

Document: ACCOBAMS-SC14/2021/Doc34
Distribution: 17/11/2021

SCIENTIFIC PERSPECTIVE ON “POTENTIAL MARINE SEMI-ENCLOSED FACILITIES” IN THE ACCOBAMS AREA

**SCIENTIFIC PERSPECTIVE ON
“POTENTIAL MARINE SEMI-ENCLOSED FACILITIES” IN THE ACCOBAMS AREA**

Presented by Joan Gonzalvo,

Issue: Scientific perspective on “potential marine semi-enclosed facilities” in the ACCOBAMS Area

1. Action requested

The Scientific Committee is invited to:

- a. **note** a preliminary document on a scientific perspective of “potential marine semi-enclosed facilities”;
- b. **advise** on recommendations and future actions to be undertaken regarding “potential marine semi-enclosed facilities”.

2. Background

In the Working Programme activities (Resolution 7.6) it is requested to draft a Reference document on a scientific point of view about “potential marine semi-enclosed facilities” in the ACCOBAMS Area. During the 13th Meeting of the ACCOBAMS Scientific Committee it was decided to establish a Working Group, lead by Mr. Joan Gonzalvo, to support the development of a reference document on marine semi-enclosed facilities.

The document is composed of 2 parts:

- [Part I](#) - Potential Semi-Enclosed Facilities in the ACCOBAMS Area
- [Part II](#) - List of cetaceans held in captivity in the ACCOBAMS area

Part I - Potential Semi-Enclosed Facilities in the ACCOBAMS Area

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INTRODUCTION

The main purpose of The Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area (ACCOBAMS) is to reduce threats to cetaceans notably by improving current knowledge on these animals. As Mahatma Gandhi reportedly stated, “The greatness of a nation and its moral progress can be judged by the way its animals are treated”. Thus, it is imperative that we examine the way we treat dolphins and whales on public display and held in captivity under human care. Based on information provided by Whale and Dolphin Conservation (WDC), in 2015 there were a total of 332 dolphinariums in the EU, displaying a reported 309 cetaceans, the majority of which, reportedly 283, were 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*) were also held¹. The public display of cetaceans started with a first exhibition of bottlenose dolphins in 1883 at the Brighton Aquarium, followed by the first display in the United States in 1914 at the New York Aquarium (Wells and Scott, 1999). Since then, concern for the welfare of cetaceans in captivity has increased, especially over the past several decades, in line with concern for other animals in captive settings. A major campaign against keeping dolphins in captivity conducted in Europe by several organisations such as the Born Free Foundation, Whale and Dolphin Conservation and the Italian Lega Anti Vivisezione (LAV), as well as similar campaigns in other parts of the world, have led to a progressive shift in public opinion and put increasing pressure on the dolphin captivity industry. In May 2016, during the workshop "Towards the first refuge for dolphins in Southern Italy" organized by LAV and MAREVIVO in Rome, the document “The case for a Dolphin Sea Refuge in Italy: a concept paper” (Notarbartolo di Sciara et al. 2016) was presented; parts of it have been adapted for some sections of this document.

A major impediment to the fruition of the campaigns to terminate dolphin captivity is the lack of appropriate destinations for the dolphins after captivity. As these animals have not been able to learn complex behaviours that are key for their survival in the wild, sudden release from captivity to open seas is rarely successful, thus places are needed to house dolphins during their transition from captivity to the wild through their rehabilitation, or permanent care for them if release is impossible (Gales and Waples 1993, IUCN 1998, Moore et al. 2007, ACCOBAMS 2007). Rather than using these animals as objects of entertainment in conditions that do not meet their social and physical needs, we must develop facilities that can humanely care for animals who have been in display aquaria. Furthermore, when dolphins strand as a result of disease, trauma or environmental conditions, rehabilitation facilities are needed to house these animals during their rehabilitation, which could also provide refuge for animals without housing options.

Some dolphinariums in North America and Europe are closing either because their facilities were obsolete and did not comply with legal requirements such as the Animal Welfare Act guidelines or the EC Directive 1999/22 relating to the keeping of wild animals in zoos, or because of a decline in business. Many of these have shown their willingness to give away their dolphins to a Sea Refuge or Sea Sanctuary, if it were available. Some examples include:

- Sarkanniemi (Tampere), the only dolphinarium existing in Finland, which in 2016 decided to shut down because of low attendance and related financial crush, ended up sending their four bottlenose dolphins to Attica Zoological Park in Greece;

¹ 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 Dolphinarium-Free Europe in association with the Born Free Foundation (last update 2015).

- in 2014, the National Aquarium in Baltimore, Maryland, U.S. announced the launching of their sea sanctuary project where their dolphins will be moved;
- the Italian facilities at Rimini and Fasano were shut down by public authorities in the period 2015-2016 because of lack of compliance with Italian legally binding requirements for dolphinarium: dolphins kept in these facilities have been seized and entrusted to Italian Ministries for the Environment and Ministries for Health; currently they are maintained in the Genova Aquarium;
- in 2018, Barcelona's Mayor pledged the city would be free of captive cetaceans. Two years earlier, in 2016, two dolphins were moved from Barcelona to L'Oceanografic (Valencia, Spain). The remaining three dolphins, given the impossibility of finding another option, in July 2020, were also sent to Attica Zoological Park in Greece.

Recently, a few initiatives have been made public, which aim at providing those increasingly necessary facilities posing an alternative to dolphinarium, by creating the so-called cetacean sanctuaries or refuges. In an ACCOBAMS' context it is suggested to use the latter term "refuge", to avoid confusion with concepts of marine protected areas. For example, the "Pelagos Sanctuary for Mediterranean whales and dolphins", a well-known protected area in the Mediterranean, has a completely different nature and goal than dolphin refuges². The Whale Sanctuary Project³, an initiative working to establish an ocean sanctuary in North America for orcas and beluga whales that are either retired from entertainment facilities or rescued from the ocean and needing rehabilitation or permanent care, announced in February 2020 the development of its first site at Port Hilford, Nova Scotia. A geographically closer example, this one within the ACCOBAMS area, is the Aegean Marine Life Sanctuary⁴, in the Greek island of Lipsi; a project initiated by the Archipelagos Institute of Marine Conservation to establish a sanctuary for captive dolphins, as well as a rescue centre for stranded marine mammals.

This paper will not include an ethical debate of whether certain cetacean species should be in captivity now, or in the future. Neither it will provide an opinion on the status of the few on-going projects dedicated to the creation of cetacean refuges. The present document aims solely at contributing to the development of international standards for cetacean holding facilities by providing a scientific point of view on the following matters related to the creation of marine semi-enclosed facilities for cetaceans, hereafter referred as *REFUGES*, in particular for odontocetes, in the ACCOBAMS area:

- Legal issues;
- ecology and behaviour of odontocetes; their ecological and ethological requirements, e.g., in terms of space, depth, seasonal temperature range, water quality (salinity, purity), ambient noise, social structure, activity patterns;
- odontocete husbandry (e.g., food, medical care, handling, transportation);
- veterinary medicine focused on cetaceans;
- structural, functional and logistic aspects of the prospective hosting facility;
- ecological impact assessment of affected marine environments;
- economic assessment of the sustainability of the proposed project and the operational costs of the centre, once established;
- development of educational, awareness and research potential offered by the facility;
- relationships with the main stakeholders: public administration, enforcement, human health issues, environmental issues, legal issues.

² <https://www.sanctuaire-pelagos.org>

³ <https://whalesanctuaryproject.org>

⁴ <https://archipelago.gr/en/the-aegean-marine-life-sanctuary/>

1. Legal issues

This subject was covered in detail at the *Taking of Cetaceans, Dolphinaria and Quasi-Dolphinaria: a Legal Analysis Relating to ACCOBAMS Parties*⁵, by Tullio Scovazzi and Ilaria Tani, document ACCOBAMS-MOP7/2019/Inf09 presented at the 7th Meeting of the Parties to ACCOBAMS held in Istanbul, Turkey, on 5-8 November 2019. It should be also accounted that, for European Countries, these facilities should be considered as dolphinaria as stated by the EU Directive 1999/22/EC defining the legal framework for their existence. Furthermore, all the national and EU legislation on Animal Health, Animal Welfare and Animal cruelty should be considered as well as more technical laws such as those related to the veterinary profession, disease control and notification, and drug and waste management. In particular, the Animal Health Law on transmissible animal diseases that can pass on from animal to animal or to humans (EU Regulation 2016/429) must be followed: it provides principles and rules for the prevention and control of such diseases in animals kept by humans, wild animals and certain animal products.

2. ecology and behaviour of odontocetes; their ecological and ethological requirements, e.g., in terms of space, depth, seasonal temperature range, water quality (salinity, purity), ambient noise, social structure, activity patterns

Odontocete movements provide the fabric for vital processes such as habitat selection, foraging and food acquisition, predator avoidance, mate choice, reproduction, and transmission of diseases and parasites. These movements frequently come in several spatial and temporal scales: diel movements over kilometres within a day; roaming tens of kilometres over weeks (to months) within a (seasonal) home range; and migration-like movements between (seasonal) ranges over hundreds to thousands of kilometres over weeks to months. Prey availability is a central driver for odontocete movement patterns (Bräger and Bräger, 2019). Among some coastal species, including *Tursiops*, by far the cetacean species most frequently displayed in dolphinaria, their general mobility appears to correlate with “openness” of the coastline (Shane et al., 1986). Populations along fractal coastlines with bays and frequently extensive shallow-water areas occupy smaller ranges than those along straight stretches of exposed coast (Bräger and Bräger, 2019).

These distances traveled by dolphins over days, months and/or seasons are not possible in display facilities. The European Association for Aquatic Mammals⁶, provides Standards and Guidelines for the management of aquatic mammals under human care. It is stated that minimum space for bottlenose dolphins (1-6 animals) should consist of a pool surface area of at least 550 m², pool volume of 2,000 m³ and should have a minimum depth of 3.5 m (EAAM, 2019).

Open facilities (i.e., sea pens and lagoons, with access to the sea and seawater and contained by a fence) are typically much larger than traditional pools. A study aiming at assessing the effect on the behaviour of a group of bottlenose dolphins by changing it from closed facilities, where it had been housed for nine years, to open facilities or sea pens, showed that dolphins kept in closed facilities spent less time swimming and more time floating than in open facilities where they showed less circular swimming patterns (Ugaz et al., 2013). Moreover, to go along with higher activity levels (i.e., less time spent floating and swimming in circles), dolphins in open facilities have lower salivary cortisol concentrations (i.e., reflecting lower stress response levels) than those in closed facilities (Ugaz et al., 2013). It seems clear that there is a strong relationship between the design of pools and dolphin welfare.

⁵ https://accobams.org/wp-content/uploads/2019/08/MOP7.Inf09_Taking-of-cetaceans-dolphinaria-and-quasi-dolphinaria-legal-analysis.pdf

⁶ The European Association for Aquatic Mammals (EAAM), includes primarily veterinarians, biologists, zoo and marine park directors and managers, trainers and caretakers, researchers and students; focusing among others matters on research, medical care, training and education, mostly on marine mammals under human care. <https://eaam.org>

For most marine vertebrates, the production and reception of sound serves critical biological functions, including communication, foraging, navigation, and predator-avoidance. Sound is a primary sensory cue for most marine mammals, and this is especially true for cetaceans. To passively and actively acquire information about their environment, cetaceans have a complex nervous system to analyze sounds brought from the inner ear to the brain which enables sophisticated, sensitive hearing and auditory processing (Mooney et al., 2012). Despite their typically much larger size that facilitate reduced stress swimming behaviours, sea pen facilities may pose other kinds of problems, among them, exposure to ambient noise, if situated in inappropriate places, which can cause distress or hearing damage. Noise from boat traffic and coastal development may echo off the shallow seabed, creating sound levels well above those in the deeper waters in the open ocean.

Good water quality is essential to the long-term health and well-being of all cetaceans. When these animals are under human care, the composition of the water should be as close to natural sea water as possible. Maintaining water quality, temperature and flow is a complex procedure in artificial pools, and requires specialist staff and considerable operating costs (Brando et al., 2018). When composition measures are out of the normal suggested ranges, consequences are wide-ranging but include irritation of the eyes, skin and gut, loss of beneficial microflora, and changes in osmotic balance (Van der Toorn, 1987). Natural habitats, such as those of open facilities, have 'built-in' processes for self-purification; naturally occurring microorganisms digest and re-incorporate faeces and food scraps into the food chain. Open facilities do risk being exposed to harmful algal blooms and fuel and oil spills, so even with open sea water pens, availability of booms and methods to prevent dolphin exposure to toxins is needed in emergencies

Odontocetes are social animals, and long-term studies of near shore species have documented high levels of social complexity, cultural innovation, cooperation, and social bonding within populations (McHugh, 2019). Bottlenose dolphins live in social groups, generally sexually segregated with sex-specific behavioural strategies (Fury et al., 2013), where individuals engage in various cooperative and aggressive interactions, exhibiting a dynamic fission–fusion grouping structure (Connor et al., 2000). This fission–fusion system, by which dolphins interact with and exchange with individuals from other groups or communities, resulting in short-term and long-term relationships is not achievable in captive settings. Whether in the wild or captivity, the fact that bottlenose dolphins are dependent on close social bonds for survival (Stanton and Mann, 2012), means they are more likely to suffer from social stress than animals that rely less on social bonds and group living situations (Clegg and Delfour, 2018). Social factors such as changes in group dynamics, competition over resources, and unstable dominance hierarchies can be potential stressors for these highly social animals. Social stress was reported as the most likely cause of mortality and morbidity in three bottlenose dolphins, caused by social instability and the consequent aggressive interactions causing increased rake marks and inappetence (Waples and Gales, 2002).

3. odontocete husbandry

The welfare of any animal, and odontocetes are certainly no exception, is complex. It is important to realise that these marine mammals have a range of needs (Jacobs et al. 2021). An adequate holistic housing and husbandry programme to provide for their welfare should consider habitat design and construction, nutrition, healthcare (preventive and responsive), social management, welfare monitoring, environmental enrichment and animal training (Miller et al., 2015).

Training and enrichment play prominent roles in the care of captive marine mammals (Brando et al., 2018). Enrichment is a dynamic process for enhancing animal environments within the context of the animals' behavioural biology and natural history. Environmental changes are frequently made in dolphinariums with the goal of increasing the dolphins' behavioural choices and its control over its environment and drawing out

their species-appropriate behaviours, thus enhancing animal welfare. More open facilities, such as dolphin refuges, will provide the dolphins with opportunities to express natural behaviours while exposing them to stimuli, such as fish and marine plants (naturally present in the bay or semi-enclosed site where the refuge is developed). By their very nature, seaside dolphin refuges should offer more choices, more challenges, and more stimulation to the animals than pools typically used in traditional captivity settings. The animals hosted in a refuge should continue to be provided care, and their human caregivers should, over time, after dolphins have gone through some period of adaptation to a new, more open and flexible facility, become less essential to their daily activities.

The characteristics of the facilities housing odontocetes will be largely influenced by those of the selected site. Therefore, any dolphin refuge will have to be designed in a case-by-case basis taking some basic considerations related to odontocete husbandry and the welfare of the animals, keeping in mind the above-mentioned ecological and ethological requirements.

- adequate surface area to host the maximum expected number of dolphins at any time with adequate space for spacing amongst individuals;
- dolphin habitat structure to be dynamically (modularly) structured, to enable modifications to accommodate to need (e.g., separating aggressive individuals and allowing less dominant animals to escape conflict), including: interconnected pens to allow shifting of animals and flexibility of social groupings; quarantine pens of appropriate size and number; holding/medical pens to facilitate animal restraint for medical procedures or preparation for transport. Shade provided over shallow pens and slide out platforms. Pens, equipment and facilities should be differentiated to host previously captive and stranded animals in order to respect existing legal framework;
- adequate space to allow the exercise of natural behaviour (e.g., chasing live fish, socializing, swimming and diving);
- appropriate depth range, including access of the animals to shallower areas for veterinary treatment and monitoring;
- appropriate environmental characteristics for the species housed (e.g., daily and seasonal water temperature ranges, water salinity, water quality, air quality, noise levels);
- adequate water turnover and circulation to prevent accumulation of faecal material and bacteria.

Marine Mammal Welfare Guidance Documents for Europe and North America are referred below:

World Association of Zoos and Aquariums (WAZA)	<u>Caring for Wildlife: the WAZA Welfare Strategy (Mellor et al., 2015)</u>
European Association of Zoos and Aquaria (EAZA)	<u>EAZA Standards for the Accommodation and Care of Animals in Zoos and Aquaria (2020)</u> <u>EAZA Guidelines on the Use of Animals in Public Demonstrations (2019)</u>
European Association for Aquatic Mammals	<u>EAAM Standards and Guidelines for the management of aquatic mammals under human care (2019)</u>
American Society of Mammalogists	<u>2016 Guidelines of the American Society of Mammalogists for the use of wild mammals in research and education (Sikes, 2016)</u>
Department of Agriculture, USA	<u>Animal Welfare Act and Animal Welfare Regulations</u>
National Marine Fisheries Service, USA	<u>Standards for Marine Mammal Rehabilitation Facilities</u>

4. veterinary medicine focused on marine mammals

The medical care and husbandry of captive dolphins has been advanced through the integration of various efforts, including decades of experience with maintaining and treating dolphins in collections, improvements in medical technology, necropsies and rehabilitation attempts through stranding response programs (Moore et al., 2007), and field research.

A proper nutritional program should be evaluated for animals coming from a controlled environment, according to International and national laws. A dedicated program involving local fishermen could be implemented considering local fish species, in order to adapt the dolphins to more natural conditions. Nutritional status should be monitored by veterinary personnel. The veterinary staff involved in a dolphin refuge should be part of the permanent staff following the health status of animals coming from human care by regular examinations with shared and approved protocols. Dedicated personnel should be considered exclusively for stranded animals. Veterinarians with specific skills and experience should be selected and they should implement dedicated medical, safety, prophylactic and monitoring protocols and programmes, trying to avoid massive usage of chemotherapeutic drugs. Veterinary personnel working with wild animals should ideally be part of any existing stranding network and operate in accordance with the existing guidelines.

Being in close contact with marine wildlife, in this case with odontocetes, poses human health risks, including traumatic injury and zoonotic disease transmission. The majority of zoonotic marine mammal diseases result in localized skin infections in humans that resolve spontaneously or with appropriate medical therapy. However, other marine mammal zoonoses, if left untreated, induce life-threatening systemic diseases that could pose public health risks (Waltzek et al., 2012). A study evaluating the risk of illness associated with occupational contact with marine mammals found that of all respondents (n=483), 50% reported suffering an injury caused by a marine mammal, and 23% reported having a skin rash or reaction. Marine mammal work-related illnesses commonly reported included: 'seal finger' (i.e., a bacterial infection of the fingers and hand), conjunctivitis, viral dermatitis, bacterial dermatitis, and non-specific contact dermatitis (Hunt et al., 2008). Human health risks should be avoided by developing the necessary

protocols by which any workers at risk will be urged to consult with a marine mammal veterinarian as well as a physician.

5. structural, functional and logistic aspects of the prospective hosting facility

There are several criteria to be satisfied by a dolphin refuge, including:

- Site characteristics related to the nature of the animals. Sites must possess the requirements to ensure the well-being of the animals on the basis of their ecology, behaviour and physiology.
- Site topography. A facility might be considered to be placed either in a sheltered, shallow and semi-enclosed body of marine water such as a small bay or fjord, or in a coastal lagoon, where appropriate enclosures can be fenced. Enclosed areas need to be protected from severe weather, and have easy access to personnel to care for the animals.
- Availability of services such as power, telecommunication, running water, heating, waste treatment, indoor enclosed area for laboratory work, equipment and food storage.
- Ease of access and connectivity. Reaching the site should be easy through roads in good conditions to facilitate the arrival of heavy vehicles delivering materials, food, animals and visitors. For instance, the presence of an airport and/or port within a <100 km radius would also be considered an asset.
- Security and quietness of the surrounding land and sea. Access should be controlled to guarantee the safety and well-being of the dolphins and prevent unwanted human interaction 24/7/365. Nearby vessel traffic, underwater industrial activity and other disturbances should be regulated and limited.
- Inclusion of the facility within an existing and well-managed coastal or marine protected area may offer the possibility of using available infrastructures such as a visitor or education centre and interpretation facilities and services.
- Contiguity of site with wild dolphin natural habitat. Although the nearby presence of wild dolphin habitat may testify to the appropriateness of the selection, possible negative effects of interactions between wild and captive cetaceans (e.g., foreign pathogen contamination, genetic contamination of escaped animals) must be carefully addressed.
- Personnel needed to run the facility will include permanent staff with the necessary expertise in the fields of husbandry, veterinary medicine, education, administration, security, maintenance (including underwater), boat operation.
- Due to the possible transmission of infectious diseases (i.e., Cetacean Morbillivirus, Coronavirus, Brucella spp. , Streptococci and other bacterial diseases) from wild cetaceans to those maintained in quasi-dolphinaria, rehabilitated wild animals could be allowed in facilities keeping previously captive dolphins only if a complete physical and functional separation with strict specific biosecurity measures are implemented (i.e. separated pools, different equipment, personnel and food preparation areas).
- Ideally, in addition to all of the above characteristics of the site itself, it is important for the refuge to be located in a community of people who embrace the project.

In addition to the space dedicated to the dolphins, the following infrastructures will also be considered:

office space and personnel housing;

- ☑ husbandry (including a kitchen for the preparation of dolphin food), medical and basic research facilities;
- ☑ surveillance and security system network;
- ☑ boats for basic on-water operations;
- ☑ basic diving facilities for underwater operations;
- ☑ observation platforms and a system of cameras to allow unobtrusive monitoring (by management and/or by visitors);
- ☑ education/interpretation centre with multimedia resources providing information on the biology of the animals, their conservation needs as well as the rationale dictating the need for dolphin refuges.

6. ecological impact assessment of concerned marine environments

It will be necessary to set out the general approach and methodology for assessment of ecological impacts arising from a project dedicated to the creation of a dolphin refuge, to allow a complete and objective identification, prediction and evaluation of the potential ecological impacts. (TO BE DEVELOPED BY EXPERTS)

7. economic assessment of the sustainability of the proposed project and the operational costs of the centre, once established

Any proposal for the creation of a Semi-enclosed Facility for Odontocetes (as stated above, it is suggested to refer to it as “dolphin refuge”) should be accompanied not only by a budget for the implementation of the project (i.e., building a refuge and all infrastructure associated to it), but most importantly, it must include a “business plan”. The “clients” of a dolphin refuge will be long-lived marine mammals, who in many cases will be needing housing for a few decades. Therefore, the long-term economic sustainability of this facility must be guaranteed.

It is not possible to tailor a generic economic sustainability plan for a dolphin refuge model because this plan may vary largely depending on a number of variables (e.g., country, authorities involved, geography). In any case, some very basic rules for the long-term “survival” of such, in many ways, challenging endeavour should include among others: commitment of long-term support from local, national and regional authorities, involvement of local communities, generation of funds through a well-defined educational public awareness program and associated merchandizing, and creation of synergies and collaborations with companies and stakeholders (e.g., eco-responsible tourist industry).

8. development of educational, awareness and research potential offered by the facility

A dolphin refuge may allow, under certain conditions, the presence of visitors. Dolphin observation should be encouraged through using remote technologies (e.g., webcams, advantaged land-observation points). Educational

programs should be conducted to inform the public not only about the biology, behavioural ecology and conservation of odontocetes, but may also pose an opportunity to inform the public about issues arising from cetacean captivity.

These facilities may provide also the perfect framework to promoting research programs on the rehabilitation and, when possible, the release of dolphins at sea.

Considering the potential of the refuge for unobtrusive, respectful science, research proposals should be welcomed and reviewed by a scientific committee, in order to facilitate studies to be conducted by outside scientists and students, under the supervision of the refuge management.

9. relationships with the main stakeholders: public administration, enforcement, human health issues, environmental issues, legal issues.

Detailed policies related to the governance and management of the dolphin refuge must be well defined. Issues involved are often delicate and involve ethical aspects as well as legal constraints. Some of the main policy issues to be considered include:

- ☑ Animals to be hosted. For instance, a dolphin refuge may host dolphins originating from the captivity industry and, whenever needed and possible, dolphins that have been rescued after stranding. The refuge should be considered a permanent accommodation for all animals deemed to be unfit for release. Therefore, its long-term sustainability must be assured to every possible extent.
- ☑ Acquisition and release. Captive dolphins can derive from a variety of legal conditions: seizure, confiscation, voluntarily cession from a dolphinarium (e.g. closure of the facility or reduction in number of animals). Dolphins can derive from facilities based in the ACCOBAMS area or any other countries. Stranded Mediterranean dolphins in need of prolonged rehabilitation, hosted in a Mediterranean facility, should be cared for and released back to the sea whenever the conditions are deemed favourable by the appropriate expertise.
- ☑ Reintroductions. Current legislation allows for the reintroduction of specimens from local populations under certain circumstances and provided the animals would not be dependent on human care and therefore able to survive in the wild (this is also valid for captive dolphins). The Convention on Biological Diversity promotes the need to 'reintroduce threatened species into their natural habitats under appropriate conditions' (art 9.c). Moreover, the EU Habitats Directive states that measures shall be designed to maintain or 'restore', at favourable consideration status, natural habitats and species of wild fauna and flora of community interest (art. 2.2). The reintroduction of species, considered as a conventional conservation tool, would fall within the scope of the article, while the reintroduction of alien species should be avoided under all circumstances. Policies concerning eventual reintroductions into the wild will be based on the IUCN/SSC (2013) and ACCOBAMS (2007) Reintroduction Guidelines, to ensure that proposed plans are in line and compatible with internationally recognised guidance as well as common sense. Possible reintroduction of captive animals should be planned in cooperation with the concerned authorities in order to obtain the needed permits.
- ☑ Non-breeding policy. A non-breeding policy based on contraception, gender separation or a mix of both, should be applied. Allowing the continuity of captive breeding programs, would be out of step with a society progressively moving towards the disappearance of largely outdated closed facilities hosting captive dolphins, which is the main driving force for the creation of Dolphin Refuges in the first place.

- ☑ Euthanasia. This will be highly dependent in the legislation of the country where the dolphin refuge is based. For example, under Italian law euthanasia is currently foreseen only after medical evaluation based on compassionate reasons associated with incurable physical health conditions.

NOTE: It is suggested the creation for future consultancy of an **Advisory Committee**, ideally supported by ACCOBAMS as necessary, composed of leading experts in the following fields:

- Ecology and behaviour expertise on odontocetes, primarily on bottlenose dolphins;
- odontocete husbandry (e.g., food, medical care, handling, transportation);
- veterinary medicine focused on marine mammals;
- stranding, rescue, captive rehabilitation and release techniques and procedures;
- structural, functional and logistic aspects of the prospective hosting facility;
- ecological impact assessment of concerned marine environments;
- assessment of the economic sustainability of any proposed project and the operational costs of the centre, once established;
- educational, awareness and research design;
- relationships with the main stakeholders

Acknowledgements

The present document has benefited from very valuable contributions from the following colleagues (in alphabetical order): Frances Gulland, Lori Marino, Sandro Mazzariol, Giuseppe Notarbartolo di Sciarra, Morgane Perri and Tullio Scovazzi.

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Part II - List of cetaceans held in captivity in the ACCOBAMS area

(Data provided by NFP for the countries listed below)

COUNTRY	Existing dolphinarium - Please, use one line per each dolphinarium or facility; - Provide name and/or location	Origin of the specimens - Geographic region, country, or write unknown, as necessary	Number of cetaceans in captivity	Species - If different species, add number of individuals per each species	NOTES
ALGERIA	NONE		0		
BULGARIA	Festa Dolphinarium Varna, 9000 Varna, Primorski Park, Sat	Cuba (2 specimens), Bulgaria (3 specimens).	5	<i>Tursiops truncatus</i>	https://dolphinariumvarna.bg/en ; The two specimens from Cuba were imported in Bulgaria before ratification of the country of CITES. The other three specimens were born in captivity, in the same dolphinarium.
FRANCE	Planète Sauvage (Port-Saint-Père, 44)	Born in captivity	9	<i>Tursiops truncatus</i>	
FRANCE	Marineland (Antibes, 06)	Born in captivity	12	<i>Tursiops truncatus</i>	
FRANCE	Marineland (Antibes, 06)	Born in captivity	4	<i>Orcinus orca</i>	
MALTA	Mediterraneo Marine Park, Tul Il-Kosta, Baħar iċ-Ċagħaq, NXR 9038	3 from Cuba; the other 5 are offspring born in captivity	8	<i>Tursiops truncatus</i>	
PORTUGAL	Lisbon Zoo (Lisbon)	born in captivity	8	<i>Tursiops truncatus</i>	

COUNTRY	Existing dolphinarium - Please, use one line per each dolphinarium or facility; - Provide name and/or location	Origin of the specimens - Geographic region, country, or write unknown, as necessary	Number of cetaceans in captivity	Species - If different species, add number of individuals per each species	NOTES
PORTUGAL	Zoomarine (Albufeira, Algarve)	25 born in captivity; 1 wild (USA); 2 wild (Cuba)	28	<i>Tursiops truncatus</i>	
SPAIN	Aqualand Costa Adeje (Tenerife)	Unknown (4W 8F)	12	<i>Tursiops truncatus</i>	W-Wild; F-Born in captivity
SPAIN	Aquopolis Costa Dorada	Unknown (1W 8F)	9	<i>Tursiops truncatus</i>	W-Wild; F-Born in captivity
SPAIN	Aqualandia Mundomar, Alicante	Unknown (0W 8F)	8	<i>Tursiops truncatus</i>	W-Wild; F-Born in captivity
SPAIN	Loro Parque	Unknown (0W 11F)	11	<i>Tursiops truncatus</i>	W-Wild; F-Born in captivity
SPAIN	MarineLand Catalunya	Unknown (3W 4F)	7	<i>Tursiops truncatus</i>	W-Wild; F-Born in captivity
SPAIN	Marineland Mallorca	Unknown (0W 11F)	11	<i>Tursiops truncatus</i>	W-Wild; F-Born in captivity
SPAIN	Oceanografic	Unknown (0W 19F)	19	<i>Tursiops truncatus</i>	W-Wild; F-Born in captivity
SPAIN	Palmitos Park	Unknown (0W 6F)	6	<i>Tursiops truncatus</i>	W-Wild; F-Born in captivity
SPAIN	Rancho Texas Park (Lanzarote)	Unknown (0W 81F)	8	<i>Tursiops truncatus</i>	W-Wild; F-Born in captivity
SPAIN	Selwo Marina (Málaga)	Unknown (0W 9F)	9	<i>Tursiops truncatus</i>	W-Wild; F-Born in captivity
SPAIN	Zoo de Madrid	Unknown (0W 8F)	8	<i>Tursiops truncatus</i>	W-Wild; F-Born in captivity
SPAIN	Loro Parque	Unknown (1W 6F)	7	<i>Orcinus orca</i>	W-Wild; F-Born in captivity
SPAIN	Oceanografic	Unknown (0W 3F)	3	<i>Delphinapterus leucas</i>	W-Wild; F-Born in captivity
CROATIA	NONE		0		
CYPRUS	NONE		0		

COUNTRY	Existing dolphinarium <i>- Please, use one line per each dolphinarium or facility; - Provide name and/or location</i>	Origin of the specimens <i>- Geographic region, country, or write unknown, as necessary</i>	Number of cetaceans in captivity	Species <i>- If different species, add number of individuals per each species</i>	NOTES
LEBANON	NONE		0		
MONACO	NONE		0		
MONTENEGRO	NONE		0		
SLOVENIA	NONE		0		
SYRIA	NONE		0		

TOTAL**192**

ACCOBAMS countries missing (no response)

Albania, Egypt*, Georgia*, Greece*, Italy*, Libya, Morocco*, Romania*, Tunisia, Turkey and Ukraine*

*Countries (reportedly) with dolphins in captivity