Get to know the bottlenose dolphins of northeast Scotland

Learn all about photo-identification and how we use it to study and protect the dolphins
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Preface

How do they know that?

How do researchers tell dolphins apart?
How many dolphins live in Northeast Scotland?
How often do dolphins give birth?
How far do dolphins travel?
Do dolphins have ‘friends’ or mix at random?

Read on:

1. to discover why photo-identification is at the forefront of bottlenose dolphin research;
2. learn how to take a great photograph with our easy guide;
3. use our catalogue pages to help you recognise some of our well-known dolphins.

Have fun!
In much the same way that we all have different facial features and fingerprints, many animals can be identified by unique markings on a particular part of their bodies. A photograph of these markings can be taken and used to help identify which animal was seen - a photo-identification can be made.

All around the world, scientists use photo-identification to identify individual animals from elephants to tigers to marine mammals such as seals, whales and dolphins.

On humpback whales, the tail fluke has the most visible and distinctive features for identification.

Bottlenose dolphins, on the other hand, are identified by the markings on their dorsal fin.
What have we learned?

**Population estimates** - there are approximately 130 animals in the northeast Scottish population; this was determined using a combination of photo-ID and statistical analysis.

**Stages of development** - calves are seen and photographed with their mothers until the age of 3-6 years. After this time they are able to feed on their own and the mother may have a new calf.

**Social structure** - These dolphins have a complex social life. Photos show that individuals may mix with many different groups. This is common among social mammals and is known as a fission-fusion society.

**Habitat preferences** - Photographs have shown us that certain dolphins tend to spend more time in particular areas. It may be that some calves learn these preferences from their mums. We have also seen that animals regularly use certain spots for feeding and others for resting or socialising.

**Range** - Although there are some dolphins that seem to spend most of their time in the inner Moray Firth, some animals travel along the entire coastline. Certain dolphins have been photographed traveling as far south as St. Andrews and even northern England!
Photo-ID has been carried out in the Moray Firth since 1989 with an aim to better understand the behaviour and health of the dolphin population. This is a non-invasive technique (we don’t need to touch or capture the dolphins) and so causes minimal disturbance. Photographs are a permanent record of information that can be used over many years.

Photo-ID - what we can find out

Photo-ID is a simple yet powerful tool. It helps us secure the dolphins’ long-term survival by monitoring:

• changes in population size
• changes in population distribution
• survival and birth rates of the dolphins.

Strike a pose!

Researchers from the University of Aberdeen regularly survey the inner Moray Firth from their boat, Rona.
Researchers can use photo-ID to track the health of a population and identify areas that are particularly important for activities such as feeding, resting, or calving. This knowledge can then be used to inform management plans and legislation.

Through photo-ID, we know that the population of bottlenose dolphins in Northeast Scotland is small (about 130 animals), isolated and vulnerable. The inner Moray Firth has been shown to be a much used and important habitat. Based on this information, the inner Moray Firth was successfully designated a Special Area of Conservation (SAC)*, a ‘sanctuary’, for bottlenose dolphins in 2005.

Under the protection of an SAC, the government must safeguard these dolphins and their habitat. Part of this protection is to monitor the health of the population and any changes in habitat use. This is achieved through ongoing photo-ID research.

*Under Annex II of the EC Habitats Directive, the UK government is required to create sanctuaries which protect bottlenose dolphins and the areas where they live.
Photos taken by WDCS are used to keep track of the animals in our ‘Adopt-a-Dolphin’ programme (www.adoptadolphin.com). They are also used in the University of Aberdeen photo-ID catalogue as part of a long term monitoring study and also to inform conservation initiatives. Photos are taken at many locations through the collaboration of several organizations. These include the University of Aberdeen, WDCS, the Sea Mammal Research Unit, the Cetacean Research and Rescue Unit, and the Aberdeen Cetacean Catalogue.

Charlie Phillips (WDCS) takes photos from Chanonry Point, near Inverness. This is one of several fantastic local sites for land-based dolphin watching.

WDCS volunteers collect ID photos while guiding aboard wildlife-watching tours around Buckie and Cullen.

WDCS collects photographs from land and from sea.
How we use photographs

In the wild, you may only glimpse a dolphin for a second as it comes to the surface to breathe. Photographs can capture that elusive moment, allowing scientists to later study the dorsal fin for identifying marks.

It’s not easy to photograph a dolphin in the wild...

...blink and it’s gone!

Photo-ID - what we do

1. Take a photograph when the dolphin surfaces and displays its dorsal fin.
2. Match the best photographs to existing images in a catalogue.
3. Store photographs, date and location in a database for later analysis.
4. Any photographs that don’t match the catalogue are assumed to be new individuals. These are given a new identification number.
Taking the perfect photo

Whether taking pictures for photo-ID or your own personal enjoyment, capturing a fleeting moment in focus can be tricky. Using a powerful camera, particularly one with a long lens and a rapid shutter speed, can certainly help but patience and a bit of luck are far more important so don’t throw away your point-and-shoot just yet...

A few tips -

• When on a boat, steady yourself by resting your legs against something and holding on.
• It is important to keep your naked eye on the sea but keep the camera held close to your eye, ready to shoot.
• Take a minute to get used to when and where the dolphins will surface - it is harder than it looks!

Don’t give up, it takes patience and some luck to get top quality images like this!
Choosing photos

For photo-ID, the perfect photograph should be:

- showing the whole side of the dorsal fin...
- in close range...
- taken parallel to the fin...
To reduce mistakes in identification, only the very best photographs are used. Photographing the dorsal fin in close range without using the digital zoom is hard enough, but getting the focus exactly on the fin itself can also be very tricky!
Natural identification marks on the dorsal fins are used to identify an individual.

**Nicks** are missing chunks from the trailing edge of the dorsal fin. They are created from fights with other animals and collisions.

A well-nicked dorsal fin makes identification a little easier, even if the light is not perfect...

**Rake marks** are caused by the teeth of fellow dolphins and may be shallow and heal in a few weeks or deeper and last a year or two.

Rake marks are useful for following a dolphin that is seen regularly within a season...
Skin lesions are temporary marks which may indicate disease and may partly be due to living in relatively cold water. They occur in some form on about 95% of the NE Scottish dolphins.

Skin lesions are temporary but may help to identify an animal that is seen regularly...

De-pigmented areas are also temporary marks. Therefore the appearance of individuals can change over time, perhaps leading to new individuals being classified or existing dolphins not being recognized.

De-pigmented areas frame this fin - creating a white ‘fin fringe’...
Other useful photos

Sometimes photographs that do not capture the fin can still be useful. For example, a dolphin’s gender can be hard to determine unless:

1. it is very closely associated with a calf on several separate occasions; or
2. the genital area is captured in conjunction with a dorsal fin ID shot.

Photo-ID can also help to track the health of the dolphins by recording deformities & skin diseases. Chemical pollution & other environmental stresses can directly or indirectly increase the dolphins’ susceptibility to disease.

Belly side up - this shot revealed that Maverick is a female dolphin because the mammary slits are visible.

* Notice the spinal deformity of the dolphin on the left when compared to the straight, smooth back of the dolphin on the right.
Photo-ID Mini-Catalogue

Meet the dolphins of northeast Scotland

(commonly seen & highly recognisable animals)
Aberdeen University catalogue pages are used with the permission of the Aberdeen University Lighthouse Field Station (AULFS).

To learn more about the bottlenose dolphins of NE Scotland please visit the AULFS website:

www.abdn.ac.uk/lighthouse/dolphins/dolphins.shtml
Using the catalogue

Researchers try to get a good photo of both the lefthand and the righthand side of the dorsal fin. The best photos of each animal are kept in a catalogue.

A unique identification number given to each dolphin.

These numbers refer to type of markings visible on the dorsal fin. When flicking through the catalogue, these numbers make the identification process quicker.

Lists other animals with similar markings to help when matching a photograph against the catalogue.

0 = no marks
1 = nicks
2 = white fringes
3 = deformities
4 = lesions
5 = scratches

**SINGERS**

1

**SIMILAR DOLPHINS:** none.
Singers (1)

Singers was first seen in 1989 as an adult. We do not know the sex of this animal but believe it may be a male because it is a large dolphin with a large and very scarred dorsal fin. Further, Singers has never been seen with a calf.

Singers has been seen throughout the Moray Firth and in St. Andrews’ Bay.

Remember - the coloured squares on the right tell you what type of marks to look for! (1 = nicks, 5 = scratches)
SINGERS

SIMILAR DOLPHINS: none.
Sail Fin (8)

Sail Fin was first seen in 1989. We know that he is a male because we have a photo that shows both his dorsal fin (which is used to identify him) and his genital area. He is a large dolphin who is easy to spot because he has a large fin, a bit like a ship’s sail - from which he got his name.

Sail Fin has recently been seen in the Inner and Outer Moray Firth but in the past he has also been photographed in St. Andrews’ Bay. Often seen in the company of Spike (ID# 490 and other big, mature dolphins.)
SAIL FIN

SIMILAR DOLPHINS: none.
We first saw Muddy with her mum, Guinness (ID# 9) in 1989. We knew that Muddy was a one-year-old calf at the time because she still had faint markings from where her body was folded up whilst in uterus (these fade completely within 2 years).

We found out that Muddy is a female in 2002 when she was regularly seen with her calf, Elvis (ID# 970), surfacing beside her.

Muddy is seen throughout the Moray Firth, often in the company of Moonlight (ID# 580) and Midnick (ID# 79).
SIMILAR DOLPHINS: none
Thunder (22) - WDCS Adopt-a-Dolphin

Thunder was first identified in 1989 and was at this time already a fully grown adult male with a very large dorsal fin. He was already well-marked when first seen but his nicks have become bigger and more developed over time.

Thunder has only been seen in the Inner Moray Firth in the area of Chanonry Point, Cromarty and around Balintore. He is a noticeably large dolphin, sometimes seen hunting with Nevis.
THUNDER

SIMILAR DOLPHINS: none.
Mischief (23) - WDCS Adopt-a-Dolphin

Mischief was first seen in July 1989 as an adult of unknown sex. (S)he had small nicks when first seen but received a large and easily identifiable cut in the lower dorsal fin between August 2002 & May 2003.

(S)he is regularly seen in the Inner Firth, from Kessock to Rockfield and has only once been seen out of the Inner Firth, in St. Andrews in 2003. Mischief may possibly be a female as (s)he has often been seen babysitting calves - although never seen with his/her own calf.
MISCHIEF

SIMILAR DOLPHINS: 21.
Rainbow (31) - WDCS Adopt-a-Dolphin

First seen in 1989 as a sub-adult, we know Rainbow is a female because she has mothered three calves. Two of these calves are still seen today – Prism (ID# 815) is a male born in 2001 who left his mother’s side when he was 3 years old and Raindrop is also a male, born in 2005. We sometimes see all three dolphins spending time together.

Rainbow is a regular in the inner Moray Firth and if you are lucky, you may see her when watching from Chanonry Point.
RAINBOW

SIMILAR DOLPHINS: none.
Nevis (36) - WDCD Adopt-a-Dolphin

Nevis is a large, mature male. He is named after Ben Nevis because he has lots of white scratches at the top of his fin, like the snow-capped mountain. Nevis can often be seen socialising in a group but sometimes he likes his own space, especially when hunting at Chanonry Point.

Despite the tendency for males to be ‘wanderers’ and his easily identifiable fin, Nevis has never been seen outside the inner Moray Firth.
NEVIS

SIMILAR DOLPHINS: 15.
Spike (49)

Spike was first seen in 1989 and has a particularly pointy dorsal fin. This dolphin may possibly be a male as it is very large in size, has a well marked dorsal fin and has never been seen with a calf.

Spike travels around a lot. (S)he has been seen all over the Moray Firth and often in St. Andrew’s Bay.

Remember - the coloured squares on the right tell you what type of marks to look for! (1 = nicks, 4 = lesions, 5 = scratches)
SPIKE

Similar dolphins: 157.
Barracuda (102)

Barracuda is a dolphin of unknown sex but may be a male as it is a very large dolphin who has never been seen with a calf.

Barracuda travels the whole east coast of Scotland from the Moray Firth to St. Andrew’s Bay.
Barracuda

Similar dolphins: 20.
Sundance (105) - WDCS Adopt-a-Dolphin

Sundance is now a fully grown, male Adopt-A-Dolphin who was first seen as a newborn in 1990. His mum, Splash, was a well-known and regularly seen female. Juvenile dolphins can be hard to track once they leave their mums because they often have not picked up distinctive markings, Sundance, however, stayed with his mum for a long time and then picked up some nicks in 2003 which made him easy to recognise on his own.

Sundance is regularly seen in the inner Moray Firth but has never been seen further around the coastline.
SUNDANCE

SIMILAR DOLPHINS: none.
Sooty (209)

Sooty was first seen in 1991 as an adult and although her large, well-marked dorsal fin initially suggested a male animal, she has since been identified as a female. She has a well marked fin but can be mistaken for Double-U who has a very similar large nick at the bottom of the dorsal fin. This is why it is important to have high-quality photographs to look at small differences between animals.

Sooty is most often seen around the Aberdeen Harbour area but has been photographed from the inner Moray Firth around to St. Andrew’s Bay.
Sooty

Similar dolphins: 55.
Nuts (307)

Nuts was first seen as an adult in 1992 but her sex was unknown until 2006 when she was seen with a newborn calf. Her calf has a deformed spine but despite this deformity and it being small for its age, it seems to swim well and keep up with the group.

Nuts is seen throughout the Moray Firth and she has been seen in St. Andrews Bay just once.
**NUTS**

307

**SIMILAR DOLPHINS**: 886.
Kesslet (433)

Kesslet was born in 1994, the daughter of a well-known mother called Kess, ID# 85. Kess was a regular visitor to the Kessock Channel in Inverness and was easily recognized by the deformity in her spine. Kesslet does not have an easy dorsal fin to recognize as it lacks nicks, but the curved shape of her fin is distinctive and a few scratches are visible on very good pictures.

Kesslet became a mother herself in late summer 2007. She and her calf, Charlie, remain very active within the Inner Moray Firth and are often seen from the WDCS Dolphin and Seal Centre at North Kessock.
Kesslet

Similar dolphins: 706, 866.
Raggedy Fin (435)

Raggedy Fin is an adult male, first seen in 1994. We often try to give dolphins names that will remind us of what they look like - this is a great example!

Raggedy Fin is seen throughout the Moray Firth and around the coastline to St. Andrew’s Bay.
RAGGEDY FIN

SIMILAR DOLPHINS: 129.
Moonlight (580) - WDCS Adopt-a-Dolphin

Moonlight was first seen in 1996 as a sub-adult. She has had one male calf, Mellow Yellow, who was last seen in 2006 just before he stopped traveling with his mother. Because his fin was not well marked, we have not been able to identify him away from Moonlight - but he may still be around!

Moonlight was chosen as a name by adopters, as she is often seen around another dolphin, Sundance. The two nicks in her dorsal fin are very distinctive, making her easy to recognize in a group. Moonlight is seen in the inner Moray Firth and around Spey Bay.
**MOONLIGHT**

**SIMILAR DOLPHINS:** none.

*Catalogue Pages © University of Aberdeen*
Jude (745)

Jude is a female dolphin that has had two calves, born in 2002 and 2005. The younger calf, ID# 1000, is called Quasimodo because it has a spinal deformity just behind its dorsal fin. It appears to be doing fine despite the deformity and has been seen swimming well and playing with other calves.

Jude was named by the winning bidder in a WDCS Charity Auction. Although she is most often seen in the inner Moray Firth and Spey Bay, she has also been photographed around as far as St. Andrew’s Bay.
JUDE

SIMILAR DOLPHINS: 571.
Prism (815)

Born in 2001, Prism is the male calf of WDCS Adopt-a-Dolphin, Rainbow (ID# 31). Prism left his mum when he was about 3 years old. However, we still often see Rainbow, Raindrop and Prism spending time together, always in the Inner Moray Firth.

Prism’s name links him to his mum so that their relationship is easily remembered. Many mums and calves are named after famous pairings such as Rhubarb and Custard or Porridge and Oats.
**SIMILAR DOLPHINS:** none.
Hoolie (914)

ID# 914 is a male, first seen in 2002. This dolphin has only recently been named as Hoolie. Initially, his markings were not very clear and so we waited this long before naming him to make sure that we would be able to track him.

Hoolie has been seen in the regularly in the inner and outer Moray Firth and just once in St. Andrews.
**HOOLIE**

**SIMILAR DOLPHINS:** 124, 8033.
Maverick (923)

For the first five years that she was photographed, Maverick was seen constantly with her mum, Goose (ID# 963). In 2006, Maverick was spotted with some other young dolphins. The next time Goose was photographed, she had a newborn calf with her. It is fairly typical for young dolphins to stay with their mum until her attention moves onto a new calf.

Maverick is still seen regularly throughout the Moray Firth.
MAVERICK

SIMILAR DOLPHINS: none.
Spirit (969) - WDCS Adopt-a-Dolphin

Spirit was identified in August 2003 and originally named Minerva after the female teacher in Harry Potter. She was seen with her first calf in 2007. We know that her calf was very young (maybe only hours old!) during this first sighting because its fin was still very floppy.

Spirit is now one of the Adopt-a-Dolphins and is regularly seen around the Inner Moray Firth and Spey Bay.
**SPIRIT**

**SIGHTINGS** 1990 91 92 93 94 95 96 97 98 99 2000 01 02 03 04 05 06 07 08 09 10

**INNER FIRTH**

**OUTER FIRTH**

**GRAMPIAN**

**ST. ANDREW'S BAY**

**SIMILAR DOLPHINS:** none.
We hope that you have enjoyed this booklet. For more information on our research and conservation work, please visit one of our visitor centres at Spey Bay or North Kessock (www.wdcs.org).

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