

National Environment and Planning Agency

The Natural Resources Conservation Authority (NRCA) and the National Environment and Planning Agency (NEPA) invite comments from the public for the Draft Dolphin Policy for Jamaica. You may address your comments on or before April 9, 2009 to:

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DRAFT

DOLPHIN POLICY FOR JAMAICA

*NATURAL RESOURCES
CONSERVATION AUTHORITY
OFFICE OF THE PRIME MINISTER*

August 2008

ACKNOWLEDGEMENTS

This policy was prepared in collaboration with the CITES Scientific Authority for Jamaica, Natural Resources Conservation Authority, Ministry of Local Government and Environment, and the members of staff from the Biodiversity Branch, Legal Services Branch and Documentation Centre of the National Environment and Planning Agency.

PREFACE

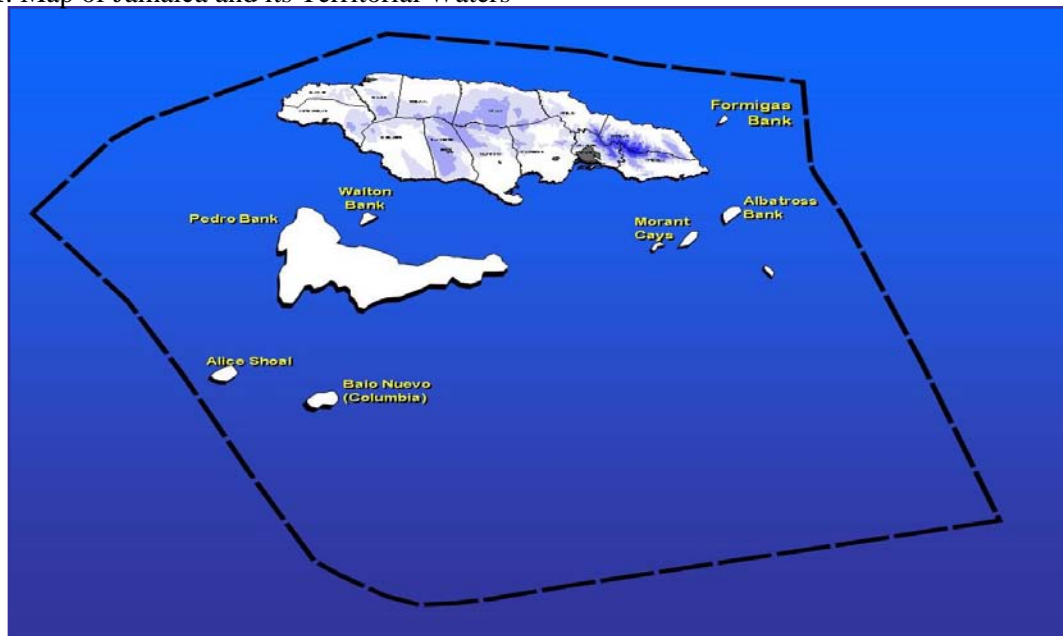
Jamaica's territorial waters are approximately 161,000 sq. km (Figure 1) and are rich in marine biodiversity. Many species of cetaceans (whales and dolphins) have been sighted in Jamaican waters such as the Humpback Whale (*Megaptera novaeangliae*), Cuvier's Beaked Whale (*Ziphius cavirostris*), Killer Whale (*Orcinus orca*), Common Bottlenose Dolphin (*Tursiops truncatus*) and Pantropical Spotted Dolphin (*Stenella attenuata*). There is, however, a paucity of data on population and habitat status and threats to dolphins in Jamaican waters.

On October 10, 2001, the Bottlenose Dolphin and the Pantropical Spotted Dolphin were included in the list of protected animals in the Wild Life Protection Act (1945) through the Wild Life Protection (Amendment of Third Schedule) Regulations, 2001. Under the Act, it is an offence for any person to hunt any protected animal or have in his possession the whole or any part of any protected animal.

Recognizing that in recent years there has been a proliferation in the number of marine life encounter attractions in the Caribbean and a consequent increase in the demand for the capture of wildlife, in particular Bottlenose Dolphins, the Natural Resources Conservation Authority (NRCA) has taken a precautionary approach in processing applications for capture. No permits have been issued for such capture. The Authority has supported surveys targeting the Bottlenose Dolphin, to estimate the population in Jamaican waters, with the recognition that the animals are migratory.

The Authority has now decided to develop a policy for the conservation of Jamaica's dolphin populations, particularly Bottlenose Dolphins and the use of dolphins in dolphinariums or activities such as dolphin watching

Figure 1: Map of Jamaica and its Territorial Waters



Source: NEPA, 2004

LIST OF ACRONYMS

CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
NEPA	National Environment and Planning Agency
NRCA	Natural Resources Conservation Authority
SPAW	Protocol Concerning Specially Protected Areas and Wildlife in the Wider Caribbean under the Convention on the Protection and Management of the Marine Environment of the Wider Caribbean (Cartagena Convention)
UNEP	United Nations Environment Programme

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1.0 POLICY OBJECTIVE

This Policy addresses dolphins in Jamaican waters, the importation of dolphins and dolphin attractions. Given the lack of data on dolphin populations, the policy is based on the precautionary approach. Decisions on further development of dolphin attractions will therefore be based on research and scientific data.

The goals of the policy are:

1. *Conservation of Jamaica's dolphin species and their habitats*
2. *Improvement and expansion of public awareness of dolphins and marine Mammals.*
3. *Development of a management plan in relation to sustainable interactions with dolphins*
4. *Promotion of research and training*

The targets in the short to medium term (three to five years) are:

1. Formulation and implementation of a National Management Plan for the Bottlenose Dolphin.)
2. Identification of suitable habitats for dolphins for declaration as protected areas.
3. Raising of public awareness, including in the tourism sector, about dolphins.
4. Photo-identification and biopsy sampling to obtain data for abundance estimation and for determining stock structure.

The targets over the long term (over ten years) are:

1. Conducting of scientific studies to monitor status of dolphins and trends.
2. Investigation of taxonomic and genetic status to confirm stock structure.
3. Compilation of data on past and ongoing records of dolphin populations in Jamaica.

2.0 INTRODUCTION

The order of dolphins and whales, Cetacea, is classified as threatened by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Some species are listed in Appendix I of the Convention which means that they cannot be traded commercially. Other species such as the Bottlenose Dolphin (*Tursiops truncatus*) are listed in Appendix II¹ and can be traded commercially only if trade does not threaten the survival of the species. Further information on Bottlenose Dolphins is set out in Appendix 2 of this Policy.

¹ While most Bottlenose Dolphins are listed under Appendix II of CITES, the population found in the Black Sea has been listed under Appendix I.

The demand to capture Bottlenose Dolphins in the Caribbean is not for food but for stocking dolphinarium, a tourism product, which has been recognized in some countries as an important economic activity for the tourism industry in the Caribbean. As the number of facilities in the Caribbean continues to increase, some facilities are also expanding their operations. Today, dolphinarium have been established in Cuba, the Dominican Republic, Venezuela, Colombia, Curacao, Jamaica, Anguilla, the Cayman Islands, Tortola, and the Netherlands Antilles. It is expected that the industry may expand in the Caribbean as tourism, with its attendant products, is an important industry for many islands. As such, an Action Plan for the Conservation of Marine Mammals in the Wider Caribbean Region was formulated in 2005 by the Parties to the Protocol Concerning Specially Protected Areas and Wildlife in the Wider Caribbean (SPAW). The Plan states that the status of most Caribbean marine mammal populations is either poor or uncertain.

At present, there are two approved dolphinarium in Jamaica, one in Ocho Rios, St. Ann at Dolphin Cove and the other in Montego Bay, St. James at Half Moon Golf, Tennis and Beach Club. An application for a third facility in Hanover has been made to the NRCA (June 2007).

LEGAL ISSUES AND INTERNATIONAL OBLIGATIONS

International and Regional Treaties

All cetaceans found in the Wider Caribbean are listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) as well as Annex II of the Protocol concerning Specially Protected Areas and Wildlife (SPAW Protocol).

Article IV of CITES mandates that the export of any specimen of a species included in Appendix II shall require an export permit or re-export certificate.

Article 11, paragraph I (b) of the SPAW Protocol obliges Parties to ensure total protection and recovery to the species of fauna listed in Annex II, (which includes dolphins) such as by prohibiting the taking, possession, killing or commercial trade in such species, their eggs, parts or products). However, Article 11, paragraph 2 states that each Party may adopt exemptions for educational, scientific and management purposes necessary to ensure the survival of the species. Any exemption granted should not jeopardize the species and shall be reported to the Organisation² in order for the Scientific and Technical Advisory Committee to assess the pertinence of the exemption granted. Under the Protocol there would therefore be need for special exemption to be granted by the Parties for the establishment of a dolphinarium.

² The organisation referred to here is the Regional Coordinating Unit (RCU) of the Caribbean Environment Programme (part of the United Nations Environment Programme's Regional Seas Programme). The RCU has been designated to carry out specific secretariat functions for the Cartagena Convention of which SPAW is one of the Protocols. (See Article 15 of the Convention).

Jamaica is a Party to CITES, but while not yet a Party to the SPAW Protocol, is a signatory and hence has indicated its agreement with the principles expressed in the Protocol.

National Legislation

Dolphins in Jamaica's Territorial Waters

Dolphins (the Bottlenose Dolphin (*Tursiops truncatus*) and the Pantropical Spotted Dolphin (*Stenella attenuata*)) in Jamaican waters are listed in the Third Schedule of the Wild Life Protection Act as protected species.

Section 6 of the Act states that it is an offence for any person to hunt any protected animal or have in his possession the whole or any part of any protected animal. However, the Minister may, under Section 22 of the Act, grant exemption for conservation, scientific, historic and educational purposes.

If an exemption was granted, the applicant would also require a Fishing Licence under the Fishing Industry Act from the Fisheries Division, Ministry of Agriculture, to fish in Jamaica's territorial waters

Importation of Dolphins

The provisions of the Convention on the International Trade in Endangered Species (CITES) are incorporated in the Endangered Species (Protection, Conservation and Regulation of Trade) Act.

In Jamaica, the international trade in dolphins is regulated under the Endangered Species (Protection, Conservation and Regulation of Trade) Act 2000 which mandates that trade in dolphin species listed in Schedule II (Appendix II of CITES) will require a CITES export permit from the Management Authority of the exporting country and an import permit from the Management Authority in Jamaica, the Natural Resources Conservation Authority (NRCA), which would have received the advice of the Scientific Authority.³

The granting of an import permit is subject to:

1. the Management Authority's being satisfied that the animal will be adequately cared for in Jamaica;
2. receipt of a medical report from an independent veterinarian;
3. the issuance of a Permit by the Veterinary Services Division, Ministry of Agriculture, under the Animal (Disease and Importation) Law, 1943.

³ See pages 26-27 on the functions of the Management and Scientific Authorities under the Endangered Species Act

4. an official health certificate issued by an official veterinarian of the Veterinary Services from the exporting country

An environmental permit for the Introduction of Species is also required under the Natural Resources Conservation (Permits and Licences) Regulations, 1996

Establishment and Operation of Dolphin Facilities

The operation and management of eco-tourism and nature enterprises are regulated by the National Environment and Planning Agency and the Ministry responsible for Tourism through a permit and licence regime. This regime includes the following:

- Environmental Permit (The Natural Resources Conservation (Permits and Licences) Regulations, 1996 and the Natural Resources Conservation (Permits and Licences) (Amendment) Regulations, 2004) for eco-tourism and nature tourism projects, modification, clearance or reclamation of mangroves and introduction of species;
- Beach Licence (Section 5 of Beach Control Act, 1956) to encroach on the foreshore and the floor of the sea
- Environmental Licence (The Natural Resources Conservation (Permits and Licences) Regulations, 1996) for the discharge of sewage or trade effluent into the environment;
- Licence (Tourist Board Act 1955) to operate a tourism enterprise; and
- Planning permission to undertake development, if the area is covered by a Development Order prepared under the Town and Country Planning Act, 1957. The use of land and any development works for the establishment of dolphin attractions along the coastline (or elsewhere) in such areas therefore requires the approval of the relevant planning authority (for example, the Town and Country Planning Authority or the Local Planning Authority).
- A Licence under the Beach Control Act to modify the foreshore and floor of the sea may also be required

A NEPA officer as well as a Veterinary Officer must be present at the port of entry on arrival of the dolphin(s) and accompany the dolphin(s) to the quarantine facility. The officers must ensure that the animal(s) is (are) properly housed at the facility. The NEPA officer must also submit to the Chief Executive Officer of the Agency within two days of the arrival of the dolphin(s) in the island a report on all transportation activities regarding the dolphin(s).

3.0 Issues related to Dolphins in Jamaica and the Caribbean Region

3.1 Population size and distribution

Abundance data on most dolphin and whale species occurring in the Caribbean Sea and Gulf of Mexico are scarce (UNEP (DEC) CAR WG.27/2 Rev.3, 2005)⁴. However, the abundance estimate of the Bottlenose Dolphin collated from 1998 through to 2001 from a continental shelf vessel survey was 25,320 individuals (Stock Assessment Reports, National Oceanic and Atmospheric Administration 2003). To date, no population estimates or surveys have been conducted in the Wider Caribbean.

The population sizes of the various species of dolphins occurring around Jamaica are unknown; however, anecdotal evidence suggests that populations have been declining. Some of the species found in Jamaican waters are the Bottlenose Dolphin, (*Tursiops truncatus*), Striped Dolphin (*Stenella coeruleoalba*), Spotted Dolphin (*Stenella attenuate*) and Spinner Dolphin (*Stenella longirostris*). Between 2002 and 2004, a preliminary assessment was conducted of dolphin populations occurring around the island. This included the administering of a questionnaire in November 2002 and conducting an aerial survey in February 2004 to gather information on the distribution and population sizes of dolphins in Jamaica's territorial waters. Results from the questionnaire showed that there were reports of a number of sightings of at least two species of dolphins over the period. However, during the 5-day aerial survey there was only a single sighting of a dolphin by the aircraft pilot, and this sighting was outside of the survey grid (Kenney *et. al.* 2004). It was therefore not possible to draw any definitive conclusions on dolphin population sizes.

In 2006 the University of the West Indies (UWI) completed a two year study on the dolphins found within the Whitehouse area in Westmoreland, and their interactions with fishermen. Later the study was extended to include Whitehouse in St. James, Kingston Harbour and the Port Royal Cays, and farther along the south coast of the island including Bowden Harbour. This study was in response to complaints from fishermen that dolphins were interfering with their fish traps. Aiken (2006) reports that during the life of the project a total of ten early morning boat trips resulted in few sightings of dolphins with Bottlenose Dolphins being observed only off St. Elizabeth, Kingston and St. Thomas. It is believed that a contributing factor to this behaviour is over-fishing, which has resulted in competition between the dolphins and fishermen in the harvesting of fish, especially in the Whitehouse area, Westmoreland. However, there was no empirical data to confirm the reports.

⁴ Third Meeting of the Scientific and Technical Advisory Committee (STAC) to the Protocol Concerning Specially Protected Areas and Wildlife (SPAW) in the Wider Caribbean, Caracas, Venezuela, October 2005

A project proposal has been developed which includes a photo-identification dolphin survey which should last for three years. Funding for this project has not yet been identified.

3.2 Movement Patterns and Range of Dolphins

There seems to be little known about movement and migration patterns of Bottlenose Dolphins in the Caribbean region (Ward *et. al.* 2001). In a more tropical habitat such as Jamaica, one might expect a less seasonal migratory pattern. However, further work would be required before making such a conclusion (Kenny, 2004).

3.3 Threats to Dolphin Populations in the Caribbean

In the Caribbean, the main threats to dolphins are habitat loss and/or degradation, marine pollution and over-fishing..

3.3.1 Marine Pollution

The impacts of chemical pollution on dolphins range from direct physical poisoning to degradation of important habitats. In Jamaica, sources of chemical pollution, include domestic sewage, industrial discharges, domestic run-off, accidents and spills at sea, and agricultural run-off. Here, the coastal and marine environments have been adversely affected, resulting in the loss or degradation of coral reefs and mangroves, valuable spawning areas for fish, a primary food source for dolphins. Pollution discharges (or “point source pollution”) in the Kingston Harbour, which was once a regular viewing site for dolphins and whales in earlier years have made such sightings a memory of the past for the marine biologist and/or tourist. The presence of a healthy dolphin population in the wild not only has significant ecological, aesthetic and economic value to countries, but serves also as an indicator of the health of our coastal waters and the status of the food resource.

3.3.2 Habitat Loss and Degradation

The modification of habitats, such as shoreline modification, can result in increased sedimentation, changes in species composition and changes in upwelling patterns. These in turn could affect dolphin food sources and water quality. The impacts of establishing dolphinariums adjacent to reefs and the building of hotels along the coastline may include damage to the reefs by excavation activities, increased sedimentation and dredging. Therefore mitigation measures must be implemented to prevent the loss of coral reefs and sea grasses in areas designated for these activities. The full impact of eutrophication of the reefs from feed and animal wastes needs to be investigated in Jamaica.

3.3.3 Over-fishing

Worldwide, fisheries are increasing in intensity and range. The continued growth of many modern commercial fisheries continues to impact indirectly on dolphin populations through the loss of prey species. Jamaican fisheries are considered to be over-fished (Aiken 2006). As fishers compete with one another for fish, less and less prey is available for dolphins and other wildlife to eat. A reduction in food supply would not only result in smaller populations of dolphins around Jamaican waters, but could be a contributing factor to dolphin interference of fishing gear as dolphins and fishermen compete for limited resources..

3.4 Protection and Management of the Natural Environment

Presently, there are five areas declared protected under the NRCA Act as marine parks or with extensive marine areas: Negril Marine Park, Westmoreland, declared in 1998; Montego Bay Marine Park, St. James, 1992; Ocho Rios, St. Ann, 1999; Portland Bight Protected Area, Clarendon, 1999; Palisadoes and Port Royal Protected Area 1999; there are also the Bogue Fish Sanctuary, St. James, 1979; and Bowden Fish Sanctuary, St. Thomas. Despite the designation of these protected areas, the sightings of dolphins in these areas are relatively low, which is thought to be a result of pollution or inadequate food source.

4 GOALS, STRATEGIC DIRECTIONS AND OUTCOMES

Goal 1 Conservation of Jamaica's dolphin species and their habitats

The primary means of achieving this goal will be through the establishment of conservation/protected areas, encouragement of research on the status of dolphins, and the promotion of public education on dolphins and other marine mammals while baseline data on all cetaceans are being collected and analysed.

As noted above, capture of Bottlenose and Pantropical Spotted Dolphins is prohibited under the Wild Life Protection Act; exemptions may be granted for scientific, educational and conservation purposes.

Strategic Directions

Action will be taken by the National Environment and Planning Agency in collaboration with the relevant agencies and academic institutions

- Collect and analyze basic background information on the population size and stock structure, biology and ecology of dolphins in Jamaica's territorial waters.

- Develop regulations for declared protected areas which are habitats for dolphins.
- Promote the recovery of endangered dolphin species through the:
 - development and implementation of Management/Recovery Plans. Elements for the development of this plan should be compatible with the Marine Mammal Action Plan for the Wider Caribbean by Ward, *et al.*, 2006,
 - conducting of seasonal surveys consecutively for a period of three years every five years to obtain information on population status and distribution and monitor trends,
 - development of a marine mammal stranding network for Jamaica, and
 - investigation of the taxonomic and genetic status to confirm stock structure.
- Determine the impact of existing dolphinariums on seagrass beds and coral reefs.
- Ensure that fishing practices do not endanger marine mammal populations.
- Establish rescue centres for marine mammals and develop regulations to govern these centres.

Strategic Outputs

- Publication of scientific research on dolphin population, status and distribution in Jamaica.
- Regulations for suitable dolphins' habitats in the Protected Areas System Plan promulgated.
- Preparation of terms of reference and protocols for the development of a marine mammal stranding network.
- Sightings and photo ID entered into the national/ regional database.
- Enactment of regulations to govern rescue centers.

Goal 2 Improved Public Education and Awareness

Public education and awareness programmes on dolphins will be improved and expanded to provide relevant and factual information on dolphin populations in the wild and in captivity.

In this regard, collaboration between public sector, private organizations, NGOs, academic bodies, and regional and international organizations will be encouraged.

Strategic Directions

- Develop and implement public education and awareness programmes on the conservation of dolphins and their natural history, including information on CITES, the SPAW Protocol and national laws governing dolphins.
- Develop and disseminate posters on cetacean conservation, legislation and sustainable use.
- Identify, reproduce and disseminate appropriate education material such as International Fund for Animal Welfare (IFAW) posters ‘Whales and Dolphins of the Caribbean’ on cetacean identification and conservation and the UNEP/IFAW colouring book entitled ‘Whales and Dolphins – Inside and Out’ by Nathalie Ward and Carole Carlson, along with the cooperation and assistance of the Life Sciences Department of the University of the West Indies, Mona.
- Develop sensitization programmes targeting key groups such as fishers and coastal community members.
- Require that education programmes, particularly for children, should be implemented by dolphinariums with the content to be approved and monitored by NEPA.

Strategic Outputs

- Public education programmes are developed and implemented for target groups. The information is packaged as both electronic and hard copies to facilitate their use by a wide range of persons. This will encourage local communities to protect dolphins and assist with the management of their habitats.

Goal 3 Sustainable interactions with dolphins

Sustainable interactions with dolphins will be based on current, relevant and accurate scientific data as well as the National Dolphin Management Plan.

Market and ecosystem surveys will be undertaken to determine the number of dolphinariums which may be established in Jamaica. This should include a cost/ benefit analysis study. **Until such surveys are carried out no new dolphinariums will be established.**

Where the importation of dolphins into Jamaica is allowed it will be regulated based on all relevant international agreements to which Jamaica is a Party as well as Jamaica's national legislation.

Early attention will be given to:

- Developing guidelines for captive breeding programmes. In this regard, a requirement would be that dolphins for captive breeding programmes that are acquired outside of Jamaica be purchased outright (not leased) from sources which have conducted proper population surveys. These programmes would be regulated under the Endangered Species (Protection, Conservation and Regulation of Trade) Act.

Strategic Directions

- Develop a Dolphin Management Plan for Jamaica as a basis for decision-making
This may include :
 - Exploring the feasibility of dolphin watching as an alternative to dolphinariums.
- Implement the General Standards and Requirements for the Operation of Dolphin Facilities in Jamaica. to ensure that facilities are suitably developed and equipped to house and care for dolphins at all times.
- Ensure that requirements for dolphinariums are scrupulously complied with by the permittees
- Manage the importation of dolphins into Jamaica
 - Dolphins imported into Jamaica must be accompanied by the appropriate CITES export permit, scientific study and health certificate.
 - All animals imported must be tested by the appropriate Authority for animal health and certified free from disease.
 - A proper quarantine area must be present at all facilities so that imported or rescued wild dolphins do not interact or share the same body of water with the dolphins already at the facility until an appropriate quarantine period has been completed.
 - Establish an importation quota on the number of dolphins that may be imported on a phased basis to achieve the goals set out in any approved

captive breeding programmes, taking into account the source of the dolphins.

Strategic Outputs

- Establishment of the Island's carrying capacity for dolphinarium.
- Establishment of an import quota and terms for captive breeding programmes.
- Monitoring of dolphin facilities to ensure that conditions specified in the NRCA environmental permits are adhered to.
- Monitoring of any captive breeding programme approved.
- Issuing of CITES import permits in accordance with the approved import quota.
- Establishment of proper quarantine areas approved by the Veterinary Services Division at all facilities.

Goal 4 Promote and Facilitate Research and Training

Research on dolphins in Jamaica has been extremely limited and must therefore be encouraged.

Strategic Directions

- Encourage local veterinarians to study marine mammal physiology.
- Encourage local students to study marine mammalogy.
- Encourage and facilitate researchers to conduct research in Jamaica and the Caribbean and to train local veterinarians and scientists in field work methodologies.

Strategic Outputs

- At least two local veterinarians trained to monitor dolphin facilities and stranded marine mammals.
- Local personnel trained to conduct sea and aerial surveys.
- Aerial surveys funded and carried out.

ACTION PLAN

Outputs	Year 1	Year 2	Year 3	Year 4	Year 5
Conduct scientific research on dolphin population, status and distribution in Jamaica.	X	X	X	X	X
Publication of scientific research on dolphin population, status and distribution in Jamaica.			X		
Regulations for habitat and species management areas and increase the number of marine protected areas, which should incorporate any areas shown to have resident pods of dolphins of any type.				X	X
Prepare terms of reference and establish the regulations for the marine mammal stranding network.	X				
Develop and implement public education programmes for target groups. The information is packaged as both electronic and hard copies to facilitate their use by a wide range of persons.	X	X		X	X
Enter sightings and photo ID into national and regional database.	X	X	X	X	X
Monitor the success rate of captive breeding programmes.		X	X	X	X
Include dolphinarium as a category in the EIA Guidelines.	X				
Enact regulations to govern rescue centers and establish import quotas and captive breeding programmes.	X		X Import Quotas		
Train at least two local veterinarians to monitor dolphin facilities and stranded marine mammals.	X	X			X
Conduct surveys (market and ecosystem) to determine the number of dolphinarium which may be established in Jamaica.	X	X	X		
Issue CITES import permits in accordance with the approved import quota and range states scientific research.	X	X	X	X	X
Conduct socioeconomic research to ascertain how local communities may benefit from the management of dolphins management areas.	X				
Determine the impact of eutrophication from the feeding and animals waste on reefs.		X	X	X	
Develop National Dolphin Management Plan		X	X	X	X
Policy review.					X

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APPENDIX 1

DEFINITIONS

Captive bred

Specimens born or otherwise produced in a controlled environment.

Carrying Capacity

The maximum number of organisms that can use a given area of habitat without degrading the habitat and without causing social stresses that result in the population being reduced.

Cetacean

A species in the mammalian order Cetacea, which includes whales, dolphins and porpoises.

Controlled Environment

An environment that is manipulated for the purpose of producing animals of a particular species, that has boundaries designed to prevent animals, eggs or gametes of the species from entering or leaving the controlled environment and the general characteristics of which may include but are not limited to artificial housing; waste removal; health care; protection from predators; and artificially supplied food.

Dolphin

A term applied to small toothed cetaceans with conical teeth.

Dolphinarium

Any facility which houses and promotes dolphins as a tourist attraction.

Dredging

Removal of sediment from the bottom of a water body by mechanical means.

Ecosystem

A dynamic complex of communities of plants, animals, fungi and micro-organisms and their physical media interacting as a functional unit.

Ecotourism

Travel undertaken to witness sites or regions of unique natural or ecologic quality, or the provision of services to facilitate such travel.

Endangered Species

Species or sub-species of fauna or flora, or their populations, that are in danger of extinction throughout all or part of their range and whose survival is unlikely if the factors jeopardizing them continue to operate⁵.

Eutrophication

A condition in an aquatic ecosystem where high nutrient concentrations stimulate overgrowth of macro- and micro-algae.

Extinction

The evolutionary termination of a species caused by failure to reproduce and death of all remaining members of the species.

Fauna

The total animal life of an area; usually the total number of animal species in a specified period, geological stratum, geographical region, ecosystem habitat, or community.

Flora

The total plant life of an area; usually the total number of plant species in a specified period, geological stratum, geographical region, ecosystem, habitat or community.

Foreshore

The foreshore is that portion of the land adjacent to the sea that lies between the high water and low water marks, being alternately covered and uncovered as the tide ebbs and flows.

Habitat

The place or type of site where a plant or animal naturally and normally lives and grows.

⁵ Source: UNEP Protocol Concerning Specially Protected Areas and Wildlife (1990).

Migratory species

Any species which moves from one habitat to another, often between feeding and breeding sites or cross one or more national jurisdictional boundaries.

Pod

A group of cetaceans, generally with the connotation that they are socially affiliated in some way.

Rare

Species or subspecies of fauna and flora that have small populations and may be thinly scattered over a more extensive range so that any decline in their numbers could lead to the species becoming endangered or extinct.

Sedimentation

Process of suspended solid particles settling out in water.

Species

A group of interbreeding populations that is reproductively isolated from other such groups.

Threatened Species

A species that is facing an extremely high risk of extinction in the wild in the immediate (critically endangered), near (endangered) or medium-term (vulnerable) future. For a more detailed description go to: <http://www.cites.org/eng/res/09/09-24R14.shtml#t>

Upwelling

An oceanographic phenomenon that involves wind-driven motion of dense, cooler, and usually nutrient-rich water towards the ocean surface, replacing the warmer, usually nutrient-depleted surface water (Wikipedia). These nutrients are responsible for supporting the large fish population commonly found in these areas.

APPENDIX 2

There are two known forms of Tursiops in the western Atlantic, coastal and offshore. The offshore form occurs between the 200- and 2000-m isobaths in distinct Gulf of Mexico and western North Atlantic stocks. Whereas one or more coastal forms inhabit inshore waters (Well et.al.1999). Coastal forms are usually observed shoreward of 20m contour. (UNEP(DEC)/CAR WG. 27/2 Rev.3, 2005)

FACT SHEET ON BOTTLENOSE DOLPHINS

Scientific Name: *Tursiops truncatus*

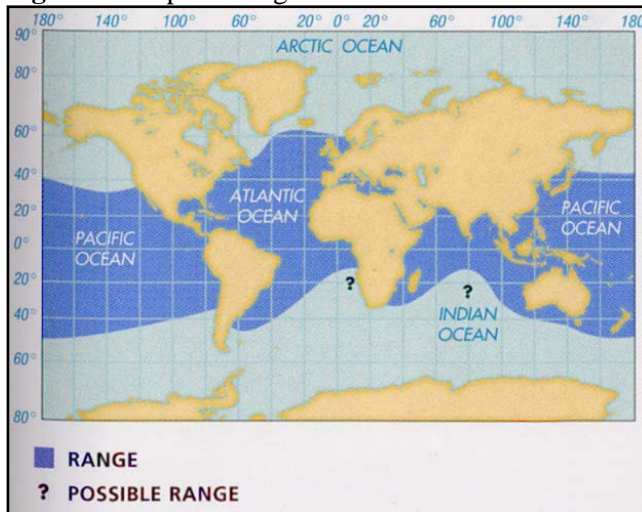
Common Name: Common Bottlenose Dolphin

Geographical Distribution:

The common Bottlenose Dolphin is found in oceans and peripheral seas in temperate and tropical latitudes and occupies a wide variety of habitats between 45°N and 45°S (Fig. 2). There are two types of common Bottlenose Dolphins, the coastal ecotype and the pelagic/offshore ecotype. The coastal populations are often found along the continents and around most oceanic islands and atolls. They often move into or reside in bays, estuaries and the lower reaches of rivers. The offshore populations are found far offshore, for example in the Gulf Stream of the North Atlantic and the eastern tropical Pacific (Reeves, *et al.*, 2002). Put reference at the end – all this is based on this reference



Figure 2: Map showing the distribution of Bottlenose Dolphins around the world



Source: Reeves, *et al.*, 2002

Description:

There are two distinct species of Bottlenose Dolphins, the common Bottlenose Dolphin and the Indo-Pacific Bottlenose Dolphin (*Tursiops aduncus*). The common Bottlenose Dolphin is generally gray with strong countershading (dark dorsally and light ventrally). It has a dark dorsal cape that usually begins at the apex of the melon and extends past the dorsal fin. A paler gray covers the sides and flanks while the belly may be off-white or pinkish. There is a muted eye-to-flipper stripe while the flippers, flukes and dorsal fin are generally dark or medium gray (Reeves, *et al.*, 2002).

Habitat:

They are frequently seen in harbours, bays, lagoons, estuaries and river mouths. There appear to be two forms: coastal and offshore forms.

Food and Feeding:

Depending on the habitat present they feed on a large variety of organisms. Coastal animals often feed on fish and invertebrates that live on or near the bottom while offshore animals eat pelagic or mesopelagic fish and squid (Reeves, *et al.*, 2002). They often hunt cooperatively herding fish into a small group.

Life Cycle:

Bottlenose Dolphins have a maximum life span of 40-45 years in males and 50 years in females. Male dolphins reach sexual maturity at age 8-11 years, whereas females reach sexual maturity between 5-7 years. These dolphins have a gestation period of 12 months. Calving can take place throughout the year with peaks in some areas during spring and fall. Calves nurse for over a year and stay with their mothers for up to three years.

Behaviour:

Both ecotypes occur in groups of varying size which depends, in part, on habitat. Animals in bays often form smaller groups of between 2 to 15 individuals than those offshore groups which may be as large as hundreds of individuals (Reeves, *et al.*, 2002). They commonly associate with other dolphin species and sometimes they have been known to interbreed.

Threats:

The major threats are as follows:

- Human fishing activities
- Drift and gill net capture
- Pollution
- Noise
- Habitat loss
- Emergent diseases
- Direct hunting

Population Status:

The total worldwide population is unknown but estimates have been made in some regions.

- 10,000 – 13,000 off Northeastern United States
- 40,000 in Gulf of Mexico
- 35,000 in Western North Pacific and Japanese coastal waters

- Less than 10,000 in the Mediterranean

These numbers are suspect and not relevant to Jamaica. The important point is that many populations are data deficient and some stocks are endangered. Virtually nothing is known about stocks in the Caribbean, in terms of not just overall numbers but also stock structure.

The Use of Tags in Dolphin Research:

The invention of satellite and radio tracking has allowed researchers to increase their knowledge about migratory animals. Tracking devices have provided more information about migration routes, dietary patterns and, in the case of marine mammals, dive behaviour (Chivers & Scott, 2002). However, the benefits associated with tagging have been tempered by some of the effects seen. The application of any tracking device affixed to the dolphin will require the animal to be captured. The exercise of capture and tagging causes considerable stress for the animal. Therefore, while tracking devices may be extremely useful in research on distribution and habitat range, it is very important to determine the type of tag used, as well as the application method.

Methods of Capture

Bottlenose Dolphins are usually captured in shallow waters. The dolphins are chased, encircled with nets or lassoed. Entangled animals are recovered first, pulled aboard, measured, their sex determined, and then physically examined. The process of capture usually proves to be stressful for the animals often resulting in death. Mortality rates increase six-fold immediately after capture. It takes more than a month for newly-caught animals to adjust to captivity and to start exhibiting survivorship profiles that match those of long-term captives (Small and DeMaster 1995).

Dolphins in Captivity:

Dolphins are highly social. Once placed in captivity, dolphins are exposed to conditions that would not be present in the wild, including changes to their diet and increased human interaction. In captivity, the social structures of dolphins change as different stocks and pods from different geographic locations are placed together. Individuals from one pod may have adapted to the specific characteristics of their own environment and may find it extremely difficult to adjust to new environmental parameters once other individuals are added to their pod. The number of dolphins within the enclosure may also be much lower than that number encountered in the wild, thus changing the social structure of the group. Also, confinement may result in aggressive dolphins harassing less aggressive members of the group.

APPENDIX 3

RELEVANT NATIONAL POLICIES AND LEGISLATION

National Strategy and Action Plan on Biological Diversity in Jamaica, 2003

The Policy provides a comprehensive framework for the conservation and sustainable use of marine biodiversity. It was highlighted that Jamaica needs to:

- Develop a sustainable fisheries industry in order to halt the current depletion of resources, degradation of the environment and loss of marine biodiversity;
- Promote sustainable tourism practices by developing heritage and ecotourism attractions and conducting carrying capacity studies; and
- Increase resource managers' capacity in the area of environmental economics.

The NBSAP refers, *inter alia*, to the development of a management strategy specifically for dolphins (and bats) and more generally to the development and implementation of guidelines for wild species. Extracts from the relevant project concept outlined in the Action Plan are below:

Regulation of Collection and Harvesting of Wild Fauna and Flora

Given the potential threat of harvesting and collecting to species survival, a programme must be developed to regulate and monitor all aspects of species trade.

Specific activities include the development and implementation of guidelines for the ecologically sustainable use of species and genetic resources; application of the precautionary approach to harvesting and collection of biological resources; formulation of a policy and regulations to facilitate controlled access to biological resources; increased enforcement efforts and monitoring of collection; and the launch of a public education campaign.

Ocean and Coastal Zone Management Policy, 2001

The Policy defines the essential elements for integrating sectoral policy and planning into coastal area management, including requirements for institutional coordination, conflict management, legal mechanisms, capacities for improved research and training.

Coral Reef Protection and Preservation Policy, 1997

The draft Policy seeks to regulate coastal zone development which contributes to coral reef destruction/degradation, reduce the physical damage to reefs as a result of recreational activities and reduce pollutants being released into the coastal environment.

System of Protected Areas, 1997

The Policy provides a framework for a system of protected areas. Over one hundred and fifty proposed protected candidates have been identified. The policy defines a protected area as “an area of water or land that is managed for the protection and maintenance of its ecological systems, biodiversity and/or specific natural, cultural or aesthetic resources”. The types of protected areas proposed are national nature reserves, national parks/marine parks, natural landmarks/monuments, habitats/species management areas, national protected landscapes/seascapes and managed resource-protected areas.

National Policy for the Conservation of Seagrasses, 1996

This draft Policy recognizes seagrasses as a valuable resource. It states that activities such as dredging, disposal of dredged spoil, beach development and effluent disposal that impact directly or indirectly on the seagrass communities require a licence.

The Wild Life Protection Act, 1945

The Wild Life Protection Act was written to protect Jamaica’s fauna from habitat destruction, hunting, harvesting of eggs and marine pollution in an effort to ensure their survival. Section 6 of the Act states that it is an offence for any person to hunt any protected animal or have in his possession the whole or any part of any protected animal. However, the Minister may, under Section 22 of the Act, grant exemption for conservation, scientific, historic and educational purposes.

On October 10, 2001, the Act was amended to include the Bottlenose Dolphin (*Tursiops truncatus*) and the Pantropical Spotted Dolphin (*Stenella attenuata*) in the Third Schedule which lists protected species.

The maximum penalty that may be imposed is one hundred thousand dollars and imprisonment for two years.

The Endangered Species (Protection, Conservation and Regulation of Trade) Act, 2000

The Endangered Species (Protection, Conservation and Regulation of Trade) Act fulfils Jamaica’s obligation under CITES and provides for the protection and conservation of endangered wild plants and animals by regulating international and domestic trade.

Under Section 13 of the Act, the Scientific and Management Authorities for CITES are designated. The functions of the Scientific Authority are specified in Section 16 of the Act, and include:

- Advise the Management Authority on policy relating to trade in endangered species of wild fauna and flora;
- Advise the Management Authority on whether any species is vulnerable, threatened, at risk, endangered, extirpated or extinct;
- Report annually to the Management Authority and Minister on the status of the endangered species of wild fauna and flora specified in the First, Second, Third or Fourth Schedule. If

the Management Authority rejects any recommendations contained in the report, it should give reasons; and

- Advise the Management Authority on policy relating to trade in endangered species of wild fauna and flora.

The NRCA has been designated Jamaica's Management Authority for the Convention under Section 13 of the Act. The functions of the Management Authority are specified in Section 15 which states that the Management Authority is responsible for the issuing of CITES permits and certificates and must consult with the Scientific Authority on the scientific aspects of the implementation of the Convention.

It is illegal to trade in any specimen of a species without a permit or certificate under this Act. The maximum fine before a Resident Magistrate is two million dollars or imprisonment of two years or both fine and imprisonment. On conviction on indictment in a Circuit Court to a fine or to imprisonment not exceeding ten years or to both such fine and imprisonment.

The Natural Resources Conservation Authority Act, 1991

The Natural Resources Conservation Authority (NRCA) Act designated the whole island as a prescribed area and the law binds the Crown. Under section 9 of the Act, prescribed areas are declared in Jamaica and a permit will be required for prescribed categories. The list of prescribed categories under the Natural Resources (Prescribed Area) Prohibition of Categories of Enterprise, Construction and Development Order, 1996 includes ecotourism projects, modification of wetlands and introduction of species of flora, fauna and genetic materials.

The Fishing Industry Act, 1975

The Fishing Industry Act established a Licensing Authority to issue a fishing licence to any person who desires to fish. The Act defines a fish to include shell fish, crustaceans and marine or fresh water animal life. Fish sanctuaries are declared under the Act. The Minister has the power to make regulations with respect to use of fishing equipment, methods of fishing and take measures for the conservation of fish. A new Fisheries Bill has been drafted and is undergoing a period of consultation.

The Animals (Diseases and Importation) Act, 1948

The Act states that the Minister may appoint quarantine depots in such places that he deems necessary for all animals, birds, reptiles or insects. He may also grant licences for the depots (Section 16). Regulations are also made in order to prevent the importation or spread of any diseases into Jamaica (Section 14, subsection 1). Therefore, a health certificate is always requested from the appropriate Authority in the importing country by the Veterinary Services Division, Ministry of Agriculture. The Veterinary Services Division would request information on the general health of the animal and determine what diseases the animals should be tested for. They also issue permits for the importation of animals. This is also required by the CITES Management Authority before a CITES Import Permit can be issued.

The Town and Country Planning Act, 1958

The Act mandates the Town and Country Planning Authority to oversee the development of Jamaica. Under the Act, Development Orders are prepared for urban and rural areas in order to ensure proper building practices of roads, public services and sanitary conveniences.

The Tourist Board Act, 1955

The Act is administered by the Jamaica Tourist Board and seeks to ensure the orderly development of the tourist industry. Under this Act, the Board issues a Licence for tourist attractions.

The Beach Control Act, 1956, Beach Control (Amendment) Act 2004

The Beach Control Act vested in the Crown the rights in and over the foreshore of Jamaica and the floor of the sea. Under Section 5 of the Act, a licence is required for any encroachment on or use of the foreshore or the floor of the sea for any public purpose or in connection with any trade or business, or commercial enterprise. The foreshore and the floor of the sea may be declared a protected area.

The Cruelty to Animals Act, 1904

The Act states that it is an offence for any person to cruelly beat, ill-treat, starve, over-ride, over-drive, over-load, abuse, torture or otherwise mistreat any animal. Under Section 16 the maximum penalty for slaughtering any animal is \$10 and this needs to be amended. Under Section 15, if an animal is so severely injured that it would be cruel to keep it alive, a constable may be able to obtain from a Veterinary Surgeon or a Justice of the Peace a certificate allowing the animal to be killed as humanely as possible.