

Whale and Dolphin Watching in Europe

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“What was once seen as a completely benign industry now has the potential to be a threat to individual whales or whale populations if not properly conducted and managed.”

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Introduction

Whale watching refers to the commercial activity of viewing any of the 90 species of whales, dolphins and porpoises in their natural habitat (Hoyt, 2001; IFAW *et al.*, 1995; see also¹). The wide variety of whale watching activities includes tours lasting from 1 hour to 2 weeks, using platforms ranging from kayaks to cruise ships, from land points including cliffs and beaches, from sea planes and helicopters, as well as swimming and diving activities in which the whale watcher enters the water with cetaceans. Whale watching grew out of the traditions of bird watching and, to a lesser extent, other forms of land-based wildlife watching. To this day, the better whale and dolphin trips include sightings of seabirds, seals, turtles, and other marine fauna to appeal to more people as well as to give a well-rounded ecological interpretation (Hoyt, 2012).

The first commercial whale watching tours occurred in southern California in 1955, with a fisherman charging \$1 USD for a short trip to view gray whales (*Eschrichtius robustus*). People were already coming in the thousands to see the whales from the cliffs and near lighthouses during their winter and late spring migrations. By 1959, Ray Gilmore, a US Fish and Wildlife Service biologist, had begun acting as a naturalist on whale watching trips out of San Diego (Hoyt, 2001).

The global growth of whale watching

Whale watching became big business soon after it started up in Provincetown, Massachusetts, in 1975, with multiple operators in at least seven communities taking approximately 1 million people a year to see whales (Hoyt, 2001). These were largely the reliable humpback whales (*Megaptera novaeangliae*), with occasional sightings of fin whales (*Balaenoptera physalus*), minke whales (*Balaenoptera acutorostrata*), North Atlantic right whales (*Eubalaena glacialis*) and Atlantic white-sided dolphins (*Lagenorhynchus acutus*).

The continuing success of Massachusetts whale watching is generally explained by the proximity to large population centres (Boston to New York); the high quality of the narration, with scientists informing people about the individual whales they are studying; the reliability of good sightings featuring the acrobatics of humpback whales; the accessibility, including proximity to shore; and the rapid development of the industry from the use of fishing boats to the second stage of special purpose whale watching boats with large flat, comfortable platforms for photography and rain/sun cover. These larger ships could accommodate at least 150 people. They were faster but also quieter and two or three separate trips could be done per day in peak season.

By the late 1980s, whale watching was spreading around the world, even to the whaling countries of Japan and Norway. *Whale Watching 2001*, a comprehensive report on whale watching worldwide, revealed a growing industry in established countries, expanding to new countries. The growth rate through the 1990s (12%) was 3-4 times the rate of overall tourism (3-4%) (Hoyt, 2001). When whale watching was next measured in 2008, the average annual growth rate had slowed to approximately the same rate as overall tourism (Table 1) (O'Connor *et al.*, 2009). But the rapid increase over the previous decade had created problems in many areas. For the most part, these were management problems similar to other tourism businesses. But what was once seen as a completely benign industry, especially compared to whaling, was now being viewed, in a few areas, as a potential threat to individual whales or whale populations if it was not properly conducted and managed.

Much is made of the commercial aspects of whale watching, but it is also useful to consider the educational, scientific, conservation and recreational aspects. These aspects explain some of the broad success of whale watching and show its value in a wider sense than commerce alone. Five international workshops on whale watching in the 1990s and early 2000s productively considered these other aspects, and helped to build the argument that whale watching at its best could be a sustainable industry offering positive impacts not only for business, but for local communities, tourists, students, and the whales themselves (IFAW *et al.*, 1995, 1997; IFAW, 1999; Hoyt, 2001, 2005, 2018; O'Connor *et al.*, 2009, etc.).

¹ <https://wwhandbook.iwc.int/en/>

Tourism Year	No. of whale watchers worldwide	Average Annual Growth Rate (%)	Direct Expenditure (millions \$ USD) (a)	Total Expenditure (millions \$ USD) (b)	Countries worldwide with whale watching	No. of whale watchers in Europe (c)
1981	400,000	—	\$4.1	\$14.0	c8	<1,000
1988	1,500,000	20.8	\$11.0-16.0	\$38.5-56.0	c25	<10,000
1991	4,046,957	39.2	\$77.0	\$317.9	c45	199,000
1994	5,425,506	10.3	\$122.4	\$504.3	65	605,000
1998	9,020,196	13.6	\$299.5	\$1,049.0	87	1,418,000
2008	12,977,218	3.7	\$872.7	\$2,113.1	119	1,439,000
2018	na	na	na	na	125+	est 1,800,000

(a) Direct expenditure = Cost of whale watching tour (ticket price).
(b) Total expenditure = The amount spent by tourists going whale watching from point of decision, including transport, food, accommodation, and souvenirs, as well as ticket price, but not including international air fares.
(c) Estimated numbers include Iceland, Canary Islands, Azores and Madeira
na not available

Table 1. Estimated Worldwide Growth of Whale Watching. Sources: Hoyt (2001) and O'Connor et al. (2009).

Whale watching in Europe

The first commercial whale watching in Europe can be dated to 1980 with dolphin-focussed tourism in Gibraltar. This was followed in the mid-1980s by dolphin tourism in the UK, Ireland and France. Various resident bottlenose dolphin (*Tursiops truncatus*) populations were easily accessible by boat and, indeed, could often be seen from shore. In the case of Ireland, the tourism was focused on a single dolphin called Fungie who lived in the harbour at Dingle, Ireland from the early 1980s until October 2020 (Hoyt, 2011).

In the late 1980s, the non-profit Tethys Research Institute began offering educational and scientific tours to see dolphins with the possibility of fin whales and sperm whales (*Physeter macrocephalus*) in the waters of the Ligurian Sea (what would later become the Pelagos Sanctuary) as well as in the Ionian Sea off Greece. Many apprentice cetacean researchers and conservationists took these tours and learned photo-ID, survey and acoustic recording methods. They are still offered today.

In 1988 tours opened up in northern Norway to see sperm whales in summer, and, a few years later, killer whales (*Orcinus orca*) in winter. Tours in Spain and the Canary Islands, as well as in the Azores and Madeira started around the same time (Hoyt, 2011). Whale watching in Iceland was embraced in the mid 1990s and soon became the fastest growing whale watching in Europe. In 2017, one out of every five visitors to the country went whale watching — 368,032 whale watchers per year².

In all, whale watching occurs in 22 European countries and overseas territories (O'Connor et al., 2009) (Table 2). It generally occurs outside of populated cities or centres and tends to be a feature of more remote ports with easy access to an area with a reliable presence of whales on a seasonal basis. In most European countries and overseas territories, it is necessary to choose carefully the best season and then to travel to one or more ports. Thus, whale watching often provides an additional tourist attraction and seasonal income for a rural locale.

² <https://icewhale.is>

Country / territory	Year started whale watching	2008 number of whale watchers except as noted	Main cetaceans watched
Gibraltar (UK)	1980	35,371	Dolphins: bottlenose, common, striped
Ireland	1986	117,000	Dolphins: bottlenose, common; porpoises: harbour; whales: minke
England	1989	91,600	Dolphins: bottlenose, common; porpoises: harbour; whales: minke
Scotland	1989	223,941	Dolphins: bottlenose, common, Risso's, white-beaked, Atlantic white-sided; whales: minke
Wales	1989	33,349	Dolphins: bottlenose; porpoises: harbour; whales: minke
Iceland	1991	368,032 (2017)	Dolphins: white-beaked, Atlantic white-sided; whales: humpback, minke, blue, killer
Norway	1988	35,400	Whales: sperm, killer, humpback, minke
Denmark	mid-1990s	100	Porpoises: harbour; dolphins: white-beaked
Germany	early 1990s	Minimal	Porpoises: harbour
France	1983	5,535	Dolphins: bottlenose, common, striped, Risso's; porpoises: harbour; whales: fin, minke, sperm, Cuvier's beaked, pilot
Portugal	early 1980s	58,400	Dolphins: bottlenose, common, striped; whales: fin, killer, pilot
Madeira	1998	59,731	Dolphins: bottlenose, short-beaked common, Risso's, striped, pantropical spotted; whales: false killer, short-finned pilot
Azores	1989	40,180	Dolphins: bottlenose, spotted, common, Risso's, striped; whales: blue, sperm, pilot, various beaked
Spain	late 1980s	74,600	Dolphins: bottlenose, striped, common, Risso's; whales: fin, minke, sperm, long-finned pilot, killer, Cuvier's beaked
Canary Islands	late 1980s	611,000	Dolphins: bottlenose, common, spotted, rough-toothed; whales: pilot, sperm, Bryde's, Cuvier's beaked
Malta	early 2000s	minimal	Dolphins: bottlenose
Monaco	early 1990s	minimal	Dolphins: bottlenose, common, striped; whales: fin, minke, sperm, Cuvier's beaked, pilot
Italy	1988	14,400	Dolphins: bottlenose, common, striped, Risso's; whales: fin, minke, sperm, Cuvier's beaked, pilot
Croatia	1991	24	Dolphins: bottlenose
Cyprus	late 1990s	100	Dolphins: bottlenose, common, striped
Greece	late 1980s	3,283	Dolphins: bottlenose, common, striped; whales: sperm
Slovenia	early 2000s	21	Dolphins: bottlenose

Table 2. European countries and territories with whale watching. Sources: Hoyt (2001) and O'Connor et al. (2009).

Problems and successes with whale watching

The explosive growth in whale watching has put a spotlight on management. In areas with multiple operators offering two-three times daily tours, and especially in confined geographical areas, typical scenarios include: too many boats on the water in a confined area due to the size or location of cetacean critical habitat; too many close approaches; strain on the infrastructure of a community and the environment of cetaceans from too many visitors; disputes and a competitive atmosphere among tourism companies; ineffective guidelines, regulations and enforcement; and poor compliance to existing rules (Higham *et al.*, 2014; Hoyt, 2018).

The problem of vessel crowding first appeared in European waters, off South Tenerife, in the Canary Islands in the late 1980s and early 1990s (Hoyt and Parsons, 2014). A local population of pilot whales (*Globicephala melas*) and bottlenose dolphins became the subject of unregulated watching and swimming tours with nearly 100 boats on the water. Many were visiting, unlicensed yachts whose skippers offered cheap trips using beluga (*Delphinapterus leucas*) and other generic photos to advertise. Many of these tours were drinking cruises with loud music, no guides and a casual atmosphere toward safety (Hoyt, 2012). In the late 1990s, the Canaries government ran operator workshops and, with the advice of NGOs, took action, removing unlicensed boats, offering further training programmes, and using a government boat to enforce regulations.

By contrast, South Africa and New Zealand avoided some whale watching problems by establishing permit systems before the industry developed and offering a limited precautionary number of permits (Hoyt, 2018). Both countries have whale watching opportunities spread out along extensive coastlines which means there is a generally lower potential for boat congestion (Hoyt, 2012). This has also been true in Iceland with at least five separate areas of the country from which different kinds of whale watching have developed, thus avoiding, or at least postponing, the problem of too many boats in a given area.

Whale watching problems may also develop with only a few boats in a confined area. In Doubtful Sound, New Zealand, the local bottlenose dolphins were displaced (Lusseau, 2003, 2006). When the population or species is endangered or vulnerable for various reasons aside from whale watching, such as with southern resident killer whales in the US-Canadian west coast, or various river dolphins in South America and Asia, the respective confined areas can present problems for management, and whale watching boat traffic may need to be restricted by distance or time regulations, as well as by limiting the number of boats.

Recent worldwide research has found short-term behavioural responses of whales and dolphins to whale watching boats. Responses range from cetaceans avoiding or approaching boats; suddenly changing speed or direction; staying down longer; reducing the time spent resting, socializing or foraging; altering vocalization patterns or other natural behaviour (Higham *et al.*, 2014; New *et al.*, 2015). Some of these studies have focussed on European populations of whales and dolphins, showing cetacean reactions to various kinds of boats including avoidance of traffic lanes (e.g., Papale *et al.*, 2012; Campana *et al.*, 2015, 2017). Individuals, populations and species vary considerably in their reactions to the same stimulus; the whales' reactions to boats may vary depending on the behaviour they are engaged in (feeding, breeding, resting). Certain individuals may appear not to react at all (New *et al.*, 2015). Behavioural responses can also differ according to vessel type, number of vessels and closeness of the approach. The "masking" effects of vessel noise may pose a problem for whale species in a situation where they are dependent on sound to communicate, navigate, forage or breed (Erbe, 2002; Foote *et al.*, 2004; Sousa-Lima and Clark, 2008). But what is the impact of these short-term behavioural responses? In most cases, it remains to be seen, but a precautionary approach is advisable. Long-term negative impacts can be demonstrated in several cases such as the dolphins in Shark Bay, Australia whose reproductive success declined following interactions with humans who watched and fed them (Bejder *et al.*, 2006a, b; Foote *et al.*, 2004; Higham *et al.*, 2014; Lundquist, 2014; Report of the Workshop on the Science for Sustainable Whalewatching, 2004; Williams *et al.*, 2002, 2006, 2009).

Photo-ID research in many parts of the world has revealed the surprising extent to which cetaceans have been struck by various boats and ships. It may seem more prevalent in areas such as off Hawaii and New England in the USA but

that is partly due to more detailed studies and higher whale watching numbers (Lammers *et al.*, 2013). Hill *et al.* (2017) noted that 15% of humpback whales carried scars from ship strikes. These are the whales who survived the interaction. Most of these strikes are not caused by whale watching boats, which are more aware of whale presence and behaviour, and are normally careful when close to the whales. Still there are accidents. More detailed photo-ID and other monitoring studies in European waters will, no doubt, turn up more cases; better reporting is needed.

In a few cases in Mexico, Dominican Republic, New Zealand and western Canada, there have been deaths of whale watchers during whale watching. Mostly these are boat accidents but a few incidents are the result of whales breaching and accidentally landing on boats. The number of boats in an area and the degree of congestion are both factors in such accidents, but safety provisions (or the lack thereof) also play a part.

With the lower volume of whale watching in Europe, fatal interactions between whales and humans are far less likely, although the threat is always there. An important issue in European waters is that whale watching often takes place in very busy waterways with whales and dolphins which are recognised as having a vulnerable or endangered status. As such, the industry should not be earmarked for substantial growth or development, but should seek to consolidate and improve what already exists through a framework of guidelines, regulations, monitoring, scientific research, and strong focus on educational engagement with customers and through the enhancement of the role of naturalists or guides.

Toward high quality whale watching

Well-managed whale watching tourism requires a government policy protective of cetaceans and their habitats, featuring a competitive permit system, and a regulatory and enforcement regime to control the number of operators engaged in marine tourism, the number of boats on the water and the rules to limit the closeness of their approach as well as the amount of time spent with the cetaceans (Higham *et al.*, 2009, 2014; Hoyt, 2012, 2018; IFAW *et al.*, 1995). A practical, precautionary plan would keep one-third of every cetacean tourism area and one-third of daylight hours free from any tourism activity (Hoyt, 2012, 2018; Tyne *et al.*, 2014). Such restrictions on areas and times would also prove useful for researchers needing controls for comparative studies (Williams *et al.*, 2002, 2006). Management of this industry should also be actively engaged in the education of whale watching tourism operators, passengers, and recreational vessel operators who use the same waters as whale watching boats. Central to education, especially on tour boats, is the role of the naturalists who are the public face of whale watching tours as well as marine protected areas (MPAs) (IFAW *et al.*, 1997; Hoyt, 2012). Tourist surveys and expert workshops have led to the formulation of effective interpretation programmes to achieve greater tourist satisfaction (IFAW *et al.*, 1997; Orams, 1999). Naturalist guides can act as a bridge between the largely urban wildlife tourists and the ocean.

Still other strategies attempt to manage the development and practice of cetacean tourism to minimize the risk from adverse impacts. In some areas of the world, watching whales from a large, comparatively quiet ship may reduce the pressure exerted by numerous small boats with outboard engines. Whale watching tourism needs to adopt the principles of the best bird and land-based wildlife watching — unobtrusive watching stations, or blinds, the ethic of watching without disturbing natural behaviour and the idea of leaving the lightest possible footprint (Hoyt, 2012).

The sustainability of whale watching, mainly in European waters, has been examined in the Canary Islands, Scotland, and the Mediterranean as well as in Croatia and Spain in the Strait of Gibraltar (Woods-Ballard *et al.*, 2003; Lambert *et al.*, 2010; Pace *et al.*, 2015). Hoyt (2005) offers a checklist toward sustainability with specific assessments at the intersection of whale watching and MPAs specifically in the Atlantic region.

Whale watching has much to offer for education, science, conservation as well as commercial benefit, but utilising a responsible, sustainable approach is the only way that it will have a long-term future in Europe.

Recommended actions

Policy

- Whale watching tours should be controlled by permits from government authorities with precautionary carrying capacity established for each area limiting numbers of boats/ operators.
- Permits from authorities must only be awarded contingent on contributions to public education and science as priorities, and the provision of qualified naturalist guides on every trip.

Management measures

- Authorities and managers must monitor and improve effectiveness of whale watching against the guidelines devised by operators and communities. A compilation of worldwide regulations and guidelines is available from IWC (Carlson, 2014) (See also <https://wwhandbook.iwc.int/en/>).
- Naturalist guides should be mandated on every boat with certified training programmes for guides.
- Guidelines should be agreed by operators, researchers, managers and authorities or regulators working together, as well as legal regulations with teeth of enforcement.
- Guidelines and regulations must be individually tailored to a given area. There should be no 'one size fits all' approach to whale watching management because different species and populations with different sets of variables react differently around boats.
- Where possible, whale watching should be managed within the structure of an MPA with zoned no-go areas and times. Recommended guideline would be one-third of time and space to be free of whale watching boats (Hoyt, 2012; Tyne *et al.*, 2014).

Private sector

- Whale watching operators should change their emphasis on encounters and getting close to whales; they can assist with training of good naturalist guides.
- Whale watching operators must be encouraged by authorities to provide a more educational experience and to offer their boats as scientific platforms for research, as well as to seek improved integration with local coastal communities.

Science

- Scientists should be engaged and lead the way to ask for more science (photo-ID, acoustics) to be done from whale watching vessels, with provisions for free use of whale watching platforms.
- Independent studies should also be encouraged to monitor the effects of whale watching on whales and dolphins, and on the ocean environment.

Public

- Managers and operators should devise and implement extensive education programmes to improve knowledge and caring about whales and the sea.
- Managers should provide specific education programmes for boaters to help modify whale interactions with private vessels.
- Managers and operators should engage the public in fun events that have commercial and educational value such as whale watching festivals (popular in Mexico, California, South Africa).

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