle the head. Basking sharks feed on plankton in a process known as 'ram filter-feeding', which involves swimming forward, mouth agape and filtering the plankton as the water passes through the sieve-like rakers lining each gill opening. Basking sharks are



*A basking shark feeding on plankton near the water's surface.
(c) Jeremy Stafford Deitch.*

regularly spotted feeding in shallow inland waters with their large dorsal fin projecting high above the water and may often be seen performing what is thought to be courtship behaviour involving a single or several males cruising slowly behind a female shark in a process known as 'close following'. Sharks displaying close following behaviour have been mistaken in the past for sea monsters, as the row of fins observed at the surface can easily be confused for a single animal.

Threats

Because basking sharks take a long time to reach maturity and have a very low rate of reproduction the species are particularly vulnerable to the multitude of threats posed by humans. Until recently the

species supported a number of local fisheries based in the UK, Ireland and mainland Europe. The sharks were caught and processed for their liver oil, meat and cartilage, but most of the fisheries were forced to close within a few years of starting due to drops in the number of shark catches and more modern replacements for many of the shark-derived products.

In more recent years several new and potentially devastating threats have come to light. The growing East Asian demand for shark fin products has made shark and shark-like fins extremely valuable, with single basking shark fins fetching up to US\$ 10,000. In order to satisfy the market demand fishermen have developed the wasteful and unsustainable practice of shark finning - the process of cutting off the fins of a shark and then dumping the rest of the body at sea unused. Although



*This basking shark, known as 'Rooster', has a severely injured dorsal fin probably caused by a close encounter with a large propeller.
(c) Eric Stephan.*

unregulated shark finning will hopefully soon face a total ban in European waters basking sharks still face the threat of legal and illegal finning activities in other parts of the world.

The Shark Trust is currently compiling a petition to be presented to the United Nations campaigning for a global ban on the unsustainable process of shark finning. If you would like to support the Trust by signing the petition see the details at the end of the article.

Another major threat to basking shark populations is accidental entanglement in fishing gear. Very little is known about the number of basking sharks that die each year from becoming entangled in fishing nets and potting lines, but estimates suggest that this may be a serious problem for this vulnerable species.

At present basking sharks are protected under Annex II of

the Convention for the International Trade in Endangered Species (CITES) signed by 160 countries. This means that fishermen must obtain special licences to fish the species and imposes important data collecting and reporting requirements on the abiding governments. Basking sharks have also been protected in UK waters by section 5 of the Countryside and Rights of Way Act which makes it illegal to intentionally kill, injure or harass the animals within UK waters.

Photo-identification

The use of photography for identifying and tracking the movements of marine animals dates back to the early studies of whales and dolphins in the 1970's. Scientists working with



Basking shark dorsal fin images from the photo-identification database. (c) Colin Speedie.

Catalogue

Basking shark database

Image information

Date of entry: 27/01/2003

Image File Ref: CS_00_013

Shark ref ID: EBSPiP_013

Sighting number: A.064

Shark Nickname: Egg

Viewer

Photograph (click to enlarge)



Area: Dorsal fin (right)

Recorded sightings

Date	Time	Location	S No
16/06/1999			A.028
23/06/1999		Harlyn Bay	A.031
29/06/2000	18:59	Menacles	A.063
30/06/2000	13:44	Falmouth Bay	A.064
30/06/2000	13:44	Falmouth Bay	A.064
24/05/2001		Gerrans Bay	A.077
15/07/2002		Irish Sea - Mour	A.152

Sighting information

Date: 30/06/2000

Time: 13:44

Location: Falmouth Bay

Global Position: 50 07.51'N 05 03.32'

Submitted by: Speedie

Browse Contacts

Add New Contact

Shark information

Size (m): 5m

Sex:

Pigmentation: ☒

Scarring: ☐

Characteristic shape: ☒

Defran Ratio:

Tag: None

Notes: Image © Colin Speedie.
Characteristic shape: look for the slightly horizontally flattened fin and the two

Record: 14
56
of 252
Add new record
Sort records
Help

Screenshot of the European Basking Shark Photo-identification Project database. The database contains the photo-identification images as well as any accompanying sighting details.
(c) Martin How.

these animals had to overcome a number of difficulties associated with work at sea, such as the battle with the elements, spiralling research costs and the task of locating their species of interest in the vast, featureless oceans. The development of photo-identification techniques allowed researchers to gather information cheaply using only a boat, a good photographic camera with a powerful zoom lens and a clipboard to note the sighting details. Furthermore, the general public are able to participate in the study by submitting their own photographs taken from whale-watching boats and pleasure craft.

Photo-identification as a scientific technique is relatively simple to perform. In a process

similar to fingerprint matching, photographs of specially chosen areas of the body are used to identify individual animals.

The images are added to a central database and matched with any other previously identified animals. In this way scientists can gather a wide range of information spanning from the growth rate of the species to their migration patterns around the oceans. Some of the larger-scale photo-identification projects such as the humpback whale catalogue have collections of many thousands of individual animals spanning over decades and use advanced computer software to automatically match pairs of sightings.

The European Basking Shark Photo-identification

Project (EBSPiP) is the first of its kind and was set up in 2000 as a joint venture between the Shark Trust, the National Marine Aquarium and a number of other national and international conservation organisations. The catalogue focuses on collecting images of basking shark dorsal fins, but also includes images of other areas of the body that show identifiable characteristics. So far the database contains over 250 photo-identification images spanning from 1995 to the present and to date 58 sharks have been identified and assigned individual nicknames ranging from 'Admiral' and 'Badge', to 'Wrinkly' and 'Zip'.



*More basking shark photo-identification images.
(c) Colin Speedie.*



A feeding basking shark photographed off the south coast of Cornwall. (c) Colin Speedie.

Taking photographs for the EBSPiP

The usefulness of the European Basking Shark Photo-identification Project for basking shark research depends on the number of photographs present on the database. The more photographs, the higher the probability of finding matches between images and it is these matches that give scientists the vital information they need about the biology and behaviour of the species.

It is relatively simple to take photographs of basking shark dorsal fins and many of the images present on the database have been contributed by interested members of the public.

Useful photo-identification images can be taken either from the surface or underwater. An ideal set of photographs will contain the whole dorsal fin face from both left and right sides. Like many animals basking

sharks are often not the most cooperative photographic subjects so a perfect set of photographs is rare. Generally we must make do with distant, blurry images of only partial fins, but even these can often lead to conclusive matches.

If possible, when photographing from the surface try to maintain yourself between the sun and the shark. This avoids silhouetting so that the colour and pigmentation pattern of the dorsal fin can be used for identification.

It is important to take great care not to disturb the animal's normal behaviour while photographing basking sharks. Remember, it is illegal to harass basking sharks in UK waters. Many of the sharks on our database have severe dorsal fin wounds obtained from collisions with vessel hulls and propellers so the Shark Trust recommends that vessels keep a distance of 30 metres from all sharks while maintaining slow speeds and extra vigilance to avoid injury. Often, when a vessel is near a

group of basking sharks it is best to stop the boat and let the sharks approach of their own accord.

Divers and snorkelers need to keep a minimum distance of 4 metres from basking sharks at all times and are urged not to alarm the sharks by using flash photography.

e-mail to:
baskingsharks@national-aquarium.com
or send them by post to the
Shark Trust at:

EBSPiP
The Shark Trust
Rope Walk
Coxside
Plymouth
PL4 0LF

Martin How
The Shark Trust

The Shark Trust

More information

For more information on the European Basking Shark Photo-identification Project visit the website at:

www.baskingsharks.co.uk.

If you have any basking shark images of your own that you would like us to include on the database please send them by

The Shark Trust is the conservation charity dedicated to the study, management and conservation of sharks, skates and rays and secretariat of the European Elasmobranch Association. The Trust is a membership organisation. Join now and receive your supporter pack, free shark poster (EU only) and newsletters.

Registered charity no: 1064185

Registered company no: 3396164

For information on other Shark Trust activities or to become a member visit the homepage:

www.sharktrust.org.

The Shark Trust



Millions of sharks are killed each year.
Help us protect them.

- Join the Shark Trust**
- Sign our finning petition**
- Adopt a shark**
- Take part in the Great Eggcase Hunt**



www.sharktrust.org