

Humpback Whale



Galley Head, Co. Cork. (Photo: Pádraig Whooley)

The humpback whales' scientific name, *Megaptera* means "giant wings" referring to their large pectoral fins which can reach up to 4.5m long.

Classification

Class: *Mammalia*

Order: *Cetacea*

Suborder: *Mysticeti*

Family: *Balaenopteridae*

Genus: *Megaptera*

Species: *novaeangliae*

Common Name: *Humpback whale*

Irish Name: *An míol mór dronnach*

Key identification features

Body length: Up to 16m - ♂ 12-14m, ♀ 13-15m (females slightly larger than males)

Weight: Up to 36,000kg

Blow: Broad and bushy reaching up to 3m - has a distinct V-shape when viewed from directly behind/in front of the animal

Head: Broad and flat with a single median ridge and a series of fleshy knobs on the rostrum called tubercles (also occur on the lower lip)

Dorsal/pectoral fins: Small, irregularly shaped dorsal fin is set two-thirds of the way along the back and has a broad base - has a raised hump at the front and "knuckles" at the back. Pectoral fins usually measure one-third of the total body length and are often white with knobs on the leading edge

Colouration/markings: Stout bodies are black, and their throats and bellies are usually white. Variable amounts of white on both sides of flippers, and black/white pattern underneath the broad, wavy edged tail.



<http://marinebio.org/species.asp?id=39>

Field identification: at sea (behaviour)



The humpback is one of the most energetic species of whale and unmistakable at close quarters. It is relatively slow moving (although can reach speeds of up to 27km/h) and has a broad, upright, bushy blow which can reach a height of up to 3m. The blow may appear 4-10 times at 20-30 second intervals between dives. Dives may last 5-10 minutes, although some have been recorded lasting up to 45 minutes.

Prior to a dive, the back arches into the characteristic 'humpback' shape from which the animal gets its name. As the whale prepares for a deep dive, the rest of the body disappears below the surface and the tail can be seen raised above the water - a behaviour known as 'fluking'. They are the only large whale in Irish waters that commonly display this behaviour. Researchers take advantage of fluking humpbacks in order to photograph the unique pattern of the black/white colouration on the back of the tail which allows them to identify animals individually (see **Distribution and abundance**).

Humpbacks, especially immature ones, are extremely inquisitive and may approach a quiet vessel. They are famous for their acrobatics which include activities such as breaching, flipper slapping, spy-hopping and lobtailing. If close enough, the often white colour of their large pectoral fins may be seen under the water before and after surfacing

[Video Clip \[MPG Format 4.5MB\]](#)

Field identification: on land (strandings)

Humpback whales have 270-400 short (<0.8m), black/olive coloured baleen plates hanging from either side of the upper jaw. 14-35 throat grooves may be seen reaching down as far as the navel - although some may extend even further. Barnacles and whale lice (cyamid crustaceans) may be found on the skin (see **Key identification features** for additional identification information).

There have not been many cases of humpback whales stranding in Ireland. There have been only six recorded cases, some of which date back to 1893 - only two animals have been reported stranded in Ireland over the last ten years.

Species similar in appearance

From a distance, humpback whales could be confused with any balaenopterid species, especially sperm whales as they are similar in size. However, if close enough, humpbacks are said to be the easiest species of whale to identify.

Distribution and abundance

Humpbacks are a global species widely distributed throughout all oceans and occasionally seen in the west Mediterranean Sea. They are usually associated with waters over continental shelves when migrating between their mid/polar summer feeding grounds and the warm, tropical waters (especially near islands and reef systems) of their winter breeding grounds. In the Atlantic, they winter in the West Indies south to Venezuela as well as around the Cape Verde islands and off the north-west of Africa. Separate populations have been identified in the North Atlantic and North Pacific, and nine or more sub-populations in the northern hemisphere.

This species was overexploited for commercial harvest in the 1800s until they became protected in 1966. It has been estimated that there is a population of about 11,600 animals associated with the North Atlantic breeding grounds in the West Indies, not including those from Cape Verde breeding grounds. Between 2005-2011, both inshore and offshore ship-based surveys revealed abundance estimates of humpback whales to be highest in the Celtic Sea, while sightings were found to be quite low in offshore waters to the north and west of Ireland.

Photo-identification is a technique used to identify individual cetaceans by examining unique markings on their bodies/fins from photographs. The IWDG's Irish humpback whale photo ID catalogue began in 1999 and currently consists of nearly 60 individuals, with numbers continuing to rise. Only 21 animals had been identified by the IWDG in 2013 suggesting that the occurrence of humpback whales in the coastal waters of southern Ireland may be on the rise - this is supported by a recent 50% increase in reported humpback whale sightings along the Irish coast.

A recent study compared photo ID images of Irish humpbacks to photos of other animals collected throughout the North Atlantic resulting in matches

with individuals sighted in Iceland, Norway and the Netherlands, suggesting long migrations between feeding grounds in the eastern North Atlantic. Matches have yet to be made between individuals identified in Irish waters and those in their known breeding grounds in Cape Verde and the West Indies.

Where and when best seen in Ireland

Humpback whales have been seen off all Irish coasts, though less frequently in the Irish Sea. Although they have been recorded throughout the year in Ireland, sightings mainly occur in late summer, autumn and winter – sighting records are much lower in the late spring possibly suggesting that a small number of non-breeding whales may remain here for the winter while the rest migrate to their low-latitude breeding grounds. Recent studies off the south coast have shown that some individuals remain inshore for many months and return on an annual basis.

Acoustic studies have detected humpbacks "singing" off the west coast of Ireland suggesting that they use these deep waters along the edge of the continental shelf as a migration corridor. Acoustic data from the US Navy indicates that humpback whales migrate southward to the west of the Irish Shelf from mid-October to late-March each year, with peak detections in March.

Most of the animals in the IWDG photo ID catalogue have been observed off the Irish south coast from county Kerry, Cork, Waterford and Wexford (see **Distribution and abundance** for further information on photo ID). The majority of inshore and offshore sightings in Irish waters were recorded in seasonal foraging grounds off the south and southwest coasts from the Blasket Islands to Hook Head, with a high number of sightings reported from late July to early February.

Sighting trends suggest that humpback distribution in Irish waters is similar to that of fin whales. Sightings records for both species increase significantly during the month of November – this is most likely linked to the movements of their shared prey, herring and sprat. A recent study discovered seasonal changes in the relative abundance of the humpbacks within the inshore waters of the Celtic Sea as they follow the annual easterly movements of the spawning events of these two fish species.

Food and feeding

Humpbacks are known to feed on sprat and herring in southern coastal waters of Ireland - other prey species include krill, capelin, sand eel, and mackerel. They use several different foraging techniques including bubble-netting which involves generating a bubble net around the prey in order to keep them contained, and then lunging through it with their mouths wide open engulfing the trapped prey. Other methods of feeding include bubble clouds and tail flicks in order to concentrate their prey - during a feeding event 20 or more humpbacks may work together to herd their prey. They have been documented associating with minke whales / fin whales / common dolphins when feeding.

Humpbacks have been documented moving east along the south coast of Ireland which coincides with the movements of their prey; herring and sprat. In autumn, the highest densities of spawning fish were found to be off of West Cork which is also where high abundance estimates of humpbacks have been recorded. These mirrored movements of both humpbacks and their prey strongly suggest that Ireland provides an important feeding ground for this species.

A study found that a number of humpbacks seen in Ireland were also recorded in northern Norway, Iceland, and the Netherlands suggesting long migrations between feeding grounds.

Researchers have examined POPs (persistent organic pollutants) from humpback biopsy samples (i.e skin or blubber etc.) as they may be able to provide useful insight into the population structure, geographical range, and feedings grounds of these animals. Biopsy samples may also be examined to assess stable isotopes which can reveal a great deal about diet, foraging strategies and migration patterns, as well as other important ecological information.

Reproduction and life cycle

Life expectancy: Up to 50 years - average 30-40 years

Age of sexual maturity: 6-8 years - or when they reach σ 11.6m φ 12m

Gestation period: 11-12 months

Calf weight / length at birth : 900kg / 4-5m

Calving frequency: One calf every 2-3 years

Calves born: Usually between January and March in the west Indies

Calves weaned: Nurse for 5-7 months - weaned when reach about 8.2m

Social structure and communication

Humpbacks are generally seen alone or in pairs in Irish waters but may form groups of 2-6 individuals when on feeding or breeding grounds. The most

stable, long term social bond appears to be limited to mother-calf pairs - a relationship which may last 10-12 months. Although most other associations are transient lasting only a few hours or days, it has been found that on feeding grounds groups can form stable relationships from year to year perhaps due to the efficiency of co-operative foraging strategies. The transitory nature of these associations suggests that humpbacks are promiscuous as animals of both sexes pair with a series of partners during the mating season.

Male humpbacks produce complexly structured, repetitive 'songs' which are more intricate and of a higher frequency than those of fin and blue whales. In fact, these are the longest and most complex songs recorded in the animal world. These male vocalisations have been linked to reproduction as they are believed to play a significant role in the attraction of a mate during the breeding season. Males at the same breeding ground, as well as individuals who are in close proximity to one another, will sing the same song - a song which they will eventually alter across the seasons. Songs have been recorded seasonally on both breeding and feeding grounds suggesting that they are multi-functional.

Songs may also act as a territorial display. On their breeding grounds, males become extremely aggressive in the competition to "escort" receptive females. They have been recorded emitting other vocalisations which may be a means of demonstrating this aggression in an attempt to establish their dominance. These vocalisations have been observed causing either a 'fight or flight' response by other males within acoustic range of the signaler.

During migrations humpbacks will generally travel in small, unstable groups. Various types of socialisation sounds are produced within these migrating groups including 'snorts', 'grumbles', 'thwops' and 'wops'. It has been suggested that the function of these sounds may be to maintain contact and social cohesion within the group as they have been commonly recorded from all individuals within a group. 'Thwops', grunts, groans and barks have been recorded from lone males before entering a new group which may aid in the lone animals integration.

Status and conservation issues

Status: Migratory

IUCN status: Least concern

Conservation status in Ireland: Unknown (sightings have increased by 50% along the Irish coast)

Humpbacks, along with many other species of whales and dolphins, have been found entangled in discarded fishing gear, particularly static gears such as gillnets and lobster pot lines.

Collisions with ships, as well as shipping and seismic noise are cause for concern as studies have shown this noise can disrupt the humpbacks natural behaviour. They have been observed altering their course of travel in order to avoid certain areas exposed to seismic noise, and have been recorded increasing the length of their songs in the presence of various types of SONAR. Steps are being taken to protect marine mammals from noise pollution - the National Parks and Wildlife Service (NPWS) produced "Guidance to manage the risk to marine mammals from man-made sound sources in Irish waters" which include mitigation measures for various types of activities which may create potentially harmful levels of noise. The presence of a Marine Mammal Observers (MMOs) may be required in order to implement these regulations. It is recommended that a risk assessment be carried out prior to the commencement of any such activity to evaluate the possible impacts on relevant marine mammal species.

Herring and sprat are a very important food source for humpback whales in Ireland and the reason for whales annual easterly migration to the fishes spawning events. In the past, herring fish stocks have collapsed possibly as a result of overexploitation/environmental factors. Sprat are a major bycatch species of fisheries in the Celtic Sea. This demonstrates the need for an ecosystem based approach to fisheries management in order take the proper steps to conserve the humpback whale and its prey in the Celtic Sea.

Protection:

- EU Habitats Directive (92/43/EEC) Annex IV
- Wildlife Act, 1976 and Wildlife (Amendment) Act 2000
- No SACs listed

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