

EU ZOO INQUIRY DOLPHINARIA

A review of the keeping of whales and dolphins in captivity in the European Union and EC Directive 1999/22, relating to the keeping of wild animals in zoos.



Written by Whale and Dolphin Conservation for the European coalitions ENDCAP and Dolphinaria-Free Europe in association with the Born Free Foundation



FOREWORD

By Chris Butler-Stroud, Chief Executive Officer of Whale and Dolphin Conservation



It's particularly sad that such a report as this is necessary. We are over a decade into the 21st Century and the growing awareness amongst the public, scientists and governments as to the special nature of whales and dolphins means that one would have hoped that many of the issues identified in this report would have been addressed several years ago.

Despite the best intentions of EU Directives, the report you are about to read illustrates that EU Member States and the dolphinarium they are host to, are repeatedly failing to fulfil a range of international commitments and EU law.

So why are dolphinarium failing cetaceans so badly? The report examines the various requirements of the legal regimes that dolphinarium and EU Member States should be seeking to fulfil, with special focus on the EU Zoos Directive (Council Directive 1999/22/EC). The report concludes that the fundamental flaw is that dolphinarium are run as primarily commercial enterprises in which the dolphins and whales are simply commercial assets.

The report concludes that despite the fact that the Directive calls for a range of criteria to be met by zoos and dolphinarium, including requirements for public education and the carrying out of research that benefits the conservation of the species, no dolphinarium studied came close to meeting its legal or moral obligations.

Indeed the report's authors saw nothing in the material made publically available by the dolphinarium themselves that convinced them that these facilities were predominately conservation bodies rather than commercial entities. Furthermore, the limited research that is being carried out appears primarily devoted to improving husbandry of captive whales and dolphins rather than accruing a conservation benefit to wild populations.

But maybe that's the real point. Maybe, many of the issues illustrated here cannot be addressed because whales and dolphins are fundamentally not suited for captivity and display. They suffer higher mortality than in the wild, increased stress and are placed in unnatural surroundings, being denied the basic environmental enrichment that only the open seas and rivers can provide.

The report is critical reading for the EU Commission, EU Member States, and dolphinarium. I would also commend it to any government or body outside of the EU that is thinking of engaging in trade with an EU-based facility, because from this point on, no one can say that they are not aware that they would be simply fuelling a commercial trade.

We urge the EU Commission and Member States to address with urgency the recommendations in the report, and move as quickly as possible to address the phasing out of these commercial enterprises once and for all.

A handwritten signature in white ink, appearing to read "Chris Butler-Stroud".

CONTENTS

ABBREVIATIONS USED	04
TERMS USED	04
SUMMARY	05
RECOMMENDATIONS	07
DOLPHINARIA IN THE EU - INTRODUCTION AND METHODOLOGY	09
INTRODUCTION TO CETACEANS.....	09
INTRODUCTION TO DOLPHINARIA IN THE EU.....	10
THE EU ZOOS DIRECTIVE AND DOLPHINARIA IN THE EU.....	12
REVIEW METHODOLOGY.....	14
RESULTS AND DISCUSSION	17
CONSERVATION.....	17
EDUCATION.....	23
ANIMAL WELLBEING AND WELFARE.....	26
CONCLUSIONS	30
Annex A: NATIONAL SITUATION AND LEGISLATION	32
REFERENCES	35

ABBREVIATIONS USED

ACCOBAMS: Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic Area

Bern Convention: Bern Convention on the Conservation of European Wildlife and Habitats

CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora

EAAM: European Association for Aquatic Mammals

ECS: European Cetacean Society

EU: European Union

Habitats Directive: Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora

IUCN: International Union for Conservation of Nature

NGO: Non-governmental organisation

Zoos Directive: Council Directive 1999/22/EC relating to the keeping of wild animals in zoos.

TERMS USED

Cetaceans: aquatic mammals commonly known as whales, dolphins and porpoises.

Circus: an establishment, whether permanent, seasonal or temporary, where animals are kept or presented that are, or will be, used for the purposes of performing tricks or manoeuvres. Dolphinarium, zoos and aquaria are excluded.

Delphinapterus leucas: beluga or beluga whale.

Dolphin Assisted Therapy: often known simply as 'DAT', an animal-assisted therapy involving varying levels of interaction with dolphins and marketed as offering a cure or respite from human illness or disability.

Dolphinarium (plural: dolphinaria): an aquarium for cetaceans.

Ex situ conservation: the conservation of components of biological diversity outside their natural habitats.

Inia geoffrensis: Amazon River dolphin.

In situ conservation: the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings.

Lisbon Treaty: the Treaty on the Functioning of the European Union, which entered into force on 1 December 2009.

Member State (of the European Union): a country in Europe that is party to treaties of the European Union. Since 2013 there have been 28 EU Member States.

Orcinus orca: Killer whale or orca.

Phocoena phocoena: harbour porpoise.

Population: cetacean species usually exist in distinct populations which may occupy particular regions.

Species complex: some species of cetacean cannot simply be described as distinct species. Instead, they exist as groups that may interbreed but are still distinct in other aspects, such as habitat use or morphology.

Threatened Species: A species that is categorised by the IUCN Red List of Threatened Species as Vulnerable, Endangered or Critically Endangered.

'Trainer for a day' programme: A programme offered to paying members of the public in which they experience and participate in some level of marine mammal care and training carried out by trainers and other dolphinarium staff.

Tursiops truncatus: common bottlenose dolphin.

Tursiops truncatus ponticus: Black Sea bottlenose dolphin, a sub-species of *Tursiops truncatus*.

Wild animal: an animal that is not normally or historically domesticated.

Zoo: All permanent establishments where animals of wild species are kept for exhibition to the public for seven or more days in a year, with the exception of circuses, pet shops and establishments which Member States exempt from the requirements of the Zoos Directive on the grounds that they do not exhibit a significant number of animals or species (Directive 1999/22/EC).

SUMMARY

Cetaceans, the collective name for whales, dolphins and porpoises, are kept in 32 dolphinariums in 15 EU Member States. The majority of the reported 309 captive cetaceans in the EU are bottlenose dolphins (*Tursiops truncatus* and *Tursiops truncatus ponticus*) but the captive population also consists of orcas (*Orcinus orca*), belugas (*Delphinapterus leucas*), harbour porpoises (*Phocoena phocoena*), and an Amazon River dolphin (*Inia geoffrensis*). The majority of these animals are kept for display and performance, in purpose-built tanks and some facilities offer 'swim-with' opportunities, Dolphin Assisted Therapy and souvenir photographs with the animals. All EU Member States but one regulate dolphinariums under the EC Directive 1999/22, relating to the keeping of wild animals in zoos. This provides a framework for Member State legislation that is implemented through the licensing and inspection of zoos and which aims to strengthen the role of zoos in the conservation of biodiversity.

Data was collected from 18 dolphinariums and reviewed together with scientific literature, web-based resources and publically-available information from the 34 dolphinariums that were operating in the EU in 2011¹. Analysis was undertaken on a number of key aspects of their operation including: participation in conservation activities, the acquisition of animals, public education, public safety and animal welfare. These parameters were evaluated against the legal requirements of EC Directive 1999/22, EU CITES Regulation 338/97 and other relevant EU legislation. Key findings:

- **There are a total of 33² dolphinariums in the EU, displaying a reported 309 cetaceans of five different species.**
- Fifteen Member States (Belgium, Bulgaria, Denmark, Finland, France, Germany, Greece, Italy, Lithuania, Malta, Netherlands, Portugal, Romania, Spain and Sweden) have dolphinariums. Thirteen Member States (Austria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Luxembourg, Poland, Republic of Ireland, Slovakia, Slovenia and the United Kingdom) do not.
- **All dolphinariums but one are licensed and regulated as a 'zoo'** (as defined by EC Directive 1999/22) and are therefore required to partake in conservation, research and educational activities, which are expected to benefit the conservation of the species.
- Bulgaria is the only EU Member State to have exempted dolphinariums from the requirements of EC Directive 1999/22. Dolphinariums are instead regulated by legislation for circuses and theatrical performances.
- Five Member States (Belgium, Finland, Italy, Poland and the United Kingdom) have specific legislative standards for the keeping of cetaceans in captivity.
- **Three Member States, Croatia, Cyprus and Slovenia, prohibit the keeping of cetaceans in captivity for commercial purposes.**
- **All dolphinariums analysed for this investigation are making an insignificant contribution to the conservation of biodiversity.** Premature death and low breeding success has rendered the *ex situ* bottlenose dolphin population not self-sustaining. No species re-introduction has been recorded from an existing EU dolphinarium.
- **If the number of dolphinariums in the EU remains the same or expands, imports of further wild-caught dolphins may be necessary.** Wild captures can pose a serious threat to cetacean populations in the wild.
- Trade data records the import into the EU of 285 live cetaceans between 1979 and 2008, in spite of a prohibition under EU CITES Regulation 338/97 on imports of cetaceans into the EU for primarily commercial purposes.
- Of 34 dolphinariums researched for this report, only 14 actively promoted their involvement in research involving cetaceans on their websites. Only 5.4 % of research presented at European Cetacean Society conferences involved captive cetaceans.

¹ Since the original publication of this report in 2011, two dolphinariums have opened to the public while three have closed.

² Zoosafari e Fasanolandia in Italy currently holds no dolphins

- **Thirty-one dolphinariums in the EU display their cetaceans to the paying public in regular presentations or shows, often accompanied by loud music, in which the animals usually perform a diverse repertoire of tricks and stunts.** These performances usually have an anthropomorphic or comical element, with cetaceans usually displaying unnatural behaviours. This, and the playing of loud music in proximity to the animals, is discouraged by the European Association of Aquatic Mammals.
- **The commitment to and standard of public education in the majority of the dolphinariums analysed for this investigation was poor.** At the 13 dolphinariums where such information was collected, only four displayed species information signs about the cetaceans displayed.
- Of the 18 shows analysed at 17 dolphinariums in 10 EU Member States, information on the biology and behaviour of the animals shown was only included in an average 12% of show commentary. Two shows provided no such information.
- Of the 18 shows, 17 failed to inform the public about where the species are found in the wild, eight failed to identify the dolphins as mammals and none of the 18 shows mentioned the conservation status of the species.
- Twenty dolphinariums offer visitors the opportunity to get close to cetaceans, including for the taking of photographs, in swimming with dolphins programmes or in Dolphin Assisted Therapy programmes. **Direct contact between the public and captive cetaceans places both parties at significant risk of disease and injury.**
- **No captive cetacean in the EU has the freedom to express normal behaviour, a guiding principle for animal welfare. Stress and stereotypic behaviour are common among captive cetaceans.**
- **Dolphinariums in the EU fail to meet the biological requirements of cetaceans in captivity and to provide appropriate species specific enrichment. This is a key requirement of EC Directive 1999/22.**
- **Dolphinariums in the EU are failing to comply with the requirements of EC Directive 1999/22.**



Bottlenose dolphins and other cetaceans are kept in 32 dolphinariums in the EU.

© WDC

RECOMMENDATIONS

To the European Commission:

Zoo regulation - Directive 1999/22/EC

- 1) Establish an EU-wide inventory of captive cetaceans, similar to the United States Government's Marine Mammal Inventory Report and in line with EC Directive 1999/22's Article 3, indent 5. Facilities holding cetaceans should be required to report pregnancies, births, deaths, cause of death and transfers within 30 days of such events occurring. This information should be available to the public under the provisions of Directive 2003/4/EU on public access to environmental information. This would enable full and independent data analysis, including for research purposes.
- 2) Taking into account Article 13 of the Treaty on the Functioning of the European Union as amended by the Lisbon Treaty, investigate and, where appropriate, take action to address complaints made in relation to breaches by Member States of the requirements of Council Directive 1999/22/EC.

Biodiversity and EC Regulation 338/97

- 3) Encourage Member States not to allow further imports of wild-caught cetaceans in response to concerns about the impact of captures and trade on cetacean conservation and welfare. This would also be appropriate in response to the fact that imports of wild-caught cetaceans are prohibited for primarily commercial purposes, defined as "*all purposes the non-commercial aspects of which do not clearly predominate*"³. Live captures of cetaceans present a significant risk to cetacean conservation and welfare and fail to meet the requirements of CITES' Article 4.⁴
- 4) Work with Member States to ensure that the requirements of Council Regulation (EC) 338/97 are met with regard to the transfer of cetaceans between Member States and their accommodation. In order to be satisfied that the intended accommodation of a live cetacean is adequately equipped to conserve and care for it properly, CITES Management Authorities in Member States must consider cetaceans' environmental, nutritional and behavioural needs.⁵
- 5) Taking into account Article 13 of the Treaty on the Functioning of the European Union as amended by the Lisbon Treaty, investigate and, where appropriate, take action to address complaints made in relation to breaches by Member States of the requirements of Council Regulation (EC) 338/97.

EU Policy for Animal Welfare

- 6) Seek to ensure that wild animals in captivity are provided the same degree of protection as other animals in the EU. Ensure that all the Strategic Actions incorporated into the EU Strategy for the Protection and Welfare of Animals, 2012-2015⁶, including the European Framework Animal Welfare Law and the European Network of Reference Centres, are carried out. Ensure all animals are provided conditions that meet, at the very least, their biological requirements.

To EU Member States:

Compliance with Directive 1999/22/EC

- 1) Where this is not already the case, improve protection for cetaceans in captivity by including dolphinarium in national zoo legislation implementing EC Directive 1999/22 and develop strict standards for the keeping of cetaceans in captivity. Guidance can be found in the standards developed by the countries of Brazil, Italy and the United Kingdom and in the travel industry's Global Welfare Guidance for Animals in Tourism⁷. Standards should include the establishment of criteria to improve educational and conservation measures in dolphinarium.

³ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31997R0338:EN:HTML> (Article 2, (m))

⁴ <http://www.cites.org/eng/disc/text.php#IV>

⁵ <http://ec.europa.eu/environment/cites/pdf/srg/guidelines.pdf>

⁶ http://ec.europa.eu/food/animal/welfare/actionplan/docs/aw_strategy_19012012_en.pdf

⁷ <http://abta.com/news-and-views/press-zone/abta-launches-global-welfare-guidance-for-animals-in-tourism>

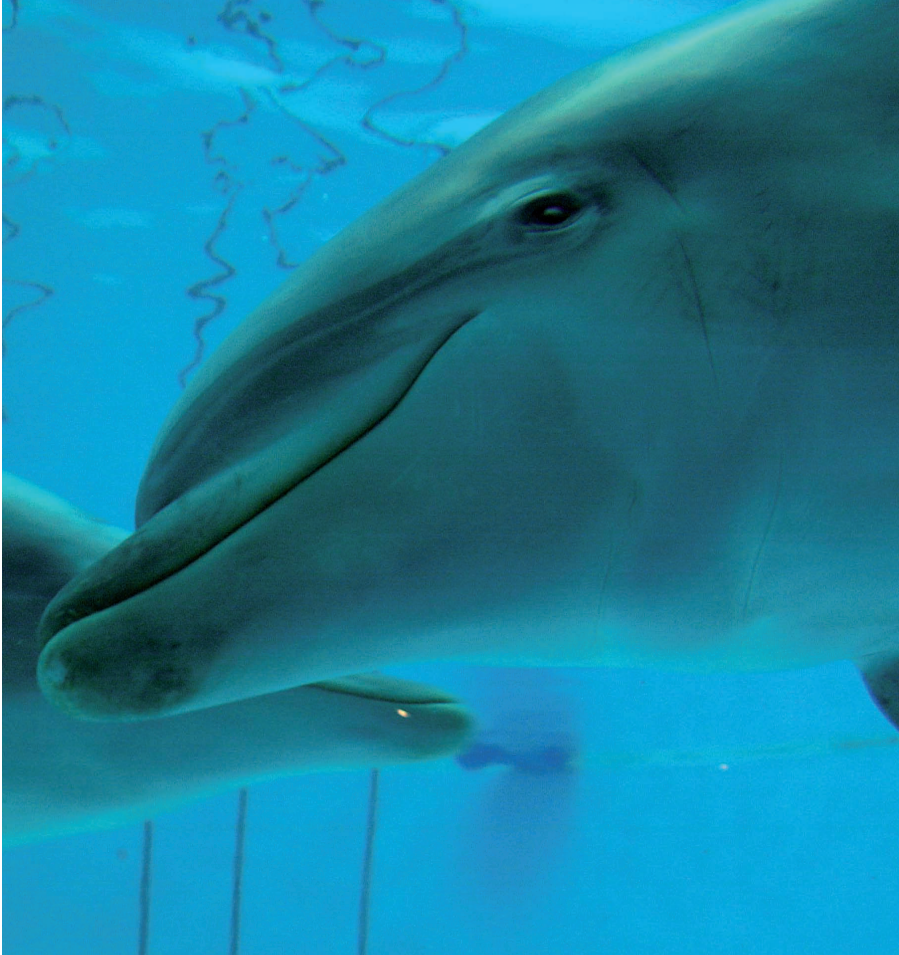
- 2) Ensure that all veterinarians working in dolphinariums, or who provide veterinary support for dolphinariums, are equipped with the relevant training and skills relating to the health and welfare of cetaceans in captivity.
- 3) Ensure that all zoo keepers, being those people who have responsibility for the care of cetaceans in captivity, are provided with relevant training and skills in cetacean care and welfare.

Public safety

- 4) Prohibit contact between cetaceans and members of the public as Italy has done in its regulations on the maintenance of dolphins in captivity. Close contact presents a health and safety risk to both parties.
- 5) Review interactions between trainers and cetaceans and implement measures to improve safety, following the deaths of two orca trainers since December 2009.
- 6) Consider implementing measures to curtail dolphinarium activities which may encourage members of the public to undertake similar activities with wild cetaceans, presenting a threat to both themselves and to wild cetaceans, such as the feeding of cetaceans by trainers during public performances.

Animal health and welfare

- 7) Ensure every dolphinarium has a full-time veterinarian with significant cetacean experience available to carry out regular health checks and act to prevent disease and other ill-health. Cetaceans can suffer significant health-related problems in captivity.
- 8) Prepare plans to phase out national dolphinariums by, prohibiting captive breeding; prohibiting the import of further cetaceans; prohibiting the development of new dolphinariums and prohibiting the expansion of existing dolphinariums, except where this is required to drastically improve the health and welfare of existing cetacean residents. Where appropriate and available, work with existing dolphinariums to transfer captive cetaceans to rehabilitation, retirement and/or release programmes that comply with the standards of the Global Federation of Animal Sanctuaries and IUCN release guidelines.



Cetaceans in captivity should be subject to strict protection.

© ANIMAL PUBLIC

DOLPHINARIA IN THE EU: INTRODUCTION AND METHODOLOGY

INTRODUCTION TO CETACEANS

Cetaceans, the collective name for whales, dolphins and porpoises, are kept in captivity in zoos, aquaria and dolphinariums in around 60 countries worldwide. The majority of captive cetaceans are held for public display purposes, while others are held for scientific research, military purposes and rehabilitation following strandings. Most dolphinariums offer entertainment to the public in the form of shows and, increasingly, interaction programmes such as swimming with dolphins.

There are some 85 species of these large, aquatic, air-breathing mammals. Only species from the odontocetes or “toothed whales” are kept in captivity, including dolphins (such as bottlenose dolphins and killer whales or “orcas”), porpoises and small whales such as belugas.

Among the cetacean species in captivity in dolphinariums in the EU Member States, harbour porpoises are the smallest at 1.4-1.9 metres in length and orcas the largest at 5.5-9.8 metres in length. Significant diversity within species is also common and the bottlenose dolphins have recently been split into two species: *Tursiops truncatus* and *Tursiops aduncus*. Recent studies suggest that there may be three different species of orca or that orcas are a “species complex” (Morin *et al.*, 2010). Cetaceans live in distinct populations, so while a species may be widespread across the globe with little threat of extinction, a small population inhabiting a relatively small area of coast or ocean may be more vulnerable to threats to its survival.

Cetaceans live in almost every part of the marine environment, including estuaries, coastal environments and deep water habitats, from the tropics to the poles. Some species are riverine. Many species exploit transient resources associated with particular water characteristics such as temperature, chemistry or clarity.

Cetaceans play a vital role in maintaining the structure and function of ecosystems (Bowen, 1997), often as top predators. Years of intense pressure from whaling and other hunting has led to significant declines in many populations and subsequent changes in the abundance of other marine species (Springer *et al.*, 2003).

Wild cetaceans are subject to a number of protective mechanisms in the EU, including Council Directive 92/43/EEC (the Habitats Directive), which lists all cetaceans in its Annex IV of species in need of strict protection. *Tursiops truncatus* and *Phocoena phocoena* are also listed in its Annex II of species whose conservation requires the designation of special areas of conservation.

The Bern Convention on the Conservation of European Wildlife and Habitats includes cetaceans in its Appendix II of strictly protected fauna species, including those species found in European waters that are kept in captivity in the EU. This prohibits, *inter alia*, all forms of deliberate capture, possession and internal trade in these animals.

The Convention on Migratory Species’ Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic Area (ACCOBAMS) also prohibits captures of cetaceans and the keeping of Black Sea bottlenose dolphins. Resolution 3.13, passed at its Third Meeting of the Parties in 2007 urged Parties not to allow imports of dolphins that had been captured in the wild. This contributed to the decision by EU Member State Croatia, an ACCOBAMS Party, to pass legislation prohibiting the keeping of cetaceans in captivity for commercial purposes.

Bottlenose dolphins have home ranges as large as 300 kilometres (km) and have been recorded travelling up to 1076 km in 20 days (Frohoff and Packard, 1995). Orcas can dive as deep as 60 metres and travel as far as 160 km in a day. Whales and dolphins are almost always in motion, even when resting. They spend less than 20% of their time at the water’s surface and many species spend far less time than this. They live in a world that is largely acoustic. They are also supreme hunters.



Wild orcas can travel as far as 160 kilometres in one day.

© ROB LOTT

Cetaceans are highly intelligent and display self-awareness, including the ability to recognise themselves in a mirror (Reiss and Marino, 2001). It is also becoming increasingly clear that these animals demonstrate culture, the source of fundamental skills for survival (Whitehead *et al.*, 2004 and Whitehead, 2011) and one of the reasons dolphin calves stay so long with their mothers (Rose *et al.*, 2009). Wild orcas in Argentina teach their offspring how to catch seals by deliberately beaching themselves on the shore (Whitehead, 2011). Wild bottlenose dolphins in Australia use sponges as a tool to protect their beaks while feeding on the sea bed, a skill that has been passed down through generations (Krützen *et al.*, 2005).

Growing understanding of the social complexity of these animals in their natural environment may have important implications for conservation mandates, specifically in relation to the significance of the role of the individual within a society and the transmission of knowledge to other group members and throughout generations (White, 2011). There is also increasing evidence that these complex animals suffer significant health and welfare problems in captivity (Rose *et al.*, 2009).

INTRODUCTION TO DOLPHINARIA IN THE EU

Thirty three dolphinarium currently operate in 15 EU Member States (see Figure 1 and Map 1 for location details).

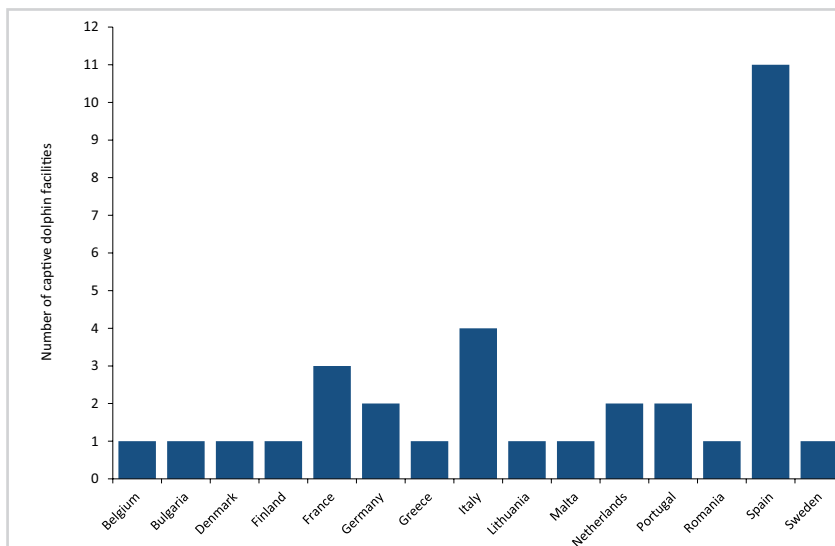
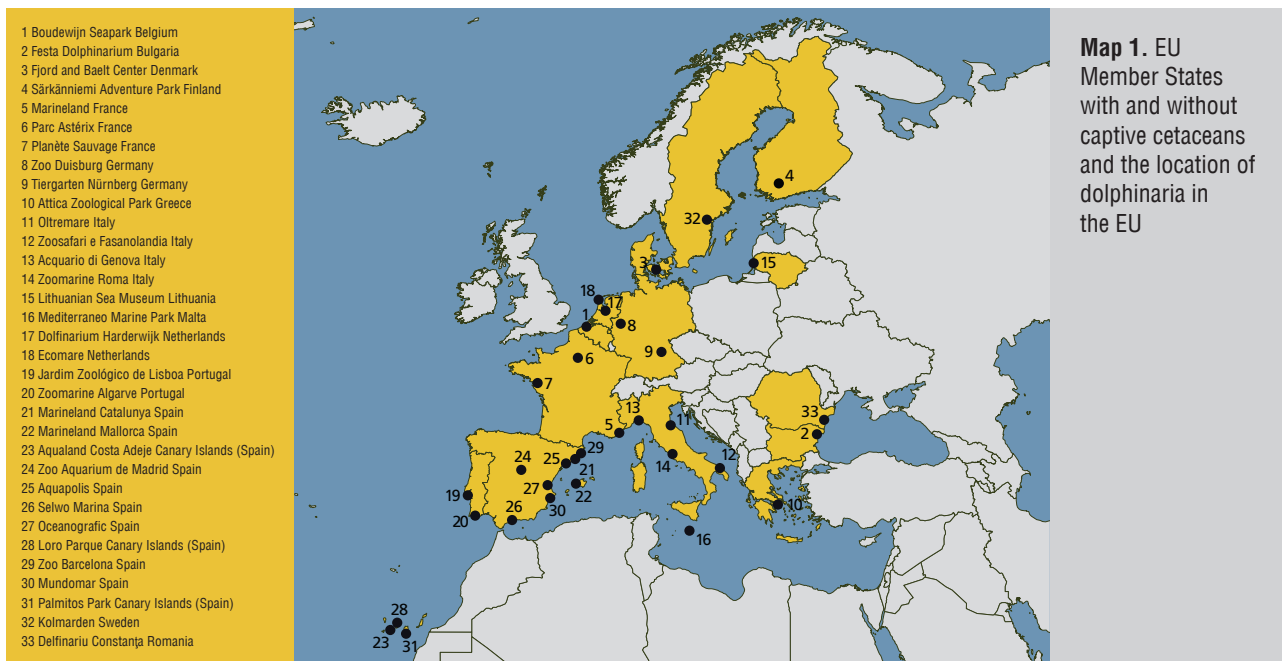


Figure 1. Number of dolphinarium in EU Member States

Thirteen Member States (Austria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Luxembourg, Poland, Republic of Ireland, Slovakia, Slovenia and the United Kingdom) currently have no dolphinarium.



Dolphinariums in the EU hold a reported 309 captive cetaceans⁸. The majority, a reported 283, are bottlenose dolphins (*Tursiops truncatus* and *Tursiops truncatus ponticus*). Orcas (*Orcinus orca*), belugas (*Delphinapterus leucas*), harbour porpoises (*Phocoena phocoena*) and an Amazon River dolphin (*Inia geoffrensis*) are also held.

Annex A provides a list of dolphinariums in the EU and information about the number and species of cetaceans held. There is no centralised or regulated inventory of dolphinariums in the EU and information-gathering on individual animals is largely dependent on internet searches and media articles. Any detailed data collected by dolphinariums in the EU about the animals they hold such as on pregnancies, births, deaths and transfers of animals is not made available to the public and can be difficult to obtain even for scientific research.

Dolphinariums in the EU vary greatly in size and complexity. Many dolphinariums form exhibits in larger zoo complexes and others are stand-alone facilities. Many dolphinariums are found in parts of the EU popular with tourists, such as coastal resorts and therefore receive overseas and other visitors.



Dolphinariums in the EU vary greatly in size and complexity.

© Born Free Foundation

⁸ These figures were based on information available in January 2015 on dolphinarium websites and an informal database managed by the conservation community: <http://www.ceta-base.com/phinventory>.

Thirty-one dolphinaria give shows or presentations where dolphins perform trained behaviour to public audiences. Twelve dolphinaria offer opportunities for visitors to get into the water with dolphins to participate in “trainer for the day”-style programmes or to swim with dolphins. Twelve dolphinaria provide opportunities for visitors to get close to or touch the dolphins and a fee is charged for a photograph to be taken. Two offer so-called Dolphin Assisted Therapy.



At some dolphinaria in the EU visitors can swim with dolphins.

© Colin Speedie

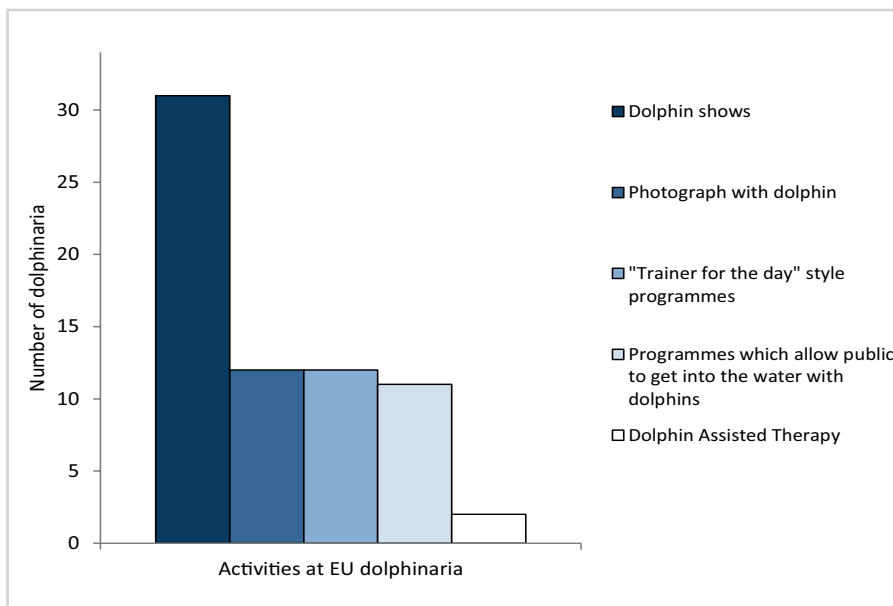


Figure 2. Activities available to visitors of dolphinaria in the EU.

THE EU ZOOS DIRECTIVE AND DOLPHINARIA IN THE EU

Council Directive 1999/22/EC, relating to the keeping of wild animals in zoos (the Zoos Directive), was adopted in 1999 and came into force in April 2002. Since then, all EU Member States have been obliged to incorporate the requirements of the Directive into national legislation and, from April 2005 (2007 in the case of Bulgaria and Romania and 2013 in Croatia), fully implement and enforce its requirements. The European Commission has the responsibility to oversee and ensure the effective implementation of the Directive by Member States and to take legal action in the event of non-compliance.

The Directive is currently the only piece of EU legislation that gives protection to wild animals, including cetaceans, in captivity. The Directive's objectives are to “*protect wild fauna and to conserve biodiversity by*

providing for the adoption of measures by Member States for the licensing and inspection of zoos in the Community, thereby strengthening the role of zoos in the conservation of biodiversity” (Article 1).

The Directive provides a framework for Member State legislation in accordance with the European Community’s obligation to adopt measures for *ex situ* conservation under Article 9 of the Convention on Biological Diversity. The Directive sets out the minimum requirements that Member States are required to meet to ensure that “zoos adequately fulfil their important role in the conservation of species, public education, and/or scientific research” (preamble). However, the Directive does not define any of these terms, and instead the Competent Authority in each Member State is left to develop national legislation to implement the Directive based on its own interpretation of these terms. Member States are also required to adopt further measures that include: “accommodating their animals under conditions which aim to satisfy the biological and conservation requirements of the individual species, inter alia, by providing; species specific enrichment of the enclosures; and maintaining a high standard of animal husbandary with a developed programme of preventative and curative veterinary care and nutrition” (third indent, Article 3).

Article 2 of the Directive provides, for the purpose of the Directive, a definition of ‘zoos’ which includes “all permanent establishments where animals of wild species are kept for exhibition to the public for 7 or more days a year, with the exception of circuses, pet shops and establishments which Member States exempt from the requirements of this Directive on the grounds that they do not exhibit a significant number of animals or species to the public and that the exemption will not jeopardise the objectives of this Directive”.

One Member State, Bulgaria, has exempted stand-alone facilities or dolphinariums holding cetaceans from the requirements of the Directive on the grounds that they are defined by national legislation as circuses. However, exempting dolphinariums, even in only a very limited number of cases, jeopardises the Directive’s objectives as dolphinariums operate exactly as a zoo is defined in the Directive’s Article 2 in that they keep wild animals and are open to the public. By exempting facilities holding cetaceans, Member States are violating the Directive and removing the only mechanism available to protect these wild animals when they are in captivity. Cetaceans in the wild are subject to a number of protective measures including through conventions such as the Bern Convention, ACCOBAMS and the EU Habitats Directive. In captivity they should be subject to similar or equal protection.



Wild cetaceans are subject to a number of protective mechanisms in the EU.

© Charlie Phillips

REVIEW METHODOLOGY

This report provides a review of the keeping of cetaceans in dolphinariums in the EU and examines whether EU Member States and the dolphinariums within them are meeting the requirements of EU legislation, including EC Directive 1999/22, relating to the keeping of wild animals in zoos, and EU Wildlife Trade Regulation (EC) 338/97. Results are based on evidence obtained as part of a pan-European project to evaluate the effectiveness and level of implementation and enforcement of the Zoos Directive, the EU Zoo Inquiry 2011; a literature review of available information on the capture and keeping of cetaceans in captivity, including risks to public safety; a legal analysis of compliance with EU legislation by dolphinariums in the EU and additional primary research examining the contribution made by dolphinariums in the EU to conservation and the promotion of public education and awareness.

EU Zoo Inquiry 2011

A pan-European project undertaken for the European Coalition ENDCAP by the Born Free Foundation, the EU Zoo Inquiry 2011, assessed 200 zoological collections in 20 EU Member States to evaluate the level of implementation and enforcement of the EU Zoos Directive.

As part of the EU Zoo Inquiry, 13 dolphinariums were selected to cover a range of countries and types of facility, including dolphinariums in zoo and aquarium complexes, safari parks, stand-alone dolphinariums and dolphin exhibits in theme parks. Dolphinariums were identified by referring to government records, published media and information from local NGOs. Data were collected between April 2009 and September 2010 from dolphinariums in Belgium (Boudewijn Seapark), Bulgaria (Festa Dolphinarium), France (Marineland), Germany (Zoo Duisburg), Greece (Attica Zoological Park), Italy (four facilities: Delfinario Rimini, Oltremare, Zoomarine Roma and Zoosafari e Fasanolandia), Lithuania (Lithuanian Sea Museum), Malta (Mediterraneo Marine Park) and Portugal (two facilities: Jardim Zoológico de Lisboa and Zoomarine Algarve).

Data were collected using a video camera which recorded a complete overview of the structure and content of each dolphinarium, including all visible enclosures, all visible animals, information signs, public education facilities, any shows and incidents of public/animal interaction. To reduce bias and base results only on aspects of dolphinariums seen by the visiting public, dolphinarium management was not contacted prior to data collection. Off-show areas, food preparation and storage rooms, quarantine and veterinary facilities were not included. Printed materials available to the public such as leaflets were also collected.

All zoos evaluated in the EU Zoo Inquiry 2011 were asked to complete a questionnaire that asked for details of their participation in European coordinated captive breeding programmes, *in situ* conservation projects, public education and current research activities. Unfortunately, no dolphinarium in any EU Member State returned the questionnaire. Further information about the EU Zoo Inquiry 2011 can be found at www.euzooinquiry.eu.

Capture, trade and keeping of cetaceans in captivity

Information on the capture, trade and keeping of cetaceans in captivity was obtained by:

- 1) Conducting a literature review of the main scientific evidence available to the public on this subject,
- 2) Commissioning legal advice on the compliance of dolphinariums in the EU with the requirements of the EU Zoos Directive and on the legal restrictions imposed on trade in and possession of live cetaceans by EU legislation.
- 3) Calculating reported incidents of trade in cetaceans by EU Member States using data from the trade database of CITES, the Convention on International Trade in Endangered Species of wild fauna and flora.

Contribution of dolphinariums to conservation

The contribution made to *in situ* conservation by dolphinariums and their participation in research was examined by:

- 1) Searching the websites of 34 dolphinariums in the EU for references to *in situ* conservation, as defined by Article 8 of the Convention of Biological Diversity⁹, including their direct contribution to the protection of wild cetaceans. This included providing funding for conservation projects or the involvement of dolphinarium staff in research on wild populations.
- 2) Searching the websites of 34 dolphinariums in the EU in August 2010 for publicly available information on their participation in research and the subject matter of the research.
- 3) Contacting 34 dolphinariums in the EU by email in September 2010 to ask for details of any research undertaken in the last five years.
- 4) Reviewing leaflets made available to the public at the dolphinariums visited as part of the EU Zoo Inquiry 2011 for reference to research undertaken.
- 5) Reviewing research presented via oral presentation or posters at European Cetacean Society conferences between 2005 and 2010 to identify any research involving captive cetaceans. The aim of the European Cetacean Society is to “*promote and coordinate the scientific study and conservation of cetaceans and to gather and disseminate information about cetaceans*” (European Cetacean Society, 2010).

Promotion of public education and awareness by dolphinariums

The contribution made to public education and awareness by dolphinariums was examined by:

- 1) Reviewing the leaflets made available to the public at six of the 13 dolphinariums visited as part of the EU Zoo Inquiry for educational content using the checklist in Table 1. No such leaflets were made available at seven dolphinariums visited.
- 2) Reviewing the species information signs at cetacean exhibits at four of the 13 dolphinariums visited as part of the EU Zoo Inquiry for educational content using the checklist in Table 1. No species information signs were available at nine dolphinariums visited.

Were public information signs present?	Yes	No
State common name	Yes	No
State scientific name	Yes	No
Present information on biological/behavioural characteristics	Yes	No
Present information on natural distribution	Yes	No
Present information on conservation status	Yes	No
Present information on threats to wild cetaceans	Yes	No

Table 1. Checklist used to analyse educational content of dolphinarium leaflets and species information signs.

- 3) Calculating the percentage of educational content in 13 dolphin shows filmed as part of the EU Zoo Inquiry (two shows were filmed at Marineland, France and no show was filmed at Zoosafari e Fasanolandia, Italy) and five further shows recorded in Spain between May 2008 (two facilities: Oceanografic and Mundomar), January 2010 (Zoo Barcelona) and September 2010 (two facilities: Aquopolis and Zoo de Madrid). Analysis of the show footage recorded enabled researchers to calculate the educational content of a voiceover or presentation by a trainer or educator as a percentage of the overall length of the show.
- 4) Examining the quality of the educational content of the dolphin shows. The checklist in Table 2 was used to determine if a number of key educational messages were included in the voiceover or staff presentations during the dolphin show. The checklists in tables 1 and 2 are both based on the requirements of the EU Zoos Directive to promote “*public education and awareness in relation to conservation of biodiversity, particularly by providing information about the species exhibited and their natural habitats*” (second indent, Article 3).

⁹ <http://www.cbd.int/convention/articles/?a=cbd-08>

- 5) Observing the dolphin shows to assess the types of dolphin behaviour shown to visitors and whether or not they represented behaviour that is seen in wild dolphins.

EU Zoos Directive requirements	Were the following included in the dolphin show?		
<i>“providing information about the species exhibited and their natural habitats”</i>	Give species name	Yes	No
	Say that dolphins are mammals	Yes	No
	Say that dolphins live in family groups or pods	Yes	No
	Say what wild dolphins eat	Yes	No
	Say that dolphins use echolocation	Yes	No
	Say that dolphins give birth to live young	Yes	No
	Name and point out body parts	Yes	No
	Say where wild dolphins are found	Yes	No
	Say what types of habitat dolphins use	Yes	No
<i>“awareness in relation to the conservation of biodiversity”</i>	Say the conservation status of the species exhibited	Yes	No
	Say that ocean ecosystems are degraded and/or wild dolphins are under threat	Yes	No
	Mention threats wild dolphins face (fishery bycatch, noise, pollution, ship strikes, hunting, climate change etc.)	Yes	No
	Say that public can help protect wild dolphins (don't harass wild dolphins, don't drop litter into the sea, support marine reserves, etc.)	Yes	No

Table 2. Checklist used to analyse educational content of dolphin shows.



This Amazon River dolphin is one of five different species held in captivity in the EU.

© ANIMAL PUBLIC

RESULTS AND DISCUSSION

CONSERVATION

In accordance with the European Community's obligation to adopt measures for *ex situ* conservation under Article 9 of the Convention on Biological Diversity, Article 3 of the Zoos Directive requires zoos to participate in “*research from which conservation benefits accrue to the species, and/or training in relevant conservation skills, and/or the exchange of information relating to species conservation and/or, where appropriate, captive breeding, repopulation or reintroduction of species into the wild*” (first indent, Article 3).

Table 3 details the conservation status of the cetacean species kept in captivity in the EU, according to the Red List of Threatened Species of the International Union for Conservation of Nature (IUCN). The IUCN categories range from “*Least Concern*” to “*Near Threatened*”, “*Vulnerable*”, “*Endangered*”, “*Critically Endangered*” and “*Extinct*”. A “*Data Deficient*” classification is used when there is inadequate information available to assess the risk of extinction.

Species	IUCN conservation status
Amazon river dolphin (<i>Inia geoffrensis</i>)	Data Deficient
Beluga (<i>Delphinapterus leucas</i>)	Near Threatened
Bottlenose dolphin (<i>Tursiops truncatus</i>)	Least Concern
Black Sea bottlenose dolphin (<i>Tursiops truncatus ponticus</i>)	Endangered
Harbour porpoise (<i>Phocoena phocoena</i>)	Least Concern
Orca (<i>Orcinus orca</i>)	Data Deficient

Table 3. Conservation status of the species of cetacean held in captivity in the EU.

CITES, the Convention on International Trade in Endangered Species of wild fauna and flora regulates international trade in cetaceans and the other species listed in its Appendices. All cetacean species kept in captivity in the EU are on CITES' Appendix II. However, a proposal supported by EU Member States was adopted at the 12th Conference of Parties in 2002 to retain the Black Sea bottlenose dolphin on CITES Appendix II but with a quota set at zero for the export of live wild-caught dolphins for primarily commercial purposes.

The cetaceans in captivity in the EU were not obtained from a wide distribution of populations across the range of their species. Instead, they typically originate from smaller and more distinct populations which inhabit a limited area and breed within limited groups. Live captures targeting these populations a number of times to obtain animals for dolphinarium may thus have had an impact on the survival of the population itself, if not the species as a whole.

Wild captures

In its 2002-2010 Conservation Action Plan for the World's Cetaceans, the IUCN/SSC Cetacean Specialist Group notes: “*Removal of live cetaceans from the wild, for captive display and/or research, is equivalent to incidental or deliberate killing, as the animals brought into captivity (or killed during capture operations) are no longer available to help maintain their populations. When unmanaged and undertaken without a rigorous program of research and monitoring, live-capture can become a serious threat to local cetacean populations... All too often, entrepreneurs take advantage of lax (or non-existent) regulations in small island states or less developed countries, catching animals from populations that are already under pressure from by-catch, habitat degradation, and other factors*” (Reeves *et al.*, 2003).

Capture from the wild and transport are undoubtedly stressful and dangerous for cetaceans. All capture methods are potentially lethal and even those considered most humane involve dolphins being chased by small boats, herded together and encircled by nets (Rose *et al.*, 2009).

Small and DeMaster (1995b) found that mortality rates of captured bottlenose dolphins increased by six times immediately after capture and did not drop down to the base captive mortality rate for up to 35-45 days. Dolphins not selected by the capture team and released from the nets may suffer a similar risk of dying. Heart lesions and suppressed immune systems have been found in dolphins encircled by speed boats and trapped in nets in tuna fisheries (Forney *et al.*, 2002 and Romano *et al.*, 2002).

The removal of individual animals that are crucial to social cohesion in dolphin populations can also have long-term impacts (Lusseau and Newman, 2004 and Williams and Lusseau, 2006). Dolphins rely on well-organised groupings for, *inter alia*, foraging, defence against predators and the teaching and learning of specialised behaviour across generations (Rose *et al.*, 2009).

The CITES' trade database records the import into 16 of the EU's current Member States of 259 bottlenose dolphins, nine orcas, three belugas, one common dolphin (*Delphinus delphis*) and 13 Commerson's dolphins (*Cephalorhynchus commersonii*) between 1979 and 2008. These numbers are likely to be inaccurate, given poor reporting by some signatory countries to CITES (Fisher and Reeves, 2005). Furthermore, two countries, Bulgaria and Finland, are known to have imported dolphins during the period in question¹⁰ but these imports are not recorded in the database.

The database also records the source of 98 bottlenose dolphins imported into EU Member States as wild-caught from countries including Cuba, Russia and the USA. It also records the import of three wild-caught belugas from Russia. These wild-caught figures are likely to be significant underestimates. For more than half of the recorded trade in bottlenose dolphins, orcas and Commerson's dolphins, the database does not specify whether the imported animals were captured in the wild or born in captivity.

CITES requires the export of any species listed in its Appendix II, including all the cetacean species in captivity in the EU, to be supported by an export permit. An export permit must only be granted when a Scientific Authority of the exporting country has advised that the export will not be detrimental to the survival of that species. CITES recommends that this "non-detriment finding" is based on scientific studies of the abundance and status of the wild population from which the animal was taken and a scientific assessment demonstrating that the removal of animals from the wild for export will not cause the exploited population's depletion. This is to ensure trade is not detrimental to the survival and viability of local, regional and global wild populations.

However, the majority of wild dolphin populations are categorised by the IUCN as "data-deficient" and studies needed to improve our understanding about them require long-term expert effort which is expensive to conduct (Reeves *et al.*, 2003). It is therefore the case that the wild cetacean populations targeted by captures for display in dolphinaria are little studied and the impact of live captures therefore unknown.

In one example, the live capture of bottlenose dolphins in Cuban waters, a 2006 paper by several cetacean scientists concludes: "*no sufficient evidence is found for independent scientists to evaluate the sustainability of the current harvest of Cuban T. truncatus. Therefore, we strongly recommend that international trade ceases until supporting evidence of no detriment can be authenticated. Continued field research on stock structure, abundance, life history and anthropogenic threats is also greatly encouraged*" (Van Waerebeek *et al.*, 2006).

In 2002, Member States were asked by the European Commission not to import bottlenose dolphins from Guinea Bissau in West Africa, as a result of concerns about the effect of trade on the species' conservation status and the lack of biological data about the population concerned (Bail, 2002). We have every reason to believe that a similar situation exists for every cetacean population targeted by live captures.

¹⁰ http://www.ceta-base.com/phinventory/tph/tph_varna.html and <http://www.sarkanniemi.fi/en/attractions/dolphinarium>

The import of cetaceans into the European Union for primarily commercial purposes is prohibited by European Council Regulation (EC) 338/97, which implements CITES in the EU and lists all cetaceans on its Annex A. This prohibition stands even where an import is permitted for certain specific purposes set out in the regulation: for the advancement of science, where the species proves to be the only one suitable and where no captive-bred specimens are available; breeding or propagation purposes from which conservation benefits will accrue to the species concerned; or research or education aimed at the preservation or conservation of the species. The Regulation defines primarily commercial purposes as “*all purposes the non-commercial aspects of which do not clearly predominate*” and the prohibition is based on CITES’ controls on trade in the most endangered species listed in its Appendix I.

According to Cook (2011) “[d]olphinaria operate on a commercial basis and in cases where scientific and conservation work is not being undertaken adequately or at all, it is difficult to see how a permit can lawfully be issued”. She goes on to note: “*even where there is a proven scientific purpose [for example] this must ‘clearly predominate’ over any commercial purpose in order for the import to be lawful*” (Cook, 2011). Dolphinaria are primarily commercial enterprises charging visitors a fee to enter and should not be exempted from the import ban.

Captive breeding

The IUCN has acknowledged the need for self-sustaining captive populations to “*avoid the loss of many species, especially those at ‘high risk’ in greatly reduced, fragmented and disturbed habitats*” (Mallinson, 2001). However, many dolphinaria around the world still supplement losses from their captive stocks with wild-caught animals and none are reintroducing captive-bred individuals to the wild to help the recovery of endangered or threatened wild populations.

There is no centralised EU inventory of captive cetaceans, nor a record of their survival and reproductive rates. In the absence of a comprehensive reporting mechanism for data on pregnancies, stillbirths and calf mortality in captive cetaceans, or even the movement of individuals between facilities, it is difficult to evaluate the real extent and success of captive breeding of cetaceans. However, calf mortality among captive bottlenose dolphins, the most common species in captivity, is significantly higher than in the wild (Woodley *et al.*, 1997).

Captive bottlenose dolphins show higher mortality rates than comparative wild populations (Duffield and Wells, 1991) and annual survival rates for both calves and adults in wild bottlenose dolphin populations are higher than those for captives (Small and DeMaster, 1995a). Captive orcas demonstrate even higher mortality rates than bottlenose dolphins, compared to their wild counterparts (Small and DeMaster, 1995a).

Species	Mortality rate in captivity				Mortality rate in the wild
	Study 1 ¹¹	Study 2 ¹²	Study 3 ¹³	Study 4 ¹⁴	Study 5 ¹⁵ e 6 ¹⁶
Bottlenose dolphin	7.0%	7.4%	5.6%	5.7%	3.9%
Orca	7.0%	-	6.2%	6.2%	2.3%

Table 4: Annual mortality rates of bottlenose dolphins and orcas in captivity and in the wild.

¹¹ DeMaster, D. P. and Drevenak, J.K. 1988. *Survivorship patterns in three species of captive cetaceans* in Marine Mammal Science, Vol. 4(4): 297-311

¹² Duffield, D.A. and Wells, R.S. 1991. *Bottlenose dolphins: comparison of census data from dolphins in captivity with a wild population* in Soundings: 11-15. Spring.

¹³ Small, R.J. and De Master, D.P. 1995. *Survival of five species of captive marine mammals* in Marine Mammal Science 11(2): 209-226.

¹⁴ Woodley, T. H., Hannah, J.L. and Lavigne, D.M. 1997. *A comparison of survival rates for captive and free ranging bottlenose dolphins (Tursiops truncatus), killer whales (Orcinus orca) and beluga whales (Delphinapterus leucas)*. International Marine Mammal Association Inc. Draft technical report no 93-01.

¹⁵ Wells, R.S. and Scott, M.D. 1990. *Estimating bottlenose dolphin population parameters from individual identification and capture-release techniques*. Report of the International Whaling Commission, Special Issue 12.

¹⁶ Olesiuk, P.F., Bigg, M.A. and Ellis, G.M. 1990. *Life history and population dynamics of resident killer whales (Orcinus orca) in the coastal waters of British Columbia and Washington State*. Report of the International Whaling Commission. Special Issue 12.

Several attempts were made by the report authors to obtain information on bottlenose dolphin breeding from the European Association of Zoos and Aquaria (EAZA)'s European Endangered Species Programme, which works to coordinate breeding of many species held in zoos in the EU. These attempts were unsuccessful, although EAZA's 2004 annual report states: "*neonatal mortality is a major problem, rendering the total ex situ bottlenose dolphin population so far not being self-sustaining. In spite of thorough pathological investigations the problem has not been solved*" (Van Lint *et al.*, 2006). A 1998 review of the European bottlenose dolphin studbook revealed another fundamental problem: "*The number of founder dolphins, especially in males, might become a critical factor for the growth of the European population in the future*" (Hartmann, 2000).

In the absence of successful breeding of cetaceans in captivity and the premature deaths of the individuals held, many dolphinariums around the world continue to obtain animals from wild populations. If the number of EU dolphinariums remains the same or expands, imports of further wild-caught dolphins may be necessary, in spite of a prohibition under EU CITES Regulation 338/97 on imports of cetaceans into the EU for primarily commercial purposes.

Reintroduction to the wild

The EU Zoos Directive was adopted to meet the European Community's obligation to adopt measures for *ex situ* conservation under Article 9 of the Convention on Biological Diversity. Article 9 requires Parties to adopt measures for the "*rehabilitation of threatened species ... [and for] their reintroduction into their natural habitats under appropriate conditions*".

With the exception of cetaceans that have stranded on the EU coastline and have undergone short-term rehabilitation in captivity followed by release into the wild, there have been no examples of cetaceans held in dolphinariums in the EU being reintroduced to the wild since the early 1990s. In 1991 three bottlenose dolphins held in dolphinariums in the United Kingdom (UK) were released into the waters of the Turks and Caicos. However, this only occurred after the dolphinarium in question had closed, following a successful campaign against the keeping of dolphins in captivity and new requirements for the keeping of cetaceans being added to the UK Zoo Licensing Act (Born Free Foundation, 2010 and Simmonds, 2011). We are not aware of any existing dolphinarium in the EU being involved in the release of captive cetaceans for conservation purposes.

Attempts have been made in other parts of the world to maintain and breed cetacean species threatened with extinction such as the baiji or Yangtze River dolphin but these animals, like other cetaceans, have shown poor survival rates in captivity (Dudgeon, 2005). Furthermore, breeding in dolphinariums in the EU between dolphins from different populations has also led to the birth of animals that have no conservation value in the wild due to the problems of genetic mixing (Rose *et al.*, 2009).

***In situ* conservation**

Involvement in conservation projects "*in situ*" is thought to be one of the most important ways that captive facilities can contribute to conservation (WAZA, 2005). Whether the facility's involvement is in initiating a project, staff participation or funding part of or the entire project, dolphinariums can in this way influence the conservation of species in the wild, promote their involvement to visitors and try to educate them on conservation matters.

Few of the dolphinariums in the EU reference any involvement in *in situ* conservation projects on their websites. Of the 34 dolphinariums reviewed, no information was found on *in situ* cetacean projects on the websites of 27 (79%). Only seven dolphinariums publish on their websites that they fund conservation projects or take part in research on wild populations.

Of 13 dolphinariums visited as part of the EU Zoo Inquiry 2011, six made leaflets, including park maps, available to visitors but in none of these leaflets was there any mention of *in situ* conservation work. Five of the 13 had public information signs on the cetaceans they kept, but only one mentioned that they were involved in *in situ* conservation involving wild dolphins.

Considering the array of threats facing wild cetaceans (Reeves *et al.*, 2003), and the number of existing research and conservation projects involving wild cetaceans, this lack of any obvious involvement in *in situ* conservation by the majority of dolphinariums is concerning, not least given their access to funds through ticket sales and other public financial contributions.

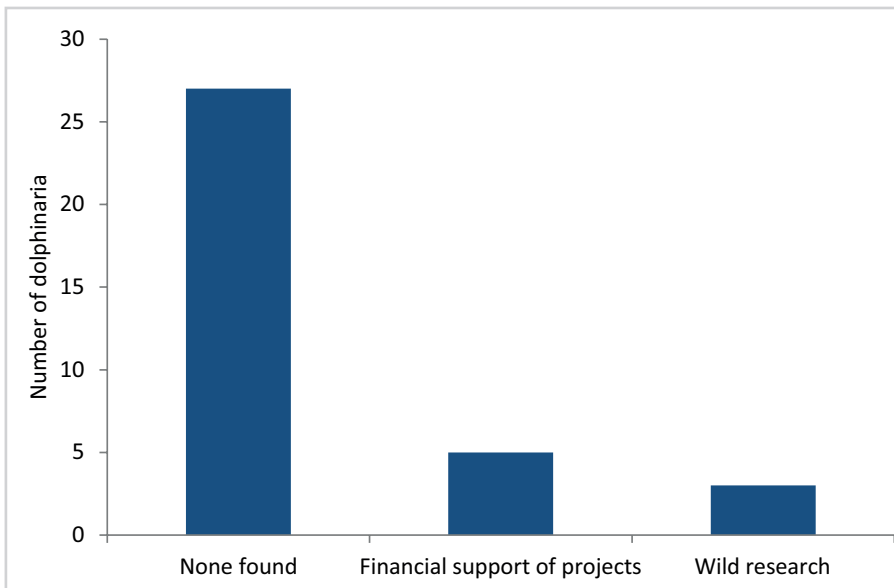


Figure 3. *In situ* conservation by the 34 dolphinariums operating in the EU in 2011, according to their websites.

Research

A review of scientific research in dolphinariums indicates that research undertaken at dolphinariums has little value. This is due to the shortcomings of the artificial environment as a study area, the unnatural nature of the captive population, the lack of a representative sample and the fact that the animals may be subject to medication that alters their body chemistry (Mayer, 1998).

According to Rees (2005), most current zoo research involving wild animals in captivity is concerned with husbandry (behaviour, environmental enrichment, nutrition and reproduction in the captive environment) rather than focused on *ex situ* conservation as defined by the Convention of Biological Diversity, with the aim of benefitting wild populations. Furthermore, research carried out in the natural environment by independent researchers not necessarily affiliated with dolphinariums is becoming increasingly sophisticated, lessening the need for behavioural studies in captivity.

Research conducted in dolphinariums may provide information that is misleading or even detrimental when applied to the conservation and protection of wild populations (Rose *et al.*, 2009). In a hearing study conducted using captive belugas to calculate the distance at which belugas could detect shipping traffic, a distance of 20 kilometres was estimated. However, observations in the wild showed belugas detecting vessels at distances of well over 80 kilometres and actively avoiding ships at three times the distance the captive studies had estimated (Findley *et al.*, 1990). Another study involving bottlenose dolphins demonstrated that captive animals do not show the same variability in whistles as their wild counterparts (Watwood *et al.*, 2004). Captive dolphins have also been shown to swim at speeds incomparable to those demonstrated in the wild (Rohr *et al.*, 2002). Researchers studying captive river dolphins noted, “[w]ithin the captive environment, pool size, shape and structure are considered to be important in influencing the behaviour of these dolphins” (Liu *et al.*, 1994).

Only 14 (41%) of the 34 dolphinariums reviewed stated on their websites that they participate in research involving the cetaceans in their care. Two dolphinariums gave no information about the subject of their research and only three reported the findings of their research. Where details were given, dolphinariums most commonly stated that they were involved in research on acoustics and behaviour. However, as described above, the value of this research for the conservation of wild dolphins is questionable. Other research topics included human therapy and captive reproduction. Human therapy research cannot be applied to the conservation of wild

cetaceans. Captive reproduction has little value to conservation if captive-bred animals are not released into appropriate wild populations.

Two dolphinariums reported carrying out research on captive cetaceans that could benefit cetaceans in the wild. In both cases this involved testing the response of captive cetaceans to sound devices attached to fishing nets to address cetacean bycatch. However, similar research is also being conducted on wild cetaceans (see Culik *et al.*, 2001 and Leeney *et al.*, 2007).

The majority of dolphinariums did not reply to a request for information on the research they have conducted in the last five years. Five dolphinariums were not willing to share details of their research, stating: “*this type of information is only shared with certain institutions and is not available for the public*”, or requiring information such as *curriculum vitae* or letters of support from universities. Only three dolphinariums sent papers or reports on their research. Two dolphinariums referred us to their websites although, in one case, the website contained only one sentence about their research on dolphins. Two dolphinariums informed us that no research had been undertaken involving their captive cetaceans in the last five years.

Response from dolphinariums to research requests	Number of responses received
Sent papers or reports	3
Told researcher to visit website	2
Would not give details of research to public or requested more details about the reason for requesting information	6
Have not done any research	2
No response	21

Table 5. Responses of dolphinariums in the EU to requests for information about their research on captive cetaceans.

These responses and our searches on dolphinarium websites suggest that research is a low priority at dolphinariums in the EU. No dolphinarium publically demonstrated that they undertook research of the kind of quantity or quality that might be expected to justify keeping cetaceans in captivity for research purposes “*from which conservation benefits accrue*”, as required by the Zoos Directive (first indent, Article 3) or that could not be carried out in the natural environment.

Six dolphinariums visited as part of the EU Zoo Inquiry 2011 made leaflets available to visitors. None provided any reference to any research being conducted that involved the facility’s cetaceans.

A review of the talks and posters presented at the European Cetacean Society (ECS) annual conferences between 2005 and 2010 was conducted to examine the contribution of captive research.

Year	Percentage of research presented at ECS conferences involving captive cetaceans
2005	7.3%
2006	4.8%
2007	5.5%
2008	3.2%
2009	5.5%
2010	6.2%
Average	5.4%

Table 6. Percentage of cetacean research presented at European Cetacean Society conferences based on studies involving captive cetaceans.

Research on captive cetaceans features little in the ECS programme. Although the ECS annual conference is only one forum in which dolphinarium in Europe can present research being conducted at their facilities, it is a well-respected and multi-stakeholder attended conference.

The small number of presentations on research involving captive cetaceans suggests either that dolphinarium consider their research to lack value in furthering knowledge on cetaceans, that dolphinarium are not willing to present their research at such conferences, that the research is not appropriate for presentation at the conference level or that little research is being carried out at dolphinarium.

As presented in Figure 3 on page 21, website searches revealed the participation of some dolphinarium in the EU in research involving wild cetaceans, including research aimed at the protection of populations or cetacean habitats. This suggests that dolphinarium themselves consider research conducted in the wild to be important and adds further weight to the argument that the keeping of cetaceans in captivity is not essential for research (Rose *et al.*, 2009).

EDUCATION

Article 3 of the Zoos Directive requires zoos to promote “*public education and awareness in relation to conservation of biodiversity, particularly by providing information about the species exhibited and their natural habitats*” (second indent, Article 3).

Research looking at the impact of zoos and aquaria on the public’s knowledge of wildlife or conservation has caused considerable debate. A study sampling the effect on the conservation knowledge of zoo visitors in England found “*very little evidence... of any measurable effect of a single informal visit*” (Balmford *et al.*, 2007). A study undertaken by the American Association of Zoos and Aquariums (Falk *et al.*, 2007) claimed that: “*zoos and aquariums are enhancing public understanding of wildlife and the conservation of the places animals live*” and that: “*visitors believe they experience a stronger connection to nature as a result of their visit.*” However, the validity of these conclusions have been questioned on the basis that the study’s methodology was flawed. In their analysis of the study, Marino *et al.* (2010) concluded that: “*to date there is no compelling or even particularly suggestive evidence for the claim that zoos and aquariums promote attitude change, education, and interest in conservation in visitors.*”

The Zoos Directive provides little guidance as to what kind of educational activities should be carried out by EU zoos and aquaria. Some international conventions provide more guidance, including in relation to the qualification level of education staff, provision of programmes for different types of audience and programme content (see Stroud, 2005).

Guidance on education provision in dolphinarium is also provided by the European Association for Aquatic Mammals (EAAM). In their “*Standards for Establishments Housing Bottlenose Dolphins*” they provide a list of 12 elements they recommend are included in any educational programme (EAAM, 1995). However, detail is still lacking in these standards. They refer, for example, to “*publications*” and “*object based interpretation*” without defining exactly what dolphinarium should be educating their visitors about. The standards are also voluntary, and many dolphinarium in the EU fail to meet them.

Public information leaflets and species-specific signs

None of the leaflets collected from the dolphinarium visited as part of the EU Zoo Inquiry included information about the biological characteristics, wild distribution or conservation status of the cetaceans held. Only 50% gave the common name of any cetaceans exhibited.

Only four of the dolphinarium visited as part of the EU Zoo Inquiry had species information signs about the cetaceans exhibited. These four all included both the common and scientific names of the cetacean species held. Three also included information about biological characteristics and natural distribution. Only one sign included information on the conservation status of the cetaceans held and the threats faced by dolphins in the wild.

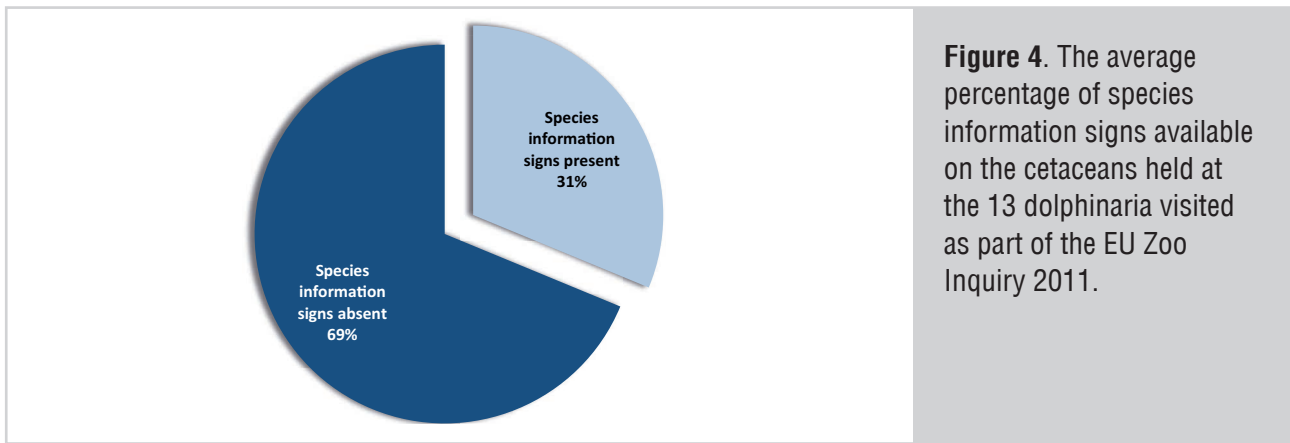


Figure 4. The average percentage of species information signs available on the cetaceans held at the 13 dolphinariums visited as part of the EU Zoo Inquiry 2011.

Dolphin shows

In 31 dolphinariums in the EU, the animals perform in shows or presentations for public audiences, usually in purpose-built stadiums. Dolphins are one of only a few animal species that are presented to the public in the form of shows and, in spite of similar shows with bears, chimps and elephants receiving heavy criticism for their portrayal of these animals in circus-style performances, dolphin shows remain the primary way in which dolphinarium visitors see these animals in captivity.

During the show, in most cases, commentary is given by the trainers involved in the show or as a recorded voiceover. Footage and commentary from 18 dolphin shows were analysed for educational content using the checklist in Table 2 (page 16). The footage was taken at 17 facilities (one facility had two shows featuring bottlenose dolphins in one and orcas in another) in 10 Member States. All but one of the 18 shows was set to music. The average length of a dolphin show was 22 minutes 10 seconds, and the average amount of time spent on the provision of information that could be considered to be educational was two minutes 22 seconds (12.3%). Two shows provided no commentary that could be considered to be educational.

Basic biological information about the animals exhibited was frequently not provided in dolphin shows. In 17 shows, there was no information provided about where wild dolphins are found. Seven shows did not identify the species shown by name and eight shows did not tell the audience that dolphins are mammals and not fish. The conservation status of the species exhibited was not provided in any show, and information about the threats faced by wild dolphins was provided in only two shows.

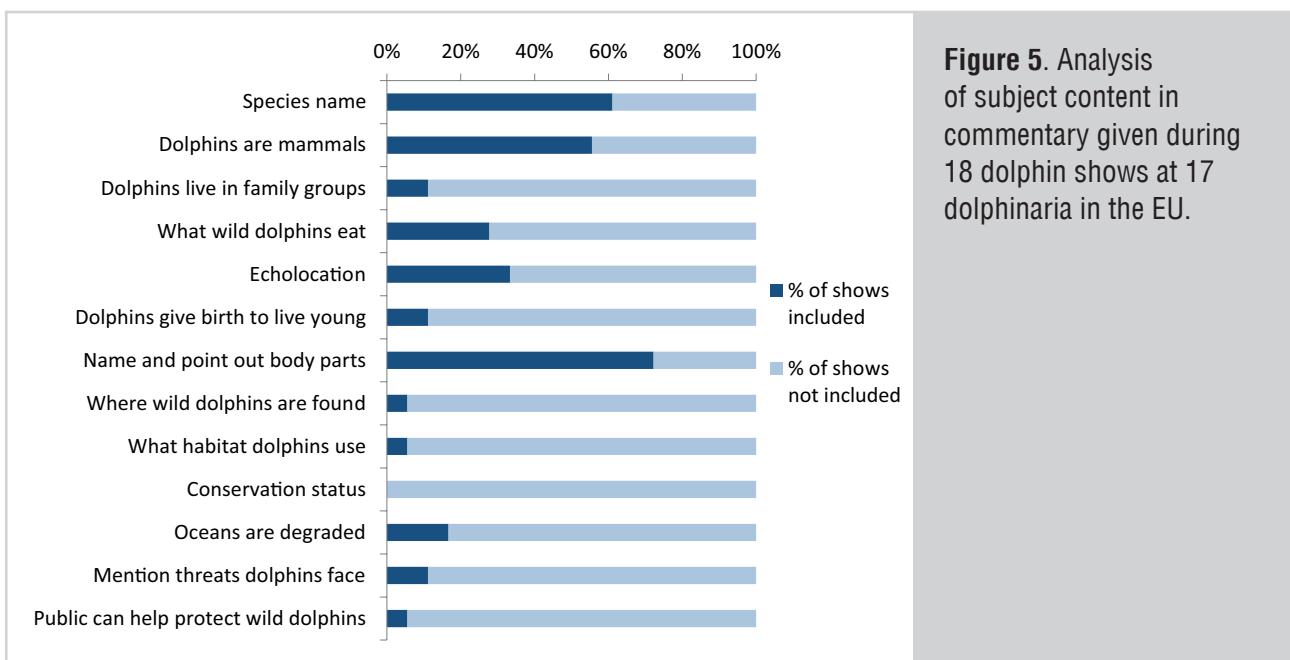


Figure 5. Analysis of subject content in commentary given during 18 dolphin shows at 17 dolphinariums in the EU.

Show commentary gives dolphinarium an opportunity to provide information about the animals displayed to the audience watching the show and to meet the requirements of the Zoos Directive's Article 3, with regard to public education and awareness. Our analysis of dolphin shows suggests dolphinarium are failing to meet this requirement and the shows appear to focus primarily on the provision of an entertainment spectacle for the viewing audience.

Dolphin behaviour observed during the shows included dolphins shooting basketballs through nets, dolphins towing children around the show pool in an inflatable boat, dolphins given paintbrushes to paint on canvas, dolphins jumping through hoops and dolphins pushing trainers into the air or through the water. These types of behaviour, which bear little to no resemblance to the types of behaviour seen in wild dolphins, were not observed in isolated facilities but across the majority of dolphinarium. No dolphin show exhibited only untrained dolphin behaviour. It was impossible to conduct a scientific analysis on the behaviour of the dolphins during any show in order to calculate what proportion of their behaviour was natural or unnatural as it was clear that all of their behaviour was either trained, choreographed, unnatural or all three. In every show observed, the animals interacted with foreign objects, such as balls or hoops, and with human trainers or visitors.

A "presentation/show" is one of the elements that the guidance of the European Association of Aquatic Mammals includes in its recommendations for educational goals (EAAM, 1995). However, it adds the caveat: "*The commentary on these should focus on biological facts. Any confusing or foolish comments should be omitted. Anthropomorphic and comic performances should be omitted*" (EAAM, 1995). This recommendation has clearly not been applied in the majority of dolphin shows.

Analysis of dolphin shows, exhibit signage and leaflets made available to the visiting public suggests that there is little attempt by dolphinarium to educate visitors with the biological, ecological and conservation facts about the cetaceans they display.

Italy's regulations on dolphin captivity

Italy's Regulations on the maintenance in captivity of bottlenose dolphins¹⁷ provide the most comprehensive education criteria for facilities keeping dolphins of any Member State. They require these facilities to have: "*an extensive educational programme for visitors and school groups of all ages based on the understanding of biology, eco ethology and the conservation of cetaceans in the wild.*" They require at least one full-time employee to be responsible for education, with relevant experience, and a booklet on cetacean biology and conservation status to be made available to visitors. In relation to dolphin shows, the Regulations state: "*if demonstrations are ever staged, they must be predominantly based on the natural behaviour of the animal. Comments must be about the biology of the species and teach the public how to observe the behaviour of the specimens.*"

The Italian regulations, if properly enforced, would provide visitors to Italian dolphinarium with access to the highest educational standard among EU dolphinarium. However, our analysis of the shows, leaflets and species information signs provided at four dolphinarium visited in Italy during the EU Zoo Inquiry suggest a lack of enforcement of the regulations. None included public information signs about the dolphins being exhibited and although three provided members of the public with leaflets during their visit, none of those leaflets provided information on biological characteristics, natural distribution, conservation status or threats faced by wild cetaceans. In the three dolphin shows analysed, the average time spent on giving educational messages to the public was less than four minutes, an average of 14% of the total show time. Data collected from these shows suggests that they do not have a predominantly educational purpose.

Public safety and risks to wild dolphins

Some dolphinarium in the EU allow visitors to come into close contact or even get into the water with dolphins. Dolphins are powerful underwater predators and are capable of delivering forceful head-butts, bites and striking with their tails,

¹⁷ DECREE 469 of 6 December 2001 - Regulations on the maintenance in captivity of dolphin specimens belonging to the species *Tursiops truncatus*, in application of article 17 paragraph 6 of law 93 of 23 March 2001.

techniques that they may use to defend themselves from attack. Violent interactions between cetaceans and humans in the wild are rare but have been recorded. People have been injured and even killed by interacting with wild dolphins (Orams 1997, Santos 1997 and Spradlin *et al.*, 2001). Solitary dolphins studied in the United Kingdom were seen stopping people choosing to swim with them from leaving the water or breaching on top of them (Eisfeld *et al.*, 2010).

Some dolphinariums in the EU also offer so-called Dolphin Assisted Therapy, or DAT, where dolphins are used in an animal-assisted therapy which is promoted as treating various illnesses or disability. DAT is an unproven technique (see Marino and Lilienfeld, 2007) and is potentially dangerous for the vulnerable people who may pay substantial fees to participate in it, as well as adding to the stress suffered by the dolphins (see Brakes and Williamson, 2007).

Shows featuring trainers in the water with dolphins and interaction programmes for visitors such as “swimming with dolphins” may encourage people to undertake similar activities with wild whales and dolphins, putting both the animals and humans at risk of injury and even death. Furthermore, trainers feed the dolphins throughout the show, usually as a reward for performing a trick. Dolphinarium visitors may also be invited to feed the dolphins. Both types of activity may encourage visitors to approach and feed cetaceans in the wild, again putting both parties at considerable risk (see NOAA, 2012a; NOAA, 2012b; WDCC and HSUS, 2003 and Flanagan, 1996).

In no dolphin show evaluated for this report were visitors reminded that dolphins can be dangerous animals that should not be approached in the wild. Resolution 3.13 of the Parties to ACCOBAMS expresses a range of concerns in connection with the commercialization of swimming with dolphins programmes and requests Parties *inter alia* to: “...*prohibit any cetacean interaction programme that involves closely approaching, interacting with, or attempting to interact with wild cetaceans... This includes attempting to swim with, touch, feed or otherwise elicit a reaction from the animals.*”¹⁸ Shows and other activities that encourage interaction between humans and cetaceans that may present a threat to the welfare and conservation of cetaceans in the wild, run counter to the objectives of the Zoos Directive to protect wild fauna and conserve biodiversity.

Dolphins can pass diseases to humans and vice versa. Dolphins are particularly susceptible to respiratory infections and there are a number of bacteria found in dolphins that can cause illness in humans through inhalation or wound contamination (Buck and Schroeder, 1990 and Patterson, 1999). Research conducted in the United States on people who come into regular contact with different species of marine mammals revealed that 50% had suffered an injury and 23% a skin rash or reaction as a result of that contact (Mazet *et al.*, 2004).

The safety of the dolphinarium staff is also a concern. Trainers have been injured and killed by cetaceans in captivity, including in the EU. In December 2009, trainer Alexis Martínez was killed when he was rammed by an orca during a training session at Loro Parque in Tenerife. In 2007, another trainer at Loro Parque was dragged to the bottom of the tank by an orca and suffered damage to her lung and broken bones. Trainer Dawn Brancheau was killed by an orca at SeaWorld Orlando in the USA in February 2010.

Dolphins are also at risk as a result of interactions with dolphinarium visitors. During such interactions, several people unfamiliar to the animals may be encouraged to enter their enclosures, stroke or kiss the dolphins or hold onto their dorsal fins as they swim around a pool. The presence of humans can cause stress in captive animals, resulting in aggression and other behavioural changes (Morgan and Tromborg, 2007). Dolphins in interaction programmes have been observed avoiding swimmers (Brensing *et al.*, 2005). Jewellery, nails and suntan creams can damage dolphins’ delicate skin (Brakes and Williamson, 2007 and Eisfeld *et al.*, 2010). Italy’s Regulations for the keeping of dolphins in captivity prohibit contact between dolphins and members of the public.

ANIMAL WELLBEING AND WELFARE

Article 3 of the Zoos Directive requires zoos to accommodate their animals “*under conditions which aim to satisfy the biological and conservation requirements of the individual species, inter alia, by providing species*

¹⁸ Resolution 3.13 on Dolphin Interaction Programmes adopted at MOP 3 in 2007.

specific enrichment of the enclosures; and maintaining a high standard of animal husbandry with a developed programme of preventive and curative veterinary care and nutrition” (third indent, Article 3).

The five freedoms and Article 13

The World Organisation for Animal Health defines animal welfare as how an animal is coping with the conditions in which it lives. Its guiding principles on animal welfare are based on five welfare principles, often referred to as the “five freedoms”: freedom from hunger, thirst and malnutrition, freedom from fear and distress, freedom from physical and thermal discomfort, freedom from injury and disease and freedom to express normal patterns of behaviour.

Many aspects of the five freedoms are lacking among captive cetaceans in the EU. In particular, no dolphinarium in the EU can be said to be providing its animals with the freedom to express normal behaviour. Article 13 of the Treaty on the Functioning of the European Union (as amended by the Lisbon Treaty) recognises animals as sentient beings and requires that the EU and the Member States, in formulating and implementing a range of policies, “*pay full regard to the welfare requirements of animals*”. Cook (2011), noting the fact that the Zoos Directive addresses the biological requirements of animals, suggests that measures adopted under the Directive should be subject to the welfare requirements of Article 13. She goes on to note that Article 13 “*reinforces the importance at EU level of the welfare requirements which were already laid down in Article 3... of the [Zoos] Directive and requires that the Member States, in implementing the Zoos Directive, take full account of the Community law recognition of animals as ‘sentient beings’.* In the case of dolphins, this means that full account must be taken of their biological requirements as complex and highly intelligent social animals whose behaviour in the wild includes travelling long distances and living in social groups” (Cook, 2011).

Biological requirements and species-specific enrichment

Cook (2011) supports the view that the Zoos Directive imposes “*binding minimum requirements on Member States in respect of biological requirements and the need to provide species specific enriched environments for dolphins held in dolphinarium*”. She notes “*there appears to be a strong case for arguing that many, if not all, current dolphinarium fail to meet the biological requirements of dolphins held in captivity or to provide an appropriate species specific enriched environment*” (Cook, 2011).

Dolphinarium, in the EU and elsewhere, cannot provide an environment in captivity that simulates the natural environment of cetaceans. Water is chemically treated, often with chlorine, which prevents the placing of live fish and weed into their pools. It is also filtered to prevent the build-up of the animals’ excrement and other waste. Most of the tanks holding cetaceans are smooth-sided, small and empty of stimuli, perhaps to facilitate cleaning, although lacking the species-specific enrichment required by the EU Zoos Directive. Some EU dolphinarium provide only indoor facilities for their animals, lacking any natural light.

In captivity, because of the artificial nature of the environment and the fact that calves are often separated from their mothers at a young age, dolphins cannot learn the skills important to survival or essential nursing skills necessary to care for their own young (Rose *et al.*, 2009). Instead, they may learn skills that limit the chance of their successful release into the wild, including adopting sounds that mimic their trainers’ whistles (Miksis *et al.*, 2002). Furthermore, in captivity, dolphins sharing a pool are often unrelated, from widely different locations or from different species. This may hinder their ability to exchange information and, as a result, limit social bonding, as they may not recognise the sounds or signals made by one another.

It is possible that training and performance in shows provides a stimulus for whales and dolphins in captivity lacking the stimulation they would get from hunting in the wild. But whales and dolphins performing in shows only carry out conditioned behaviour which is either incomparable to any behaviour seen in the wild or highly exaggerated or altered. Food is used as a reward for carrying out the correct performance, including during shows. Natural feeding and foraging is therefore lost, as is the independence of the animals to choose their own behaviour.

Stress and stereotypic behaviour

Stress can severely affect the health of cetaceans in captivity. Symptoms of stress include weight loss, lack of appetite, anti-social behaviour, reduced breeding success, arteriosclerosis¹⁹, stomach ulcers, blood cell count changes, an increased susceptibility to diseases and death (Rose *et al.*, 2009).



In captivity dolphins cannot disperse from one another during conflict.

© OZGUR KESAPLI/WDC

Stress may result from the keeping of cetaceans in artificial social groupings in small restricted areas, with no means of escape. Adding new animals to a captive group or placing incompatible animals together can change the group's dynamics and dominance hierarchy, with individuals at the bottom of the hierarchy subjected to aggression, illness and even death (Rose *et al.*, 2009). Waples and Gales (2002), as a result of their research finding social problems and group instability in captive bottlenose dolphins in Australia, recommended that group structure in captivity resemble that found in the wild. But captivity cannot provide the fluidity of group composition experienced by wild dolphin populations or provide the large home ranges which allow dolphins to disperse from one another during conflict, which helps to reduce stress and violent encounters (Frohoff and Packard, 1995).

Handling, restraint, confinement, transport, isolation or crowding and an artificial diet also lead to stress in captive cetaceans and, ultimately, a reduction in their life expectancy (Maas, 2000). Dolphins, including young animals born in captivity but surplus to a dolphinarium's requirements are routinely transported between dolphinariums in the EU, in spite of the inherent risks involved in moving such large, aquatic animals. Dolphins demonstrate greatly increased mortality rates after every transport, similar to the increased risk of dying after capture from the wild (Small and DeMaster, 1995b).

Noise is also an important factor in the captive environment, not least for such acoustic animals, with the loud music of the show only adding to that of pumps and filters as well as adjacent rides in dolphinariums located in theme parks. As noted by the EAAM (1995): "*Sounds of mechanical origin are probably the most stressful for the animals, because of their regular repetitive nature*".

Observations by Frohoff (2005) of bottlenose dolphins in captivity in Belgium identified a number of stress-related types of behaviour. This included stereotypic behaviour, often seen in captive terrestrial animals in the form of pacing or swaying from side-to-side as a result of restricted movement or restricted expression of natural behaviour. The dolphins in Belgium were witnessed repeatedly circling the pool, slapping the surface

¹⁹ Hardening of the arteries

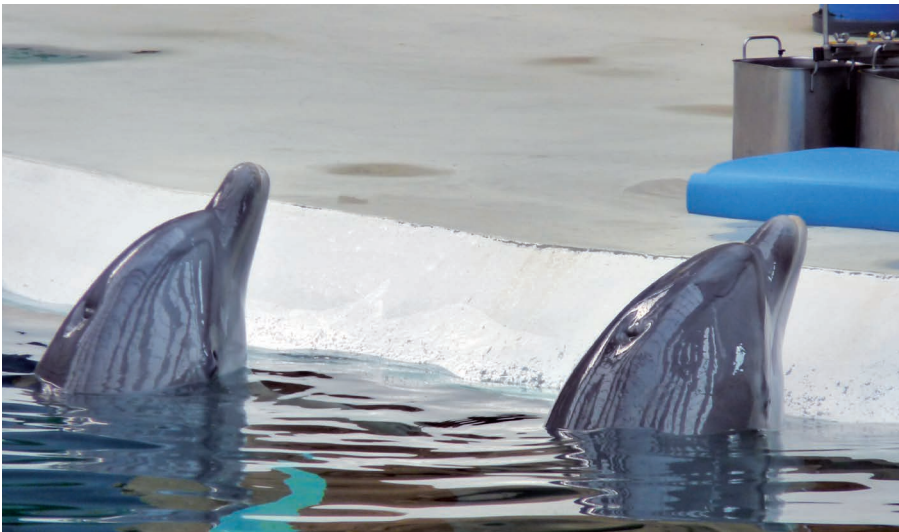
of the pool, chuffing (producing sharp and repetitive exhalations of breath), “begging” for food, repeated “beaching” on the side of the pool, opening their jaws towards audience members and abrupt head jerks. Dolphins not performing in the show were seen mimicking the tricks being performed by the dolphins in the show (Frohoff, 2005). Stereotypic behaviour, aggression towards other animals and humans and other behavioural problems are common among predators such as dolphins when they are denied sufficient space to carry out natural behaviour such as foraging (Rose *et al.*, 2009 and Clubb and Mason, 2003).

Veterinary care

Most captive cetaceans have their diet of frozen fish supplemented by vitamin and mineral pills and water, presumably to make up for the fact that frozen fish is of lower nutritional quality than living fish (Rose *et al.*, 2009).

Although details are not available for dolphinariums in the EU, a commonly cited cause of death in the United States’ Marine Mammal Inventory Report of captive cetaceans is pneumonia, a condition which is generally the result of other factors, such as stress or a compromised immune system (Rose *et al.*, 2009). Bacterial infections are also a common cause of death in captive cetaceans and antibiotics and ulcer medications are frequently administered to these animals (Rose *et al.*, 2009).

Even where veterinary provision is optimal, death rates among captive cetaceans are higher than their wild counterparts (see Table 4, page 19). Ill health is also difficult to diagnose in these animals. It is common for dolphinarium staff to find an animal lacking in appetite dying one or two days later and before any cause can be determined or treatment administered (Rose *et al.*, 2009).



Dolphinaria fail to meet the biological requirements of cetaceans or provide an appropriate environment.

© ANIMAL PUBLIC

People have been injured and even killed by interacting with wild dolphins.

© Terry Whittaker



CONCLUSIONS

As the findings of this report demonstrate, EU Member States and the dolphinarium they licence are failing to meet the requirements of the EU Zoos Directive. This in turn undermines the fulfilment of Member States' obligations to ensure that zoos participate in activities relating to species conservation, promote public education and awareness and accommodate their animals under conditions which aim to satisfy their biological and conservation requirements.

There are 33 dolphinarium operating in the EU, displaying a reported 309 small whales, dolphins and porpoises²⁰. Fifteen Member States hold cetaceans in captivity, while 13 do not. Detailed information about the status of cetaceans in captivity and dolphinarium practice is difficult to obtain, even for the purpose of scientific research.

Thirty-one dolphinarium display their animals to the public in the form of shows or presentations and some offer interaction programmes such as swimming with dolphins. These programmes risk the health and safety of both the animals and people involved and may encourage visitors to carry out similar activities with wild cetaceans, presenting a threat to both parties. Trainers who perform with captive cetaceans are also at risk in these interactions and have suffered both injury and death as a result, including in dolphinarium in the EU.



Live capture can present a serious threat to local cetacean populations.

One Member State has exempted dolphinarium from national zoo legislation implementing the Zoos Directive, leaving its captive cetaceans with little to no protection, in spite of the many protective mechanisms available to aid cetacean conservation in the wild.

Conservation

Survival rates of cetaceans in captivity are lower than in the wild and concerns have been expressed about both calf mortality and the number of male dolphins available to captive reproduction, with possible implications for the future growth of the captive population. Captures still take place in some parts of the world to supply the worldwide dolphinarium industry.

Live capture can present a serious threat to local cetacean populations and can be lethal to both targeted individuals and the groups they leave behind. Wild-caught cetaceans in captivity in the EU are typically from small, distinct populations which inhabit a limited area and breed within limited groups. Repeated live captures targeting these populations to obtain animals for dolphinarium in the EU may thus have had an impact on the

²⁰ Information current in January 2015

survival of the population itself, if not the species as a whole. Trade data concerning the origin of cetaceans imported into the EU is not complete but the import into the EU of wild-caught cetaceans is prohibited for primarily commercial purposes. Imports to dolphinariums have occurred in spite of this prohibition and despite dolphinariums being primarily commercial enterprises charging visitors a fee to enter and watch shows which appear to be largely entertainment-focused. No dolphinarium in the EU is involved in the release of captive-bred cetaceans for conservation purposes.

Only seven dolphinariums in the EU referenced any involvement by them in the conservation of wild cetaceans on their websites. At least one additional dolphinarium provided information about its contribution to *in situ* conservation of cetaceans on a species information sign at its cetacean exhibit.

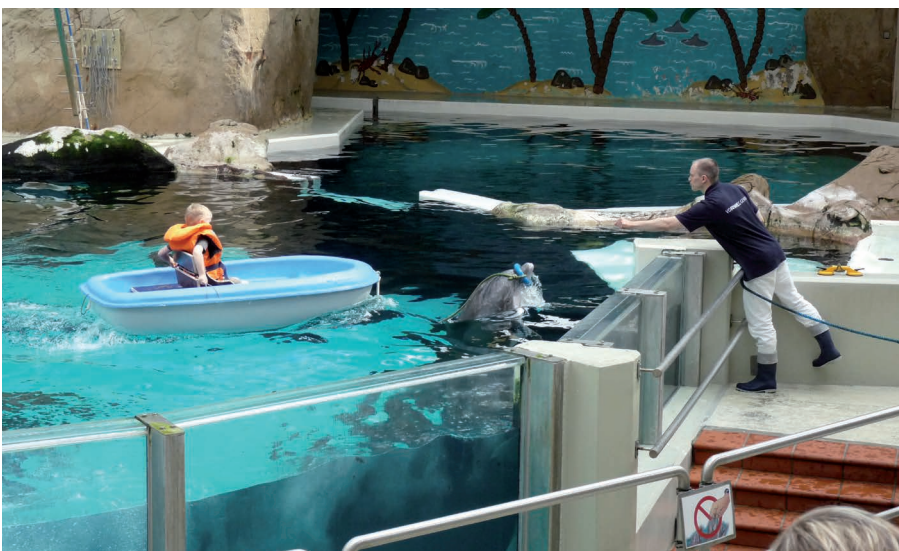
Only 14 dolphinariums in the EU promoted research involving captive cetaceans on their websites. Research involving captive cetaceans featured an average of only 5.4% in the programme of talks and posters at the leading European cetacean research conference. Furthermore, research conducted in dolphinariums has little useful application to the conservation and protection of wild cetaceans.

Education

Dolphinariums in the EU do not appear to be making an important contribution to public education and awareness. Many cetacean exhibits lacked public information signs about the species held. Show commentary provides an opportunity to educate dolphinarium visitors about the natural behaviour of the animals displayed and the threats they face in the wild. However, analysis of footage from 18 dolphin shows in the EU revealed them to be primarily focused on providing entertainment to visitors. An average of only 12.3% of show commentary included information about the animals displayed, including that dolphins are mammals, what they eat and information about different body parts.

Wellbeing and welfare

Article 13 of the Treaty on the Functioning of the European Union recognises animals as sentient beings and requires Member States, in their implementation of the Zoos Directive to take into full account the biological requirements of cetaceans as highly intelligent animals which travel long distances in the wild and live in social groups.



Dolphin shows are focused primarily on entertainment featuring unnatural behaviour.

© ANIMAL PUBLIC

No captive cetacean in the EU has the freedom to express normal behaviour, a guiding principle for animal welfare. Dolphinariums in the EU fail to meet the biological requirements of cetaceans in captivity or to provide an appropriate species specific enriched environment. Stress and stereotypic behaviour are common among captive cetaceans. Even where veterinary care is optimal, survival rates are lower among captive cetaceans than among their counterparts in the wild.

ANNEX A: NATIONAL SITUATION AND LEGISLATION

The EU does not have a central database or inventory of the status and origins of its captive cetaceans. Many of the details below have been taken from dolphinarium websites and an informal database managed by the conservation community, current in January 2015²¹. Exact numbers of cetaceans held at each dolphinarium require verification through visits to individual facilities.

Country	Dolphinaria included in or excluded from national zoo law	Specific legislation on dolphinaria	Number of dolphinaria	Reported number of captive cetaceans
Austria	Included	-	0	
Belgium	Included	Ministerial decree (1999) laying down minimum standards for the keeping of mammals in zoos provides minimum standards on surface area and depth for a specified number of <i>Tursiops truncatus</i>	1	7
Bulgaria	Excluded (regarded as circuses)	-	1	6
Croatia	Included	State Institute for Nature Protection regulation (2009) prohibits the keeping of cetaceans in captivity for commercial purposes, including dolphinaria, aquaria and similar facilities	0	
Cyprus	Included	Ministerial decree (1997) prohibits cetacean shows and the use of cetaceans for commercial purposes	0	
Czech Republic	Included	-	0	
Denmark	Included	-	1	3
Estonia	Included	-	0	
Finland	Included	Animal Welfare Act (1996) includes standards specific to cetaceans, including for water quality, pool surface area, depth and volume for a specified number of cetaceans, reproduction pools and noise levels	1	4
France	Included	-	3	35
Germany	Included	Expert statement on the minimum husbandry requirements for marine mammals provides non-binding guidelines on the keeping of cetaceans in captivity	2	18
Greece	Included	Law 4039/2012 bans animal performances	1	7
Hungary	Included	Animal Welfare Law (2002) prohibits the import of dolphins	0	
Ireland	Included	-	0	

²¹ <http://www.ceta-base.com/phinventory/>

Country	Dolphinaria included in or excluded from national zoo law	Specific legislation on dolphinaria	Number of dolphinaria	Reported number of captive cetaceans
Italy	Included	Decree 469: Regulations on the maintenance in captivity of dolphin specimens belonging to the species <i>Tursiops truncatus</i>	4	27
Latvia	Included	-	0	-
Lithuania	Included in some cases ²²	-	1	8
Luxembourg	Included	-	0	
Malta	Included	-	1	7
Netherlands	Included	-	2	44
Poland	Included	Regulation of the Minister of Environment (2004) on the conditions for breeding and maintenance of various groups of animal species in zoos includes standards specific to dolphins including pool surface area for a specified number of animals, depth and water quality	0	
Portugal	Included	-	2	27
Romania	Included	-	1	2
Slovakia	Included	-	0	
Slovenia	Included in some cases ²³	Governmental decree on the handling and protection of animals and plants in trade prohibits the keeping of cetaceans in captivity for commercial purposes, including for therapeutic purposes	0	
Spain	Included	-	11	104
Sweden	Included	-	1	10
Switzerland ²⁴	Included	Imports of cetaceans are prohibited	0	0
United Kingdom	Included	Supplement to the Secretary of State's Standards of Modern Zoo Practice: Additional Standards for UK Cetacean Keeping	0	

²² Facilities exempt from zoo regulation in Lithuania may include those where no more than 10 species of wild animal and not more than 50 animals are kept where they pose no threat to wildlife and the conservation of biodiversity.

²³ Zoos in Slovenia are defined as displaying several different species of wild animal. Dolphinaria displaying only one species may not always be defined as a zoo and may therefore be subject to different requirements.

²⁴ Although not an EU Member State, Switzerland has prohibited the import of cetaceans for commercial activities under Article 7 of the Swiss Animal Protection Law

Dolphinaria in the EU and cetacean species and number of each species held.

Dolphinarium name	Amazon river dolphin	Beluga	Bottlenose dolphin	Harbour porpoise	Orca
BELGIUM					
Boudewijn Seapark			7		
BULGARIA					
Festa Dolphinarium			6		
DENMARK					
Fjord & Baelt Center ²⁵				3	
FINLAND					
Särkänniemi Adventure Park			4		
FRANCE					
Marineland			14		6
Parc Astérix			9		
Planète Sauvage			6		
GERMANY					
Tiergarten Nürnberg			10		
Zoo Duisburg	1		7		
GREECE					
Attica Zoological Park			7		
ITALY					
Acquario di Genova			10		
Oltremare			10		
Zoomarine Roma			7		
Zoosafari e Fasanolandia			0 ²⁶		
LITHUANIA					
Lithuanian Sea Museum			8		
MALTA					
Mediterraneo Marine Park			7		
NETHERLANDS					
Dolfinarium Harderwijk			36	6	
Ecomare				2	
PORTUGAL					
Jardim Zoológico de Lisboa			6		
ZooMarine Algarve			21		
ROMANIA					
Delfinariu Constanța			2		
SPAIN					
Aqualand Costa Adeje			13		
Aquopolis			7		
Loro Parque			9		6
Marineland Catalunya			5		
Marineland Mallorca			5		
Mundomar			10		
Oceanografic		2	16		
Palmitos Park			5		
Selwo Marina			9		
Zoo Aquarium de Madrid			11		
Zoo Barcelona			6		
SWEDEN					
Kolmarden			10		
TOTALS	1	2	283	11	12
					309

²⁵ Fjord and Baelt is approved only as a research centre, although it includes dolphinarium activities.

²⁶ Currently displays no dolphins

REFERENCES

- Bail, C. 2002. *Note for the attention of the CITES Scientific Authorities: Application of Article 6 of Regulation 338/97*. Directorate-General Environment. European Commission. 21 January, Brussels.
- Balmford, A., Leader-Williams, N., Mace, G.M., Manica, A., Walter, O., West, C. and Zimmerman, A. 2007. *Message received? Quantifying the impact of informal conservation education on adults visiting UK zoos*. Zoological Society of London.
- Born Free Foundation. 2010. *No dolphinaria in the UK*. Available at: http://www.bornfree.org.uk/uploads/media/No_Dolphinaria_in_the_UK_01.pdf [Accessed 9 September 2014].
- Bowen, W.D. 1997. *Role of marine mammals in aquatic ecosystems* in Marine Ecology Progress Series, 158: 267-274.
- Brakes, P. and Williamson, C. 2007. *Dolphin Assisted Therapy. Can you put your faith in DAT? A report for the Whale and Dolphin Conservation Society*. Available at: http://www.wdcs.org/submissions_bin/datreport.pdf [Accessed 9 September 2014].
- Breusing, K., Linke, K., Busch, M., Matthes, I. and van der Woude, S. 2005. *Impact of different groups of swimmers on dolphins in swim-with-the-dolphin programs in two settings* in Anthrozoös, 18: 409-429.
- Buck, C.D. and Schroeder, J.P. 1990. *Public Health Significance of Marine Mammal Disease* in Dierauf, L.A. (editor), CRC Handbook of Marine Mammal Medicine: Health, Disease and Rehabilitation. CRC Press Inc., Boston.
- Clubb, R. and Mason, G. 2003. *Captivity effects on wide-ranging carnivores: animals that roam over a large territory in the wild do not take kindly to being confined* in Nature, 425: 473.
- Cook, K. 2011. *Advice provided to the Whale and Dolphin Conservation Society re: dolphinaria, compliance with European Union Legislation*. Matrix Chambers, London. March.
- Culik, B.M., Koschinski, S., Tregenza, N. and Ellis, G. M. 2001. *Reactions of harbor porpoises Phocoena phocoena and herring Clupea harengus to acoustic alarms* in Marine Ecology Progress, 21 (1): 255-260.
- Dudgeon, D. 2005. *Last chance to see . . . : ex situ conservation and the fate of the baiji* in Aquatic Conservation: Marine and Freshwater Ecosystems, 15: 105-108.
- Duffield, D.A. and Wells, R.S. 1991. *Bottlenose dolphins: comparison of census data from dolphins in captivity with a wild population* in Soundings: 11-15. Spring.
- Eisfeld, S.M., Simmonds, M.P. and Stansfield, L.R. 2010. *Behaviour of a solitary female bottlenose dolphin (Tursiops truncatus) off the coast of Kent, Southeast England* in Journal of Applied Animal Welfare Science, 13: 31-45.
- European Association for Aquatic Mammals. 1995. *E.A.A.M. Standards for Establishments Housing Bottlenose Dolphins*. Available at: http://www.marineanimalwelfare.com/EAAM.htm?option=com_content&task=view&id=19&Itemid=35#9e [Accessed 9 September 2014].
- European Cetacean Society. 2010. *Constitution of the European Cetacean Society*. Available at: <http://www.europeancetaceansociety.eu/sites/default/files/ECS%20constitution.pdf> [Accessed 9 September 2014]
- Falk, J.H., Reinhard, E.M., Vernon, C.L., Bronnenkant, K., Heimlich, J.E., and Deans, N.L. 2007. *Why zoos and aquariums matter: Assessing the impact of a visit to a zoo or aquarium*. Silver Spring, MD: Association of Zoos and Aquariums.
- Findley, K.J., Miller, G.W., Davis, R.A. and Greene, C.R. 1990. *Reactions of belugas, Delphinapterus leucas, and narwhals, Monodon monoceros, to ice-breaking ships in the Canadian high Arctic* in Canadian Bulletin of Fisheries and Aquatic Sciences, 224: 97-117.
- Fisher, S.J. and Reeves, R.R. 2005. *The Global Trade in Live Cetaceans: Implications for Conservation* in Journal of International Wildlife Law and Policy, 8: 315-340.
- Flanagan, P. 1996. *Wild and Dangerous. Why Interacting with Marine Mammals in the Wild Can be Harmful* in Soundings, 21 (3): 25-32.
- Forney, K.A., St. Aubin, D.J. and Chivers, S.J. 2002. *Chase encirclement stress studies on dolphins involved in eastern tropical Pacific Ocean purse-seine operations during 2001*. Southwest Fisheries Science Center Administrative Report LJ-02-32, La Jolla, California.
- Frohoff, T. 2005. *Report on Observations and Preliminary Assessment at Boudewijn Seapark Dolphinarium in Brugge, Belgium*. Report to Global Action in the Interest of Animals. September 28.

- Frohoff, T.G. and Packard, J.M. 1995. *Human interactions with free-ranging and captive bottlenose dolphins* in *Anthrozoos*, Volume VIII, Number I.
- Hartmann, M.G. 2000. *The European studbook of Bottlenose dolphins (Tursiops truncatus): 1998 survey results* in *Aquatic Mammals*, 26(2): 95-100.
- Krützen, M., Mann, J., Heithaus, M.R., Connor, R.C., Bejder, L. and Sherwin, W.B. 2005. *Cultural transmission of tool use in bottlenose dolphins* in *Proceedings of the National Academy of Sciences of the United States of America*, 102 (25): 8939–8943.
- Leeney, R., Berrow, S., McGrath, D., O'Brien, J., Cosgrove, R. and Godley, B. 2007. *Effects of pingers on the behaviour of bottlenose dolphins* in *Journal of the Marine Biological Association of the UK*, 87: 129-133.
- Liu, R., Gewalt, W., Neurohr, B. and Winkler, A. 1994. *Comparative studies on the behaviour of Inia geoffrensis and Lipotes vexillifer in artificial environments* in *Aquatic Mammals* 20 (1): 39–45.
- Lusseau, D. and Newman, M.E.J. 2004. *Identifying the role that animals play in their social networks* in *Proceedings of the Royal Society*.
- Maas, B. 2000. *Prepared and Shipped : A Multidisciplinary Review of the Effects of Capture, Handling, Housing and Transport on Morbidity and Mortality*. A Report for the Royal Society for the Protection of Animals, Horsham, UK.
- Mallinson, J.J.C. 2001. *A sustainable future for zoos and their role in wildlife conservation*. Available at: http://wildlifetourism.org.au/wp-content/uploads/swtc_mallinson_jeremy.pdf [Accessed 9 September 2014]
- Marino, L., Lilienfeld, S. O., Malamud, R., Nobis, N. and Broglio, R. 2010. *Do zoos and aquariums promote attitude change in visitors? A critical evaluation of the American Zoo and Aquarium study* in *Society and Animals*, 18: 126-138.
- Marino, L., and Lilienfeld, S. 2007. *Dolphin-assisted therapy: More flawed data, more flawed conclusions* in *Anthrozoös*, 20: 239-249.
- Mayer, S. 1998. *A review of the scientific justifications for maintaining cetaceans in captivity*. A report for the Whale and Dolphin Conservation Society.
- Mazet, J.A., Hunt, T.D. and Ziccardi, M.H. 2004. *Assessment of the risk of zoonotic disease transmission to marine mammal workers and the public: Survey of Occupational Risks*. Final Report prepared for United States Marine Mammal Commission, Research Agreement Number K005486-01.
- Miksis, J.L., Tyack, P.L. and Buck, J.R. 2002. *Captive dolphins, Tursiops truncatus, develop signature whistles that match acoustic features of human-made model sounds* in *Journal of the Acoustical Society of America*, 112: 728-739.
- Morgan, K. and Tromborg, C. 2007. *Sources of stress in captivity* in *Applied Animal Behaviour Science*, 102: 262–302.
- Morin, P.A., Archer, F.I., Foote, A.D., Vilstrup, J., Allen, E.E., Wade, P., Durban, J., Parsons, K., Pitman, R., Li, L., Bouffard, P., Abel Nielsen, S.C., Rasmussen, M., Willerslev, E., Gilbert, M.T.P. and Harkins, T. 2010. *Complete mitochondrial genome phylogeographic analysis of killer whales (Orcinus orca) indicates multiple species* in *Genome Research*, 20: 908-916.
- NOAA. 2012a. *Protect Dolphins Campaign*. Available at: <http://www.nmfs.noaa.gov/pr/education/protectdolphins.htm> [Accessed 9 September 2014]
- NOAA. 2012b. *Responsible Marine Wildlife Viewing*. Available at: <http://www.nmfs.noaa.gov/pr/education/viewing.htm> [Accessed 9 September 2014]
- Orams, M. B. 1997. *Historical accounts of human-dolphin interaction and recent developments in wild dolphin based tourism in Australasia* in *Tourism Management*, 18 (5): 317-326.
- Patterson, I.A.P. 1999. *Bacterial Infections in Marine Mammals in Zoonotic Diseases of UK Wildlife*. BVA Congress, Bath.
- Rees, P.A. 2005 *Will the EC Zoos Directive increase the conservation value of zoo research?* in *Oryx*, 39 (2): 128–136.
- Reeves, R.R., Smith B.D., Crespo, E.A. and Notarbartolo di Sciara, G. (compilers). 2003. *Dolphins, Whales and Porpoises: 2002-2010 Conservation Action Plan for the World's Cetaceans*. IUCN/SSC Cetacean Specialist Group. IUCN. Gland. Switzerland and Cambridge, UK. P.17
- Reiss, D. and Marino, L. 2001. *Mirror self-recognition in the bottlenose dolphin: A case of cognitive convergence* in *Proceedings of the National Academy of Science*, 98 (10): 5937-5942

- Rohr, J.J., Fish, F.E. and Gilpatrick, J.W. 2002. *Maximum swim speeds of captive and free-ranging delphinids: Critical analysis of extraordinary performance* in Marine Mammal Science, 18 (1): 1–19.
- Romano, T., Keogh, M. and Danil, K. 2002. *Investigation of the effects of repeated chase and encirclement on the immune system of spotted dolphins (Stenella attenuata) in the eastern tropical Pacific*. Southwest Fisheries Science Center Administrative Report LJ- 02-35C, La Jolla, California .
- Rose, N.A., Parsons, E.C.M. and Farinato, R. 2009. *The case against marine mammals in captivity (4th edition)*. The Humane Society of the United States and the World Society for the Protection of Animals.
- Santos, M. 1997. *Lone sociable bottlenose dolphin in Brazil: Human fatality and management* in Marine Mammal Science, 13: 355-356.
- Simmonds, M.P. 2011. *The British and the whales*. Chapter 7 in Brakes, P. and Simmonds, M.P. (eds) Whales and Dolphins – Cognition, Culture, Conservation and Human Perceptions. Earthscan, London and Washington.
- Small, R.J. and De Master, D.P. 1995a. *Survival of five species of captive marine mammals* in Marine Mammal Science, 11(2): 209-226.
- Small, R.J. and DeMaster, D.P. 1995b. *Acclimation to captivity: a quantitative estimate based on survival of bottlenose dolphins and California sea lions* in Marine Mammal Science, 11(4): 510-519.
- Spradlin, T., Barre, L. M., Lewandowski, J. and Nitta, E. 2001. *Too Close for Comfort: Concern About the Growing Trend in Public Interactions with Wild Marine Mammals*. Marine Mammal Society Newsletter 9 (3).
- Springer, A.M., Estes, J.A., Van Vliet, G.B., Williams, T.M., Doak, D.F., Danner, E.M., Forney, K.A. and Pfister, B. 2003. *Sequential megafaunal collapse in the North Pacific Ocean: an ongoing legacy of industrial whaling?* in Proceedings of the National Academy of Sciences of the United States of America, 100 (21): 12223-12228.
- Stroud, A. 2005. *Exemptions to the SPAW Protocol under Article 11(2): a Legal Review*. Prepared for the Specially Protected Areas and Wildlife Protocol.
- Van Lint, W., de Man, D., Garn, K., Hiddinga, B. and Brouwer, K. 2006. *EAZA Yearbook 2004*. EAZA Executive Office, Amsterdam.
- Van Waerebeek, K., Sequeira, M., Williamson, C., Sanino, G.P., Gallego, P. and Carmo, P. 2006. *Live-captures of common bottlenose dolphins Tursiops truncatus and unassessed bycatch in Cuban waters: evidence of sustainability found wanting* in Latin American Journal of Aquatic Mammals, 5(1): 39-48.
- Waples, K.A. and Gales, N.J. 2002. *Evaluating and minimising social stress in the care of captive bottlenose dolphins (Tursiops aduncus)* in Zoo Biology, 21(1): 5-26.
- Watwood, S.L., Tyack, P.L. and Wells, R.S. 2004. *Whistle sharing in paired male bottlenose dolphins, Tursiops truncatus*, in Behavioral Ecology and Sociobiology, 55 (6): 531–543.
- WAZA. 2005. *Building a Future for Wildlife - The World Zoo and Aquarium Conservation Strategy*. WAZA Executive Office, Switzerland.
- Whale and Dolphin Conservation Society and Humane Society of the United States. 2003. *Biting the hand that feeds: the case against dolphin petting pools*. Available at: http://www.wdcs.org/submissions_bin/biting_the_hand.pdf [Accessed 9 September 2014]
- White, T.I. 2011. *What is it like to be a dolphin?* Chapter 19 in Brakes, P. and Simmonds, M.P. (eds) Whales and Dolphins – Cognition, Culture, Conservation and Human Perceptions. Earthscan, London and Washington.
- Whitehead, H. 2011. *The cultures of whales and dolphins*. Chapter 16 in Brakes, P. and Simmonds, M.P. (eds) Whales and Dolphins – Cognition, Culture, Conservation and Human Perceptions. Earthscan, London and Washington.
- Whitehead, H., Rendell, L., Osborne, R.W. and Würsig, B. 2004. *Culture and conservation of non-humans with reference to whales and dolphins: Review and new directions* in Biological Conservation, 120: 431-441.
- Williams, R. and Lusseau, D. 2006. *A killer whale social network is vulnerable to targeted removals* in Biology Letters, The Royal Society.
- Woodley, T. H., Hannah, J.L. and Lavigne, D.M. 1997. *A comparison of survival rates for captive and free-ranging bottlenose dolphins (Tursiops truncatus), killer whales (Orcinus orca) and beluga whales (Delphinapterus leucas)*. International Marine Mammal Association Inc. Draft technical report no 93-01.

Whale and Dolphin Conservation

Since 1987, Whale and Dolphin Conservation, WDC (formerly known as Whale and Dolphin Conservation Society), has promoted a sound understanding of cetaceans so that they not only survive, but have the right to live unencumbered by human-made threats across the oceans. This is achieved through community-led protection, political advocacy at all levels and resonates into WDC's work with national and international governments. Collaborating with the United Nations Convention on Migratory Species, and its agreements ASCOBANS and ACCOBAMS, WDC brings political and legal advocacy, field science, community actions and organisational partnerships together in order to effect tangible stewardship at the highest levels of government.

WDC offices can be found in Argentina, the US, Germany, Australasia and the UK. The organisational goals of protecting cetaceans and raising awareness leads the organisation into diverse political arenas and these objectives engender opportunities to create change at all levels of society so that whales, dolphins and porpoises are protected throughout their aquatic habitats.

WDC UK, Brookfield House, 38 St. Paul Street, Chippenham, Wiltshire, SN15 1LJ. U.K.
Tel: + 44 (0) 1249 449 500, Fax: + 44 (0) 1249 449 501, www.whales.org

WDC Germany, Implersstr. 55, 81371 Munich, Germany
Tel: + 49 (0) 89 6100 2393, Fax: + 49 (0) 89 6100 2394, www.whales.org

Born Free Foundation

Born Free is an international wildlife charity, founded by Virginia McKenna and Bill Travers following their starring roles in the classic film Born Free. Today, headed by their son Will Travers, Born Free is working worldwide for wild animal welfare and compassionate conservation. Born Free supports and manages a diverse range of projects and campaigns. We embrace both compassion and science in setting an agenda that seeks to influence, inspire and encourage a change in public opinion away from keeping wild animals in captivity while, in the short term, working with governments, the travel industry and like minded organisations to deliver improved welfare conditions for wild animals currently held in zoos. Our Compassionate Conservation agenda (www.compassionateconservation.org), seeks to provide protection for threatened species and their habitats across the globe. Working with local communities, Born Free develops humane solutions to ensure that people and wildlife can live together without conflict. www.bornfree.org

Dolphinaria-Free Europe

Dolphinaria-Free Europe is a European coalition working together to end the keeping of cetaceans in captivity. We seek greater protection for captive cetaceans through investigation, advocacy and education, and share the position that wild animals should not be exploited for human entertainment.

ENDCAP

ENDCAP is a European coalition of 23 NGOs and wildlife professionals from 15 European countries that specialise in the welfare and protection of wild animals in captivity. Working with the European Institutions, national governments and experts, ENDCAP aims to improve knowledge and understanding of the needs of wild animals in captivity, uphold current legislation and seek higher standards, whilst challenging the concept of keeping wild animals in captivity. www.endcap.eu

This report was written by Cathy Williamson, Rachel Bailey and Laura Stansfield. Editorial assistance was provided by Karsten Bensing, Chris Butler-Stroud, Niki Entrup, Ulla Christina Ludewig, Clemens Purtscher, Mark Simmonds, Daniel Turner and Courtney Vail. German translation was provided by Clemens Purtscher, Spanish translation by Valeria Vergara, French translation by Chloé Yzoard and Italian translation by Stefania Saraceni.

