# Conservation Plan

## for short-beaked common dolphins in the Mediterranean Sea

ACCOBAMS

Commissioned by ACCOBAMS,
the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area

Prepared by Giovanni Bearzi / Tethys Research Institute

in consultation with

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with a review of legal instruments of relevance to the conservation of Mediterranean common dolphins by Daniel Owen / Fenners Chambers

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# About the authors

Giovanni Bearzi has carried out research on Mediterranean dolphins since 1986. He founded and directed for a decade a dolphin research and conservation programme in Croatia, that was awarded the "Henry Ford European Conservation Award" as best European project overall. He then moved to Venice, Italy, where he created a research and information centre for the management of dolphin projects conducted by the Tethys Research Institute. He has trained dozens of research assistants and has supervised a number of students working on Mediterranean cetaceans. In 2003 he earned a Ph.D. *Summa cum laude* in zoology at the University of Basel, Switzerland, with a thesis on Mediterranean common dolphins and bottlenose dolphins. Since 1990 he has been a Board member of the Tethys Research Institute and in 2001 he became the President of Tethys. He is also a member of the IUCN Cetacean Specialist Group. Giovanni coordinates dolphin research projects in the Ionian Sea and in the Adriatic Sea. He teaches Cetacean conservation as contract professor at the Faculty of Environmental Sciences, University of Venice, Italy. In 2001 he was awarded a Pew Marine Conservation Fellowship.

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Ana Cañadas has been conducting research on cetaceans in the Mediterranean since 1990. Since 1989 she is member of the Board of ALNITAK, an NGO dedicated to the research and conservation of the marine environment. In 1992 she started a long-term project to investigate the ecology of several cetacean species in the Alborán Sea and contiguous waters. In 1999 she co-funded the Spanish Cetacean Society and has been a member of its Board since then. She has trained several field researchers and directed several research programmes. Ana has been coordinating several projects dedicated to cetacean research and conservation, funded by the Spanish Government and by the European Commission. From 2000 to 2002 she was in charge of the "Programme for the identification of Areas of special interest for the conservation of cetaceans in Spanish Mediterranean waters" for Southern Spain. From 2001 to 2004 Ana has been the coordinator for South-West Europe for the European project "Europhlukes", aiming at the creation of a European catalogue of photo-identification and matching software for cetaceans. Since 2002, she is coordinating the monitoring programme of the Life Nature project "Conservation of cetaceans in Andalucía and Murcia". She is a member of the IUCN Cetacean Specialist Group and is finishing her Ph.D. on the ecology of common, striped and bottlenose dolphins in the Alborán Sea.

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# Executive summary


Since its first Meeting of the Parties in 2002, ACCOBAMS proposed that the status of common dolphins in the Mediterranean be evaluated in a comprehensive manner, with the goals of estimating distribution and abundance throughout the basin, identifying critical habitat and characterising threats.

As a first result of this call, an article was published which reviewed the ecology, status and conservation of Mediterranean common dolphins (Bearzi *et al*., 2003). The article discussed the decline of common dolphins in Mediterranean waters that occurred over the past 30-50 years, and was instrumental for their inclusion in the IUCN Red List of Threatened Animals, where the Mediterranean common dolphin population was classified as Endangered.

This Conservation Plan, the preparation of which was recommended by the ACCOBAMS Scientific Committee during its first meeting (Tunis, 2002), was commissioned by the Agreement Secretariat. It aims to address the conservation problems of Mediterranean common dolphins by defining priority action to stop their decline and facilitate their recovery in the region.

The Plan acknowledges that: **1)** the formulation and recommendation of management measures is made difficult by the present lack of understanding of the cause(s) for common dolphin decline in the region; **2)** nevertheless, it can be assumed that most of the factors that are responsible for the decline of common dolphins in the Mediterranean derive from human activities in this marine region that are unsustainable and/or illegal (e.g., overfishing, use of driftnets, pollution); **3)** the fate of Mediterranean common dolphins depends on range States having the political will to take responsible and precautionary action to mitigate the known anthropogenic threats; **4)** the principal management measures that will benefit common dolphins are already embedded in existing legislation and treaties; **5)** if all such measures, invoked by existing international, regional and national legal instruments for the management of the Mediterranean, were to be fully implemented and enforced, the decline of common dolphins would likely cease.

The Plan concludes that honouring existing obligations with regard to the management of fisheries, pollution and other forms of habitat degradation represents the single most important action to stop the decline of Mediterranean common dolphins and facilitate their recovery. Therefore, the Plan strongly advocates that such obligations be respected and implemented without any further delay.

In addition to recommending compliance with existing obligations, the Plan envisages and outlines a series of actions that specifically address the problem of common dolphin conservation in the Mediterranean, with special attention to areas that report common dolphins in sizeable numbers and appear to contain important habitat for the species.

Actions are divided into five broad categories: Management, Legislation, Research, Capacity building, Awareness & Education. The Plan stresses that all categories are equally important and the corresponding actions will have to be implemented simultaneously. In particular, it is recognized that while research plays a fundamental role in supporting the design and development of science-based management measures, the risks of simply perpetuating calls for more research must also be considered. In the case of the Mediterranean common dolphin population, which appears to be declining rapidly, unwillingness to act based on what is known could allow the population's conservation status to deteriorate further. Therefore, the Plan recommends that research actions be taken to obtain information in a timely manner, while ensuring that the management process is implemented without delay in view of the precautionary principle.

The Plan identifies eight Areas of Conservation Importance (ACIs) where management actions should be taken without delay and knowledge gaps preventing the identification of effective conservation strategies should be immediately filled by research. The Plan recommends that other ACIs should be identified as soon as possible in addition to those proposed here, and outlines research actions that will help define and locate important habitat for common dolphins.

Actions outlined in this Plan should be implemented in view of obtaining measurable results within **five years**, with a priority for management actions in ACIs. Within this five year timeframe, the Plan proposes an initial strategy as an alternative to the formal establishment of new Marine Protected Areas. The rationales behind this interim strategy include: 1) the currently incomplete state of knowledge about common dolphin distribution and long-term movements, 2) the inherently dynamic nature and likely large spatial extent of the habitat used by these animals year-round, and 3) the cumbersome institutional and governance issues affecting the design, enforcement and implementation of "traditional" MPAs, which are likely to be improved in the future.

The management approach proposed by this Plan is intended to pave the way for the future establishment of networks of MPAs or large MPAs to protect Mediterranean common dolphins, which should be designed on the basis of appropriate information on their ecology, distribution, long-range movements and spatial needs.

The Plan entirely shares the view expressed by the Parties that "diffusing research and monitoring abilities throughout the region is a timely challenge and one of the highest priorities as far as cetacean conservation is concerned" (ACCOBAMS, 2002), and outlines actions aimed to address both individual and institutional capacity building.

Public awareness and education represent essential parts of this Conservation Plan, as they create a favourable ground for conservation-oriented management. The Plan highlights the need to conduct public campaigns based on well-defined, science-based public awareness strategies, and identifies a series of awareness and education actions targeting managers, teachers, school children and the general public.

To accomplish the various actions in an expeditious manner this Plan recommends the establishment of a position of Coordinator, responsible for the implementation of all aspects of the Conservation Plan in close coordination with the ACCOBAMS Secretariat. The Plan also recommends that Institutes and organizations, whether governmental or non-governmental, and individuals capable of providing qualified professional service be regarded as relevant actors in the common dolphin conservation process.

# 1. Introduction

## Context

At the first meeting of the ACCOBAMS Scientific Committee (Tunis, 3-5 October 2002) the Tethys Research Institute presented a proposal to address the problem of common dolphin conservation in the Mediterranean. The project, endorsed by the Scientific Committee, included 1) a review of Mediterranean common dolphin ecology, status and conservation, 2) the management of a section of the ACCOBAMS web site dedicated to Mediterranean common dolphins, 3) the preparation of a Conservation Plan, 4) the analysis of an existing common dolphin dataset, and 5) an action plan for common dolphins in the area of Kalamos, Greece.

The present Conservation Plan, resulting from the proposal presented by Tethys, represents the first attempt to address the problem of common dolphin conservation in the Mediterranean region in a comprehensive manner. It was prepared in close collaboration with the ACCOBAMS Secretariat, in consultation with members of the Scientific Committee and other experts.

## The common dolphin

The short-beaked common dolphin *Delphinus delphis* Linnaeus 1758 (Fig. 1) is a small cetacean species with a wide distribution. Like most other cetaceans, however, it occurs as a series of geographically separate populations (Heyning & Perrin, 1994; Perrin & Brownell, 1994; Jefferson & Van Waerebeek, 2002). On a global scale, the systematics and zoogeography of the genus *Delphinus* are subjects of ongoing investigation (e.g. Jefferson & Van Waerebeek, 2002). At present, two species are recognised: the short-beaked common dolphin *D. delphis* and the long-beaked common dolphin *D. capensis* (Heyning & Perrin, 1994; Rosel *et al.*, 1994). Only short-beaked common dolphins inhabit the Mediterranean Sea and adjacent water bodies, and therefore throughout this Plan references to 'common dolphins' can be understood to mean this species.

**Fig. 1**. Two common dolphins photographed in the eastern Ionian Sea show the characteristic morphology of the species: bright coloration, short beak, narrow dark flipper stripe, occasional white patch in dorsal fin. Photo by G. Bearzi / Tethys Research Institute.

### Common dolphin distribution and abundance in the Mediterranean

There is no basin-wide estimate of abundance for common dolphins in the Mediterranean Sea. Line-transect ship surveys of the Alborán Sea in 1991-1992 produced an estimate of 14,736 (CV=0.38; 95% CI= 6,923-31,366), with a density of 0.16 dolphins per km$^2$, but no estimates were made for this species elsewhere in the western Mediterranean due to the low number of sightings (Forcada & Hammond, 1998). Vella (1998, in press) combined data from ship and aerial strip-transect surveys conducted between 1997-2002, and obtained a density estimate of 0.135 dolphins per km$^2$ (CV=0.28; 95% CI=0.066-0.290) in the area around the Maltese islands. Apart from these studies, the presence of common dolphins, and in some instances a qualitative assessment of their relative abundance, can be inferred for other portions of the basin based on survey data and a few longitudinal investigations.

Groups containing several hundred individuals are frequently observed in the Alborán Sea and in the Gulf of Vera (southern Spain), in contrast to the smaller groups recorded elsewhere in the Mediterranean (Cañadas *et al*., 2002). Records are sparse off the coasts of Algeria and Tunisia where, however, survey coverage has been limited (Boutiba, 1994; Boutiba & Abdelghani, 1995; Zanardelli *et al*., in press). Possibly isolated groups are present around Sardinia and Corsica, particularly off their western coasts (Notarbartolo di Sciara *et al*., 1993; Gannier, 1995; Lauriano & Notarbartolo di Sciara, 1995; Forcada, 1998; A. Gannier, pers. comm.). Common dolphins are seen in the early summer in the south-eastern Tyrrhenian Sea off the island of Ischia (Mussi *et al*., in press). The species is also present in the Sicily Channel (Cavalloni, 1988; Arcangeli *et al*., 2001; Zanardelli *et al*., in press), with larger groups observed around Malta (Vella, 1998, 1999, in press). Common dolphins can be found in portions of the eastern Ionian Sea, particularly around the island of Kalamos (Politi, 1998; Bearzi *et al*., in press), and in the Gulf of Corinth (Frantzis & Herzing, 2002). Sighting and stranding data indicate a regular presence of common dolphins in the Aegean Sea, particularly in the Thracian Sea, Northern Sporades, southern Evvoikos Gulf, Saronic Gulf, and Dodekanese (Öztürk & Öztürk, 1998; Carpentieri *et al*., 1999; Casale *et al*., 1999; Zafiropoulos *et al*., 1999; Frantzis *et al*., 2003). Apart from the eastern Ionian Sea and Aegean Sea, no reliable data exist for most of the eastern Mediterranean basin, except for the rare occurrence of common dolphins off the Israeli coastline (Goffman *et al*., 2000; Scheinin, 2003).

Coastal groups in western Greece exhibit relatively high levels of site fidelity (Bearzi *et al*., in press), but little is known about the movements and ranging patterns of animals living offshore.

### Stock discreteness

The short-beaked common dolphin is a highly mobile pelagic species that shows little population structure worldwide. However, recent genetic studies found clear population structure within the Mediterranean, with significant divergence between Mediterranean and Atlantic populations (Natoli *et al*., 2001; Natoli, 2004).

The observed population structure reflects differences in distribution pattern and habitat use by common dolphins in the eastern (where the species is predominantly coastal) and western (where it is predominantly pelagic) portions of the Mediterranean. Genetic differences between eastern and western Mediterranean populations probably relate to different oceanographic features and have also been observed in bottlenose dolphins (Natoli, 2004) and other marine species (e.g. common sole *Solea vulgaris*, Guarniero *et al*., 2002; sea bass *Dicentrarchus labrax*, Bahri-Sfar *et al*., 2000).

Analysis of samples from the Alborán Sea and the Ionian Sea showed considerable genetic differentiation (higher than between the eastern and western North Atlantic populations) indicating limited gene flow between the populations inhabiting the eastern and westernmost portions of the Mediterranean basin (Natoli, 2004). Those dolphins that remain between the Aegean and Alborán sectors of the Mediterranean seem to consist of only isolated, remnant groups (possibly indicative of further population substructure). The analysis of a few (8) samples from the Tyrrhenian Sea and Algerian waters did not exclude further population structure in this part of the basin.

The Alborán population showed low genetic differentiation when compared with the contiguous eastern North Atlantic populations, indicating relatively higher levels of gene flow across the Gibraltar Strait (Natoli, 2004). A certain degree of isolation between Atlantic and Mediterranean populations is suggested by differences in contaminant levels. Organochlorine concentrations in Alborán Sea common dolphins were about double those typical of dolphins in neighbouring North Atlantic waters and showed a completely different profile (proportions between PCB congeners, the DDE/tDDT ratio, etc.) (Borrell *et al*., 2001).

There is little indication of movement by common dolphins through the narrow Dardanelles Strait between the Aegean and the Marmara and Black Seas. Intrusions or migrations to and from the Aegean Sea cannot be excluded, since common dolphins are known to occur in the western part of the Marmara Sea (Topaloglu *et al.,* 1990; Öztürk & Öztürk, 1997). Therefore, genetic mixing may occur between Aegean Sea and Black Sea common dolphins due to movements through the Turkish Straits System (Barabasch, 1935; Kleinenberg, 1956). Black Sea common dolphins have been considered by some Russian investigators to constitute an endemic subspecies, *Delphinus delphis ponticus* (Barabasch, 1935; Tomilin, 1957; Heptner *et al*., 1996).

A preliminary study of skull morphometrics (Amaha, 1994) suggested differences between Black Sea and Mediterranean common dolphins. Significant genetic differentiation was also detected between the Black Sea and the eastern Mediterranean population although the limited size of samples precludes drawing any clear conclusion.

Clearly, further work based on larger samples is needed to assess and characterize the relationship between Black Sea and Mediterranean common dolphins. It is acknowledged that some genetic exchange between Black Sea and Mediterranean might occur in portions of the Aegean Sea where favourable habitat still exists (*e.g.* in the Thracian Sea; Frantzis *et al.*, 2003).

# 2. The problem

### Rationale for protecting the Mediterranean common dolphin population

A recent scientific article reviewed and summarized the available information on Mediterranean common dolphin ecology, status and conservation (Bearzi *et al.*, 2003). That article, together with information published subsequently and various unpublished accounts, shows that a large decline in abundance occurred during the second half of the 20th century, and that in several Mediterranean areas the decline was most likely caused by human activities.

Factors thought to have contributed to the decline of Mediterranean common dolphins include: 1) reduced availability of prey caused by overfishing and habitat degradation, 2) contamination by xenobiotic chemicals resulting in immunosuppression and reproductive impairment, 3) incidental mortality in fishing gear, especially gill nets (including driftnets), and 4) environmental changes such as increased water temperatures affecting ecosystem dynamics. A study focusing on the cetacean fauna of the northern Adriatic Sea indicated that large-scale intentional killings until the 1960s, followed by habitat degradation and overfishing, are the causal factors most likely responsible for the eradication of common dolphins in that area (Bearzi *et al.*, 2004).

Common dolphin conservation problems in the Mediterranean have been recognised since the 1970s. The UNEP Mediterranean Action Plan (Barcelona, 1975) recommended strong conservation measures to protect the species but without specifying what these should be. Determining the conservation status of Mediterranean common dolphins was cited as a priority in past cetacean action plans of the IUCN Species Survival Commission (Perrin, 1988; Reeves & Leatherwood, 1994) and the latest such Plan notes that they have declined dramatically in the central and eastern Mediterranean and that conservation action is urgently needed to prevent extirpation from this portion of the species' range (Reeves *et al.*, 2003).

In 2003 Mediterranean common dolphins were listed as Endangered in the IUCN Red List of Threatened Animals, which refers to an inferred ≥50% decline in abundance over the last three generations (about 35-45 years), the causes of which 'may not have ceased *or* may not be understood *or* may not be reversible' (see http://www.redlist.org).

Although both public and institutional awareness of the importance of preserving the natural environment has increased in several Mediterranean countries during the last few decades, no specific measures were taken to investigate or address the common dolphin decline in the region, until the *Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area* came into effect. ACCOBAMS (2002) proposed that the status of common dolphins in the Mediterranean be evaluated in a comprehensive manner, with the goals of estimating distribution and abundance throughout the basin, identifying critical habitat and characterising threats. It was also proposed that such an evaluation would entail a series of surveys to locate any concentrations of animals that might remain, with a priority in the eastern Mediterranean.

### A gloomy scenario

Some of the problems faced by Mediterranean common dolphins - including prey depletion and the effects of global warming and habitat degradation - must be framed in the wider context of ecosystem changes. The Mediterranean biodiversity is undergoing rapid alteration under the combined pressure of human impact and climate change (Bianchi & Morri, 2000). Today, the status of the Mediterranean environment is rather gloomy, and attempts to reverse the ongoing trends are facing substantial political difficulty (EEA, 1999).

Overfishing and global warming represent remarkable examples of ongoing negative trends. Recent reports by the European Environment Agency note that the continuation of present trends of overfishing will probably lead to substantial changes across the entire marine ecosystem. More fishing has been allowed than is recommended by scientific advice due to the lobbying influence of the fishing industry on governments. Today, many stocks are considered to be outside safe biological limits, and some are in a critical state (EEA, 2003). Overall, 60% of European fish catches exceed safe limits, i.e. levels above which the biomass removed by fishing is no longer replaced by population growth (EEA, 2004). With respect

to the Mediterranean, a document by the EC concludes that overall production and catch rates have been steadily decreasing, despite the increase in fishing effort, as compared with yields obtained 20 or more years ago. For example, in some of the most productive areas such as the Adriatic Sea and the strait of Sicily, overall catch rates per unit of effort were said to have diminished by more than 60% (EC, 2003).

> "We must fish less."
>
> Franz Fischler, European Fisheries Commissioner[1]

There is increasing evidence of change in Mediterranean biodiversity patterns related to increasing seawater temperature as a result of global warming (Bethoux *et al.*, 1990; Francour *et al.*, 1994). Increasing energy consumption in the EU and elsewhere is a major concern in the context of climate impacts. The EEA notes that total energy consumption continues to rise rapidly, and the EU-15 will not reach its set objectives on climate change. In addition, trends in European waste generation - a proxy for resource use intensity - are clearly unsustainable (EEA, 2004).

Such alarming, widespread trends can only be addressed through strong political will and compliance with the existing legal commitments.

## 3. The solutions

**On the existing commitment to restore and maintain healthy ecosystems**

Designing a Conservation Plan for common dolphins in the Mediterranean, where this species has declined for a combination of reasons, is inherently difficult because it requires management measures involving, in some cases, socio-economic consequences. For policy makers to adopt such measures would not be easy even if we had, from the outset, a good understanding of cause-effect relationships, which we do not. However, it can be argued that most, if not all, of the factors that are responsible for the decline of common dolphins in the Mediterranean derive from human activities that are illegal and/or unsustainable (e.g., overfishing, use of driftnets, pollution).

The fate of Mediterranean common dolphins depends on range States having the political will to take precautionary action to mitigate known anthropogenic threats. Management measures that could benefit common dolphins, involving sustainable fishing, curbing marine pollution and protecting biodiversity, are already embedded in a large number of existing legislation and treaties. If all such measures, invoked by existing international, regional and national legal instruments for the wise management of human activities in the Mediterranean, were to be fully implemented and enforced, and the range States were doing everything to which they were committed based on multiple obligations under agreements that are already in force, with regard to fishing (e.g. modern fisheries management based on stock assessments, responsible and sustainable fishing), pollution, and other forms of habitat degradation, many of the problems preventing the common dolphins from having a favourable conservation status would be addressed, and the recovery of the population would become possible.

The complete ban of driftnets[2] from the Mediterranean, which was vigorously advocated by a number of international and regional institutions such as the United Nations, the European Union, ICCAT and the General Fisheries Council for the Mediterranean, is a conspicuous example of the concept expressed above. Such political will has been clearly expressed for decades, yet driftnets still plague the Mediterranean and threaten its biodiversity, including common dolphins.

*Considering that simply fulfilling the existing obligations represents the single most effective conservation action to stop the decline of common dolphins in the Mediterranean, this Conservation Plan strongly advocates that such obligations be respected and implemented without any further delay.*

An important corollary of the point stressed above is that Countries which have the possibility of engaging in already existing instruments protecting the Mediterranean marine environment through ratification, and have not done so yet, would contribute to solve the problems of common dolphins if they were to do so.

[1] "Europe slashes fishing quotas", BBC News, 18 December, 2001, see http://news.bbc.co.uk/1/hi/world/europe/1716783.stm
[2] Whatever they might be called: *spadare, ferrettare, alalungare, thonaille, melveras*, etc. and whatever expedient might be devised to get around bans.

**Obligations of Mediterranean range States relevant to the conservation of common dolphins**

Although existing legislative instruments provide an important framework for the conservation of cetaceans and protection of their habitat, implementation and enforcement of those instruments have not been consistently effective.

Many international legal instruments that are directly or indirectly relevant to common dolphin conservation are identified and described in Annex 1. The following is a summary of some instruments that may be considered among the most applicable (see also Table 1). In most cases, the text below is drawn directly from Daniel Owen's text in Annex 1. In other cases, it is adapted from Annex 1.

**UNCLOS** ("the U.N. Convention on the Law of the Sea") is clearly relevant as it provides for States, in their EEZs and on the high seas, to "cooperate with a view to the conservation of marine mammals and in the case of cetaceans [to] in particular work through the appropriate international organizations for their conservation, management and study". Duties regarding pollution, including from land-based sources, seabed activities and dumping, are also relevant, and "energy" (and hence, arguably, noise) is defined as a form of pollution. Finally, UNCLOS provides for duties to protect habitats of "depleted, threatened or endangered species".

The 2001 Stockholm Convention on **Persistent Organic Pollutants** focuses on the production, use and release of POPs, with the purpose of protecting both human health and the environment. A small number of Mediterranean countries have ratified the convention so far. A benefit will arise to common dolphins in the Mediterranean from the implementation of this treaty to the extent that production, use and release of POPs is a threat to such animals.

The Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, also known as the **Barcelona Convention**, is relevant to common dolphins mainly in providing a framework under which specific Protocols, addressing issues of direct relevance to that species, may be effectively implemented. Like UNCLOS, the definition of "pollution" in the Barcelona Convention is also relevant to common dolphins in that this refers to both substances and energy; as such, it is arguable that "pollution" includes noise. The following Protocols to the Barcelona Convention (whether in its amended or unamended form) may be seen as having particular importance for common dolphin conservation: the Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil (also known as the "Offshore Protocol"), the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities (a.k.a. the "LBS Protocol"), and the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean (a.k.a. the "SPA and Biodiversity Protocol").

The Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil, or "**Offshore Protocol**", is relevant to common dolphins in the Mediterranean in that the authorisation system foreseen relates to exploration and/or exploitation of the resources irrespective of whether their impact is likely to be felt through pollution or other environmental effects. The term "activities" expressly includes, *inter alia*, seismological activities. The regime for the control of harmful or noxious substances and materials and wastes focuses on "substances", "materials" and "wastes". Some such items are clearly relevant to cetaceans, including common dolphins.

The Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities, or "**LBS Protocol**", includes an undertaking by the Parties to phase out the inputs of Annex I toxic, persistent and bioaccumulating substances, through the use of regional plans and programmes. It also provides for an authorisation or regulation regime for point source discharges and releases into water or air. Both of these are relevant to common dolphins in the Mediterranean, to the extent that the substances addressed constitute threats to that species.

The Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean, or the "**SPA and Biodiversity Protocol**", includes regimes for the protection of both area and species. Regarding areas, there is a duty on the parties to establish "specially protected areas" in their waters; further duties flow once a SPA has been established. There is also an obligation on parties to draw up a list of "specially protected areas of Mediterranean importance"; such sites can extend to the high seas. Both SPAs and SPAMIs could potentially be established for common dolphins. Regarding species, there is a general duty on parties to "manage species of flora and fauna with the aim of maintaining them in a favourable state of conservation". Furthermore, "protected status" must be accorded to endangered or protected species, and specific protection duties apply to species listed in Annex II. The common dolphin is listed in Annex II.

The **FAO Code of Conduct for Responsible Fisheries** clearly has application to conservation of common dolphins in the Mediterranean. This arises from its provisions on conservation and management of living aquatic resources and from its specific focus on designing such measures to take the wider environment into account. In particular, the Code devotes much space to the use of selective and environmentally safe fishing gear and practices and to the minimisation of catch of non-target species (including endangered species). The reference to taking account of uncertainties regarding impacts on non-target and associated species, when implementing a precautionary approach, is also important, as are the Code's provisions on research and impact assessment.

The **Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas** aims at improving compliance by fishing vessels with high seas international conservation and management measures. It is particularly relevant to the Mediterranean because of the high proportion of high seas there and the competence of at least two regional fisheries bodies (i.e. ICCAT and GFCM) regarding these high seas. A benefit will arise to common dolphins in the Mediterranean from the implementation of this treaty to the extent that non-compliance with high seas international conservation and management measures is a threat to such animals. However, the treaty depends for its success on acceptance by a large number of flag States, and yet few significant distant water flag States have accepted the Agreement so far.

The Agreement for the Establishment of the **General Fisheries Commission for the Mediterranean (GFCM)** is relevant because the GFCM has the power to adopt measures "for the conservation and rational management of living marine resources". It is arguable that this power is relevant to conservation of the common dolphin in the Mediterranean, on the basis that one aspect of "rational management" is protection of the wider environment from fishing activities. The measures are binding, subject to the power of members of the Commission to object to any given measure. The power to adopt measures "for the conservation and rational management of living marine resources" could potentially be used to address both by-catch problems and prey depletion problems.

The Bonn Convention on the Conservation of Migratory Species of Wild Animals, or "**CMS**", lists the western Mediterranean population of *Delphinus delphis* in its Appendix II. If the common dolphin were to become "endangered" for the purposes of the CMS, it would become a candidate for Appendix I. Of relevance to the common dolphin, it is arguable that the term "taking", as defined in the CMS, includes, *inter alia*, the capturing of animals as by-catch ("capturing") and the disturbance of animals, e.g. by seismic testing ("harassing").

The Convention on the Conservation of European Wildlife and Natural Habitats, or "**Bern Convention**", lists the common dolphin in its Appendix II; thus the treaty's habitat and species protection regimes are directly relevant to this species. On such basis, the common dolphin should benefit from the duty to establish areas that protect its habitat ("special attention" being required in this respect, on the assumption that the common dolphin is a "migratory species"); and from, *inter alia*, the various prohibitions intended to ensure the common dolphin's "special protection". The "files" procedure may have application to the common dolphin, subject to parties' compliance with the relevant provisions of the treaty.

Finally, two European Community instruments that are binding for EU Member States are worth mentioning here among the many existing, due to their relevance to common dolphin conservation: Council Regulation (EC) No 2371/2002 of 20 December 2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy, and Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

The Council Regulation (EC) No 2371/2002 of 20 December 2002 on the **conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy** clearly has application to the conservation of common dolphins in the Mediterranean. This arises from the powers and duties the Regulation provides to EC institutions regarding fisheries conservation (coupled with integration of environmental protection requirements) and from the powers the Regulation provides to Member States (coupled with the access restriction in the case of waters within 12 nautical miles of coastal Member States' baselines).

The Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, or "**Habitats Directive**" includes regimes for the protection of both habitats and species. The former is relevant to the common dolphin to the extent that this species benefits from any special areas of conservation established for the Annex I habitats, or habitats of the Annex II species (though the common dolphin itself is not an Annex II species). The Directive's species protection regime is directly relevant to the common dolphin because Annex IV(a) covers, *inter alia*, all cetacean species. Thus the common dolphin benefits from, *inter alia*, the various prohibitions comprising the "system of strict protection" and the provisions on monitoring and conservation measures regarding incidental capture and killing (subject to a derogation being validly invoked by a Member State). As a species of Community interest, Member States must also undertake surveillance of the conservation status of the common dolphin.

**Table 1** lists a selection of relevant instruments and identifies whether or not the various Mediterranean riparian States and the EC are bound by those instruments. Clearly, the careful observance of the various obligations in those instruments would generate enormous advantages for the marine environment, through the granting of a favourable conservation status of cetaceans, and to common dolphins in particular.

***Table 1***. *The table indicates whether or not Mediterranean riparian States and the EC are bound by particular instruments. The first 10 instruments are treaties; for these, the symbol X indicates that the State/EC is a contracting party (subject to the footnotes below).*

| State | UNCLOS | Barcelona Conv.[3] | Offshore Prot.[4] | LBS Prot.[5] | SPA & Biodiv. Prot. | Stockh. POPs Conv. | GFCM[6] | Compl. Fish. High Seas | CMS | Bern Conv. | EC 2371/02 | EC 92/43 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albania (1) | X | X | X | X | X | | X | | X | X | | |
| Algeria (2) | X | X | | | | | | | | | | |
| Bosnia & Herz. | X | | | | | | | | | | | |
| Croatia (1) | X | X | | | X | | X | | X | X | | |
| Cyprus | X | X | X | X | X | | X | X | X | X | X | X |
| Egypt | X | X | | | X | X | | X | X | | | |
| EC | X | X | | X | X | | X | X | X | X | X | X |
| France (1) | X | X | | X | X | X | X | | X | X | X | X |
| Greece (1, 2) | X | X | | X | | | X | | X | X | X | X |
| Israel | | | | | | | | | X | | | |
| Italy (2) | X | X | | X | X | | X | | X | X | X | X |
| Lebanon | X | | | | | X | | | | | | |
| Libya (1) | | | | | | | X | | X | | | |
| Malta (1, 2) | X | X | | X | X | | X | | X | X | X | X |
| Monaco (1) | X | X | | X | X | | X | | X | X | | |
| Morocco (1, 2) | | | X | X | | X | | X | X | X | | |
| Serbia & Mont. | X | | | | | | X | | | | | |
| Slovenia | X | X | | X | X | X | X | | X | X | X | X |
| Spain (1, 2) | X | X | | X | X | X | X | | X | X | X | X |
| Syria (1) | | X | | | X | | | X | X | | | |
| Tunisia (1) | X | X | X | X | X | X | X | | X | X | | |
| Turkey (2) | | X | | X | X | | X | | | X | | |

(1) Party to ACCOBAMS
(2) State known to contain important Mediterranean common dolphin habitat

[3] 1995 amendments not in force yet. States listed are only those that have accepted the 1995 amendments.
[4] Not in force yet.
[5] 1996 amendments not in force yet. States listed are only those that have accepted the 1996 amendments.
[6] 1997 amendments are in force. States listed are only those that have accepted the 1997 amendments.

### Other action needed to protect Mediterranean common dolphins

In addition to compliance with existing obligations such as those listed above, a series of actions can be envisaged to specifically address the problem of common dolphin conservation in the Mediterranean. These are outlined in section 9 of this Conservation Plan.

### Existing framework for common dolphin conservation

Various kinds of marine protected areas exist or have been proposed throughout the Mediterranean. Although not specifically intended for common dolphins, these MPAs may contribute to the protection of the local cetacean fauna:

The largest area set aside for cetacean conservation is the "Pelagos" Marine Sanctuary that has been declared by the Governments of Italy, France and Monaco in the Corso-Ligurian Basin. Although common dolphins are now generally rare in the Ligurian Sea, they used to be quite frequent there (Bearzi *et al*., 2003). Recent records refer particularly to waters off western Corsica and Sardinia.

In 1999, the Spanish Ministry for the Environment classified the common dolphin in its National Endangered Species Act as "vulnerable" in the Mediterranean. The following year, a program was initiated to identify important areas for the conservation of cetaceans in the Spanish Mediterranean with the aim of implementing the EEC "Habitats Directive", the Barcelona Convention and the Bonn Convention (Convention on Migratory Species, or CMS) through the creation of marine protected areas (Universidad Autónoma de Madrid & Alnitak, 2002). A follow-up of this project (LIFE02NAT/E/8610) started in the year 2002 to develop the management schemes required for these areas (e.g. Cañadas *et al*., in press; Raga *et al*., 2004).

Based *inter alia* on the presence of common dolphins, the eastern Ionian area around the island of Kalamos has been included by the Greek Ministry of the Environment in the Natura 2000 network ("Sites of Community Importance") under the 9243 EEC "Habitats" Directive (Frantzis, 1996). The area around the island of Kalamos has also been identified by ACCOBAMS (2002) as one where pilot conservation and management actions should be developed and implemented immediately to preserve common dolphin habitat. So far, however, no specific conservation actions have been taken.

In the waters around Ischia, south-eastern Tyrrhenian Sea, the creation of a marine reserve dedicated to the rich cetacean fauna was proposed recently by the Italian Ministry of the Environment, which - if finalised - may lead to mitigation of at least some obvious threats such as harassment by pleasure boaters (Miragliuolo *et al*., 2004) and uncontrolled fishing (Mussi & Miragliuolo, 2003).

A clear need exists for revising and updating the current framework for cetacean conservation in light of recent findings on the endangered status of Mediterranean common dolphins.

Some legislative instruments do not recognise the specific need to protect Mediterranean common dolphins and a revision should be considered in light of recent information on their conservation status, also expressed by IUCN in its Red List of Threatened Animals. There is a need to examine the national legislation of Parties and other Mediterranean Riparian States, and ensure that common dolphins are included among the species to be protected. In addition, the 9243 EEC "Habitats" Directive includes only common bottlenose dolphins (*Tursiops truncatus*) and harbour porpoises (*Phocoena phocoena*) in its Annex II ("Animal and plant species of Community interest whose conservation requires the designation of special areas of conservation"). Current knowledge of the existence of very important habitat for common dolphins within the European Union's coastal waters, which may not have been available to European lawmakers in the early '90s, clearly emphasizes the need for the establishment of SACs for this species.

Another significant need for revision relates to the Convention on the Conservation of Migratory Species. Although the CMS includes the Mediterranean common dolphin in its Appendix 2 ("Migratory species that have an unfavourable conservation status or would benefit significantly from international cooperation"), that status is inexplicably limited to a "western population". As common dolphins are known to occur in both the eastern and the western portions of the Mediterranean basin, such designation should be revised to include common dolphins throughout the Mediterranean. Furthermore, considering the endangered status of Mediterranean common dolphins, as attested by the IUCN Red List, it would seem desirable that this population be considered by CMS for inclusion in its Appendix 1.

# 4. Goals of the Conservation Plan

This Conservation Plan **1)** attempts to define the conservation needs of common dolphins in the Mediterranean, **2)** calls for enforcement of existing obligations of Mediterranean States with regard to the protection of the marine environment, **3)** delineates other reasonable actions which are viewed as particularly promising to protect the endangered common dolphin population, **4)** identifies an initial set of Mediterranean areas of conservation importance for common dolphins, **5)** indicates specific management and research actions that should be taken in these areas in collaboration with the local stakeholders, and **6)** defines research methods to shed light on the threats affecting common dolphins and identify areas of conservation importance in the region in addition to those indicated in this Plan.

The basic goal is to ensure that Mediterranean common dolphins enjoy a favourable conservation status[7]. In the context of this Plan, "favourable conservation status" can be understood to mean that the decline of the Mediterranean common dolphin population needs to be stopped, and its recovery facilitated. Whenever research allows assessment of the extent of past occurrence of common dolphins in Mediterranean subregions, allowing the animals to regain their entire former range will represent the long-term management objective to be pursued.

This basic management objective and the working definition of "favourable conservation status" on which it is based may be revised at a later stage to account for new findings related to common dolphin stock discreteness, population size and dynamics, migratory behaviour etc. As new information becomes available, as a result of research actions outlined in this Conservation Plan, more refined, quantitative recovery targets will be defined.

### Facilitating common dolphin recovery

The following actions are relevant to the conservation of common dolphins in the Mediterranean:

Enact management measures aimed to ensure that sufficient gene flow is maintained across the Mediterranean basin;

Prevent the depletion of key common dolphin prey and maintain biodiversity and ecosystem resilience in common dolphin habitat;

Identify areas where conflicts with fisheries or other human activities are particularly acute, and design local and basin-wide strategies aimed at reducing dolphin mortality and exposure to various risk factors;

Implement research and monitoring programmes to obtain scientific information necessary to inform management (see section 9.3);

Support capacity-building initiatives and facilitate access to information, particularly in the southern and eastern portions of the Mediterranean basin, to encourage studies of common dolphins in those areas (see section 9.4);

Promote science-based awareness and education programmes aimed to reduce conflict in problem areas and to set the stage for management actions aimed at common dolphin conservation (see section 9.5).

[7] A broad definition of the term "favourable conservation status" is given in the EU Habitats Directive (Article 1 of the Directive, Annex I): "Conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory referred to in Article 2. The conservation status of a species will be taken as 'favourable' when: 1) population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; 2) the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; 3) there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long-term basis." A lack of clarity in the interpretation of this term or the means by which to implement it has been highlighted by Halahan & May (2003), who pointed out that it can be interpreted in many different ways to suit different and even conflicting purposes.

# 5. Areas of Conservation Importance and MPAs

### Areas of Conservation Importance for common dolphins

In the ACCOBAMS Implementation Priorities (2002) it was proposed to select areas containing critical habitat for priority species, in which pilot conservation and management projects should be developed and implemented immediately.

In the first phase of implementation of this Conservation Plan, specific management measures (see section 9.1) will need to be implemented in well-defined Mediterranean areas considered to contain special conservation value for common dolphins. These areas will be referred to as "Areas of Conservation Importance" or **ACIs**. In such areas, knowledge on population status, ecology and behaviour, and on the dolphins' responses to anthropogenic threats, will need to be increased quickly to support the implementation of conservation actions.

For the purposes of this Conservation Plan, eight ACIs (Table 2) were selected based on what is presently known about distribution and frequency of occurrence of common dolphins in the Mediterranean (Bearzi *et al*., 2003, in press; Mussi & Miragliuolo, 2003; Frantzis *et al*., 2003; Cañadas *et al*., in press; M. Tringali, pers. comm.; A. Vella, pers. comm.).

These areas, the extension and features of which vary greatly, include: **1)** the Alborán Sea; **2)** the waters surrounding the island of Ischia, south-eastern Tyrrhenian Sea; **3)** the waters surrounding the island of Malta, in the Sicily Channel; **4)** the eastern Ionian Sea and the Gulf of Corinth; **5)** the northern Aegean Sea; **6)** the waters surrounding the Northern Sporades; **7)** the Gulf of Saronikos and adjacent waters: and **8)** the waters surrounding the Dodekanese. The geographic locations and the proposed borders of these areas are shown in Annex 2.

Meanwhile, *ad hoc* research programmes are urgently needed to (a) allow rigorous, science-based delimitations of such areas, and (b) identify within the Mediterranean the remaining ACIs for common dolphins.

Following the recommendations in the ACCOBAMS Implementation Priorities (2002), the ACIs proposed here were selected based on known or expected high occurrence of common dolphins and/or availability of extensive longitudinal datasets and background information that may provide a basic understanding of the ecology and behaviour of the species.

Local problems may have regional ramifications if the animals under threat play special demographic or ecological roles. For example, protecting what appear to be isolated or relict groups of common dolphins may be essential for preserving genetic variability at the basin scale. This is even more important in view of our lack of knowledge on the extent of movements of common dolphins in the region.

In addition, it is important that viable populations be maintained near corridors (e.g. the Sicily Channel, the Gibraltar Strait and the Turkish Straits System) to ensure gene flow between the eastern and western portions of the Mediterranean basin, as well as between the Mediterranean and 1) the Atlantic Ocean and 2) the Black Sea, where common dolphins remain relatively abundant.

The call for immediate management action in ACIs does not imply that nothing should be done in areas where common dolphins are currently infrequent, either as a consequence of human impact or for other reasons. As noted previously, the long-term management objective to be pursued is to allow the animals to regain their former range. Consequently, it is important that areas in which recolonisation can occur are identified and managed in view of establishing favourable conditions for common dolphin recovery. The ongoing research and monitoring in some portions of the Mediterranean where common dolphins were abundant in the past (e.g. the Pelagos Sanctuary and the northern Adriatic Sea; Bearzi *et al*., 2003) should allow to detect trends in abundance with little additional effort. However, a specific effort similar to that undertaken in the northern Adriatic Sea - including analysis of both historical information and recent data (Bearzi *et al*., 2004) - is necessary to investigate past and present trends in common dolphin abundance and distribution in other Mediterranean areas, and identify places where a potential for recovery exists. In these areas, management measures aimed to facilitate recolonisation should be established.

***Table 2.*** *Criteria used in the selection of Areas of Conservation Importance*

| ACIs (*) | | Presence of common dolphins | Background information | References |
|---|---|---|---|---|
| 1 | Alborán Sea | Conspicuous in the north; poorly known but likely also high in the south | extensive in the north; poor in the south | Cañadas *et al*., 2002, in press |
| 2 | Island of Ischia, SE Tyrrhenian Sea | Reported to be seasonally high | good | Mussi & Miragliuolo, 2003 |
| 3 | Malta, Sicily Channel | Reported to be seasonally high | good around Malta | Vella, 1998, 1999, in press |
| 4 | E Ionian Sea (**) and Gulf of Corinth | Reported to be high in the E Ionian Sea until 1997, subsequent decline; mixed-species groups including common dolphins are reportedly present in the Gulf of Corinth | extensive around Kalamos; good in adjacent waters and Gulf of Corinth | Politi *et al.* 1992; Frantzis & Herzing, 2002; Frantzis *et al*., 2003; Bearzi *et al*., in press |
| 5 | Gulf of Saronikos and adjacent waters (Argo-Saronikos and southern South Evvoikos Gulf) | Reportedly high | poor | Frantzis *et al*., 2003 |
| 6 | Northern Sporades | Reportedly high | poor | Frantzis *et al*., 2003 |
| 7 | N Aegean Sea | Reportedly high | poor | Frantzis *et al*., 2003 |
| 8 | Dodekanese | Reportedly high | poor | Frantzis *et al*., 2003 |

(*) Area borders are outlined in Annex 2.

(**) Based *inter alia* on the presence of common dolphins, the eastern Ionian area around the island of Kalamos has been included by the Greek Ministry of the Environment in the Natura 2000 network ("Site of Community Importance") under the 9243 EEC "Habitats Directive" (Frantzis, 1996).

### Management priorities in Areas of Conservation Importance

Management action should be taken without delay in Areas of Conservation Importance, where knowledge gaps preventing the identification of effective conservation strategies should be immediately filled by research.

Education and public awareness initiatives in ACIs should be particularly intense, and there must be economic incentives and management support to convert detrimental human activities into less damaging ones.

Management applied to specific zones (or seasons) within ACIs for common dolphins should include measures aimed to:

prohibit high-risk fishing gear such as driftnets ("high-risk" referring to incidental mortality, or bycatch, of dolphins);

ensure the maintenance of prey mass and quality needed to sustain viable common dolphin populations, in particular by managing small epipelagic fish stocks (e.g., sardines, anchovies and other key common dolphin prey). This will benefit the commercial fisheries for those species in the first place, but also provide sustenance to high-order top predators (cetaceans including common dolphins as well as tuna, swordfish, etc.);

address problems surrounding interactions between dolphins and fisheries (e.g. Reeves *et al.* 2001; see Annex 4). The intent would be to reduce conflict that leads to intentional dolphin killings and to change the attitude of fishermen from hostility to tolerance. It is important to bear in mind that gear damage and depredation of catch by bottlenose dolphins may result in conflict negatively affecting sympatric common dolphins;

promote responsible dolphin watching and nature-oriented tourism as means of giving local economic value to common dolphins, and creating alternative livelihoods for fishermen, thereby reducing conflict and fishing pressure.

Within ACIs information on diet and prey-predator relationships needs to be obtained expeditiously so that trophodynamic relationships and ecosystem processes/functions can be elucidated in the near future through modelling and other methods.

The development of national or regional stranding networks in many Mediterranean States where such frameworks are lacking is an ACCOBAMS priority. While this long-term goal is being pursued, the collection of information on stranded cetaceans should begin immediately (or be sustained) within ACIs. This will increase understanding of cause-effect relationships and allow appropriate monitoring of management effectiveness.

### A note on Marine Protected Areas

Establishment of MPAs is one of the main provisions of the ACCOBAMS Agreement. In a marine environment such as the Mediterranean, where human impact is so pervasive, even though it is illegal to deliberately kill cetaceans, MPAs ensure a greater protection to the animals and alleviate human encroachment. MPAs may restore ecosystem functioning and benefit marine food webs by providing shelter to threatened marine species, thus contributing to the recovery of depleted dolphin prey (Agardy, 1997; Bianchi & Morri, 2000; Roberts *et al*., 2001). MPAs provide an ideal framework to conduct robust scientific investigations and ecosystem studies, and combine them with socio-economic analyses and other management-oriented assessments. MPAs are also amenable to the promotion of respectful dolphin-watching, which may allow ex-fishermen or part-time fishermen to increase their income with dolphins instead of fishing, and most importantly begin to involve them, as well as other stakeholders, in the conservation process.

However, common dolphins in some Mediterranean areas are known or suspected to make long-range movements, as their presence appears to vary on a seasonal or annual basis. In these cases, MPA designation based on insufficient knowledge may not represent the most effective conservation strategy to protect these animals, although MPAs can help to protect ecologically important portions of their range. The success of MPAs as tools for common dolphin conservation will depend on our ability to match the species' critical habitat and/or resources with the boundaries of the areas to be protected. Therefore, to be effective for common dolphin conservation, the design of MPAs should be based on a good understanding of the movements and spatial needs of both the animals and their prey. Without knowing enough about the animals, there is a risk that MPAs will be ineffective as conservation tools, and even preclude the kind of broader-scale conservation initiatives recommended by this Plan.

For that reason, this Conservation Plan suggests that an alternative strategy be considered on an interim basis: that is, applying targeted management measures to areas identified through research as having special conservation importance for common dolphins (i.e. the ACIs). In some cases - and particularly when basic information is still lacking - this approach is more appropriate (and certainly more expeditious) than one of establishing "traditional", small MPAs with static boundaries. Among the reasons for such an alternative strategy are: 1) the currently incomplete state of knowledge about common dolphin distribution and long-term movements, 2) the inherently dynamic nature and likely large spatial extent of the habitat used by these animals year-round, and 3) the cumbersome institutional and governance issues affecting the design, enforcement and implementation of "traditional" MPAs, which are likely to be improved in the future.

The management approach proposed here will pave the way for the future establishment of networks of MPAs (see Annex 5) or large MPAs to protect Mediterranean common dolphins. Such MPAs should be designed on the basis of appropriate information on the dolphins' ecology, distribution, long-range movements and spatial needs.

# 6. The role of research

### A note of caution

As repeatedly stressed above, designing and implementing appropriate measures to counteract negative trends is a challenging task, given that the relative importance and interplay of the threats affecting Mediterranean common dolphins are not well understood. Fragmentary and incomplete information is a major hindrance to determining the status and conservation needs of common dolphins in the Mediterranean. Although some studies conducted in the region are of high scientific quality and have been long running, common dolphins have been studied only in relatively small portions of the Mediterranean basin, and wide areas remain largely unexplored. Research must play a major role in filling the present gaps.

The fundamental importance of science to inform the management process is so evident that it does not need to be reiterated here. Indeed, insufficient knowledge may prevent the adoption of meaningful conservation measures, while research will provide data that are essential to design and implement successful management actions.

However, the risks of simply perpetuating calls for more research must also be considered. While inaction may be often justified by lack of sufficient information, in many cases such waiting for more and better data delays the management process indefinitely, and in some cases it affects the capability of producing timely conservation results. Unwillingness to act based on what is known will result in delays that cause the conservation status of cetacean populations to deteriorate further. In some cases, it has been suggested that by the time research will be able to provide appropriate data to inform the management process it may be too late to enact meaningful mitigation measures, owing to a poor and possibly irreversible conservation status of the animals (or ecosystems) that need to be protected.

In a region such as the Mediterranean Sea, where baseline information is mostly poor or entirely missing, and conservation problems are acute, it is particularly important to assign priorities to research and obtain information in a timely manner, while ensuring that the management process is implemented without delay in view of the precautionary principle[8].

For these reasons, this Conservation Plan envisages the simultaneous adoption of (a) management measures within ACIs that can be implemented immediately, and (b) research activities – both outside and inside ACIs - that should proceed in parallel to management.

### Research priorities

Field surveys are needed to determine the current distribution and abundance of common dolphins in the Mediterranean, particularly along the entire northern African coastline, in the Aegean Sea and in far eastern Mediterranean areas where little information exists. Such surveys should be designed to identify hotspots of occurrence that can be accorded priority for intensive research and management. Standard methods such as vessel-based and/or aerial line transect surveys should be used so that results can be compared over time and from one region to another. As noted previously, such surveys can be conducted in the context of a wider effort – currently in the planning phase - to investigate the distribution and abundance of other cetacean species.

A better understanding is needed as well of the genetic characteristics and population structure of Mediterranean common dolphins. The risks of local or regional extinction from stochastic processes might be reduced by preserving as much genetic diversity as possible (cf. Shaffer, 1987; Lande, 1988). Ongoing genetic studies may provide some insight concerning rates of gene flow between what appear to be 'isolated' groups of dolphins. However, more genetic material is needed from groups living in different portions of the region. In addition, further comparisons should be made between Mediterranean groups and groups from adjacent basins (i.e., Black and Marmara Seas, Atlantic Ocean). Biopsies should be collected for genetic and other analyses with minimal intrusiveness (e.g. Harlin *et al.*, 1999), while recognising that darting is not without risk to common dolphins (Bearzi, 2000). Samples should be archived in centralised repositories such as the tissue banks currently planned within the framework of ACCOBAMS (e.g. Aguilar & Borrell, in press; Anfuso *et al.*, in press). Similarly, collaborative photo-identification studies (e.g. see www.europhlukes.net) should be initiated to better understand habitat use, the relationship between coastal and pelagic groups, and long-range movement patterns.

As far as bycatch is concerned, priorities include detection of strandings and entanglements, and collection of full data on the circumstances of each entanglement. All stranded and entangled carcasses should be collected and examined to identify injuries and determine probable cause of death. Important auxiliary information for mitigation is the geographical and

[8] The often-invoked precautionary principle is one of those good and sensible notions that have unfortunately become worn out because of overuse, misuse, or inherent ambiguity. Here, we employ it to recommend that common sense be combined with the available scientific evidence to inform reasonable and timely action, as long as conclusive scientific data are unavailable (Mayer & Simmonds, 1996; Burns & Simmonds, 2002). Clearly, any precautionary action must be based on state-of-the-art information and be reappraised to account for new scientific evidence.

temporal distribution of dolphins; such information will facilitate the identification and monitoring of areas of potential interaction with fisheries.

Contaminants analyses are needed to identify regional differences in exposure, and relate them to population abundance and trends. In addition, comparisons of contaminant loads and evaluation of differences in susceptibility to organic pollutants between species should be made (e.g. Fossi *et al*., 2000, 2003).

Sighting surveys and stranding networks will require collaboration among individual scientists, government agencies and NGOs from the various range states. For instance, rigorous investigations should be conducted to assess the scale of bycatch and intentional killings of common dolphins, with a focus on areas where evidence of conflict between dolphins and fisheries exists[9]. This will require improved communication and exchange of information at the regional level. Common dolphin conservation workshops would provide opportunities for experts to discuss available evidence with one another and with experts from different disciplines, local stakeholders and managers. The goal should be to develop and modify, on an adaptive basis, a comprehensive programme for the assessment and monitoring of the status of Mediterranean common dolphins, closely coupled with the implementation of measures for their conservation.

Elucidation of ecosystem dynamics, and specifically the possible role of prey depletion and regime shifts as factors contributing to the decline of common dolphins in the Mediterranean, is an important, but challenging, area of research. Investigations of the spatial and temporal variability in Mediterranean fish stocks, when correlated with common dolphin abundance and movements, could be informative, as could output obtained from ecosystem models and analyses of food-web dynamics (e.g. Christensen & Pauly, 1992; CIESM, 2004).

Comparative analyses among different Mediterranean habitats would provide further insight on why common dolphins have persisted in some areas but disappeared in others. The far-western Mediterranean - where common dolphins are still relatively abundant - might be regarded as a "control" area for such comparisons. It may also be informative to compare features of the central and eastern Mediterranean with those of non-Mediterranean areas where common dolphins have declined.

### Synergies among research actions

Many of the research objectives listed in section 9.3 can be accomplished by a relatively simple set of research approaches that can be integrated to obtain multiple types of information (for example, Table 3).

***Table 3***. *Research methods and information that can be obtained through them.*

| | Population size | Population trends | Population structure | Historical abundance and/or distribution | Distribution | Habitat use | Life history parameters | Diet / Energy requirements | Health | Threats |
|---|---|---|---|---|---|---|---|---|---|---|
| Surveys (visual or acoustic) | X | X | | | X | X | | | | x |
| Longitudinal studies (photo-identification, behavioural observations etc.) | X | X | x | | X | X | X | X | x | X |
| Observations from platforms of opportunity | | | | | x | x | | | | |
| Archival research | | x | | X | | | | | | x |
| Necropsies on stranded or bycaught animals | | | X | | | | X | X | X | X |
| Biopsies from free-ranging animals | | | X | | | | | X | X | x |
| Acoustic studies | | | | | | x | | x | | x |

X = optimal; x = sub-optimal

[9] A comprehensive programme for the monitoring and mitigation of bycatch in the ACCOBAMS area is currently in a planning phase, and should be integrated with this Conservation Plan.

# 7. Building capacity and promoting awareness[10]

### The challenge of creating capacity

The Parties have recognised that "diffusing research and monitoring abilities throughout the region is a timely challenge and one of the highest priorities as far as cetacean conservation is concerned" (ACCOBAMS, 2002). It was also noted that "the problem to be addressed is twofold: 1) transmitting knowledge through appropriate, effective and long-lasting training procedures, and 2) ensuring that such hard-gained knowledge is put to good, long-term use once the trainees endeavour to apply it at home".

Although opportunities to get professional training in dolphin research techniques and learn about cetacean conservation and management strategies are currently increasing in some Range States, particularly in the north, such opportunities are still scarce or lacking in most portions of the region. Consequently, scientists as well as public administrators, managers and teachers can seldom rely on appropriate training for their professional growth, which prevents the development of sound research programmes and conservation campaigns.

Poor access to information is a problem faced by many. Much of the specialized cetacean literature can be hard to access, as cetacean libraries in the region are rare or privately held. Also, opportunities for learning are scarce, due for instance to limited local expertise, limited contacts with other researchers, generally low activity levels in this field, and the fact that professional cetacean conferences are rarely, or never, held in some Mediterranean Range States.

Facilities where professional work on cetaceans can be conducted are still scarce in most Mediterranean countries, thus weakening the potential of local researchers. Finally, low budgets and travel difficulties (e.g. related to the political or economic situation) can result in cultural isolation and greater challenges to developing and carrying out cetacean research and conservation programmes.

On the other hand, Mediterranean areas where cetacean science and conservation are still relatively "undeveloped" have responded favourably to ACCOBAMS initiatives. In these areas, as well as in places where cetaceans attract interest and resources, the need exists for capacity building programmes and cross-border collaboration.

This Conservation Plan recognises the need to address two aspects of this issue: (a) individual capacity building, and (b) institutional capacity building (see section 9.4).

Individual capacity can be built in several ways. A formal approach to theoretical education would include seminars, workshops, short-term training courses (such as the European seminar on marine mammal biology and conservation organized annually at the Universidad Internacional Menendez Pelayo in Valencia, Spain) and University courses on cetaceans. A different, more practical approach may include direct involvement of the trainee through volunteering, assistantships and internships.

A combination of the theoretical and practical approaches is probably optimal. An example would be intensive training courses in the field, where lectures involving theory are combined with direct experience at sea collecting data[11].

Another approach concerns institutional capacity building. Creating institutional capacity ensures that the resources invested in individuals are not wasted, by providing them with actual working opportunities, access to information, and a favourable environment in which they can grow professionally. These would involve such things as creating University courses, managing literature collections, opening laboratories and other infrastructure, facilitating access to information, and providing logistic and other support to institutions that may offer positions to deserving individuals.

Institutional capacity building concerns *inter alia* the provision of professional training to public administrators and bodies in charge of the management of Marine Protected Areas, research and teaching organisations, and advocacy organisations. The objectives and strategies for creating capacity among these categories have been outlined in section 9.4.

### The importance of awareness and education

Public awareness and education create a favourable ground for conservation-oriented management action. Even thorough scientific information and science-based management measures will fail to meet their final conservation objectives if there is poor awareness among the public on the need to protect biodiversity and natural resources. Implementation by local

[10] Rather than being exclusively targeted on common dolphins, the actions and approaches outlined here and in sections 9.4 and 9.5 are expected to benefit the larger field of cetacean conservation. As such, they should be considered as part of a far-reaching conservation strategy that can ultimately benefit common dolphins as well as other cetacean species.

[11] This kind of training course has been successfully organized by ACCOBAMS since 2002, to target trainees from several Range States where cetacean research is still relatively undeveloped.

authorities may be neither feasible nor effective in the absence of public will and consensus, when it comes to regulating the behaviour of people who are not aware of the importance of protecting the natural environment.

As long as people are not made aware that common dolphins are present in their local waters, that the animals' existence is threatened, and that there are reasons to protect these animals, they are not likely to support recovery efforts. People need to care, and caring largely derives from understanding linkages and processes. Explaining such linkages and processes (e.g. through a direct involvement of the public or by means of carefully designed public awareness campaigns) must be seen as an essential component of conservation efforts.

Public awareness and education represent an important part of this Conservation Plan. Whereas other elements of the Plan depend largely on the decision-making processes of national or supranational governmental agencies and international regulatory bodies (as well as on compliance, monitoring and enforcement), public awareness is an area in which ACCOBAMS has an autonomous role to play. Parties to ACCOBAMS have ongoing responsibilities and commitments to disseminate reliable information about Mediterranean common dolphins and to actively promote their protection and recovery.

Mediterranean fishermen must be viewed as a key audience, because they are among the people likely to interact most directly and most frequently with common dolphins. The Coordinator (see section 8) and the ACCOBAMS Secretariat should establish direct communications links with Mediterranean fishermen and seek their assistance and collaboration in determining how to reach fishing communities more effectively.

At the same time, it is important to reach members of the general public, as they are consumers of fishery products and the ultimate arbiters of public policy (via the democratic process).

### A strategy for public awareness

The power and importance of communication are often underestimated or overlooked by cetacean scientists and managers, who fail to convey their messages to the public. As a consequence, important scientific findings and conservation messages may never reach wide audiences, and this affects the possibility to implement mitigation strategies.

Even when public awareness and education campaigns are launched, these are rarely designed in the context of long-term strategies with clear objectives. It is important to realize that public awareness campaigns, as essential components of the conservation process, deserve to be carefully designed and professionally conducted, and should benefit from expert supervision.

A few suggestions for developing awareness campaigns on behalf of common dolphins are listed below:

Try to convey the dolphin conservation message in a positive way (e.g. "common dolphins can be protected"), rather than spreading exclusively negative information (e.g. "common dolphins are vanishing"); the audience should be informed that common dolphins still live in Mediterranean waters, and that there is reason to hope that their decline can be stopped and their recovery facilitated;

Although a portion of the general public may see the Mediterranean common dolphin as a "flagship species" (i.e. a species that appeals to the public and has other features that make it suitable for communicating conservation concerns), when communicating to portions of the public that do not show special concern for these animals it may be more effective to present them as valuable resources (e.g. for dolphin watching, for improving the tourist profile of an area), and/or as essential components of ecosystems whose biodiversity must be preserved (e.g. to maintain their resilience or ecological integrity);

A rich and diverse natural environment is a treasure to be preserved for our own benefit and for that of future generations; marine environments where common dolphins still live have aesthetic value and may attract visitors who want to enjoy them; this can allow for multiple uses that ultimately bring economic benefits (e.g. from a combination of responsible fishing, tourism, and dolphin watching with its direct and induced income);

It is virtually impossible to protect the dolphins without preserving the environment they live in;

The animals should be shown as closely as possible to what they really are; they should be presented as components of ecosystems that are complex, interrelated and vulnerable;

Show positive examples of people (scientists, students, fishermen, managers etc.) who have enriched their life and found personal satisfaction by choosing to contribute to marine conservation; such positive examples can also be found among communities that have benefited from an enlightened management of the marine resources;

Encourage people to get involved; show them that getting personally engaged is both feasible and personally rewarding; indicate practical ways of contributing to common dolphin conservation.

Personal experience and direct contact with conservation scientists and other motivated people engaged in conservation initiatives are often instrumental in making the public susceptible to a conservation message. Communication between the public and experts active in the conservation of common dolphins should be encouraged, as positive personal examples are more likely to attract interest and be taken as models than abstract concepts or impersonal information.

Volunteer programmes, if conducted professionally, represent effective means to get people involved and to show them reasons to care about the animals. Dolphin watching - if properly regulated and conducted with clear educational purposes - is another powerful way of increasing awareness among the public.

It is important to stress that, whenever possible, communication should not be mono-directional. Communication brings more long-lasting results when both sides are listening to each other, and try to adapt their message and strategies accordingly. This is particularly important when addressing stakeholders (e.g. fishermen, tourist operators etc.) who may be directly affected by common dolphin management actions.

# 8. Implementation of the Conservation Plan

### Timeframe of this Conservation Plan

It is recommended that actions outlined in this Plan are undertaken immediately, and implemented in view of obtaining measurable results within **five years** from the presentation of the Plan.

This Conservation Plan may be subject to modifications as indicated by input from ACCOBAMS Scientific Committee members and other experts, new findings, changes in species status and completion of implementation tasks. The Plan will be thoroughly reviewed at the ACCOBAMS Scientific Committee meeting to be held in 2005.

### Coordinating the implementation process

Several Action Plans have been produced for cetaceans and other species, some of which have resulted in rather modest implementation and conservation benefits. The implementation process of this Conservation Plan must be carefully monitored in order to ensure that the proposed measures are effectively turned into actions and that these ultimately bring benefits to Mediterranean common dolphins.

As the actions outlined in this Plan are numerous and diverse, it is important to accomplish them in a coordinated and expeditious manner. Proper implementation requires a dedicated position, that should be filled by a person with significant scientific training in biology, excellent management and organizational skills, and strong interpersonal talents. This can be done by establishing a position of Coordinator, whose responsibility will be to ensure the timely and effective implementation of the Conservation Plan. A job description for the Coordinator is provided in Annex 3.

It will be the Coordinator's responsibility to implement all aspects of the Conservation Plan in close coordination with the ACCOBAMS Secretariat, and to assess its success through a system of indicators, as outlined in section 9. In practice, the Coordinator will have to turn the Plan into a detailed and practical reality (including organising workshops, educational material, liaising with other organisations, ministries, universities etc.), and this represents a major and probably expensive task.

The implementation of this Conservation Plan will also require a wide range of expertise that is scattered throughout the region. The involvement and coordination of a diverse network of experts and organizations capable of engaging in the actions outlined in section 9 are key to success.

Governmental and non-governmental Institutes and organizations, as well as individual experts, should be regarded by ACCOBAMS and by Range State Governments as relevant actors in the common dolphin conservation process.

### Synergies with other ACCOBAMS actions

A number of actions are being undertaken by ACCOBAMS, that can contribute to the conservation of common dolphins both directly and indirectly. These range from capacity building to measures aimed to mitigate threats such as bycatch and anthropogenic noise. A comprehensive and continuously updated list of the most relevant initiatives undertaken by ACCOBAMS is provided in the scientific section of the web site http://www.accobams.org/index_science.htm.

Efficiency can be served by finding synergies between the actions that are currently in progress and those that specifically address common dolphin conservation issues. Examples include surveys in unknown areas, support to stranding networks, programmes to reduce bycatch, capacity building initiatives, etc. Coordination (see above) and appropriate communication and exchange of information will be essential to avoid duplication of effort and harmonize the methods and objectives of this Plan with those of other conservation actions, while operating according to the guidelines provided by the ACCOBAMS Secretariat and Scientific Committee.

# 9. Actions

The actions proposed here have been divided into five broad categories: 1) **Management**, 2) **Legislation**, 3) **Research**, 4) **Capacity building**, and 5) **Awareness & Education**. All categories are equally important and the corresponding actions should be implemented as soon as possible.

Although this Conservation Plan has been presented as a series of separate actions, these need to be integrated into comprehensive national management frameworks and programmes. In some cases, sets of different actions can be particularly effective if conducted in the context of a single effort. For instance, educating fishermen, promoting alternatives to fishing and reducing bycatch and intentional killings may all fit within a single coherent course of action.

Priority has been assigned to those actions that can take advantage of existing expertise and infrastructure in the region, and therefore can be undertaken without delay.

It is recognized that some actions are already underway. They were included here to highlight their importance and their need for continued support.

## 9.1. Management actions

## 9.1.1. Fishery-related management actions

| Action M1 - Reduce common dolphin bycatch in fishing gear | | | | | | |
|---|---|---|---|---|---|---|
| **Objective** | **Relevant variable** | **Target** | **Actions** | **Indicators of success** | **Actors** | **Monitoring methods** |
| Reduce bycatch | Bycatch rate | The short-term aim is to reduce bycatches as quickly as possible, irrespective of the target.<br><br>The long term aim is to reduce bycatch per year to a target <1% of population size. However, for this target to be met information on population size is needed (see Action R1). | Implement and enforce existing bans on driftnets | Absence of driftnets | Relevant authorities<br><br>CP Coordinator | Direct observation of fishing<br><br>Employ remote tracking systems to monitor fishing boat movements<br><br>Stranding networks |
| | | | Time/area closures to high-risk fishing gear other than driftnets in ACIs | Observance of closures | Relevant authorities<br><br>CP Coordinator | Monitor bycatch in areas open to fishing through on-board observers<br><br>Collection of biological information and tissue samples by on-board observers<br><br>Direct observation of fishing<br><br>Stranding networks |
| **Rationale, background and recommendations** | Fishery bycatch is a major threat to many cetacean populations and a known cause of mortality for common dolphins as well as for many other cetacean species in several portions of the Mediterranean basin (Di Natale & Notarbartolo di Sciara, 1994; IWC, 1994; Silvani *et al*., 1999; Bearzi, 2002; Tudela *et al*., 2003).<br><br>Owing to insufficient enforcement measures, cetacean bycatch in driftnets and deliberate killing or harming of cetaceans caught alive in these nets occur irrespective of national and international bans (e.g., U.N. General Assembly resolutions, EC regulations, ICCAT recommendations), or regulations that prohibit the taking of marine mammals. Compliance with such policies and legislations, as well as with all regulations concerning orderly and sustainable fishing in the Mediterranean, should be one of the highest management priorities for Mediterranean Range States.<br><br>Other fisheries that are immediate problems in terms of depleting common dolphin groups should be identified immediately, and area-specific mitigation measures should be developed with a priority in ACIs. | | | | | |
| **Notes** | An effort is underway by ACCOBAMS to secure funds for a comprehensive programme to address the problem of cetacean bycatch. | | | | | |

| Action M2 - Manage fishing of epipelagics | | | | | | |
|---|---|---|---|---|---|---|
| **Objective** | **Relevant variable** | **Target** | **Actions** | **Indicators of success** | **Actors** | **Monitoring methods** |
| Manage small epipelagic fish stocks (*) to account for the energetic needs of common dolphins<br><br>(*) including, among others, European anchovy *Engraulis encrasicolus,* European pilchard *Sardina pilchardus,* round sardinella *Sardinella aurita,* garpike *Belone belone* and skipper *Scomberosox saurus* | Fish stock status | Manage fishing in an ecosystem context, with the goal of preserving biodiversity and the original (pre-exploitation) ecosystem structure | Set and implement fishing quotas that account explicitly for the needs of natural predators as well as the demands of the industry | Increasing catch per unit effort (CPUE)<br><br>Stable or increasing dolphin population<br><br>Increasing mean trophic level | Relevant authorities<br><br>CP Coordinator | Fish stock assessment<br><br>Dolphin population assessment<br><br>Monitor CPUE |
| | | Prohibit fishing of immatures | Implement and enforce existing bans on undersized cohorts | Unavailability of immature epipelagic fish (e.g. *bianchetto*) on the markets | Relevant authorities<br><br>CP Coordinator | Monitor landings, fish markets and restaurants<br><br>Fishery observer programmes |
| **Rationale, background and recommendations** | Overfishing is having a major impact on Mediterranean ecosystems (e.g. CIESM, 2000) and the resulting food web changes are likely to represent an important threat to common dolphins (Bearzi, 2002; Bearzi *et al.*, 2003; CIESM, 2004). Fishing effort must be managed to ensure that ecosystems are not damaged (e.g. as indicated by decreasing mean trophic levels; Pauly *et al.*, 1998, 2002).<br><br>Control should be established immediately on fisheries that directly exploit common dolphin prey species, with a priority in ACIs. Research on marine trophodynamics may identify additional fisheries that directly or indirectly deplete common dolphin prey (CIESM, 2004; see Action R4, R7).<br><br>Fishing of immature epipelagic fish must be stopped, as this illegal practice jeopardizes common dolphin prey resources and very likely a number of related elements of the pelagic trophic web.<br><br>The ongoing efforts by the EU to promote measures aimed at the conversion of the European Mediterranean fishing fleet and at reducing its impact on marine food webs must be supported. The adoption of responsible fishery policies by non-European riparian States must be also encouraged. | | | | | |

| Action M3 - Reduce conflict with fisheries resulting in harm or killing of common dolphins in Areas of Conservation Importance | | | | | | |
|---|---|---|---|---|---|---|
| **Objective** | **Relevant variable** | **Target** | **Actions** | **Indicators of success** | **Actors** | **Monitoring methods** |
| Address the problem of dolphin/fisheries interactions resulting in dolphin deaths and injury, including harm to hearing ability from exposure to AHDs | Reports of retaliation against dolphins<br><br>Demand for culling<br><br>Profile of the issue in the media<br><br>Number of AHDs being deployed in common dolphin habitat | Reduce conflict resulting in intentional dolphin killings within ACIs<br><br>Eliminate the use of AHDs within ACIs | In addition to research (see Action R8), and based on research results, organize round tables to get members of the scientific and advocacy community to communicate with fishermen and fisheries experts and managers to find solutions to the problem | Reduction of the extent and occurrence of conflict<br><br>Change of attitude by fishermen from hostility to tolerance<br><br>Reduction in evidence of dolphins killed or injured in stranding and sighting reports | Cetacean and fishery experts, stakeholders, legislators, enforcing agents, NGOs<br><br>CP Coordinator | Reported evidence of dolphins killed or injured in stranding and sighting reports |
| **Rationale, background and recommendations** | Operational interactions between coastal dolphins and fisheries are known to give rise to conflict in some Mediterranean areas, where depredation of catch and/or fishing gear damage can lead to retaliation from fishermen, including dolphin killings (Reeves *et al*., 2001; Bearzi, 2002; Notarbartolo di Sciara & Bearzi, 2002).<br><br>While conflict with fisheries primarily concerns bottlenose dolphins, interactions with common dolphins reportedly occur in some areas (Casale *et al*., 1999; Abad *et al*., in press). In addition, it must be considered that fishermen may react to depredation by bottlenose dolphins by blaming "dolphins" in general, and kill or harm them regardless of the species.<br><br>Fishermen and their representatives need to be closely involved in the process of development, testing and implementation of actions intended to reduce conflict with common dolphins. | | | | | | |
| **Notes** | A workshop organized by ICRAM in 2001 specifically addressed this problem and produced a series of recommendations (Reeves *et al*., 2001; see Annex 4). These recommendations have been revised by ACCOBAMS experts and a set of guidelines on the use of acoustic deterrents devices has been prepared for presentation at the 2nd Meeting of the Parties of ACCOBAMS. Future efforts by ACCOBAMS should be aimed at implementing those guidelines and recommendations through the co-ordination of an expert group. | | | | | |

## 9.1.2. Other management actions

| Action M4 - Develop networks to monitor cetacean strandings and investigate causes in Areas of Conservation Importance | | | | | |
|---|---|---|---|---|---|
| **Objective** | **Relevant variable** | **Target** | **Actions** | **Indicators of success** | **Actors** |
| Develop cetacean stranding networks to obtain information and biological material from stranded animals | Number of strandings recorded / investigated / sampled | Availability of stranding reports, with data and specimen collections, for the large majority of cetaceans stranded in the area | Create local expertise and conditions for the development of networks concerned with the monitoring of and response to cetacean strandings, with a priority in ACIs<br><br>Funding of organizations involved in the monitoring of and response to strandings | Level of involvement of local organizations in the monitoring of and response to cetacean strandings<br><br>Number of local operators and stranding network coordinators | Local Universities, Institutes and NGOs<br><br>CP Coordinator |
| **Rationale, background and recommendations** | The collection of information on stranded cetaceans, including inspections and sampling of carcasses and analyses of tissue samples, can be useful for determining the species that occur in an area, pathologies, tissue contaminant levels and threats affecting the animals at sea (e.g. entanglement in nets).<br><br>Stranding networks are relatively well developed in some Mediterranean Range States, but they are less developed or lacking in others. The present situation makes it difficult to compare stranding data across the region, or to evaluate information from cetacean tissue samples collected throughout the basin.<br><br>If networks already exist, optimal data collection and sampling should be promoted. | | | | |
| **Notes** | This action should be combined with Action R6.<br><br>Thanks to the support of the Italian Ministry of the Environment, in 2004 ACCOBAMS organized a Workshop on the establishment of national stranding networks in Syria. A similar initiative is planned to be conducted in Bulgaria and Romania. | | | | |

| Action M5 - Promote responsible dolphin watching | | | | | | |
|---|---|---|---|---|---|---|
| **Objective** | **Relevant variable** | **Target** | **Actions** | **Indicators of success** | **Actors** | **Monitoring methods** |
| Promote responsible dolphin watching as a way to raise public awareness and reduce harmful fishing effort by providing fishermen with alternatives | Number of watchers | Reach levels that do not cause adverse impact (see below) but bring economic and other benefits (e.g. public awareness, capacity building, increased conservation measures, research opportunities) | Provide incentives to responsible operations | Generation of revenues from dolphin watching<br><br>Conversion from fishing to dolphin watching (decreasing pro capite ratio fishing effort/dolphin watching effort within selected fishing communities) | Fishermen<br><br>Scientists involved in developing appropriate dolphin watching guidelines and monitoring potential adverse effects on the animals<br><br>Local public administrations and economic development authorities<br><br>CP Coordinator | Maintain and monitor registry and related statistics |
| | Infraction reports | Zero infractions | Develop and implement a regulatory framework as appropriate<br><br>Promote awareness among dolphin watchers and operators and provide the latter with appropriate training (see Actions C9 and A2) | Decreased incidence of infractions | Legislators, enforcing agents, NGOs | Monitor occurrence of infractions |
| **Rationale, background and recommendations** | Dolphin watching gives people a chance to see the animals in their natural environment, and this experience may lead to lasting changes of attitude. Observing dolphins as they conduct their daily activities, and getting to know some of their interconnections within ecosystems, can improve understanding of why it is essential to protect the environment in which the animals exist.<br><br>A profitable dolphin watching business provides evidence that dolphins are a resource that can bring both direct and indirect economic benefits. It can provide an alternative to fishing and thus reduce conflicts with fishermen. Furthermore, dolphin watching can help prevent the development, or encourage the reduction, of activities that have a negative effects on the animals.<br><br>The relevant authorities should be provided with information on the benefits of responsible dolphin watching, conducted in the context of clear educational objectives and long-term changes of attitude. The risks associated with unregulated activities should also be appropriately communicated.<br><br>A degree of caution needs to be exercised to ensure that dolphin watching results in no meaningful adverse impact on the animals. | | | | | |
| **Notes** | The measures resulting from the discussion of ACCOBAMS Document SC2/Inf.1 with regard to dolphin watching (ACCOBAMS, 2003) should be implemented, with a priority in ACIs. | | | | | |

## 9.2. Legislative actions

| Action L1 - Promote the explicit inclusion of Mediterranean common dolphins in pertinent national and regional legislation | |
|---|---|
| **Objective** | Examine national legislation of Parties and other Mediterranean Riparian States and promote the amendment of legislation in respect to Actions recommended within the Conservation Plan where necessary. Promote the inclusion of Mediterranean common dolphins in Annex II of the "Habitats" Directive. |
| **Target** | Parties, other Mediterranean Riparian States, and the European Union. |
| **Rationale, background and recommendations** | Some legislative instruments do not explicitly recognise the specific need to protect Mediterranean common dolphins, and a revision should be considered in light of recent information on this population's conservation status, also expressed by IUCN in its Red List of Threatened Animals. Furthermore, the 9243 EEC "Habitats" Directive includes only bottlenose dolphins and harbour porpoises in its Annex II ("Animal and plant species of Community interest whose conservation requires the designation of special areas of conservation"). Current knowledge of the existence of very important habitat for common dolphins within the European Union's coastal waters, which may not have been available to European lawmakers in the early '90s, clearly emphasizes the need for the establishment of SACs for this species. |

| Action L2 - Revise the status of common dolphins in the Convention on the Conservation of Migratory Species | |
|---|---|
| **Objective** | Ensure that reference to Mediterranean common dolphins is not limited to a "western population" but it includes the whole Mediterranean population |
| **Target** | Convention on the Conservation of Migratory Species (CMS) |
| **Rationale, background and recommendations** | Although the CMS includes the Mediterranean common dolphin in its Appendix 2 ("Migratory species that have an unfavourable conservation status or would benefit significantly from international cooperation"), that status is inexplicably limited to a "western population". As common dolphins are known to occur in both the eastern and the western portions of the Mediterranean basin, such designation should be revised to include common dolphins throughout the Mediterranean. Furthermore, considering the endangered status of Mediterranean common dolphins, as attested by the IUCN Red List, it would seem desirable that this population be considered by CMS for inclusion in its Appendix 1. |

| Action L3 - Ensure proper classification of common dolphins in national laws | |
|---|---|
| **Objective** | Ensure that Mediterranean common dolphins are appropriately classified in national laws concerned with threatened species |
| **Target** | Party Mediterranean Range States |
| **Rationale, background and recommendations** | While some Range States appropriately classify common dolphins as species being endangered, vulnerable or threatened, and make them targets of conservation actions, other Range States do not. ACCOBAMS should ensure that appropriate classification is granted to common dolphins by all the Mediterranean Range States, to promote specific conservation measures in each Country having common dolphins in their territorial waters. |

# 9.3. Research actions

**A NOTE ON INVASIVE RESEARCH METHODS**

Whenever the collection of blubber samples from free-ranging common dolphins is an issue, it must be considered that biopsy darting poses risks for these animals (Bearzi, 2000). Sampling of skin and blubber from free-ranging animals for genetic and other analyses should involve minimal intrusiveness. If only genetic material is needed, then "scrub" sampling (a minimally intrusive technique to collect sloughing skin, Harlin *et al*., 1999) is strongly recommended. If blubber is also needed, pole biopsy sampling is an appropriate, low-risk method to obtain blubber samples from bowriding common dolphins. Skin and blubber samples can and must be used for multiple analyses: genetics, toxicology, stable isotopes and fatty acid profiles, etc. Biopsy sampling - as well as any other potentially invasive research method - should only be conducted by well-trained, experienced researchers, based on strict guidelines.

Capturing and handling common dolphins for tagging and other operations is discouraged, in view of the risks of mortality involved in the handling of this species, that is highly susceptible to capture shock. However, it should be considered that tagging methods are improving and it is possible that in the future new technological and methodological advances will make it possible to reduce the risks and the impact of tagging to the point that minimal stress caused to an individual animal may be balanced by clear benefits for the conservation of the Mediterranean population, particularly with regard to migration patterns, seasonal movements, extension of home range, etc.

It is recommended that the complex issue of invasive research is discussed by a group of experts selected by ACCOBAMS, with the aim of producing a set of guidelines.

## 9.3.1. Dolphin studies

| **Action R1 - Conduct surveys and studies aimed at assessing and comparing common dolphin abundance and distribution** | | | |
|---|---|---|---|
| **Objective - investigate:** | **Relevant variable**(s) | **Methods** (field) | **Methods** (desk/lab studies) |
| Population distribution, abundance and trends | Mediterranean population size | Line transect surveys | Distance sampling<br>Spatial modelling |
| | Population abundance and trends within ACIs | Line transect surveys (either systematically or non-systematically designed)<br><br>Photo-identification based longitudinal studies | Distance sampling<br>Spatial modelling<br>Photographic mark-recapture analysis<br>Other statistical analysis |
| | Distribution pattern | Survey data<br><br>Observations from platforms of opportunity<br><br>Monitoring of strandings | Spatial modelling<br>Other statistical analysis<br>Analysis of stranding data |
| | Historical abundance and distribution | | Archival research |
| | Habitat use | Longitudinal studies (using methods such as photo-identification, behavioural sampling, acoustics etc.) | Spatial modelling<br>GIS-based analysis of photo-identification, acoustic and behavioural data |
| **Rationale, background and recommendations** | Rigorous estimates of common dolphin abundance have been obtained in only a few portions of the Mediterranean. The present shortage of information on distribution, abundance and population parameters makes it difficult to inform conservation action. Field surveys are needed to determine the current distribution and abundance of common dolphins in the Mediterranean, particularly within ACIs, off the entire North African coastline, and in eastern Mediterranean areas where little quantitative information exists. Surveys should be designed to identify hotspots of occurrence that can be accorded priority for intensive research and management. Standard methods such as ship and/or aerial line transect surveys should be used so that results can be compared over time and from one region to another.<br><br>Abundance estimates in ACIs should be repeated seasonally and/or annually to obtain information on changes in habitat use over time, as well as on population dynamics and trends.<br><br>Archival research (e.g. reviews of historical literature; Bearzi *et al.*, 2004) can provide essential information about past common dolphin occurrence and highlight long-term trends in abundance and distribution. Longitudinal studies to investigate the habitat needs and use by the animals are equally important, particularly within ACIs. | | |
| **Notes** | Following the guidelines provided in the ACCOBAMS Implementation Priorities and the subsequent recommendations by the Scientific Committee (e.g. Recommendation 2.9 on the fundamental need for information on abundance and distribution of cetaceans within the area), in December 2004 a scientific workshop on surveying the ACCOBAMS area will be organised in Valsein, Spain. | | |

| **Action R2 - Investigate common dolphin population structure** | | | |
|---|---|---|---|
| **Objective - investigate:** | **Relevant variable**(s) | **Methods** (field) | **Methods** (desk/lab studies) |
| Population structure | Units to conserve | Necropsies on stranded and bycaught animals<br><br>Remote biopsy sampling of free-ranging animals<br><br>Photographs of dolphins in various geographical areas | DNA analysis based on tissues from strandings, free-ranging animals and/or museum collections<br><br>Collect and measure skulls/skeletons from strandings, bycaught animals and museum collections<br><br>Analysis of geographical differences in colour pattern and/or morphology |
| **Rationale, background and recommendations** | The risks of local or regional extinction from stochastic processes can be reduced by preserving as much genetic diversity as possible (Shaffer, 1987; Lande, 1988). Unfortunately, information on the genetic characteristics of Mediterranean common dolphins remains inadequate for a rigorous evaluation (Natoli, 2004). Lack of information on population structure also prevents correct interpretation of *inter alia* abundance trends and bycatch levels.<br><br>The collection and analysis of tissue samples for molecular analyses should be encouraged in those areas that have not been investigated so far, particularly the southern Adriatic Sea, Tyrrhenian Sea, Sicily Channel, North African coasts, eastern Mediterranean, and areas adjacent to the Gibraltar Strait and to the Turkish Straits System. In addition, sample sizes from areas for which only a few tissue samples are available should be increased for better resolution of population structure.<br><br>Biopsy samples should be collected, stored and analyzed within the context of a coordinated effort. Initiatives aimed to facilitate the import, export and storage of samples should be considered.<br><br>Osteological material (e.g. from museum collections) can be used to extract DNA. Osteological measurements (e.g. on skulls; Amaha, 1994) and counts (e.g. teeth) can also provide evidence of population structure and represent an alternative or supplement to genetic investigations.<br><br>Phenotypic studies (e.g. focusing on color pattern and/or morphology) may be conducted in parallel with photo-identification studies and could provide useful information on population structure. | | |
| **Notes** | In 2004 ACCOBAMS organized a workshop on Tissue banks in Libya. As a result, a set of guidelines has been prepared for presentation at the 2nd Meeting of the Parties of ACCOBAMS. | | |

| **Action R3 - Investigate common dolphin population dynamics** | | | |
|---|---|---|---|
| **Objective - investigate:** | **Relevant variable**(s) | **Methods** (field) | **Methods** (desk/lab studies) |
| Population dynamics | Life history parameters (including natural and human-caused mortality) | Necropsies on stranded and bycaught animals<br><br>Biopsies from free-ranging animals<br><br>Counts of calves<br><br>Data from longitudinal studies | Various statistical and other analysis of field and stranding data<br><br>Age estimation studies<br><br>Molecular genetic studies<br><br>Analysis of life history parameters from photo-identification data (e.g. reproductive parameters, viability analysis) |
| **Rationale, background and recommendations** | Information on common dolphin population dynamics is still scarce, and should be increased by means of studies on stranded and free-ranging animals.<br><br>Individual photo-identification (Würsig & Jefferson, 1990; Neumann *et al*., 2002) can provide estimates of most life history parameters and has been used extensively to investigate population dynamics, but long time series are needed. Long-term photo-identification studies can provide very valuable information for conservation purposes including the interpretation of abundance and trend data, stock identity data, habitat data and with respect to bycatch mitigation.<br><br>Molecular genetic studies (Milinkovitch *et al*., 2001) and other research approaches exist which can be used to investigate social structure and cetacean life history parameters (e.g. see Chivers, 2002). | | |

| **Action R4 - Obtain information on common dolphin diet and energy requirements** | | | |
|---|---|---|---|
| **Objective - investigate:** | **Relevant variable**(s) | **Methods** (field) | **Methods** (desk/lab studies) |
| Diet and energy requirements | Prey species<br><br>Prey quantities<br><br>Nutritional values of prey | Necropsies on stranded and bycaught animals<br><br>Biopsies from free-ranging animals<br><br>Direct observations of feeding behaviour at sea<br><br>Acoustic imaging | Intestine and stomach content analysis from stranded and by-caught animals<br><br>Isotope and fatty acid studies in tissues from both common dolphins and their potential prey<br><br>Analysis of fish scales collected during surface feeding behaviour<br><br>Video-taping studies of feeding animals |
| **Rationale, background and recommendations** | Research on pinnipeds in recent years has shown that marine mammal populations can be nutritionally compromised because of the quality of prey available to them (chronic nutritional stress), rather than because of the overall quantity of fish *per se* (acute nutritional stress; Trites & Donnelly, 2003). This suggests that prey *quality* is at least as important as *quantity* when it comes to evaluating the potential impact on the animals - a consideration that so far has been overlooked in most cetacean studies.<br><br>A variety of methods can be used to evaluate diet and nutritional stress in free-ranging common dolphins through benign techniques, each with advantages and disadvantages (e.g. see Barros & Clarke, 2002).<br><br>Estimates of energy consumption by cetaceans can be based on the number of individuals present in a given area at any time, their trophic level, the food requirements of each individual, and the rates of energy transfer between trophic levels (Hooker *et al.*, 2002). | | |
| **Notes** | Biopsies obtained for diet and physiological studies can be also used for molecular genetic studies aimed to investigate population structure and dynamics (see Actions R2, R3). | | |

| **Action R5 - Obtain information on common dolphin behaviour** | | | |
|---|---|---|---|
| **Objective - investigate:** | **Relevant variable**(s) | **Methods** (field) | **Methods** (desk/lab studies) |
| Behaviour | Behavioural budgets<br><br>Surfacing rates<br><br>Surface events<br><br>Movement patterns<br><br>Sound production | Quantitative assessment of behavioural variables and response to disturbance during longitudinal studies<br><br>Acoustic recordings | Statistical and other analyses |
| **Rationale, background and recommendations** | Systematic behavioural sampling may provide insight on foraging strategies and preferred prey type (e.g. epipelagic vs. demersal), and help assess how the time devoted to feeding and the related energy investment vary with regard to temporal and environmental variables (Shane 1990a, 1990b; Bearzi *et al*., 1999).<br><br>Behavioural studies provide information on how the animals use their habitat seasonally and spatially, and allow identification of preferred/important portions of their range (e.g. Hastie *et al*., 2004).<br><br>Behavioural observation may also elucidate the interactions between common dolphins and fishery operations, e.g. the percentage of time spent near fish farms, around fishing gear or behind trawlers, and the kind of behaviour involved.<br><br>Changes in dolphin behaviour and habitat use with regard to disturbance from boating and/or noise (e.g. military sonars and artillery exercises, seismic profiling, and dynamite fishing) should be investigated in areas with high seasonal traffic and loud or continuous noise. | | |

| **Action R6 - Obtain information on common dolphin health status in different Mediterranean areas** | | | |
|---|---|---|---|
| **Objective - investigate:** | **Relevant variable**(s) | **Methods** (field) | **Methods** (desk/lab studies) |
| Health studies | Body condition<br>Scars and injuries<br>Contaminant load and response<br>Parasite infestations<br>Pathologies<br>Skin lesions | Necropsies of stranded and by-caught animals<br>Biopsies<br>Field observations and information obtained during photo-identification studies | Analyses of contaminant loads<br>Biomarker studies<br>Histopathology, neuropathology and parasitology studies<br>Analysis of scars, injuries and skin lesions |
| **Rationale, background and recommendations** | Little information is available of the health status of Mediterranean common dolphins.<br><br>Pollutant levels in stranded and bycaught animals should be monitored, and analyses conducted to identify regional differences in exposure and health status. Biomarker studies may also be used to assess the physiological responses of common dolphins to pollutants (Fossi *et al*., 2000, 2003).<br><br>Rigorous investigations should be conducted on stranded animals to assess the causes of mortality and the occurrence of pathologies and/or parasitic infections.<br><br>Photo-identification studies can produce useful information on the occurrence of skin lesions and on the body condition of free-ranging dolphins (Wilson *et al*., 1997, 1999; Politi *et al*., 2000).<br><br>Evidence is growing that impulsive sounds have serious lethal and sublethal effects on cetaceans (e.g. Richardson *et al*., 1995; Frantzis, 1998; Gisiner, 1998; Jasny, 1999; Jepson *et al*., 2003). So far, little has been done to investigate the impact of high-intensity noise including airguns, military sonars, illegal fishing with dynamite and military artillery exercises on Mediterranean common dolphins, although their distribution often overlaps with high-intensity noise sources. The possible impact on common dolphins should be investigated, with a priority in ACIs. Special attention should be dedicated to lesions potentially related to man-made sound emissions, including gas-expansion and pressure-related injuries.<br><br>Because the distribution of Mediterranean common dolphins often overlaps that of high-intensity noise sources (e.g. military sonars and artillery exercises, seismic profiling, and dynamite fishing), the possible effects should be investigated, with a priority in ACIs. | | |

## 9.3.2. Ecosystem studies

| **Action R7 - Investigate ecosystem and food-web dynamics and obtain information on the impact of fishing in Areas of Conservation Importance** | | |
|---|---|---|
| **Objective - investigate:** | **Relevant variable**(s) | **Methods** |
| Ecosystem components | Diet and biomass of ecosystem components other than common dolphins<br>Trophic relationships among ecosystem components<br>Time series of abundance of ecosystem components | Trophodynamic models<br>Archival research<br>Field research |
| Fisheries | Time series of catches<br>Species and size composition of the catches<br>Effort by gear type, area and season<br>Discard | Compile reliable data on fishing CPUE (including bycatch) by gear type, area and season<br>Interface with relevant institutions investigating fisheries<br>Field observations of fishing activities<br>Archival research |
| **Rationale, background and recommendations** | Elucidation of ecosystem dynamics, and specifically the possible role of prey depletion and regime shifts as factors contributing to the decline of common dolphins in the Mediterranean, is an important but challenging area of research. Changes in the Mediterranean food web resulting from excessive fishing (e.g. CIESM, 2000) are thought to represent one of the most important threats to common dolphins (Bearzi *et al*., 2003, 2004, in press). The fishing effort must be carefully monitored, with a priority in ACIs, to obtain quantitative information that may help evaluating the impact of fisheries on common dolphins.<br><br>Investigations of the spatial and temporal variability in Mediterranean fish stocks, when correlated with dolphin abundance and movements, could be informative, as could output obtained from trophic models and other analyses of food-web dynamics (CIESM, 2004). Models can provide information on food consumption of cetaceans as compared with fisheries catches, and indicate the degree of resource overlap (Kaschner *et al*., 2001). This approach to the study of marine food webs and cetacean-fisheries interactions may help to identify areas of conflict and thus serve as a useful management tool (CIESM, 2004).<br><br>The available information does not allow for immediate model implementation. This action (together with Action R4) aims to collect information in ACIs that may be used in ecosystem models in the near future, with the ultimate goal of increasing understanding of ecosystem function. Indeed, an ecosystem approach, involving a thorough assessment of the nature and scale of trophic interactions is needed for rigorous conservation planning (Kaschner *et al*., 2001; Hooker *et al*., 2002). | |

## 9.3.3. Interaction and conflict

| **Action R8 - Obtain information on the occurrence and scale of common dolphin bycatch and direct killings in Areas of Conservation Importance** | | | |
|---|---|---|---|
| **Objective - investigate:** | **Relevant variable**(s) | **Methods** (field) | **Methods** (desk/lab studies) |
| Common dolphin bycatch and direct killings in ACIs | Occurrence of intentional dolphin killings<br><br>Occurrence of bycatch<br><br>Occurrence of harm to the dolphins which results from competition or depredation, either real or perceived | Direct observation of fishing<br><br>Stranding networks<br><br>On-board observers | Statistical and other analyses |
| **Rationale, background and recommendations** | Fishery bycatch is a major threat to many cetacean populations and a known cause of mortality for common dolphins as well as for other cetacean species in the Mediterranean basin (Di Natale & Notarbartolo di Sciara, 1994; IWC, 1994; Silvani *et al*., 1999; Bearzi, 2002; Tudela *et al*., 2003).<br><br>Efforts should be aimed at identifying fisheries that are immediate problems in terms of depleting dolphin groups, as compared with fisheries where the incidence of entanglement of this species is known to be or is likely to be low.<br><br>Bycatch rates and fishing gear should be assessed as precisely as possible, in order to develop area-specific mitigation strategies, with a priority in ACIs (see Action M1).<br><br>Preliminary data on operational interactions may be collected interviewing fishermen, as long as interview data are analysed and interpreted in a way that allows to account for biased reporting and perceptions. Moreover, efforts should be made to avoid a "commensal" relationship between the investigator and the fishermen (Smith, 1995). | | |
| **Notes** | ACCOBAMS is attempting to secure funds to achieve the tasks described here. | | |

| **Action R9 - Assess disturbance from boating and dolphin watching in ACIs** | | | |
|---|---|---|---|
| **Objective - investigate:** | **Relevant variable**(s) | **Methods** (field) | **Methods** (desk/lab studies) |
| Level of disturbance from ship traffic, pleasure boating and dolphin watching in ACIs | Distance between dolphins and boats<br><br>Boat behaviour (e.g. speed, route) around dolphins<br><br>Noise levels<br><br>Common dolphin behaviour and sound production | Direct observations from boat and/or land<br><br>Acoustic recordings | Statistical and other analyses of short to long-term modifications of dolphin behaviour (including sound production) and habitat use |
| **Rationale, background and recommendations** | Mediterranean common dolphins live in areas characterized by high levels of ship traffic or high density of pleasure boats in the tourist season. The potential for exclusion from preferred habitat and the disruption of behaviour (e.g. leading to reduced foraging or reproductive success) has not been investigated. However, intensive boat disturbance and related noise has been reported to affect the behaviour of other species in some non-Mediterranean areas (e.g. bottlenose dolphins, Constantine *et al*., 2004; Lusseau, 2003, 2004; or killer whales, Foote *et al*., 2004). Research is needed to investigate the circumstances under which boat disturbance can be detrimental to common dolphins, with a priority in ACIs.<br><br>This Action should be regarded as a complement to Action M5. | | |

## 9.4. Capacity building actions

## 9.4.1. Institutional capacity building

| **Action C1 - Ensure optimal implementation of the common dolphin Conservation Plan by public administrations** | | |
|---|---|---|
| **Target** | **Objective** | **Action** |
| Public administrations | Existence of an appropriate office in charge of marine biodiversity conservation, having the ability to become active in common dolphin conservation, in close communication with ACCOBAMS and the CP Coordinator | ACCOBAMS Member States and Range States should ensure that the office exists with appropriate human (ACCOBAMS Focal Point) and financial resources allocated |
| | Ensure communication and cooperation between environment and fisheries departments, with the involvement, where appropriate, of the European Commission | Create appropriate mechanisms |
| | Obtain all relevant information and material from stranded common dolphins and make full scientific use of it | Ensure that national stranding networks are in place and that network coordinators in the public administration get appropriate training |
| | Cooperate with national ACCOBAMS focal points, relevant national Ministries and other institutions, such as the relevant European Commission offices, to promote the conservation needs of Mediterranean common dolphins | Regular communication between Secretariat / CP Coordinator / national ACCOBAMS focal points, national Ministries of Parties and Non-Parties and other institutions, such as the relevant European Commission offices |
| **Rationale, background and recommendations** | The very existence of ACCOBAMS testifies to the political will and commitment of Range States to the conservation of cetaceans. This Conservation Plan is intended as practical support to their request for support from the scientific community.<br><br>Public administrations play a fundamental role in endorsing and implementing conservation policies. Links must be created to ensure communication and regular exchange of information among the relevant bodies and departments concerned with environmental and fisheries management, and between them and the ACCOBAMS Secretariat.<br><br>Building institutional capacity for the conservation of common dolphins clearly will address conservation problems of all cetacean species. Interest in the common dolphin, perhaps the most endangered species in large portions of the Agreement area, may be seen as a triggering factor for the building of a wider-reaching institutional capacity. | |

| **Action C2 - Ensure that common dolphin conservation problems are appropriately addressed by MPA management bodies** | | |
|---|---|---|
| **Target** | **Objective** | **Action** |
| Management bodies of Marine Protected Areas (MPAs) known to be inhabited, regularly or seasonally, by common dolphins | Ensure that common dolphin conservation is included in the management objectives | Ensure involvement of CP Coordinator and common dolphin experts in the formulation of relevant MPAs' management planning |
| **Rationale, background and recommendations** | Existing MPAs containing common dolphin habitat (either seasonally or year-round) need to have access to information on why and how to protect these animals. Otherwise, opportunities to improve conditions for common dolphins could be lost. ACCOBAMS should actively support the formulation of MPA management strategies by developing collaborations with MPA management bodies and creating links between these and common dolphin experts.<br><br>By providing guidance and expert advice, the necessary management tools will be developed within MPAs to ensure common dolphin protection against threats as well as conservation of their habitat and prey resources. | |

| Action C3 - Support research and teaching organizations to ensure the building of capacity relevant to the conservation of common dolphins | | |
|---|---|---|
| **Target** | **Objective** | **Action** |
| Research and teaching organisations (both governmental and non-governmental) | Ensure that capacity in marine biodiversity conservation, relevant to the conservation of common dolphins, is created at all levels | Create positions (if none exist) |
| | | Ensure that existing university curricula are enriched appropriately, and if necessary create new ones |
| | | Ensure that school curricula are enriched appropriately, e.g., by adding to existing teaching materials the plight of Mediterranean common dolphins, and if necessary create new ones |
| | | Ensure that existing libraries are enriched appropriately, and if necessary create new ones |
| | | Create necessary infrastructure (e.g., ship time, wet labs, osteological collections, tissue banks, databases) |
| **Rationale, background and recommendations** | Common dolphin conservation must be based on a good understanding of the species' biology and of the ecosystems that enable these animals to exist. Such an understanding can be transmitted through school and university curricula of Mediterranean students, who should come to understand links between species and ecosystems, threats to common dolphins and their habitat, and ways to address marine conservation problems.<br><br>Common dolphin conservation depends on people and institutions capable of investigating problems and providing solutions. Teaching and research positions should be created to build capacity and trigger processes leading to greater understanding and appreciation of conservation. Governmental and non-governmental research organizations should be supported to facilitate employment opportunities and professional growth of Mediterranean researchers.<br><br>Gaining access to scientific literature on cetaceans is still difficult in most Mediterranean countries. Lack of access to appropriate documentation hinders learning and makes publication in refereed journals more difficult. Access to the relevant literature should be facilitated throughout the ACCOBAMS region. First, existing marine ecology collections with a focus on Mediterranean cetaceans should be supported. Second, timely exchange of literature should be facilitated by providing specialized libraries with the necessary resources. | |

| Action C4 - Ensure that actions by advocacy organizations are based on accurate, objective background information | | |
|---|---|---|
| **Target** | **Objective** | **Action** |
| Advocacy organizations | Ensure that actions are being implemented based on accurate, objective background information | Regular communication between ACCOBAMS Secretariat / CP Coordinator and relevant advocacy organisations |
| **Rationale, background and recommendations** | Advocacy organizations can have a significant positive effect on the public and influence the way conservation actions are perceived and implemented by policy makers and managers. As such, they can play an important role in the conservation of common dolphins.<br><br>It is important to ensure that awareness and education campaigns, as well as initiatives targeting public administrations, are conceived in the context of long-term strategies and have clear objectives. Such campaigns need to be designed carefully and based on credible science.<br><br>ACCOBAMS should create links between advocacy organizations and cetacean scientists and conservation experts, to facilitate exchange of information and ensure that campaigns by advocacy organizations are conducted in the context of well-defined conservation objectives, that ideally should have goals compatible with those pursued by ACCOBAMS.<br><br>Meetings should be organized to define conservation strategies and set priorities for common dolphins, whenever new information, new threats or changes in policy make it necessary. | |

## 9.4.2. Individual capacity building

| Action C5 - Provide relevant individuals with information about common dolphin conservation | | |
|---|---|---|
| **Target** | **Objective** | **Action** |
| Administrators/managers | Ensure that relevant administrators and managers possess the necessary background on common dolphin conservation needs | Provide training and information through seminars and other means |
| Enforcers | Ensure that relevant enforcement agents possess the necessary background on common dolphin conservation needs | Provide training and information through seminars and other means |
| School teachers | Ensure that school teachers are equipped to convey the message of the plight of Mediterranean common dolphins | Ensure that cetacean biology and conservation is included in teacher training |
| Dolphin watching operators | Ensure that conservation of common dolphins is promoted through dolphin watching operations, and that full advantage is taken of opportunities to collect scientific data | Organize training courses and develop appropriate materials for distribution on board<br><br>Establish links with common dolphin research programmes |
| Media | Enable the media to convey meaningful, effective and accurate information on the status and conservation needs of Mediterranean common dolphins | Establish cooperative programmes with media organizations (e.g., professional associations of journalists) to promote mechanisms for transmitting relevant knowledge |
| **Rationale, background and recommendations** | This action addresses the need for a holistic understanding of marine ecosystems and of the role played by common dolphins and other cetacean species in such systems. This information should be conveyed in an understandable and appealing manner. To reach this goal, information materials may be specifically developed through the involvement of both cetacean and communication experts. Opportunities for exchange of information should be created, including specific training courses, round tables, seminars and events. | |

| Action C6 - Provide Mediterranean researchers with opportunities for professional growth and ensure publication of common dolphin studies | | |
|---|---|---|
| **Target** | **Objective** | **Action** |
| Scientists | Studies of common dolphins characterized by appropriate research designs, data collection procedures and analyses, leading to timely publication in peer-reviewed literature | Promote and support theoretical and practical training courses on common dolphin research methods |
| | | Offer scholarships for research exchanges and visiting scientist opportunities<br><br>Offer fellowships for doctoral and postdoctoral studies |
| **Rationale, background and recommendations** | Individual researchers throughout the region have accumulated sizable datasets from field and laboratory studies. The expertise to perform sophisticated, state-of-the-art analyses of those datasets tends to be concentrated in a few laboratories and universities outside the Mediterranean region. Researchers from several Mediterranean countries find it difficult to acquire the expertise necessary for analysing and publishing their data in peer-reviewed journals, owing in some cases to cultural, economic or political constraints. Language problems and/or limited scientific writing skills in English may also contribute to the difficulty of publishing for some Mediterranean researchers. This sometimes results in common dolphin data simply accumulating and never reaching the wider scientific community. This action aims to provide Mediterranean researchers with training opportunities, expert supervision and funding to facilitate the analysis and publication of existing datasets. It is also meant to encourage continued data collection and publishing with high scientific standards.<br><br>Another serious problem is the lack of expertise necessary to initiate dolphin studies in many Mediterranean Range States. Involving inexperienced researchers in professionally run field-research projects is a powerful way of promoting dolphin studies and developing collaboration networks. ACCOBAMS should involve students and researchers from its Range States in field training courses centred on common dolphins, or in projects using methods that are relevant for common dolphin research. Special effort should be made to involve students and researchers from countries where access to information is difficult, and where opportunities to get involved in dolphin research projects are scarce. | |
| **Notes** | Successful field training courses have been organized by ACCOBAMS between 2002-2004, targeting researchers from a number of Range States. | |

## 9.5. Awareness and Education actions

| Action A1 - Involve decision makers in the implementation of the common dolphin Conservation Plan | | |
|---|---|---|
| **Target** | **Objective** | **Action** |
| Decision makers | Ensure that needed legislation is developed and enacted to facilitate implementation of this Conservation Plan | Organise workshops, seminars, events, etc., and prepare appropriate briefing material to inform and sensitise decision makers on common dolphin conservation issues |
| **Rationale, background and recommendations** | As relevant actors in the conservation process, decision makers must be made aware of the threats faced by common dolphins and of the need to address their conservation problems. This goal may be achieved through pressure generated by public opinion (see Action A2), or through specific actions aimed to involve decision makers and get them to care about the animals.<br><br>Increased awareness among decision makers will contribute to the development of appropriate legislation to support the common dolphin Conservation Plan, in addition to other actions in this Plan intended to guarantee that conservation measures are effectively implemented in the field. | |

| Action A2 - Provide the general public with accurate information and promote awareness of the need to address common dolphin conservation problems | | |
|---|---|---|
| **Target** | **Objective** | **Action** |
| General public | A well-informed, concerned public with regard to the state of the Mediterranean marine environment and, specifically, the plight of Mediterranean common dolphins | Produce materials to promote awareness on the problems faced by common dolphins (e.g. documentaries, children's booklets, information leaflets)<br><br>Organise events and media campaigns<br><br>Provide support to the media (e.g., information on ACCOBAMS and other institutional web sites, press releases) |
| **Rationale, background and recommendations** | Even if appropriate legislation exists to protect marine mammals, in some Mediterranean areas it may be difficult to mitigate threats due to a lack of education and awareness. Long-term education campaigns on the need to protect cetaceans have brought positive results even in the absence of legislation or implementation. Such a "bottom-up" approach is highly desirable whenever legal or other "top-down" initiatives do not suffice or wherever environmental awareness is poor.<br><br>Science-based educational material including quality documentaries, short videos, children's booklets and other information materials conveying strong and "positive" conservation messages (see section 7) can increase awareness and help support management action to protect common dolphins. Educational materials should be primarily aimed at complementing ACCOBAMS strategies, and should have clear conservation (rather than self-promotion) goals.<br><br>Internet access is now relatively widespread in the Mediterranean region. This provides ACCOBAMS with a tool to facilitate access to information regarding ongoing conservation initiatives. The ACCOBAMS web site may be expanded to include a section addressing the general public. This would allow the dissemination of information relevant to the conservation of common dolphins. Still, alternatives should be envisaged to account for difficulties with this information means in portions of the Agreement area. | |

| Action A3 - Promote awareness among school children on the need to protect common dolphins | | |
|---|---|---|
| **Target** | **Objective** | **Action** |
| School children | An informed, concerned school-age population that will influence the values of older generations and also be favourably disposed towards conservation when it comes of age | Create events within schools, and produce educational materials for distribution and viewing in schools |
| **Rationale, background and recommendations** | Promoting awareness and care for the animals and the marine environment among young generations is one of the most sensible strategies to ensure a future to common dolphins. School children are naturally attracted by dolphins and are highly receptive to conservation messages as long as these are conveyed with appropriate language and media.<br><br>As stressed in section 7, the direct involvement of people who can tell the children a personal story of commitment to marine conservation can represent an effective communication means, more likely to be taken as a positive example and bring long-lasting results. Strategies to involve children in the conservation process should result from collaboration among conservation experts, scientists and teachers, to ensure that messages are conveyed in ways that result in positive changes of attitude and encourage well-informed conservation-oriented action.<br><br>Programs should be tailored to different audiences, according to age, nationality, etc. Children of fishermen may be particularly important in this regard.<br><br>The involvement and contribution of NGOs active in the field of cetacean conservation represents a key for the success of this kind of initiatives. | |

| Action A4 - Promote awareness among fishermen of the need to protect marine ecosystems and resources including common dolphins | | |
|---|---|---|
| **Target** | **Objective** | **Action** |
| Fishermen | A fishing community that advocates and contributes to the conservation of marine biodiversity, including common dolphins | Engage in a trust-building process, with the assistance of fisheries organisations<br><br>Establish and maintain frequent contact and communication with fishermen<br><br>Organise specific events in which awareness and education of fishermen is promoted |
| **Rationale, background and recommendations** | Convincing fishermen of the need to protect dolphins is a challenging task, as these animals are often seen as competitors. However, the involvement of fishing communities in the conservation process can provide positive and lasting results.<br><br>Fishermen should not be regarded as the enemies of conservation, but as key stakeholders whose involvement and expertise are essential for the development and implementation of management actions. One way of engaging with fishing communities is to help them see the animals as essential components of healthy ecosystems and as resources that can bring economic benefits (e.g. through tourism). At the same time, it is important that researchers and conservationists show respect for the knowledge gained from experience by fishermen and be receptive to the concerns of fishing communities. | |

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# Annexes

# ANNEX I

## LEGAL INSTRUMENTS OF RELEVANCE TO THE CONSERVATION OF COMMON DOLPHINS IN THE MEDITERRANEAN SEA

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### Introduction

The legal instruments presented below are of relevance to the conservation of common dolphins in the Mediterranean Sea. 14 instruments have been described in some detail. In each case, the purpose of that description is to summarise the instrument's provisions and to conclude with some remarks about its relevance to common dolphin conservation.

For each of the remaining instruments addressed below, the purpose of the short text is merely to introduce the instrument and convey something of its scope and purpose. In most of these cases, no specific reference has been made to common dolphins. However, in such cases, it will hopefully be apparent from the text as to how the instrument is relevant to their conservation. It should be emphasised that the list of instruments provided below is **not** intended to be comprehensive.

The instruments have been grouped under five headings (general; pollution control; fisheries conservation and management; nature conservation; and other). This classification is obviously imperfect; for example, pollution control is relevant to nature conservation. Within each grouping, global instruments have been addressed first, followed by regional and then EC instruments. Within each of these sub-groupings, instruments are listed in descending order of the date of their adoption.

References to "common dolphin" below are references to the short-beaked common dolphin (*Delphinus delphis*). Unless otherwise stated, the description of each of the various instruments below does not extend to any description of practice under the instruments (e.g. practice by individual parties or by bodies established by particular instruments). This approach has been necessitated by reasons of time.

Where a list of Mediterranean coastal States that are contracting parties has been provided, this does not include those States which are (merely) signatories to the instrument in question. The EC is also listed where it is a contracting party to the instrument in question (either along with or instead of EC Member States). However, the list of Mediterranean coastal States parties does not necessarily tell the whole story. Benefits for the Mediterranean, including for common dolphins, may be also be felt as a result of third States being parties to the instrument (e.g. States in their capacity as flag States, in view of their flag vessels operating in the Mediterranean).

## General instruments

### GLOBAL: **United Nations Convention on the Law of the Sea**

Adopted: 10 December 1982
Entered into force: 16 November 1994

Mediterranean coastal States that are contracting parties:[12] Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Italy, Lebanon, Malta, Monaco, Serbia and Montenegro, Slovenia, Spain, Tunisia. The EC is also a contracting party.

The United Nations Convention on the Law of the Sea ("**LOSC**") seeks to establish "a legal order for the seas and oceans which will facilitate international communication, and will promote the peaceful uses of the seas and oceans, the equitable and efficient utilization of their resources, the conservation of their living resources, and the study, protection and preservation of the marine environment".[13]

It establishes regimes for several maritime zones (some of which codify customary international law). These include, *inter alia*, regimes for: the territorial sea; the exclusive economic zone ("**EEZ**"); the continental shelf; the high seas; and the Area (i.e. the seabed and subsoil beyond national jurisdiction). The LOSC also establishes regimes regarding, *inter alia*: protection and preservation of the marine environment;[14] marine scientific research;[15] and dispute resolution.[16] This summary will focus on zones under coastal State sovereignty or jurisdiction and on the regime for protection and preservation of the marine environment.

In the territorial sea, the coastal State has territorial sovereignty.[17] However, this is subject to the right of innocent passage by ships of all States.[18] The coastal State may regulate innocent passage, including for the purposes of preserving its environment, so long as various conditions are fulfilled and innocent passage is not hampered.[19] The coastal State may also regulate other activities in the territorial sea for the purposes of nature conservation (subject to any obligations of the coastal State under any domestic legislation, other treaties or customary international law).

In the EEZ and on the continental shelf, the coastal State does not have territorial sovereignty. Instead, it has so-called "sovereign rights" for specific activities.[20] In the EEZ, the sovereign rights (and various "jurisdictions") must be claimed before they can be exercised; on the shelf, the sovereign rights are inherent.[21] For activities covered by sovereign rights, the coastal State may execute those activities to take into account nature conservation. In the case of EEZ sovereign rights regarding exploitation of living resources, there is a specific duty to take into account "effects on species associated with or dependent upon harvested species".[22] It is strongly arguable that such species include, *inter alia*, by-catch species.

If a coastal State claims EEZ sovereign rights regarding exploitation of living resources, it has a general duty to optimise utilisation of those resources.[23] An exception to this arises for marine mammals.[24] Furthermore, States "shall cooperate with a view to the conservation of marine mammals and in the case of cetaceans shall in particular work through the appropriate international organizations for their conservation, management and study".[25] Some cetacean species are listed in Annex I to the LOSC as "highly migratory species", for which a special regime applies when such species are fished.[26]

The LOSC's provisions on protection and preservation of the marine environment are of general application (i.e. to all parties, in all waters) unless otherwise stated. Most relate to pollution (though one refers to measures "necessary to protect and preserve ... the habitat of depleted, threatened or endangered species ..."[27]). The term "pollution of the marine environment" is defined in terms of both substances and energy.[28] There are specific provisions on: pollution from land-based sources;[29] pollution from seabed activities subject to national jurisdiction;[30] pollution from activities in the Area;[31]

[12] See: <www.un.org/Depts/los/reference_files/status2003.pdf>, visited on 01.09.04.
[13] Preamble, 4th recital.
[14] Part XII.
[15] Part XIII.
[16] Part XV.
[17] Article 2(1).
[18] Article 17.
[19] Article 21, 22 & 24.
[20] Articles 56(1)(a) & 77(1).
[21] Article 77(3).
[22] Article 61(4).
[23] Article 62(1).
[24] Article 65.
[25] Article 65.
[26] Article 64.
[27] Article 194(5).
[28] Article 1(1)(4).
[29] Articles 207 & 213.
[30] Articles 208 & 214.
[31] Articles 209 & 215.

pollution by dumping;[32] pollution from vessels;[33] and pollution from or through the atmosphere.[34] In the EEZ, ships have the right of freedom of navigation,[35] and coastal States' right to regulate pollution from vessels there is highly restricted.[36]

Dispute resolution: The LOSC provides for compulsory, binding dispute resolution.[37] Parties may chose one or more of the following as a forum for resolving disputes concerning the application or interpretation of the treaty: the International Tribunal for the Law of the Sea (established by the LOSC itself); the International Court of Justice; a so-called Annex VII arbitral tribunal; and/or a so-called Annex VIII special arbitral tribunal.[38] A State party that has not chosen any of the above forums, and is involved in a dispute, is deemed to have accepted an Annex VII arbitral tribunal.[39] If no settlement can be reached by initial means, any party to the dispute can invoke compulsory resolution.[40] The following rules then apply: (a) in a dispute with another party which has chosen the same forum as above, that forum must then be used (unless the parties agree otherwise);[41] and (b) in a dispute where the parties have not chosen the same forum as above, the dispute must be submitted to an Annex VII arbitral tribunal (unless the parties agree otherwise).[42] There are some important exceptions to this system of compulsory, binding dispute resolution (e.g. disputes about the exercise by a coastal State of its sovereign rights regarding living resources in the EEZ).[43]

The LOSC, though a framework treaty, clearly has potential application to common dolphin conservation in the Mediterranean. Despite the near absence of EEZs (or elements thereof) in the Mediterranean, the nature conservation powers of the coastal State in its territorial sea and on its continental shelf are still relevant. The duties regarding pollution are also relevant, especially because of the inclusion of "energy" within the definition of pollution (and hence potential application to noise pollution). The duties regarding pollution from land-based sources, seabed activities and dumping may be particularly relevant (though all, to varying degrees, depend upon international rules, standards and recommended practices and procedures being adopted outside the LOSC itself). The duty to protect habitats of "depleted, threatened or endangered species" is also relevant.

## Pollution control instruments

### GLOBAL: Stockholm Convention on Persistent Organic Pollutants

Adopted: 22 May 2001
Entered into force: 17 May 2004

Mediterranean coastal States that are contracting parties:[44] Egypt, France, Lebanon, Morocco, Slovenia, Spain, Tunisia

The objective of this treaty is "to protect human health and the environment from persistent organic pollutants" ("**POPs**").[45] There is express reference to the precautionary approach as set out in Principle 15 of the Rio Declaration on Environment and Development.[46] The primary duties are to: (a) prohibit and/or eliminate production and use of Annex A chemicals;[47] (b) restrict production and use of Annex B chemicals;[48] (c) restrict import and export of Annex A and Annex B chemicals;[49] and (d) reduce or eliminate releases from unintentional production, stockpiles and wastes of various chemicals.[50]

Part I of Annex A lists nine chemicals, including polychlorinated biphenyls ("**PCBs**"). For some of these, it sets out "specific exemptions" for production and/or use. (For PCBs, the specific exemptions relate only to use, and are only available if the

[32] Articles 210 & 216.
[33] Articles 211, 217, 218, 219, 220 & 221.
[34] Articles 212 & 222.
[35] Article 58(1).
[36] Article 211(5) & (6); but see also Article 234.
[37] See generally Part XV.
[38] Article 287(1).
[39] Article 287(3).
[40] Article 286.
[41] Article 287(4).
[42] Article 287(5).
[43] Part XV, section 3.
[44] See: <www.pops.int/documents/signature/signstatus.htm>, visited on 01.09.04.
[45] Article 1.
[46] Article 1.
[47] Article 3(1)(a)(i); subject to Annex A.
[48] Article 3(1)(b); subject to Annex B.
[49] Article 3(1)(a)(ii) & 3(2).
[50] Articles 5 & 6.

duties set out in Part II of Annex A are adhered to.) Part I of Annex B lists DDT, and sets out both specific exemptions and "acceptable purposes" for production and use.

If parties intend to benefit from the specific exemptions, they must first notify that intention to the Secretariat for its inclusion on a Register.[51] The exemptions are time-limited,[52] and the Conference of the Parties ("**CoP**") must adopt a review process for entries on the Register.[53] The CoP has a power to extend time limits and to make recommendations to parties that have registered exemptions.[54] For DDT, the only acceptable purposes for production and use relate to disease vector control carried out in accordance with Part II of Annex B.[55]

Parties must also take measures to reduce or eliminate releases from (a) unintentional production of Annex C chemicals (e.g. production of PCBs from waste incinerators),[56] (b) stockpiles of Annex A or B chemicals,[57] and (c) wastes involving Annex A, B or C chemicals.[58] To facilitate implementation of the treaty, each party must develop and endeavour to implement so-called "implementation plans".[59] A procedure and criteria are established for the listing of further chemicals in Annexes A, B or C.[60] Parties may propose new listings; the procedure then involves the Secretariat, a so-called Persistent Organic Pollutants Review Committee, the parties, observers and the CoP.

The treaty also establishes duties on the parties regarding: information exchange;[61] public information, awareness and education;[62] research, development and monitoring;[63] technical assistance;[64] financial resources and mechanisms;[65] and reporting.[66] For example, the parties must encourage and/or undertake appropriate research, development and monitoring on POPs' presence in, and effects on, the environment.[67] A CoP and a Secretariat are established, each with various functions.[68] The CoP's duties include, *inter alia*, (a) to periodically evaluate the effectiveness of the treaty[69] and (b) to develop procedures for determining non-compliance and for the treatment of non-compliant parties.[70]

Dispute resolution: States parties may chose arbitration and/or the International Court of Justice as a forum for resolving disputes concerning the application or interpretation of the treaty.[71] In a dispute with another party which has chosen the same forum(s), that forum must then be used.[72] If the parties to a dispute have not previously accepted the same or any forum as above, and the dispute is more than 12 months old, it must be submitted to a conciliation commission if any party to the dispute so requests.[73] But that commission may only make recommendations.[74]

The focus of this treaty is clearly on the production, use and release of POPs, the purpose being to protect both human health and the environment (whether terrestrial or marine). A benefit will arise to common dolphins in the Mediterranean from the implementation of this treaty to the extent that production, use and release of POPs is a threat to such animals. Because of the nature of the POPs market and the means of POPs' transport through the environment, that benefit may well arise as a result of implementation by States far distant from Mediterranean. The duty to encourage and/or undertake appropriate research and monitoring on POPs' presence in, and effects on, the environment could be applied to common dolphins.

[51] Article 4(3).
[52] Article 4(4).
[53] Article 4(5).
[54] Article 4(6) & (7).
[55] Annex B, Part I.
[56] Article 5.
[57] Article 6.
[58] Article 6.
[59] Article 7.
[60] Article 8.
[61] Article 9.
[62] Article 10.
[63] Article 11.
[64] Article 12.
[65] Articles 13 & 14.
[66] Article 15.
[67] Article 11(1)(a) & (d).
[68] Articles 19 & 20.
[69] Article 16.
[70] Article 17.
[71] Article 18(2).
[72] Article 18(2).
[73] Article 18(6).
[74] Article 18(6).

GLOBAL: **Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972**

Treaty (adopted in 1996; not yet in force). Regulates dumping in the marine environment. The definition of "dumping" contains some important exclusions.[75] Intended to supersede the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter.[76]

GLOBAL: **Washington Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities**

Voluntary instrument (adopted in 1995). The Global Programme of Action ("GPA") is "designed to be a source of conceptual and practical guidance to be drawn upon by national and/or regional authorities in devising and implementing sustained action to prevent, reduce, control and/or eliminate marine degradation from land-based activities".[77]

GLOBAL: **Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal**

Treaty (adopted in 1989; in force). Regulates, *inter alia*, transboundary movements of hazardous wastes, including such movements by way of the sea.

GLOBAL: **UNEP Conclusions of the study of the legal aspects concerning the environment related to offshore mining and drilling within the limits of national jurisdiction**

Voluntary instrument (adopted in 1982). In Resolution 37/217 (1982), the UN General Assembly recommended that "Governments should consider the guidelines contained in the conclusions when formulating national legislation or undertaking negotiations for the conclusion of international agreements ...".[78] The guidelines address "pollution and other adverse effects" from "offshore exploration for and exploitation of hydrocarbons and other minerals, and related activities, within the limits of national jurisdiction".[79] With one or two exceptions, they may be regarded as applying equally to both substances and energy as pollutants.

GLOBAL: **International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto**

Treaty (adopted in 1973; in force, with the exception of Annex VI). Parties undertake to give effect to the treaty (and its Annexes) "in order to prevent the pollution of the marine environment by the discharge of harmful substances or effluents containing such substances in contravention of the [treaty]".[80] Relates to "ships", broadly defined to include, *inter alia*, "fixed or floating platforms".[81] Includes annexes containing detailed rules on control of accidental and/or deliberate pollution by: oil (Annex I); noxious liquid substances in bulk (Annex II); harmful substances in packaged form (Annex III); sewage (Annex IV); garbage (Annex V); and airborne emissions (Annex VI).

GLOBAL: **Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter**

Treaty (adopted in 1972; in force). Regulates dumping in the marine environment. The definition of "dumping" contains some important exclusions.[82]

REGIONAL: **Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and their Disposal**

Treaty (adopted in 1996; not yet in force). Regulates, *inter alia*, transboundary movements of hazardous wastes. Includes general obligations on the parties to, *inter alia*, "take all appropriate measures to prevent, abate and eliminate pollution of

[75] Article 1(4).
[76] Article 23 (as between contracting parties to both treaties).
[77] Paragraph 14.
[78] Paragraph 6(b).
[79] Paragraph 1.
[80] Article 1(1).
[81] Article 2(4).
[82] Article III(1).

the Protocol area which can be caused by transboundary movements and disposal of hazardous wastes",[83] and "take all appropriate measures to reduce to a minimum the transboundary movement of hazardous wastes, and if possible to eliminate such movement in the Mediterranean".[84]

### REGIONAL: **Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil**

The Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil was adopted in 1994. It will be referred to here as "**the 1994 Protocol**".

The 1994 Protocol has not yet entered into force. So far, the following Mediterranean coastal States are contracting parties: Albania; Cyprus; Morocco; and Tunisia. Because the Protocol was adopted in 1994, it is was made under the unamended version of the 1976 Convention for the Protection of the Mediterranean Sea Against Pollution ("**the 1976 Convention**"), rather than the 76/95 Convention (on which see below).[85]

The 1994 Protocol states that it applies to (a) the so-called Mediterranean Sea Area (as defined in Article 1 of the 1976 Convention) "including the continental shelf and the seabed and its subsoil" and (b) internal waters, including the seabed and subsoil.[86] Item "(a)" above is confusing: it does not expressly mention the territorial sea and it does not define the geographical limits of the term "and the seabed and its subsoil" (presumably an area additional to each party's continental shelf). The Protocol refers to the combination of "(a)" and "(b)" as "the Protocol Area". Furthermore, parties may chose to include "wetlands or coastal areas of their territory".[87]

The 1994 Protocol establishes various duties on its parties in relation to "activities concerning exploration and/or exploitation of the resources in the Protocol Area" (referred to in the Protocol as "activities"). This term is defined as (a) "[a]ctivities of scientific research concerning the resources of the seabed and its subsoil; (b) exploration activities, namely "[s]eismological activities; surveys of the seabed and its subsoil; sample taking; [e]xploration drilling"; and (c) exploitation activities (for which various activities are listed, including activities associated with installations).[88] The term "pollution" is defined as in Article 2(a) of the 1976 Convention (which includes reference to both substances and energy).

There is a general duty to (put briefly) prevent, abate, combat and control pollution resulting from activities.[89] The Protocol then establishes an authorisation system for all activities,[90] though the requirements may be relaxed for, *inter alia*, exploration activities.[91] It also establishes a regime addressing harmful or noxious substances and materials ("**HNSM**") as well as wastes.[92] Some specific wastes receive particular attention, namely oil and oily mixtures,[93] drilling fluids and cuttings,[94] sewage[95] and garbage.[96]

Regarding disposal of HNSM into the Protocol Area resulting from activities covered by the Protocol (and subject to some exceptions)[97]: (a) disposal of HNSM listed in Annex I is prohibited;[98] (b) disposal of HNSM listed in Annex II is subject to a special permit from the competent authority;[99] and (c) disposal of all other HNSM, where this "might cause pollution", requires a prior general permit from the competent authority.[100] What is more, the special and general permits may only be issued "after careful consideration of all the factors set forth in Annex III to this Protocol".[101]

Section A of Annex I includes, *inter alia*, organophosphorus and organohalogen compounds (with some exceptions) and "[p]ersistent synthetic materials" (of some types). However, Annex I states that it "does not apply to discharges which contain substances listed in section A that are below the limits defined jointly by the Parties ...". Factors listed in Annex III

[83] Article 5(1).
[84] Article 5(3).
[85] Preamble, 1st recital and Articles 1(a), 1(b), 1(e), 2(1)(a), 30(1), 31 & 32(1).
[86] Article 2(1)(a) & (b).
[87] Article 2(2).
[88] Article 1(d).
[89] Article 3(1).
[90] Articles 4 - 7 and Annex IV.
[91] Article 5(2).
[92] Articles 8 - 14.
[93] Article 10, Annex V and Appendix.
[94] Article 10 and Annex V.
[95] Article 11.
[96] Article 12.
[97] Article 14.
[98] Article 9(4).
[99] Article 9(5).
[100] Article 9(6).
[101] Article 9(7).

include, *inter alia*, the persistence, toxicity and accumulation in biological materials of waste constituents,[102] and effects on marine ecosystems (particularly living resources, endangered species and critical habitats).[103]

There are also provisions on, *inter alia*, safety measures,[104] contingency planning,[105] notification of pollution incidents,[106] mutual assistance in cases of emergency,[107] monitoring of the effects of activities on the environment,[108] removal of installations and decommissioning of pipelines,[109] measures regarding specially protected areas,[110] studies and research programmes,[111] establishment and implementation of international rules and standards and recommended practices and procedures,[112] assistance to developing countries,[113] transboundary environmental effects,[114] and liability and compensation.[115] The 1994 Protocol also provides for meetings of the parties to the Protocol,[116] and establishes various functions for such meetings.[117]

Dispute resolution: Though the 1994 Protocol itself contains no provisions on the resolution of disputes relating to its application or interpretation, the 1976 Convention contains dispute resolution provisions relating to both that Convention and the Protocols adopted under it.[118]

The two principal elements of the 1994 Protocol are (a) its authorisation system and (b) its regime for the control of HNSM and wastes. Both of these are relevant to common dolphins in the Mediterranean. The authorisation system relates to "activities" [concerning exploration and/or exploitation of the resources in the Protocol Area] irrespective of whether their impact is likely to be felt through "pollution" (as defined) or through other environmental effects. Furthermore, the term "activities" expressly includes, *inter alia*, seismological activities (though the scope of the authorisation system can be limited for such activities). In contrast, the regime for the control of HNSM and wastes focuses on "substances", "materials" and "wastes". Some such items are clearly relevant to common dolphins; however, noise is not expressly addressed in the HNSM and wastes regime.

### REGIONAL: **Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities**

On 17 May 1980, a treaty entitled the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources was adopted. On 17 June 1983, that treaty entered into force. In 1996, the treaty was amended (and re-named the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities). The 1996 amendments have not yet entered into force. So far, the following Mediterranean coastal States have accepted the amendments: Albania; Cyprus; France; Greece; Italy; Malta; Monaco; Morocco; Slovenia; Spain; Tunisia; and Turkey. (The EC has also accepted the amendments.)

The text below will address the 1980 treaty, as amended in 1996, and will refer to the amended treaty as "**the 80/96 Protocol**". Because the Protocol was amended in 1996, it refers to the 1976 Convention for the Protection of the Mediterranean Sea Against Pollution as amended in 1995 (on which see below), rather than the unamended version of the 1976 Convention.[119]

The preamble to the 80/96 Protocol states, *inter alia*, that the 1995 Washington Global Programme of Action has been taken into consideration[120] and that the precautionary principle and the polluter pays principle have been applied.[121] The Protocol applies to (a) the so-called Mediterranean Sea Area (as defined in Article 1 of the 76/95 Convention), (b) the "hydrologic basin" of the Mediterranean Sea Area,[122] (c) internal waters, and (d) "[b]rackish waters, coastal salt waters including marshes and coastal lagoons, and ground waters communicating with the Mediterranean Sea".[123]

[102] Section B.
[103] Section E.
[104] Article 15 and Annex VI.
[105] Article 16 and Annex VII.
[106] Article 17.
[107] Article 18.
[108] Article 19.
[109] Article 20.
[110] Article 21.
[111] Article 22.
[112] Article 23. See also Annex IV (paragraph 2).
[113] Article 24.
[114] Article 26.
[115] Article 27.
[116] Article 30(1).
[117] Article 30(2).
[118] Article 22.
[119] Preamble, 1st & 2nd recitals and Articles 2(a), 2(b), 3(a), 8, 9, 12, 14 & 16.
[120] Preamble, 8th recital. See also introduction to Annex I (paragraph 4).
[121] Preamble, 5th recital.
[122] This term is defined in Article 2(d).
[123] Article 3.

Article 4 sets out the discharges and other inputs to which the Protocol relates. Put briefly, these include: (a) "discharges" originating from land-based sources and activities within the parties' territories and transported by water;[124] (b) "inputs of polluting substances" from land-based sources or activities within the parties' territories and transported by the atmosphere (under conditions defined in Annex III to the Protocol);[125] and (c) "polluting discharges" from fixed man-made offshore structures under a party's jurisdiction and serving purposes other than exploration and exploitation of mineral resources of the "continental shelf and the seabed and its subsoil".[126]

The 80/96 Protocol establishes a general duty on its parties in relation to pollution from land-based sources and activities.[127] It goes on to establish some more specific duties. First, parties undertake to eliminate such pollution and, in particular, to phase out inputs of those toxic, persistent and bioaccumulating substances listed in Annex I.[128]

This is to be done though national and regional plans and programmes containing measures and timetables.[129] Priorities and timetables are to take into account the elements set out in Annex I.[130] Best available techniques and best environmental practice (with reference to the criteria set out in Annex IV) are also to be taken into account.[131] The short- and medium-term regional plans and programmes are to be adopted by the meetings of the parties to the Protocol ("**the MoP**"), by a two-thirds majority.[132] The measures and timetables in those plans and programmes are binding, except on parties which have notified an objection.[133]

Secondly, point source discharges and releases into water or air must be "strictly subject to authorization or regulation by the competent authorities of the Parties",[134] taking account of, *inter alia*, Annex II to the Protocol and decisions or recommendations of the MoP.[135] Thirdly, the parties must formulate and adopt common guidelines, standards or criteria on specified themes (including, *inter alia*, specific requirements concerning quantities of Annex I substances discharged).[136]

There are also provisions on, *inter alia*, accidents,[137] monitoring,[138] reporting,[139] scientific and technical cooperation,[140] assistance to developing countries,[141] and transboundary pollution.[142] The 80/96 Protocol also provides for the MoP, and establishes its various functions.[143]

Dispute resolution: If land-based pollution originating from the territory of one party is likely to prejudice directly the interests of one or more other parties, the parties concerned must (at the request of one or more of them) "undertake to enter into consultation with a view to seeking a satisfactory solution".[144] At the request of any party concerned, the matter must be placed on the agenda of the MoP's next meeting, and the MoP "may make recommendations with a view to reaching a satisfactory solution".[145] Presumably, these provisions do not exclude the application of the dispute resolution provisions set out in the 76/95 Convention.

The principal elements of the 80/96 Protocol are (a) the undertaking by the parties to phase out the inputs of Annex I toxic, persistent and bioaccumulating substances, through the use of regional plans and programmes and (b) the authorisation or regulation regime for point source discharges and releases into water or air. Both of these are relevant to common dolphins in the Mediterranean, to the extent that the substances addressed constitute threats to that species.

[124] Article 4(1)(a).
[125] Article 4(1)(b).
[126] Article 4(2).
[127] Article 1.
[128] Article 5(1).
[129] Article 5(2).
[130] Article 5(3).
[131] Article 5(4).
[132] Article 15(1).
[133] Article 15(3) & (4).
[134] Article 6(1).
[135] Article 6(1).
[136] Article 7.
[137] Article 5(5).
[138] Article 8.
[139] Article 13.
[140] Article 9.
[141] Article 10.
[142] Article 11.
[143] Articles 14 & 15.
[144] Article 12(1).
[145] Article 12(2).

REGIONAL: **Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean**

On 16 February 1976, a treaty entitled the Convention for the Protection of the Mediterranean Sea Against Pollution was adopted. On 12 February 1978, that treaty entered into force. In 1995, the treaty was amended (and re-named the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean).

The 1995 amendments have not yet entered into force. So far, the following Mediterranean coastal States have accepted the amendments: Albania; Croatia; Cyprus; Egypt; France; Greece; Italy; Malta; Monaco; Slovenia; Spain; Syria; Tunisia; and Turkey. (The EC has also accepted the amendments.) The text below will address the 1976 treaty, as amended in 1995, and will refer to the amended treaty as "**the 76/95 Convention**".

The 76/95 Convention is a framework treaty. It establishes, *inter alia*: (a) a minimum geographical area to which it (and Protocols made under it) applies; (b) a definition of the term "pollution"; (c) general duties and principles to be applied by the parties; (d) an institutional framework; (e) a dispute resolution system; and (f) rules on treaty amendment. Several of these provisions are likewise applicable to the Protocols. It also identifies various themes on which the parties are to take measures, but detailed obligations on these themes are left to the Protocols (or annexes to be elaborated subsequently).

The geographical area covered by 76/95 Convention is called the "Mediterranean Sea Area" and is defined as "the maritime waters of the Mediterranean Sea proper, including its gulfs and seas, bounded to the west by the meridian passing through Cape Spartel lighthouse, at the entrance of the Straits of Gibraltar, and to the east by the southern limits of the Straits of the Dardanelles between Mehmetcik and Kumkale lighthouses".[146] The Convention's application may be extended to coastal areas "as defined by each Contracting Party within its own territory",[147] and any Protocol may have a broader geographical scope.[148]

The term "pollution" is defined by reference to both substances and energy as "the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results, or is likely to result, in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of seawater and reduction of amenities".[149]

The principle general duty in the 76/95 Convention is set out in Article 4(1): parties must "individually or jointly take all appropriate measures in accordance with the provisions of this Convention and those Protocols in force to which they are party to prevent, abate, combat and to the fullest possible extent eliminate pollution of the Mediterranean Sea Area and to protect and enhance the marine environment in that Area so as to contribute towards its sustainable development".

For the purpose of protecting the environment and contributing to sustainable development, the parties must: apply the precautionary principle;[150] apply the polluter pays principle;[151] undertake environmental impact assessment;[152] and commit themselves to promoting integrated coastal zone management.[153] When implementing the 76/95 Convention, and the Protocols, parties must adopt programmes and measures (with time limits for completion, where appropriate) and must use best available techniques and best environmental practices.[154]

The 76/95 Convention establishes loosely-defined duties to take measures in respect of particular themes: pollution caused by dumping from ships and aircraft or incineration at sea;[155] pollution from ships;[156] pollution resulting from exploration and exploitation of the continental shelf and the seabed and its subsoil;[157] pollution from land-based sources;[158] pollution emergencies;[159] conservation of biological diversity;[160] and pollution from the transboundary movements of hazardous wastes and their disposal.[161] In practice, detailed Protocols have been adopted on all of these subjects.

The parties are to endeavour to establish programmes for pollution monitoring in the Mediterranean Sea Area.[162] Further details are to be prescribed in one or more annexes to the 76/95 Convention.[163] There are also provisions on, *inter alia*,

[146] Article 1(1).
[147] Article 1(2).
[148] Article 1(3).
[149] Article 2(a).
[150] Article 4(3)(a).
[151] Article 4(3)(b).
[152] Article 4(3)(c) & (d).
[153] Article 4(3)(e).
[154] Article 4.
[155] Article 5.
[156] Article 6.
[157] Article 7.
[158] Article 8.
[159] Article 9.
[160] Article 10.
[161] Article 11.
[162] Article 12(1).
[163] Article 12(3).

reporting by the parties (including regarding the Protocols),[164] scientific and technological cooperation,[165] public information and participation (including regarding the Protocols),[166] and liability and compensation (the latter stating that the parties undertake to cooperate in the formulation and adoption of appropriate rules and procedures regarding the determination of liability and compensation for pollution damage).[167]

Regarding institutional arrangements, the 76/95 Convention establishes: (a) a Secretariat (by designating the UNEP as being responsible for specified secretariat functions);[168] (b) Meetings of the Contracting Parties ("**the MoP**");[169] and (c) the Bureau of the Contracting Parties.[170] The Secretariat and the MoP have functions regarding both the Convention and the Protocols. The MoP, on the basis of reporting by the parties, must assess compliance with the 76/95 Convention, the Protocols and any measures and recommendations and must, when appropriate, recommend steps to bring about compliance.[171]

Dispute resolution: If a dispute regarding application or interpretation of the 76/95 Convention, or the Protocols, is not resolved through negotiation or other peaceful means, the dispute must ("upon common agreement") be submitted to arbitration as provided for in Annex A to the treaty.[172] However, the treaty also provides any party with the option to declare Annex A arbitration as its chosen dispute resolution procedure, with the result that such arbitration would then automatically apply if a dispute arose with another party that had made an equivalent declaration.[173]

The 76/95 Convention creates a legal and institutional framework that promotes the adoption of detailed Protocols and facilitates their implementation (for example by establishing a MoP and by establishing provisions on monitoring, reporting, public participation, compliance control and dispute resolution). Its relevance to common dolphins therefore lies mainly in providing a framework under which Protocols, addressing issues of direct relevance to that species, may be effectively implemented. Its definition of "pollution" is also relevant to common dolphins in that this refers to both substances and energy; as such, it is arguable that "pollution" includes noise.

### REGIONAL: **Protocol for the Prevention and Elimination of Pollution in the Mediterranean Sea by Dumping from Ships and Aircraft**

Treaty (adopted in 1976; in force, but 1995 amendments not yet in force). Regulates dumping in the Mediterranean Sea. The definition of "dumping" contains some important exclusions.[174]

## Fisheries conservation and management instruments

### GLOBAL: **UN General Assembly resolutions on drift-net fishing**

Relevant UN General Assembly resolutions include, *inter alia*: 44/225 (1989); 45/197 (1990); 46/215 (1991); 50/25 (1995); 51/36 (1996); 52/29 (1998); 53/33 (1999); 55/8 (2001); 57/142 (2003); and 58/14 (2004). Resolution 46/215 called upon all members of the international community to, *inter alia*, "[e]nsure that a global moratorium on all large-scale pelagic drift-net fishing is fully implemented on the high seas ... by 31 December 1992".[175] The importance of compliance with this call was reaffirmed in resolutions 50/25,[176] 51/36,[177] 52/29,[178] 53/33,[179] 55/8,[180] 57/142,[181] and 58/14.[182]

[164] Article 26.
[165] Article 13.
[166] Article 15.
[167] Article 16.
[168] Article 17.
[169] Article 18.
[170] Article 19.
[171] Article 27.
[172] Article 28(1) & (2).
[173] Article 28(3).
[174] Article 3(3).
[175] Paragraph 3(c).
[176] Paragraphs 1 & 2.
[177] Paragraphs 1, 2 & 3.
[178] Paragraphs 1, 2 & 3.
[179] Paragraph 2.
[180] Paragraph 2.
[181] Paragraph 5.
[182] Paragraph 33.

GLOBAL: **FAO International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing**

Voluntary instrument (adopted in 2001). Elaborated within the framework of the FAO Code of Conduct for Responsible Fisheries. Sets out actions for States including, *inter alia*, port States and market States, to overcome illegal, unreported and unregulated ("IUU") fishing.

GLOBAL: **Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks**

Treaty (adopted in 1995; in force). Addresses straddling fish stocks and highly migratory fish stocks. With some exceptions, applies to the conservation and management of such stocks in areas beyond national jurisdiction. Focuses mainly on the establishment of regional and sub-regional fisheries management organisations or arrangements. General principles, some of which relate to the wider environment (e.g. by-catch issues), are set out in Article 5. These apply not just to States fishing on the high seas, but also to coastal States.[183]

GLOBAL: **FAO Code of Conduct for Responsible Fisheries**

Adopted: 31 October 1995 (by consensus by 28th Session of the FAO Conference)
Entered into force: NOT APPLICABLE

Mediterranean coastal States that are FAO members:[184] All. The EC is also a FAO member.

The FAO Code of Conduct for Responsible Fisheries ("**the Code**") "sets out principles and international standards of behaviour for responsible practices with a view to ensuring the effective conservation, management and development of living aquatic resources, *with due respect for the ecosystem and biodiversity*" (emphasis added).[185] The Code is a voluntary instrument, though some provisions are based on rules found in the LOSC or other treaties (e.g. the Compliance Agreement).[186] It is directed to, *inter alia*, member and non-members of FAO and regional fisheries organisations.[187] One of its objectives is to provide guidance in the formulation of (other) international agreements.[188]

On a general note, States should ensure compliance with, and enforcement of, conservation and management measures (including through use of monitoring, control and surveillance, and appropriate sanctions).[189] Provisions regarding flag States, reflecting and supplementing those in the Compliance Agreement, are included but potentially relate to all waters rather than just the high seas.[190] There is a plethora of provisions on conservation and management of "living aquatic resources". If implemented, these should serve the interests of both fisheries and the wider environment.

However, various provisions make reference to the marine environment beyond "living aquatic resources" (though there is considerable duplication in this respect). For example, management measures "should not only ensure the conservation of target species but also of species belonging to the same ecosystem or associated with or dependent upon the target species".[191] Conservation and management decisions for fisheries should take into account, *inter alia*, relevant environmental factors.[192]

States and fisheries management organisations should apply a precautionary approach widely in order to, *inter alia*, preserve the aquatic environment.[193] In doing so, they should take into account uncertainties regarding, *inter alia*, the impact of fisheries on non-target and associated or dependent species.[194] States are exhorted to use, or to develop and apply, selective and environmentally safe fishing gear and practices.[195] Existing gear and practices of this type should be accorded priority in establishing conservation and management measures for fisheries.[196] States are to cooperate to develop and

[183] Article 3(2).
[184] See: <www.fao.org/unfao/govbodies/membernations3_en.asp>, visited on 01.09.04.
[185] Introduction.
[186] Article 1.1. The full name of the Compliance Agreement is: the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas.
[187] Article 1.2.
[188] Article 2(d).
[189] Articles 6.10, 7.2.2, 7.2.3, 8.1.4 & 8.1.9.
[190] Articles 6.11, 7.6.2 & 8.1.2. See also Article 8.2.
[191] Article 6.2.
[192] Articles 6.4 & 7.2.1.
[193] Articles 6.5 and 7.5.1 (and see Article 7.5 generally).
[194] Article 7.5.2.
[195] Article 6.6 & 7.6.9.
[196] Articles 6.6 & 7.2.2(g). See also Article 7.6.4.

apply technologies and methods that minimise loss of gear and ghost fishing effects.[197] Overall, catch of non-target species and impacts on associated or dependent species (in particular endangered species) should be minimised.[198]

Measure designed to maintain or restore maximum sustainable yield should provide, *inter alia*, that "biodiversity of aquatic habitats and ecosystems is conserved and endangered species are protected".[199] States should ensure that fishing is conducted with due regard to IMO requirements on protection of the marine environment.[200] States should "prohibit dynamiting, poisoning and other comparable destructive fishing practices".[201] States should assign priority to research that improves knowledge of fisheries' interaction with the ecosystem.[202] Assessments of implications of habitat disturbance are called for,[203] and research on impact of fishing gear on biodiversity is promoted.[204]

The Code clearly has application to conservation of common dolphins in the Mediterranean. This arises from (a) its plethora of provisions on conservation and management of living aquatic resources, (b) its provisions on ensuring compliance with fisheries conservation and management measures and (c) its specific focus on designing such measures to take the wider environment into account. In particular, the Code devotes much space to provisions on the use of selective and environmentally safe fishing gear and practices and on the minimisation of catch of non-target species (including endangered species). The reference to taking account of uncertainties regarding impacts on non-target and associated species, when implementing a precautionary approach, is also important, as are the provisions on research and impact assessment.

### GLOBAL: **Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas**

Adopted: November 1993 (by 27th Session of the FAO Conference)
Entered into force: 24 April 2003

Mediterranean coastal States that are contracting parties:[205] Cyprus, Egypt, Morocco, Syria. The EC is also a contracting party.

With some exemptions, this treaty applies to all fishing vessels that are used, or intended, for fishing on the high seas.[206] (The (qualified) exemptions relate to vessels of less than 24 metres in length.[207]) The purpose of the treaty is to promote compliance by such vessels with international conservation and management measures adopted for high seas fisheries. In practice, such measures will usually be those adopted by regional fisheries bodies (e.g. ICCAT) but will exceptionally be those adopted by the United Nations General Assembly (notably the ban on drift-nets).

The duties are aimed primarily at flag States. There is a general duty on flag States to take the necessary measures to ensure their vessels "do not engage in any activity that undermines the effectiveness of international conservation and management measures".[208] In particular, a flag State must not allow its vessels to be used for fishing on the high seas unless they have been authorised to do so by the flag State itself.[209]

That authorisation must not be given if, *inter alia*, (a) the vessel, previously been registered in another party, has undermined the effectiveness of international conservation and management measures (subject to some important exceptions),[210] or (b) the flag State is not "satisfied that it is able, taking into account the links that exist between it and the fishing vessel concerned, to exercise effectively its responsibilities under this Agreement in respect of that fishing vessel".[211]

Each party must maintain a record of its own-flagged vessels that have been authorised to fish on the high seas.[212] It must also (a) take the necessary measures to ensure that all such vessels are entered in that record,[213] and (b) ensure that such vessels are marked for the purposes of identification in accordance with generally accepted standards.[214] Furthermore, it

[197] Article 8.4.6.
[198] Articles 6.6 & 7.6.9.
[199] Article 7.2.2(d). See also Article 8.5 generally.
[200] Articles 8.4.1 & 8.7. See also Articles 8.8.1, 8.9(c)-(e) & 8.10.
[201] Article 8.4.2.
[202] Article 6.4. See also Article 12.
[203] Article 8.4.7.
[204] Articles 8.4.8 & 8.11.1.
[205] See: <www.fao.org/Legal/treaties/012s-e.htm>, visited on 01.09.04.
[206] Article II(1).
[207] Article II(2).
[208] Article III(1)(a).
[209] Article III(2).
[210] Article III(5).
[211] Article III(3).
[212] Article IV.
[213] Article IV.
[214] Article III(6).

must ensure that its vessels provide it with operational information (e.g. on fishing areas, catches, landings) that enables it to fulfil its treaty obligations,[215] and it must apply sanctions of sufficient gravity when appropriate (e.g. withdrawal of the authorisation to fish).[216]

There are provisions on international cooperation,[217] including liaison between port States and flag States for the purpose of allowing the port State to undertake "such investigatory measures as may be considered necessary to establish whether the fishing vessel [in port] has ... been used contrary to the provisions of this Agreement" (e.g. by fishing on the high seas without an authorisation to fish issued by the flag State).[218]

The FAO has a role in receiving, and disseminating, information received from the flag State about, *inter alia*: (a) the fishing vessels entered on each flag State's record;[219] (b) additions to, or deletions from, the flag State's record (including reasons for deletions);[220] (c) exemptions granted to vessels under 24 metres;[221] and (d) vessel activities that undermine the effectiveness of international conservation and management measures (including sanctions imposed).[222] This information is to be provided to all parties (periodically), to any individual party (on request) and, subject to some exceptions, to any individual global, regional or subregional fisheries organisation (on request).

Dispute resolution: If a dispute regarding application or interpretation of the treaty is not resolved through consultations, the parties to the dispute must consult "with a view to having the dispute settled by negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement or other peaceful means of their own choice".[223] If that does resolve the dispute, the parties to the dispute may consent to it being referred to the International Court of Justice, the International Tribunal for the Law of the Sea, or arbitration.[224] If there is no agreement on referral, the parties to the dispute must "continue to consult and cooperate with a view to reaching settlement ... in accordance with the rules of international law relating to the conservation of living marine resources".[225]

This treaty aims at improving compliance by fishing vessels with high seas international conservation and management measures. It is particularly relevant to the Mediterranean because of the high proportion of high seas there and the competence of at least two regional fisheries bodies (i.e. ICCAT and GFCM) regarding these high seas. A benefit will arise to common dolphins in the Mediterranean from the implementation of this treaty to the extent that non-compliance with high seas international conservation and management measures is a threat to such animals. However, because most of the treaty's duties relate to flag States, the treaty depends for its success on acceptance by a large number of flag States (yet not many significant flag States are contracting parties).

### REGIONAL: **International Convention for the Conservation of Atlantic Tunas**

Treaty (adopted in 1966; in force, including 1984 Protocol; 1992 Protocol not yet in force). Establishes the International Commission for the Conservation of Atlantic Tunas ("ICCAT"), and establishes functions for that Commission. Applies to "all waters of the Atlantic Ocean, including the adjacent seas",[226] including the Mediterranean Sea. The Commission has a power to, *inter alia*, make (binding) "recommendations designed to maintain the populations of tuna and tuna-like species ... at levels that will permit the maximum sustainable catch".[227]

### REGIONAL: **Agreement for the Establishment of the General Fisheries Commission for the Mediterranean**

The Agreement for the Establishment of the General Fisheries Commission for the Mediterranean was last amended in 1997 (such amendments having entered into force on 29 April 2004). The treaty, as amended in 1997, will be referred to here as "**the Agreement**". Those Mediterranean coastal States which have accepted the 1997 amendments are as follows: Albania; Croatia; Cyprus; France; Greece; Italy; Libya; Malta; Monaco; Serbia and Montenegro; Slovenia; Spain; Tunisia; and Turkey.[228] The EC has also accepted the 1997 amendments.

[215] Article III(7).
[216] Article III(8).
[217] Article V.
[218] Article V(2).
[219] Article VI(1) & (2).
[220] Article VI(5).
[221] Article VI(7).
[222] Article VI(8).
[223] Article IX(1) & (2).
[224] Article IX(3).
[225] Article IX(3).
[226] Article I.
[227] Article VIII(1)(a).
[228] See: <www.fao.org/Legal/treaties/003s-e.htm>.

The Agreement applies to "the Mediterranean and the Black Sea and connecting waters", referred to as "the Region".[229] The purpose of the Agreement is to establish the General Fisheries Commission for the Mediterranean "within the framework of the [FAO]"[230] and to in turn set out the functions of that Commission.

Membership of the Commission is open to such Members and Associate Members of the FAO and such non-Member States that are members of the UN, its Specialized Agencies or the International Atomic Energy Authority ("**IAEA**"), that are (a) coastal States or Associate Members within the Region, (b) States or Associate Members whose vessels engage in fishing in the Region for stocks covered by the Agreement, or (c) regional economic integration organisations (where applicable), and which accept the Agreement.[231] Some States, which are not members of the UN, its Specialized Agencies or the IAEA, also have a certain "membership status" within the Commission by virtue of having become parties to an earlier version of the Agreement.[232]

The overall purpose of the Commission is "to promote the development, conservation, rational management and best utilization of living marine resources, as well as the sustainable development of aquaculture in the Region".[233] The functions of the Commission, as set out in the Agreement, make several references to "living marine resources".[234] However, it is not clear from the Agreement itself whether this term is intended to include all marine species of fauna and flora or just those which are exploitable (i.e. those which are the target of fisheries).

Even if the latter interpretation is correct, it is arguable that habitats and non-target species may still be protected by virtue of the Commission's power to formulate and recommend measures (including implementing measures) "for the conservation *and rational management* of living marine resources" (emphasis added), on the basis that one aspect of "rational management" is protection of the wider environment from fishing activities. In formulating and recommending such measures, the Commission is under a duty to "apply the precautionary approach to conservation and management decisions ...".[235]

The Commission's recommended measures "for the conservation and rational management of living marine resources" may include those: (a) regulating fishing methods and fishing gear; (b) prescribing the minimum size for individuals of specified species; (c) establishing open and closed fishing seasons and areas; and (d) regulating the amount of total catch and fishing effort and their allocation among Members.[236] Measures in all four of these categories could potentially be used for the benefit of the wider environment.

Measures recommended by the Commission "for the conservation and rational management of living marine resources" do not have any effect until formally adopted. Adoption requires a two-thirds majority of Members of the Commission present and voting.[237] Those Members that do not object to the recommended measure undertake to give effect to it (unless objections are made by more than one-third of the Members of the Commission).[238]

Dispute resolution:[239] If a dispute regarding application or interpretation of the treaty is not settled by the Commission, it must be referred to a committee composed of one member appointed by each of the parties to the dispute, plus an independent chairman chosen by the members of the committee. The committee's recommendations are not binding, but "shall become the basis for renewed consideration by the parties concerned". If the dispute is not settled by this procedure, it must be referred to the International Court of Justice "in accordance with the Statute of the Court" (or, in the case of a regional economic integration organisation that is a member of the Commission, it must be submitted to arbitration unless the parties to the dispute agree to another method of settlement).

The General Fisheries Commission for the Mediterranean has the power to adopt measures "for the conservation and rational management of living marine resources". It is arguable that this power is relevant to conservation of the common dolphin in the Mediterranean, on the basis that one aspect of "rational management" is protection of the wider environment from fishing activities. The measures are binding, subject to the power of members of the Commission to object to any given measure. The power to adopt measures "for the conservation and rational management of living marine resources" could potentially be used to address both by-catch problems and prey depletion problems.

[229] Preamble, 4th recital.
[230] Article I(1).
[231] Article I(2).
[232] Article I(2).
[233] Article III(1).
[234] Article III.
[235] Article III(2).
[236] Article III(1)(b).
[237] Article V(1).
[238] Article V(2), (3) & (4).
[239] Article XVII.

EUROPEAN COMMUNITY: **Council Regulation (EC) No 812/2004 of 26 April 2004 laying down measures concerning incidental catches of cetaceans in fisheries and amending Regulation (EC) No 88/98**

EC regulation (in force). In respect of the Mediterranean Sea ("of the east of line 5° 36' west" [sic]), the regulation requires pelagic trawl (single and pair) fisheries to be monitored from 1 January 2005 (Annex III, paragraph 3). For vessels with an overall length of 15 m or over, this means that Member States must "design and implement monitoring schemes for incidental catches of cetaceans using observers on board" their flag vessels.[240] For vessels with an overall length less than 15 m, it means that Member States must "take the necessary steps to collect scientific data on incidental catches of cetaceans ... by means of appropriate scientific studies or pilot projects".[241] (But see also Annex III, paragraphs 1 & 2.)

EUROPEAN COMMUNITY: **Council Regulation (EC) No 2371/2002 of 20 December 2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy**

Mediterranean coastal States that are EC Member States: Cyprus, France, Greece, Italy, Malta, Slovenia, Spain

Council Regulation (EC) No 2371/2002 of 20 December 2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy ("**the Basic Regulation**") is the current framework regulation regarding fisheries conservation under the EC's common fisheries policy. It applies, *inter alia*, to "Community waters" (which include, *inter alia*, waters in the Mediterranean under the sovereignty or jurisdiction of coastal Member States).[242] The Basic Regulation sets out various powers and duties for the EC regarding fisheries conservation (including the integration of environmental protection requirements, in some cases).

Most of the Basic Regulation's provisions relate to powers and duties of the EC institutions (notably the Council and the Commission). If implemented, these should serve the interests of both fisheries conservation and protection of the wider environment. (For example, management plans adopted by the Council "may include targets relating to ... the maintenance or improvement of the conservation status of marine eco-systems".[243])

However, the Basic Regulation also provides for delegation of some of the EC's powers back to the Member States. The description here will focus on such delegated powers. Thus each Member State has the power: (a) to take emergency measures (under Article 8); (b) to take measures within 12 nautical miles ("**nm**") of its baselines (under Article 9); and (c) to take measures applicable to own-flag vessels (under Article 10).

Emergency measures (under Article 8) may be taken if, *inter alia*, "there is evidence of a serious and unforeseen threat ... to the marine ecosystem resulting from fishing activities ... where any undue delay would result in damage that would be difficult to repair".[244] Such measures may be taken in any waters falling under the Member State's sovereignty (i.e. internal waters or territorial sea) or jurisdiction (notably an EEZ, if claimed), but their lifespan may not exceed three months.[245] However, the Commission has a power to cancel or amend (or, indeed, confirm) the intended measures.[246]

Measures within 12 nm of the baseline (under Article 9) may be taken to, *inter alia*, "minimise the effect of fishing on the conservation of marine eco-systems" if the EC "has not adopted measures addressing conservation and management specifically for this area" and if the measures are: (a) non-discriminatory; (b) compatible with objectives set out in Article 2 of the Basic Regulation; and (c) not less stringent than existing EC legislation.[247] However, the Commission has a power to confirm, cancel or amend the intended measures if they applying to fishing vessels flagged to other Member States.[248]

Article 10, on measures applicable to own-flag vessels, does not expressly refer to a power to adopt such measures for the purposes of protecting the marine ecosystem. Instead, it refers only to "measures for the conservation and management of stocks ...". Such measures may be taken in any waters falling under the Member State's sovereignty or jurisdiction, and may also relate to persons established in the Member State concerned (in the case of fishing activities which are not conducted by a fishing vessel). They must be compatible with objectives set out in Article 2(1) of the Basic Regulation and must no less stringent than existing EC legislation.

Of note, coastal Member States also have the power to restrict fishing in their waters up to 12 from the baselines "to fishing vessels that traditionally fish in those waters from ports on the adjacent coast", without prejudice to (a) the arrangements for vessels flagged to other EC Member States "under existing neighbourhood relations between Member

[240] Article 4(1)(a).
[241] Article 4(1)(b).
[242] Articles 1(1) & 3(a).
[243] Article 6(2).
[244] Article 8(1).
[245] Article 8(1).
[246] Article 8(3), and see generally Article 8(2)-(6).
[247] Article 9(1).
[248] Article 9(2); see also Article 9(1).

States" and (b) the arrangements contained in Annex I to the Basic Regulation.[249] This constitutes a derogation from the principle of equal access to all EC waters by vessels flagged to EC Member States.[250]

Dispute resolution: The Commission has discretion to bring enforcement proceedings against any EC Member State that it considers has failed to fulfil an obligation under the Regulation.[251] If the matter proceeds to court, the case is heard by the European Court of Justice ("**the Court**") and the judgment of the Court is binding on the Member State. Only the Court has the power to definitively interpret provisions of EC law, including those of the Basic Regulation.

The Basic Regulation clearly has application to the conservation of common dolphins in the Mediterranean. This arises from (a) the powers and duties it provides to EC institutions regarding fisheries conservation (coupled with integration of environmental protection requirements) and (b) the powers it provides to Member States (coupled with the access restriction in the case of waters within 12 nm of coastal Member States' baselines). The criteria for emergency measures, under Article 8, are quite stringent (notably the need for the threat to be "unforeseen"). However, in view of the near-absence of EEZs (or elements thereof) in the Mediterranean, measures deemed necessary minimise the effect of fishing on the conservation of common dolphins within Member States' waters could potentially be addressed through Article 9 of the Basic Regulation instead (under which measures may only be taken within 12 nm of the baselines).

### EUROPEAN COMMUNITY: **Council Regulation (EC) No 1626/94 of 27 June 1994 laying down certain technical measures for the conservation of fishery resources in the Mediterranean**

EC regulation (in force). The regulation applies "to all fisheries and related activities pursued within the territory or the maritime waters of the Mediterranean of the east of line 5° 36' west falling under the sovereignty or jurisdiction of Member States with the exception of pools and lagoons" and "to such activities pursued in the Mediterranean outside those waters by Community vessels".[252] Regarding common dolphin, see in particular Article 1(2) and Annex I. Note that the European Commission's recent legislative proposal (COM(2003) 589) for a *Council Regulation concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea and amending Regulations (EC) No 2847/93 and (EC) No 973/2001* is intended to, *inter alia*, repeal and replace Council Regulation 1626/94.

## Nature conservation instruments

### GLOBAL: **Convention on Biological Diversity**

Treaty (adopted in 1992; in force). Objectives are (a) the conservation of biological diversity, (b) the sustainable use of its components and (c) the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.[253] Geographical scope includes: (a) in the case of components of biodiversity: areas within the limits of national jurisdiction; and (b) in the case of processes and activities carried out under a party's jurisdiction or control: areas within or outside the limits of national jurisdiction.[254] Includes, *inter alia*, framework provisions on in-situ conservation[255] and sustainable use of biodiversity.[256]

### GLOBAL: **Convention on the Conservation of Migratory Species of Wild Animals**

Adopted: 23 June 1979
Entered into force: 1 November 1983

Mediterranean coastal States that are contracting parties:[257] Albania, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Libya, Malta, Monaco, Morocco, Slovenia, Spain, Syria, Tunisia. The EC is also a contracting party.

The Convention on the Conservation of Migratory Species of Wild Animals ("**CMS**") establishes regimes in respect of three categories of animals: (a) "migratory species" listed in Appendix I; (b) "migratory species" listed in Appendix II; and

[249] Article 17(2).
[250] Article 17(1).
[251] Article 226 of the Treaty Establishing the European Community.
[252] Article 1(1).
[253] Article 1.
[254] Article 4.
[255] Article 8.
[256] Article 10.
[257] See: <www.cms.int/pdf/en/party_list/Partylist_eng.pdf>, visited on 01.09.04.

(c) species (or lower taxons) with members that "periodically cross one or more national jurisdictional boundaries". Parties may adopt stricter domestic measures than those established in the treaty.[258] Importantly, a party may enter a reservation to the listing of any species in Appendix I or II.[259]

The regimes for Appendix I & II species focus mainly on so-called "range States". This term refers not only to States that exercise jurisdiction over any part of the range of the species, but also "a State, flag vessels of which are engaged outside national jurisdictional limits in taking that migratory species".[260] In principle, the term "national jurisdictional limits" in the context of the marine environment should mean a coastal State's internal waters, territorial sea, EEZ (if claimed) and continental shelf.

Appendix I species are those which are "endangered".[261] There are provisions on the listing and de-listing of such species.[262] Parties that are range States of Appendix I species are prohibited from "taking" animals of these species,[263] though this prohibition is qualified (e.g. where "the taking is for scientific purposes").[264] The term "taking" is broadly defined as "taking, hunting, fishing, capturing, harassing, deliberate killing, or attempting to engage in any such conduct".[265]

With some caveats, parties that are range States of Appendix I species must also, put briefly, endeavour: (a) to conserve and restore habitats of importance in removing the species from danger of extinction; (b) to act in relation to "activities or obstacles" that seriously impede or prevent migration; (c) to act in relation to "factors" that endanger or are likely to further endanger the species.

Appendix II species are those which (a) "have an unfavourable conservation status" and "require international agreements for their conservation and management" or (b) "have a conservation status which would significantly benefit from the international co-operation that could be achieved by an international agreement".[266] Parties that are range States of Appendix II species must endeavour to conclude so-called "Agreements" where these would benefit the species.[267] The objective of an Agreement must be to maintain the species at, or restore it to, a "favourable conservation status".[268] Agreements should be open to accession by range States that are not CMS parties.[269]

The CMS provides a non-exhaustive list of issues that an Agreement should, were appropriate and feasible, address (including "measures ... to control and manage the taking of the migratory species").[270] Regarding cetaceans specifically, the treaty also states that each Agreement should "at a minimum, prohibit, in relation to a migratory species of the Order Cetacea, any taking that is not permitted for that migratory species under any other multilateral agreement and provide for accession to the Agreement by States that are *not* Range States of that migratory species" (emphasis added).[271]

Regarding species (or lower taxons) with members that "periodically cross one or more national jurisdictional boundaries", parties "are encouraged to take action with a view to concluding *agreements* for population or any geographically separate part of the population" of any such species or lower taxon (emphasis added).[272] Such "agreements" are therefore distinct from the so-called "Agreements" for Appendix II species. The former category of instrument may be attractive to States because it provides more flexibility. Both ASCOBANS and ACCOBAMS were adopted as "agreements" rather than "Agreements".

Dispute resolution: If a dispute regarding application or interpretation of the treaty is not resolved through negotiation, the parties to the dispute may (by mutual consent) submit the dispute to arbitration ("in particular" arbitration of the Permanent Court of Arbitration at The Hague). Those parties would then be bound by the arbitral decision.[273] The CMS also states that each Agreement, for Appendix II species, should "provide for procedures for the settlement of disputes between Parties to the Agreement".[274]

The western Mediterranean population of *Delphinus delphis* is currently listed in Appendix II of the CMS (subject to any reservations made in that respect). Though the CMS provides for "Agreements" for Appendix II species, ACCOBAMS (which covers, *inter alia*, common dolphins in the Mediterranean) is technically an "agreement" instead (see above). If the common dolphin were to become "endangered" for the purposes of CMS, it would become a candidate for Appendix I. The term "taking" is applicable to both the Appendix I regime and the regime for Agreements. Of relevance to the

[258] Article XII(3).
[259] Articles XIV(2) & XI.
[260] Article I(1)(h). See also Article I(1)(f).
[261] Article III(1).
[262] Article III(2) & (3).
[263] Article III(5).
[264] Article III(5)(a)-(d).
[265] Article I(1)(i).
[266] Article IV(1).
[267] Article IV(3).
[268] Article V(1) & Article I(1)(b)-(d).
[269] Article V(2).
[270] Article V(5); see Article V(5)(j).
[271] Article V(4)(f).
[272] Article IV(4).
[273] Article XIII.
[274] Article V(4)(e).

common dolphin, it is arguable that this term includes, *inter alia*, the capturing of animals as by-catch ("capturing") and the disturbance of animals, e.g. by seismic testing ("harassing").

### GLOBAL: **Convention on International Trade in Endangered Species of Wild Fauna and Flora**

Treaty (adopted in 1973; in force). Regulates international trade in endangered species of wild fauna and flora. There are three trade regulation regimes: one for Appendix I species; one for Appendix II species; and one for Appendix III species. The common dolphin is currently listed in Appendix II.

### GLOBAL: **Convention Concerning the Protection of the World Cultural and Natural Heritage**

Treaty (adopted in 1972; in force). The term "natural heritage" includes, *inter alia*, "natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty".[275] The treaty places some duties on each party regarding the protection of natural heritage situated in its territory.[276] However, it also establishes a World Heritage Committee with functions relating to the protection of each party's natural heritage.

### REGIONAL: **Agreement on the Creation of a Mediterranean Sanctuary for Marine Mammals**

Treaty (adopted in 1999; in force). Establishes a marine sanctuary within a specified area of the Mediterranean Sea, and establishes a protection regime for marine mammals within that sanctuary.

### REGIONAL: **Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area**

Adopted: 24 November 1996
Entered into force: 1 June 2001

Mediterranean coastal States that are contracting parties:[277] Albania, Croatia, France, Greece, Libya, Malta, Monaco, Morocco, Spain, Syria, Tunisia

The Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area ("**ACCOBAMS**") is an agreement within the meaning of Article IV(4) of the CMS.[278] The geographic area covered by ACCOBAMS ("the Agreement area") includes, *inter alia*, "all the maritime waters of the Black Sea and the Mediterranean and their gulfs and seas, and the internal waters connected to or interconnecting these maritime waters, and of the Atlantic area contiguous to the Mediterranean Sea west of the Straits of Gibraltar".[279]

ACCOBAMS applies to "all cetaceans that have a range which lies entirely or partly within the Agreement Area or that accidentally or occasionally frequent the Agreement area ...".[280] An "indicative list" of these cetaceans is contained in Annex 1.[281] The term "cetaceans" includes the Odontoceti and the Mysticeti.[282] Parties may maintain or adopt stricter measures for the conservation of cetaceans and their habitats than those established in the treaty.[283] The annexes, i.e. Annexes 1 & 2, form an integral part of the treaty.[284]

The principal requirement on the parties is to "take co-ordinated measures to achieve and maintain a favourable conservation status for cetaceans".[285] This is to be done by two principal means:[286] (a) by prohibiting, and taking all necessary measures to eliminate, any deliberate taking of cetaceans (subject to some exceptions);[287] and (b) by cooperating to create and maintain a network of specially protected areas to conserve cetaceans.[288] The term "taking" is as defined in the CMS. However, the reference to "*deliberate* taking" (emphasis added) implies that the stated prohibition on such taking does not extend to non-deliberate taking, e.g. taking through by-catch.

[275] Article 2.
[276] Articles 4, 5 & 6.
[277] See: <www.accobams.mc/Accob/Wacco.nsf/Fram2Gb!OpenFrameSet>, visited on 01.09.04.
[278] Article I(4).
[279] Article I(1)(a), and indents. But see also Article XV.
[280] Article I(2).
[281] Article I(2).
[282] Article I(3)(a).
[283] Article XI(1).
[284] Article I(5).
[285] Article II(1).
[286] Article II(1).
[287] Article II(2).
[288] See also Annex 2, paragraph 3.

However, the parties are "in addition" required to apply the conservation, research and management measures set out in Annex 2 (see below) "within the limits of their sovereignty and/or jurisdiction and in accordance with their international obligations".[289] There is also a duty to apply "[m]easures concerning fisheries activities" (a) in all waters under parties' sovereignty and/or jurisdiction and (b) in respect of any vessel that is under a party's flag or registered within its territory and that is outside such waters.[290] This duty presumably refers to the fisheries measures set out in Annex 2.

Article II(4) requires the parties, when implementing "the measures prescribed above", to apply the precautionary principle. It is not entirely clear what is meant by "the measures prescribed above", though this term presumably refers to all the measures described in Article II (i.e. all those described in the previous two paragraphs).

Annex 2 to ACCOBAMS is entitled "Conservation plan". There is a (qualified) duty to undertake the various measures listed in the Annex, giving priority to (a) conserving those species or populations with "the least favourable conservation status" and (b) researching areas or species subject to "a paucity of data". Annex 2 sets out a wide variety of measures for cetacean protection. Some of these relate to the regulation of particular activities that posed a threat to cetaceans (e.g. fisheries); the others relate to research and monitoring, capacity building, collection and dissemination of information, training, education and response to emergency situations.

ACCOBAMS establishes the Meeting of the Parties ("**the MoP**"),[291] an Agreement Secretariat,[292] subregional Co-ordination Units,[293] a Bureau[294] and a Scientific Committee.[295] At each of its ordinary sessions, the MoP is to, *inter alia*, (a) review the progress made and any difficulties encountered in implementing ACCOBAMS,[296] and (b) make recommendations to the Parties and adopt specific actions to improve the effectiveness of ACCOBAMS.[297]

One of the duties of the Secretariat is to facilitate preparation of guidelines covering, *inter alia*, (a) the reduction or elimination of adverse human-cetacean impacts, (b) habitat protection and natural resource management methods, (c) emergency measures and (d) rescue methods.[298] The functions of the Co-ordination Units include, *inter alia*, to facilitate the implementation of Annex 2 and the preparation of a subregional directory of important areas for cetaceans.[299]

Dispute resolution: If a dispute regarding application or interpretation of ACCOBAMS is not resolved through negotiation, or through mediation or conciliation by a third party, the parties to the dispute may (by mutual consent) submit the dispute to arbitration or judicial settlement. Those parties would then be bound by the arbitral or judicial decision.[300]

The common dolphin is one of the cetacean species covered by ACCOBAMS (this species being listed in Annex 1 as one which occurs in, *inter alia*, the Mediterranean). ACCOBAMS' general prohibition on the "deliberate taking" of cetaceans is potentially relevant to common dolphins in the Mediterranean. Furthermore, the general duty regarding the creation and maintenance of a network of specially protected areas is clearly relevant, as are all or most of the specific duties set out in Annex 2 to ACCOBAMS (see above).

### REGIONAL: **Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean**

On 3 April 1982, a treaty entitled the Protocol Concerning Mediterranean Specially Protected Areas ("**the 1982 Protocol**") was adopted. On 23 March 1986, that treaty entered into force. On 10 June 1995, a new treaty entitled the Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean was adopted. This will be referred to here as "**the 1995 Protocol**".

The 1995 Protocol entered into force on 12 December 1999. The following Mediterranean coastal States are contracting parties to the 1995 Protocol: Algeria; Croatia; Cyprus; Egypt; France; Italy; Malta; Monaco; Slovenia; Spain; Syria; Tunisia; and Turkey. (The EC is also a contracting party.) For such States, the 1995 Protocol has replaced the 1982 Protocol in the relationship among contracting parties to both treaties.[301]

[289] Article II(3).
[290] Article II(3).
[291] Article III.
[292] Article IV.
[293] Article V.
[294] Article VI.
[295] Article VII.
[296] Article III(8)(b).
[297] Article III(8)(c).
[298] Article IV(3).
[299] Article V(1)(a) & 2(b).
[300] Article XII.
[301] Article 32(2).

The geographical area covered by the 1995 Protocol is the area delimited by Article 1 of the 76/95 Convention.[302] It also includes: (a) "the seabed and its subsoil"; (b) "the waters, the seabed and its subsoil on the landward side of the baseline from which the breadth of the territorial sea is measured and extending, in the case of watercourses, up to the freshwater limit"; (c) and "the terrestrial coastal areas designated by each of the Parties, including wetlands".[303]

The Protocol establishes a general obligation on each party to take the necessary measures to (a) "protect, preserve and manage in a sustainable and environmentally sound way areas of particular natural or cultural value, *notably by the establishment of specially protected areas*" (emphasis added) and (b) "protect, preserve and manage threatened or endangered species of flora and fauna".[304] Various other general duties relating to conservation and sustainable use are also set out.[305]

More specifically, each party has the power to establish specially protected areas ("**SPAs**") "in the marine and coastal zones subject to its sovereignty or jurisdiction"[306] for specified objectives.[307] Once a SPA has been established, there is a duty to "take the protection measures required",[308] and to "adopt planning, management, supervision and monitoring measures" for the SPA.[309]

There is also an obligation on parties to draw up a list of "specially protected areas of Mediterranean importance" ("**SPAMIs**"),[310] using a specified procedure.[311] Annex I to the 1995 Protocol contains "common criteria for the choice of protected marine and coastal areas that could be included in the SPAMI List".[312]

The parties agree to "comply with the measures applicable to the SPAMIs and not to authorize nor undertake any activities that might be contrary to the objectives for which the SPAMIs were established".[313] Those parties proposing a site for inclusion in the SPAMI list are to "implement the protection and conservation measures specified in their proposals" in accordance with Article 9(3).[314] Further duties are imposed by sections C & D of Annex I to the Protocol. There are restrictions on the reasons for which the delimitation or legal status of a SPAMI may be changed.

Regarding the protection and conservation of species, the parties are under a general duty to "manage species of flora and fauna with the aim of maintaining them in a favourable state of conservation".[315] Thus, this duty applies to all species. Each party must accord "protected status" to endangered or threatened species that it has identified and listed as occurring in zones under its sovereignty or jurisdiction.[316] In respect of such protected species, various duties apply.[317] There is also a duty regarding migratory species whose range extends into the Protocol's geographical area,[318] and duties in relation to endangered or threatened species that are not necessarily protected.[319]

Various species are listed in Annexes II & III to the Protocol. Annex II includes "endangered or threatened species"; Annex III includes "species whose exploitation is regulated". For such species, the parties must adopt cooperative measures to ensure their protection and conservation.[320] Various specific duties relate to such species,[321] though there is power to grant exemptions.[322] The parties must adopt common criteria for the inclusion of additional species in the annexes.[323]

In Part IV of the 1995 Protocol, there is a free-standing duty on each party to "compile comprehensive inventories of ... areas over which they exercise sovereignty or jurisdiction that contain rare or fragile ecosystems, that are reservoirs of biological diversity, that are important for threatened or endangered species".[324] There is also a duty to compile comprehensive inventories of "species of fauna or flora that are endangered or threatened", though this seems to be a duplication of an earlier duty.[325]

The Protocol also includes provisions on, *inter alia*, introduction of non-indigenous or genetically modified species,[326]

[302] Article 2(1).
[303] Articles 2(1).
[304] Article 3(1).
[305] Article 3(2)-(6).
[306] Article 5(1).
[307] Article 4.
[308] Article 6; see also Article 6(a)-(i).
[309] Article 7(1); see also Article 7(2).
[310] Article 8(1).
[311] Article 9.
[312] See also Article 8(2).
[313] Article 8(3)(b).
[314] Article 9(5).
[315] Article 11(1).
[316] Article 11(2).
[317] Article 11(2), (3), (5), (6) & (8).
[318] Article 11(4).
[319] Articles 11(7) & 12(5).
[320] Article 12(1).
[321] Article 12(2), (3) & (4).
[322] Article 12(6).
[323] Article 16(b).
[324] Article 15(a).
[325] See Article 11(2).
[326] Article 13.

environmental impact assessment,[327] integration of traditional activities,[328] publicity, information, public awareness and education,[329] mutual cooperation and assistance,[330] reporting,[331] and scientific research,[332] as well as institutional machinery.[333] The provisions of the Protocol do not affect the right of parties "to adopt relevant stricter domestic measures for the implementation of this Protocol".[334]

Dispute resolution: Though the 1995 Protocol itself contains no provisions on the resolution of disputes relating to its application or interpretation, the 76/95 Convention contains dispute resolution provisions relating to both that Convention and the Protocols adopted under it.[335]

Regarding area protection, a party to the 1995 Protocol has discretion regarding (a) whether or not to establish SPAs in its waters for the common dolphin and (b) whether or not to propose SPAMIs in its waters (or on the high seas) for that species. If it opts to establish a SPA or a SPAMI, certain duties apply (see above). Regarding species protection, the general duty on parties to "manage species of flora and fauna with the aim of maintaining them in a favourable state of conservation" applies, *inter alia*, to the common dolphin. Furthermore, the duty to afford protected status to endangered or threatened species presumably applies to the common dolphin (on the grounds that it is included in Annex II). Because of its inclusion in Annex II, various specific duties (see above) also apply in respect of the common dolphin. The duty on the parties to compile comprehensive inventories of areas in their waters that are important for threatened or endangered species also presumably applies to the common dolphin (on the basis of its inclusion in Annex II).

### REGIONAL: **Convention on the Conservation of European Wildlife and Natural Habitats**

Adopted: 19 September 1979
Entered into force: 1 June 1982

Mediterranean coastal States that are contracting parties: Albania, Croatia, Cyprus, France, Greece, Italy, Malta, Monaco, Morocco, Slovenia, Spain, Tunisia, Turkey. The EC is also a contracting party.

The purpose of the Convention on the Conservation of European Wildlife and Natural Habitats ("**the Bern Convention**") is (a) to conserve wild flora and fauna and their natural habitats, "especially those species and habitats whose conservation requires the co-operation of several States" and (b) to promote such cooperation.[336] The treaty states that "[p]articular emphasis is given to endangered and vulnerable species, including endangered and vulnerable migratory species".[337] There is no provision establishing the geographical scope of the treaty, but its marine scope presumably includes at least the internal waters and territorial sea of its parties.

There is a general duty on the parties to "take requisite measures to maintain the population of wild flora and fauna at, or adapt it to, a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements and the needs of sub-species, varieties or forms at risk locally".[338] The treaty has four appendices: Appendix I on strictly protected flora species; Appendix II on strictly protected fauna species; Appendix III on protected fauna species; and Appendix IV on prohibited means and methods of killing, capture and other forms of exploitation.

The Bern Convention establishes regimes for the protection of both habitats and species. Regarding the former, the regime relates especially to habitats of the species listed in Appendices I and II and, more generally, to endangered habitats and habitats of "the wild fauna and flora species".[339] Notably, the parties must take "appropriate and necessary legislative and administrative measures to ensure the conservation of [such habitats]".[340] It is implied that such measures will include site-based measures.[341] Deterioration of such areas is to be minimised or avoided as far as possible, through appropriate planning and development policies.[342] The parties undertake to give "special attention" to protection of areas of importance for those Appendix II species that are migratory.[343]

[327] Article 17.
[328] Article 18.
[329] Article 19.
[330] Articles 21 & 22.
[331] Article 23.
[332] Article 20.
[333] Part V of the Protocol.
[334] Article 27.
[335] Article 28.
[336] Article 1(1).
[337] Article 1(2).
[338] Article 2. See also Article 3.
[339] Article 4(1).
[340] Article 4(1).
[341] Article 4(2).
[342] Article 4(2).
[343] Article 4(3).

Regarding species, the Bern Convention's protection regime relates, *inter alia*, to animal species listed in Appendices II & III. For Appendix II species, there is a duty to "take appropriate and necessary legislative and administrative measures to ensure the *special* protection of [such species]" (emphasis added).[344] These measures are to, *inter alia*, prohibit: (a) "all forms of deliberate capture and keeping and deliberate killing"; (b) "the deliberate damage to or destruction of breeding or resting sites"; (c) "the deliberate disturbance of wild fauna ... insofar as disturbance would be significant in relation to the objectives of this Convention"; and (d) "the possession of and internal trade in these animals, alive or dead ... where this would contribute to the effectiveness of the provisions of this article".[345]

For Appendix III species, there is a duty to "take appropriate and necessary legislative and administrative measures to ensure the protection of [such species]".[346] The treaty sets out duties in relation to the "exploitation" of Appendix III species.[347] The term "exploitation" is not defined; it is arguable that it includes non-extractive uses (e.g. whale-watching). Exploitation of Appendix III species must be regulated "to keep the populations out of danger" (taking into account the requirements of Article 2). Appendix III contains, *inter alia*, all cetacean species not mentioned in Appendix II.

Parties are permitted to make exceptions to the above habitats and species provisions for specified reasons, "provided that there is no other satisfactory solution and that the exception will not be detrimental to the survival of the population concerned" and subject to some reporting requirements.[348] The reasons include, *inter alia*, "to prevent serious damage to ... fisheries ...", "in the interests of ... overriding public interests", "for the purposes of research and education ..." and "to permit, under strictly supervised conditions, on a selective basis and to a limited extent, the taking, keeping or other judicious exploitation of certain wild animals ... in small numbers".

Furthermore, in cases where such an exception has been made for an Appendix II species or in respect of the capture or killing of Appendix III species, parties are to "prohibit the use of all indiscriminate means of capture and killing and the use of all means capable of causing local disappearance of, or serious disturbance to, populations" of such species.[349] In this context, the party is to, in particular, prohibit the means specified in Appendix IV. However, a party may make an exception to this obligation if the requirements in the above paragraph are met.[350]

The Bern Convention also contains, *inter alia*, provisions on migratory species,[351] cooperation,[352] research,[353] re-introduction,[354] and control of non-native species.[355] Also, the parties may adopt stricter measures for the conservation of species and their habitats than those provided for in the treaty.[356] The Bern Convention establishes a Standing Committee, with various functions, which reports to the Committee of Ministers of the Council of Europe.[357]

A procedure has been developed under the Bern Convention to facilitate implementation of the treaty. This involves opening and closing of "files" by the Standing Committee, recommendations by that Committee and follow-up to such recommendations. A file may be opened, subject to certain conditions being met, following notification of failure by a party to comply with one or more of the treaty's provisions. A request to open a file can be made by a party, an individual, a NGO or a group of private persons. The procedure is set out in Appendix 4 of the Report of the 13th meeting of the Standing Committee (1993),[358] and has been applied provisionally meanwhile.

There is scope for a party to specify (or expand) the territory to which the treaty applies,[359] to make reservations regarding species listed in Appendices I - III (including regarding exploitation methods listed in Appendix IV),[360] and to object to, *inter alia*, amendments to the appendices.[361]

Dispute resolution:[362] If a dispute regarding application or interpretation of the Bern Convention is not settled through negotiation, or through facilitation by the Standing Committee, that dispute must, at the request of any of the parties to the dispute, be submitted to arbitration (unless the parties to the dispute agree otherwise). Failure by one party to appoint an

[344] Article 6.
[345] Article 6.
[346] Article 7(1).
[347] Article 7(2) & (3).
[348] Article 9.
[349] Article 8.
[350] Article 9(1).
[351] Article 10.
[352] Article 11(1)(a).
[353] Article 11(1)(b).
[354] Article 11(2)(a).
[355] Article 11(2)(b).
[356] Article 12.
[357] Articles 13 - 15.
[358] The procedure was reiterated in a Secretariat Memorandum (document code: T-PVS(99)16) issued to the 19th meeting of the Standing Committee (1999).
[359] Article 21.
[360] Article 22.
[361] Article 17.
[362] Article 18.

arbitrator, or by the two chosen arbitrators to then appoint a third, will lead to that appointment being made by the President of the European Court of Human Rights. The decision of the arbitral tribunal is final and binding.

The common dolphin is listed in Appendix II of the Bern Convention. Thus the treaty's habitat and species protection regimes are directly relevant to this species. Therefore the common dolphin should benefit (a) from the duty to establish areas that protect its habitat ("special attention" being required in this respect, on the assumption that the common dolphin is a "migratory species") and (b) from, *inter alia*, the various prohibitions intended to ensure the common dolphin's "special protection" (subject to any of the exceptions being invoked by a party, and subject to any reservations that have been made regarding the common dolphin's inclusion in Appendix II). The "files" procedure may have application to the common dolphin, subject to parties' compliance with the relevant provisions of the treaty.

### EUROPEAN COMMUNITY: **Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage**

EC directive (in force). The purpose of the directive is "to establish a framework of environmental liability based on the 'polluter-pays' principle, to prevent and remedy environmental damage".[363] The term "environmental damage" includes, *inter alia*, "damage to protected species and natural habitats".[364] In turn, the term "protected species and natural habitats" includes, *inter alia*, the species listed in Annex IV to the Habitats Directive (which include the common dolphin).[365] The directive applies to: (a) environmental damage caused by any of the occupational activities listed in Annex III to the directive; and (b) damage to protected species and natural habitats caused by any other activities, but only if the operator has been at fault or negligent.[366] The directive also includes some important exceptions.

### EUROPEAN COMMUNITY: **Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment**

EC directive (in force). Member States must ensure that an environmental assessment is carried out for specified plans and programmes which are likely to have significant environmental effects.[367] The main categories of plans and programmes under consideration are (subject to some exceptions): (a) those "which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use and which set the framework for future development consent of projects listed in Annexes I and II to Directive 85/337/EC [i.e. the EIA Directive]" and (b) those "which, in view of the likely effect on sites, have been determined to require an assessment pursuant to Article 6 or 7 of Directive 92/43/EEC [i.e. the Habitats Directive]".[368]

### EUROPEAN COMMUNITY: **Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment (as amended)**

EC directive (in force). Member States must ensure that, "before consent is given, projects [as defined in Article 4] likely to have significant effects on the environment ... are made subject to a requirement for development consent and an assessment with regard to their effects".[369] Article 4 identifies two categories of projects: (a) those listed in Annex I to the directive, for which an assessment is mandatory (subject to some exceptions) and (b) those listed in Annex II, for which the need for an assessment may be determined by the Member State through case-by-case examination or use of thresholds or criteria (again, subject to some exceptions). Annex I lists, *inter alia*, "[e]xtraction of petroleum and natural gas for commercial purposes where the amount extracted exceeds 500 tonnes/day in the case of petroleum and 500 000 m3/day in the case of gas".[370]

[363] Article 1.
[364] Article 2(1).
[365] Article 2(3).
[366] Article 3(1).
[367] Article 3(1).
[368] Article 3(2).
[369] Article 2(1).
[370] Paragraph 14.

EUROPEAN COMMUNITY: **Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora**

Mediterranean coastal States that are EC Member States: Cyprus, France, Greece, Italy, Malta, Slovenia, Spain

The aim of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora ("**the Directive**") is "to contribute towards ensuring bio-diversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States to which the Treaty [establishing the EC] applies".[371] Measures taken pursuant to the Directive must be designed "to maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest".[372] There is a general duty to undertake surveillance of the conservation status of such habitats and species.[373]

The term "the European territory of the Member States to which the Treaty applies", for the purposes of the Directive, has not yet been interpreted by the EC Courts. It is clear that it includes, *inter alia*, the internal waters and territorial sea. However, in practice, there is also support from the European Commission and several coastal EC Member States for implementation of the Directive beyond the territorial sea, i.e. to the EEZ (where claimed) and to the continental shelf.

The Directive establishes regimes for the protection of both habitats and species. Regarding the former, the regime relates to the habitats listed in Annex I and to habitats of the species listed in Annex II. The marine habitats listed in Annex I are mainly of a coastal or shallow water nature, though the term "reefs" potentially has an offshore and deep-water application. The species listed in Annex II include two species of cetaceans (*Tursiops truncatus* and *Phocoena phocoena*) as well as some other marine species.

A key result intended by the Directive's habitat protection regime is the establishment of a "coherent European ecological network of special areas of conservation ... under the title Natura 2000",[374] to be composed, *inter alia*, of sites hosting the Annex I habitats and habitats of the Annex II species. Significant duties are placed on the Member States regarding the establishment and protection of such sites.[375] There is also a weaker duty regarding "the management of features of the landscape which are of major importance for wild fauna and flora".[376]

Regarding species, the Directive's protection regime relates, *inter alia*, to animal species listed in Annex IV(a). For such species, which include all cetacean species, there is a duty is to "take the requisite measures to establish a system of strict protection ... in their natural range ...".[377] This system is to prohibit, *inter alia*, "all forms of deliberate capture or killing of specimens of these species in the wild", "deliberate disturbance of these species ..." and "deterioration or destruction of breeding sites or resting places".[378] The Directive's prohibition on capture, killing and disturbance of the Annex IV(a) species is qualified by the requirement for these results to be "deliberate". However, the prohibition on deterioration or destruction of breeding sites or resting places is not qualified in this way and so, arguably, could include deterioration or destruction that is incidental.

In respect of Annex IV(a) animal species, there is also a duty to prohibit, with one exception, "the keeping, transport and sale or exchange, and offering for sale or exchange, of specimens taken from the wild".[379] Member States are to establish a system to monitor the incidental capture and killing of the Annex IV(a) animal species and, in the light of the monitoring data, are to "take further research or conservation measures as required to ensure that incidental capture and killing does not have a significant negative impact on the species concerned".[380]

Member States are permitted to derogate from the above species protection provisions for specified reasons and if "there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status in their natural range".[381] The reasons include, *inter alia*, "to prevent serious damage, in particular to ... fisheries ...", "in the interests of ... imperative reasons of overriding public interest, including those of a social or economic nature ...", "for the purpose of research and education ..." and "to allow, under strictly supervised conditions, on a selective basis and to a limited extent, the taking or keeping of certain specimens of the species listed in Annex IV in limited numbers specified by the competent national authorities".[382]

The Commission is under a duty to give its opinion on any such derogations.[383] Furthermore, where such a derogation has been granted in respect of the taking, capture or killing of an Annex IV(a) species, Member States are to "prohibit the use

[371] Article 2(1).
[372] Article 2(2); see also Article 1(b), (c), (e), (g) & (i).
[373] Article 11.
[374] Article 3(1).
[375] See, in particular, Articles 3, 4 & 6.
[376] Article 10; see also Article 3(3).
[377] Article 12(1).
[378] Article 12(1)(a), (b) & (d).
[379] Article 12(2).
[380] Article 12(4).
[381] Article 16(1).
[382] Article 16(1)(b), (c) & (e).
[383] Article 16(2).

of all indiscriminate means capable of causing local disappearance of, or serious disturbance to, populations" of that species.[384] In this context, the Member State is to, in particular, prohibit the methods of capture and killing listed in Annex VI (a) & (b).[385] The Directive also contains some duties on, *inter alia*, reporting,[386] "research and scientific work"[387] and on re-introduction of Annex IV species.[388]

Dispute resolution: The Commission has discretion to bring enforcement proceedings against any EC Member State that it considers has failed to fulfil an obligation under the Directive.[389] If the matter proceeds to court, the case is heard by the European Court of Justice ("**the Court**") and the judgment of the Court is binding on the Member State. Only the Court has the power to definitively interpret provisions of EC law, including those of the Directive.

The habitat protection regime of the Directive is relevant to the common dolphin to the extent that this species benefits from any marine special areas of conservation established for the Annex I habitats or habitats of the Annex II species (or indeed from any marine special protection areas established under the EC Birds Directive). The Directive's species protection regime is directly relevant to the common dolphin because Annex IV(a) covers, *inter alia*, all cetacean species. Thus the common dolphin benefits from, *inter alia*, the various prohibitions comprising the "system of strict protection" and the provisions on monitoring and conservation measures regarding incidental capture and killing (subject to a derogation being validly invoked by a Member State). As a species of Community interest, Member States must also undertake surveillance of the conservation status of the common dolphin.

**Other**

GLOBAL: **International Convention for the Regulation of Whaling**

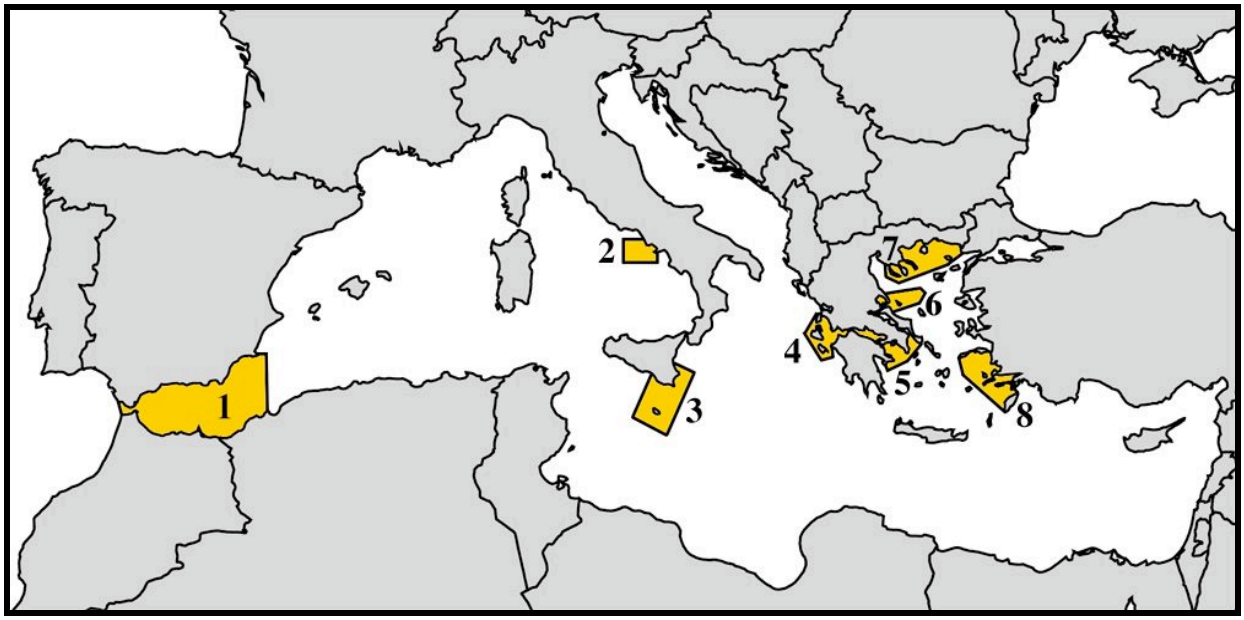
Treaty (adopted in 1946; in force). Establishes the International Whaling Commission ("IWC"), and establishes functions for that Commission. Includes a Schedule which contains regulations on whaling. There is currently a moratorium on all commercial whaling under the treaty.[390] Some aboriginal subsistence whaling is permitted.[391] In addition, Iceland and Japan undertake "special permit" whaling (under Article VIII) and Norway undertakes objection whaling (under Article V(3)).

[384] Article 15.
[385] Article 15(a) & (b).
[386] Article 17.
[387] Article 18.
[388] Article 22(a); see also Article 16(1)(d).
[389] Article 226 of the Treaty Establishing the European Community.
[390] Schedule, paragraph 10(e).
[391] Schedule, paragraph 13.

# ANNEX 2

## AREAS OF CONSERVATION IMPORTANCE FOR COMMON DOLPHINS

Geographic location and proposed borders of Areas of Conservation Importance:




**1)** Alborán Sea

**2)** Waters surrounding the island of Ischia, south-eastern Tyrrhenian Sea

**3)** Waters surrounding the island of Malta and south-eastern Sicily

**4)** Eastern Ionian Sea and Gulf of Corinth

**5)** Gulf of Saronikos and adjacent waters (Argo-Saronikos and southern South Evvoikos Gulf)

**6)** Waters surrounding the Northern Sporades

**7)** Northern Aegean Sea

**8)** Waters surrounding the Dodekanese

# ANNEX 3

## COORDINATOR OF THE COMMON DOLPHIN CONSERVATION PLAN: JOB DESCRIPTION

Qualifications

A senior professional with a good understanding of the business of conserving marine biodiversity, and with a record of positive working experience in the Mediterranean region.

Ph.D. or equivalent degree.

Capacity to excel at project management, interagency diplomacy, public relations.

Good knowledge of English and French. Knowledge of Arabic is a plus.

Terms of reference

The research outlined in this Plan will require the collection and analysis of diverse data sets that will require the efforts of many researchers and agencies. The Coordinator must help coordinate these research efforts, which will span from private and academic research facilities to regional and local management agencies. This coordination will require open communication, and a sensitivity to the needs of each entity.

The results of the research outlined herein will be put into management plans that may affect human activities that are controlled at the regional and local levels. The Coordinator will ensure that these management efforts are coordinated across these jurisdictional levels.

The Coordinator will be responsible for monitoring and evaluating the progress of the implementation of the Conservation Plan. These goals will be met by ensuring the continued coordination of research, regulatory and management efforts.

The Coordinator will ensure that that the Plan stays relevant, by monitoring and evaluating the progress of implementation of its goals, and by updating the Plan when these goals have been met. This responsibility will be discharged through close and frequent consultation with the Secretariat, members of the Scientific Committee and other relevant experts.

Primary duties and responsibilities

To prepare a review of pre-existing commitments by Mediterranean States for conserving and improving the state of the marine environment, and linking these to the common dolphin; this review should be presented to the Parties for discussion and consideration, and their document should provide a "road map" that can be used to track progress (or failure) in meeting obligations;

To raise funds in coordination with the Secretariat;

To report periodically to the Secretariat;

To implement the elements of the Conservation Plan;

To contract consultants as necessary to accomplish the tasks;

To ensure proper periodical review and update of the plan;

To establish and maintain coordination with other similar or convergent actions within ACCOBAMS;

To compile reports on an annual basis;

To monitor and evaluate progress;

To develop a network of local and regional experts and consultants;

To delegate responsibilities as appropriate to local actors;

To make in-site visits to ensure that people do what they are supposed to do;

To maintain regular consultation with the regional and international collective body of expertise on common dolphin;

To establish links with the international agencies and bodies responsible or concerned with marine Mediterranean conservation and cetacean conservation;

To link with fisheries bodies managing Mediterranean fisheries;

To maintain a library and a database functioning as a clearing house for the management of information.

# ANNEX 4

## ICRAM WORKSHOP CONCLUSIONS AND RECOMMENDATIONS

Reeves R.R., Read A.J., Notarbartolo di Sciara G. (editors). 2001. Report of the workshop on interactions between dolphins and fisheries in the Mediterranean: evaluation of mitigation alternatives. ICRAM, Rome. 44 pp.

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In addition to the **conclusions** highlighted elsewhere in the report, the workshop **concluded** that:

Acoustic devices have the potential to damage the hearing of dolphins and other animals and to cause other impacts, such as habitat exclusion. However, the effects of acoustic exposure are highly species-specific and depend on each species' frequency sensitivity, and on the received level of the sound. Available data suggest that ultrasonic, low- intensity devices are most likely to be effective for deterring odontocetes while having the least probability of causing harm to other species.

To evaluate the effectiveness of any mitigation strategy, it is necessary to have clearly stated management goals. At present, these do not exist in relation to fishery-dolphin conflicts in the Mediterranean.

Very little quantitative information exists on: the nature and extent of interactions between dolphins and small-scale commercial fisheries in the Mediterranean, the costs of such interactions to the fisheries, or the effects of such interactions on dolphin populations.

Given (a) what is currently known about the physiology and behaviour of bottlenose dolphins, (b) the potential for excluding dolphins from habitat (and consequent implications for the health of local dolphin populations) and (c) the potential for negative effects on monk seals, high- intensity acoustic devices such as those currently marketed as AHDs and used to deter pinnipeds from aquaculture operations are *inappropriate* for use in alleviating conflict between dolphins and fisherie s (or aquaculture operations) in the Mediterranean. This conclusion applies irrespective of the potentially high, or even prohibitive, costs of deploying these devices in the Mediterranean context. The workshop **underlined** that the use of AHDs in the Mediterranean may contravene current national and international regulations.

In the absence of conclusive evidence that low- intensity acoustic devices (pingers) can be effective in reducing the frequency of interactions between dolphins and fisheries, further research on this topic would be useful.

Non-acoustic means of reducing conflicts between dolphins and fisheries hold considerable promise and deserve detailed evaluation.

In addition to the **recommendations** highlighted elsewhere in the report, the workshop **recommended** that:

Government agencies and international bodies begin developing and articulating management goals for mitigation of fishery-dolphin conflicts so that it will be possible to make meaningful evaluations of effectiveness.

Site-specific studies be carried out (simultaneously) focusing on the characteristics of particular fisheries and on the ecology and behaviour of 'local' dolphin population(s). More information is needed on which animals are engaged in depredation, e.g. individuals or entire groups; older or younger animals, or both; males or females, or both. Photo- identification studies are essential for obtaining this kind of information and for investigating site fidelity. Use of 'signature whistles' to identify individuals involved in fishery depredation in the Mediterranean is unlikely to be practical, at least in the short term.

Any long-term monitoring program include efforts to investigate and document dolphin mortality, to determine whether fishermen are taking retaliatory measures against dolphins.

# ANNEX 5

## PEW MARINE CONSERVATION FELLOWS' ACTION STATEMENT FOR FISHERIES CONSERVATION AND NETWORKS OF MARINE PROTECTED AREAS

**Action Statement for Fisheries Conservation**

The urgent need to restore depleted marine populations and maintain sustainable fisheries was endorsed by the World Summit for Sustainable Development in August 2002. These renewed commitments complement numerous prior international agreements, including the FAO Code of Conduct for Responsible Fishing and the FAO statement on a precautionary approach to fisheries management. All of these accords provide the context for the actions we stress below.

Two core problems face fishery management around the world: (1) a wide array of institutions and policies that provide perverse incentives to overfish and (2) the lack of alternatives for people plagued by poverty. National governments will need to address these core problems, employing a precautionary approach and a fully participatory process while implementing the following seventeen priority actions.

**Engaging institutions and stakeholders**

1. Secure the participation in policy-making and management of all interested parties, including fishers, managers, traders, consumers, scientists, and public interest groups.
2. Establish institutions and forms of governance that provide effective incentives for fishery participants to conserve fishery resources.
3. Ensure that all fishing activities within national waters are conducted under an allocation system that provides tenure to identifiable groups of domestic fishers, in a fair manner.
4. Empower consumers to use marine resources sustainably by strengthening and implementing verifiable third-party certification systems for sustainably produced marine products.

**Managing and evaluating fisheries**

5. Eliminate subsidies that contribute to the expansion of fishing effort beyond sustainable levels.
6. Assist in the development of environmentally sustainable and socially acceptable alternative and supplementary income opportunities for fishers, such that fishing effort in unsustainable fisheries is reduced.
7. Maximize any fishery's economic and social benefits to society within limits of environmental sustainability.
8. Manage offshore fishing rights to provide equitable benefits within the country.
9. Set performance objectives and publish regular evaluations of progress towards achieving actions listed in this statement.

**Conserving ecosystems**

10. Ensure development and use of fishing gear and practices that prevent harm to habitats and non-target species.
11. Develop and enforce laws banning fisheries practices and gears that are deleterious to habitats and non-target fauna and flora.
12. Establish national and regional networks of no-take marine protected areas (MPAs) to sustain and enhance fisheries and protect habitats, as a contribution towards global networks of MPAs.
13. Monitor for early detection of ecosystem degradation, then plan and implement responses to halt this degradation.

**Addressing technological interventions**

14. Design and enforce standards for sustainable aquaculture that ensure economic viability (independent of perverse incentives) and prevent ecological harm.
15. Establish and enforce standards to prevent the escape of genetically modified organisms (GMOs) from production operations and subsequent introduction to coastal and offshore environments.
16. Exercise the greatest caution and scientific judgement before contemplating any intentional production or release of GMOs in the marine environment. Almost all such practices will be counterproductive to broader conservation efforts.
17. Advance and expand our understanding of the state of the oceans and ocean resources, creating and employing new technologies where necessary and environmentally acceptable.

**Action Statement for Networks of Marine Protected Areas**

The World Summit for Sustainable Development called for the establishment of networks of representative Marine Protected Areas (MPAs) in all major marine habitats and climatic regions throughout the world's oceans by 2012. MPAs provide many different levels of protection. No-take MPAs - where extraction of any biological or mineral resource is prohibited - help maintain species, fully protect habitats, and serve as reference points of marine resource change. They are a particularly powerful marine management options, but their use and establishment present special challenges.

Networks are arrays of replicated MPAs, of variable size and spacing, that allow marine organisms or their progeny to move among the MPAs. A network configuration promotes population persistence in perpetuity, in the face of diverse threats. A well-conceived network of no-take MPAs is formed by fully protecting multiple representatives of all marine habitats. Such networks are envisioned as one part of a larger, integrated strategy of ocean management that includes careful fisheries exploitation, pollution control, and negotiations among multiple users.

MPA networks function to sustain and regenerate marine resources, and are among the most powerful and reliable tools available for marine conservation. Generating MPAs and melding them into functioning networks requires national and regional engagement to implement the following fifteen priority actions.

**Supporting local implementation of no-take MPAs**

1. Develop a policy and legislative framework for local communities to engage in establishment and management of no-take MPAs.
2. Ensure that all interested parties are involved in the no-take MPA process.
3. Promote declaration of no-take MPAs wherever there is community agreement to do so, and implement action to establish no-take MPAs in other areas.

**Supporting local management of no-take MPAs**

4. Provide resources to implement, monitor, raise awareness of, and ensure compliance with MPAs.
5. Ensure that all no-take MPAs are effectively managed and enforced to realize their particular goals.
6. Ensure that a high proportion of the benefits from the no-take MPA flow to local communities.

**Implementing networks of no-take MPAs**

7. Set performance objectives for national and regional networks of no-take MPAs to meet the combined needs of fisheries, biodiversity and ecosystem stabilization. The total area required will vary among ecosystems, but no less than 10% and as much as 50% should be placed in no-take zones. Networks will need to include multiple representatives of all marine habitats.
8. Formulate a comprehensive plan for networks of no-take MPAs that meet stated objectives by 2012.
9. Formally declare and legally protect as no-take MPAs all areas incidentally closed to fishing or habitat damage (such as coasts near military bases, national borders, and prisons).
10. Work with interested parties and other levels of regional government to identify and fill gaps in networks of no-take MPAs.

**Assessing networks of no-take MPAs**

11. Assess the effectiveness of networks of no-take MPAs for fisheries, biodiversity and ecosystem objectives. Adjust the number, placement or size of MPAs as necessary.
12. Provide public and regular evaluations of progress towards establishing national or regional networks of no-take MPAs, and of their effectiveness.

**Participating in global action for no-take MPAs**

13. Maintain sustainable fisheries and restore depleted fisheries stocks outside no-take MPAs with the best available precautionary fisheries management tools.
14. Co-operate with global efforts to plan networks of no-take MPAs that protect all marine habitats.
15. Insist on international mechanisms to generate and manage no-take MPAs on the high seas.