PROTOCOL OF ACTION TO PREVENT COLLISIONS WITH WHALES AND OTHER MARINE MAMMALS DURING DREDGING ACTIVITIES

This document is based on the following publications:

"GUÍA DE CAMPO PARA LA OBSERVACIÓN DE BALLENAS JOROBADAS EN LA COSTA DE ECUADOR" [FIELD GUIDE FOR THE OBSERVATION OF HUMPBACK WHALES ON THE COAST OF ECUADOR]. Fernando Félix 2015. Guía de campo para la observación de ballenas jorobadas en la costa de Ecuador. Whale Museum, Technical Secretariat of the Sea and International Conservation Ecuador. Quito. 72p.

"PROTOCOLO DE RESPUESTA A VARAMIENTOS DE MAMÍFEROS MARINOS" [RESPONSE PROTOCOL FOR MARINE MAMMAL STRANDING]. Ministry of the Environment. 2018. Protocolo de Respuesta a Varamientos de Especies Marinas (Cetáceos, Pinnípedos, Tortugas Marinas, Tiburones Ballena y Mantarrayas). Deutsche Gesellschaft für Internationale Zusammenarbeit – GIZ Ecuador. Quito: Ministry of the Environment.

Interministerial Agreement No. 20140004 of May 30, 2014, setting out the Regulation concerning the Observation of Whales and Dolphins in Ecuadorian Waters, and includes all species of cetaceans that regularly or seasonally inhabit Ecuadorian waters.

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1. INTRODUCTION

The humpback whale *Megaptera novaeangliae* is widely distributed in all the world's oceans, although this whale prefers coastal areas less than 200 m deep to breed. Its name "humpback" is derived from the fact that the base of the dorsal fin is very wide and when the whale arches its body when starting a deep dive, it protrudes noticeably over the back.

There are different populations of humpback whales in both hemispheres, divided into various stocks or groups. In the southern hemisphere, the International Whaling Commission (IWC) recognizes 7 different stocks, referred to by letters from A to G, each of them related to one side of each continent and another in the center of the Pacific Ocean. The Southeast Pacific population is known as G.

In mid-August, when most births occur, mothers look for shallow areas to carry their juvenile offspring, usually 20 m deep or less. No sites with a high concentration of mothers with juvenile offspring have been found on the coast of Ecuador; rather the whales seem to be distributed along the entire coast of the country. However, based on satellite information, it was found that the **Gulf of**

Guayaquil would be possibly the most important breeding area for humpback whales in Ecuador. Other areas of the country with appropriate topographic conditions for breeding would be located west of Puerto Cayo and Cojimíes in Manabí, offshore from Esmeraldas and north of Salinas in Santa Elena. The reason for this more coastal distribution of mothers with newly born offspring would be to protect their offspring from orcas and sharks which are the known natural predators of whales. There are two records of killer whales attacking humpback whales around Isla de la Plata. For this reason, when mothers with juveniles begin their trip to Antarctica at the end of the season (late September and October), they go along the coast and it is possible to observe them in many places from the shore.

Source: https://splash247.com/routing-for-whales/

2. OBJECTIVE

Establish the response protocol for the sighting of humpback whales during dredging activities.

2.1. Specific Objectives

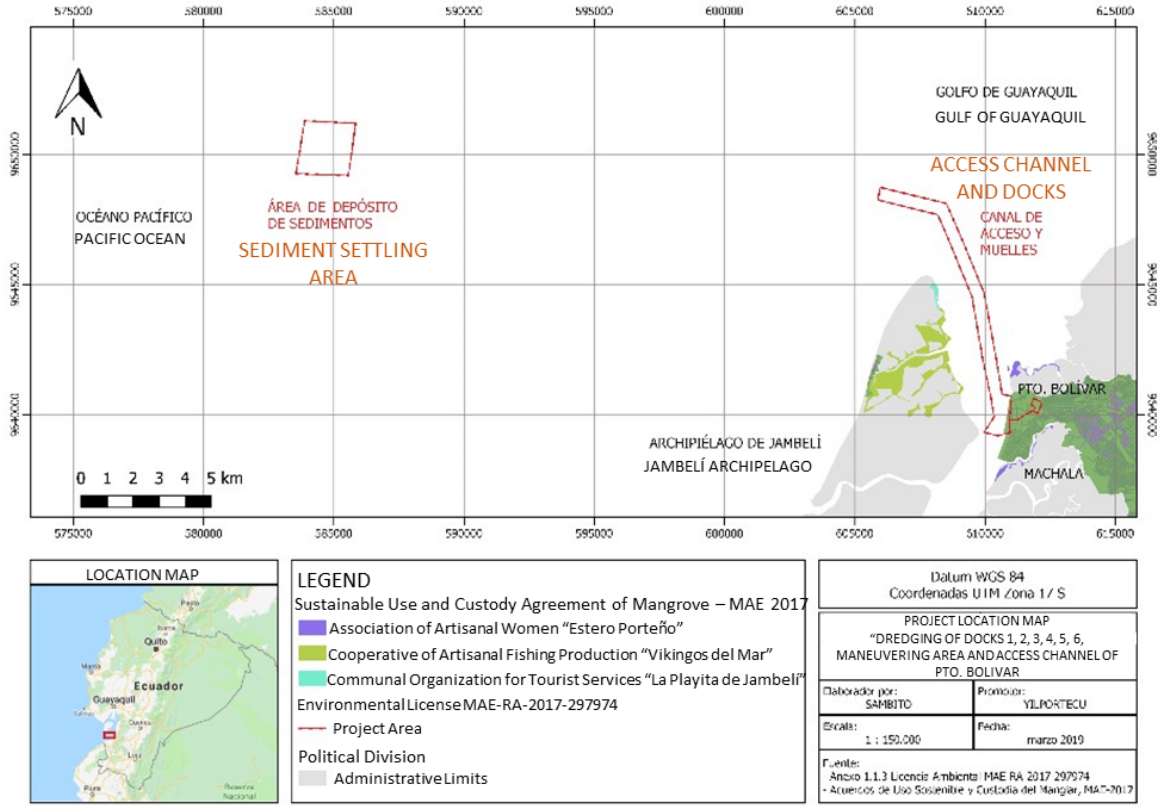
- Define the actions to be followed by Yilport Terminal Operations (YILPORTECU) S.A., its staff and contractors, as well as service providers, associated organizations and/or volunteer networks, in the event of sighting of humpback whales and other marine mammals during dredging activities within its area of direct influence.
- Design a mechanism for adequate decision-making and information dissemination during evasive maneuvers and/or suspension of activities during sighting.

- Determine the minimum technical and operational requirements for the detection of humpback whales and other marine mammals, during the execution of dredging and support activities, within the project area of direct influence.

3. SCOPE

This protocol establishes specific actions in the event of a sighting of cetaceans, pinnipeds, sea turtles, whale sharks or manta rays, within the dredging area (access channel, maneuvering area, and docks of Puerto Bolívar), the area of sediment deposit in open sea, and along the sediment transfer route between both zones. This also includes the service activities carried out by other vessels to and from the dredger vessel (see Illustration 1).

Illustration 1. Implementation Area of the Dredging Project



This protocol is carried out to meet the current legal regulations in the Republic of Ecuador, which is detailed in the following section.

4. LEGAL FRAMEWORK

I. The Ecuadorian State is a signatory of several International and multilateral legally binding Agreements and Conventions, related to the protection and conservation of marine biodiversity, including, but not limited to:

a. The Convention on the Conservation of Migratory Species of Wild Animals (CMS)
b. The Convention on Biological Diversity (CBD)
c. Together with Colombia, Peru, Chile, and Panama, Ecuador adopted the Action Plan for the Conservation of Marine Mammals of the Southeast Pacific in 1991, committing to conserve all species, subspecies, races and populations of marine mammals and their habitats in the region.

II. Ministerial Agreement No. 196, R.O. No. 458, Article 1 of June 14, 1990 considers all species of whales present in Ecuadorian waters to be protected by the State and declares these waters their natural refuge, prohibiting any activity that threatens the life of these marine mammals.

III. Interministerial Agreement No. 20140004 of May 30, 2014, setting out the Regulation concerning the Observation of Whales and Dolphins in Ecuadorian Waters, and includes all species of cetaceans that regularly or seasonally inhabit Ecuadorian waters.

5. OFFICERS IN CHARGE

The following are the officers in charge of the dissemination and application of this protocol:

- YILPORT TERMINAL OPERATIONS (YILPORTECU) S.A.
  - YILPORTECU Department of Industrial Safety, Occupational Health and Environment (HSE).
  - YILPORTECU Operations Department.
- Contractor for dredging and its Subcontractors.
  - Dredger vessel, service vessels, and their crew.
- YILPORTECU Department of Industrial Safety, Occupational Health and Environment (HSE).
- YILPORTECU Operations Department.

6. CHARACTERISTICS OF THE HUMPBACK WHALE

6.1. External Features

Size

The humpback is a medium-sized whale compared to the great blue whale that can have a size of up to 30 m. Adult males can reach 14 m in length, while females, slightly larger, can reach 16 m. A mature whale weighs approximately 40 tons. Newly born whales weigh an average of 1.5 tons and are 3 to 5 m in length.

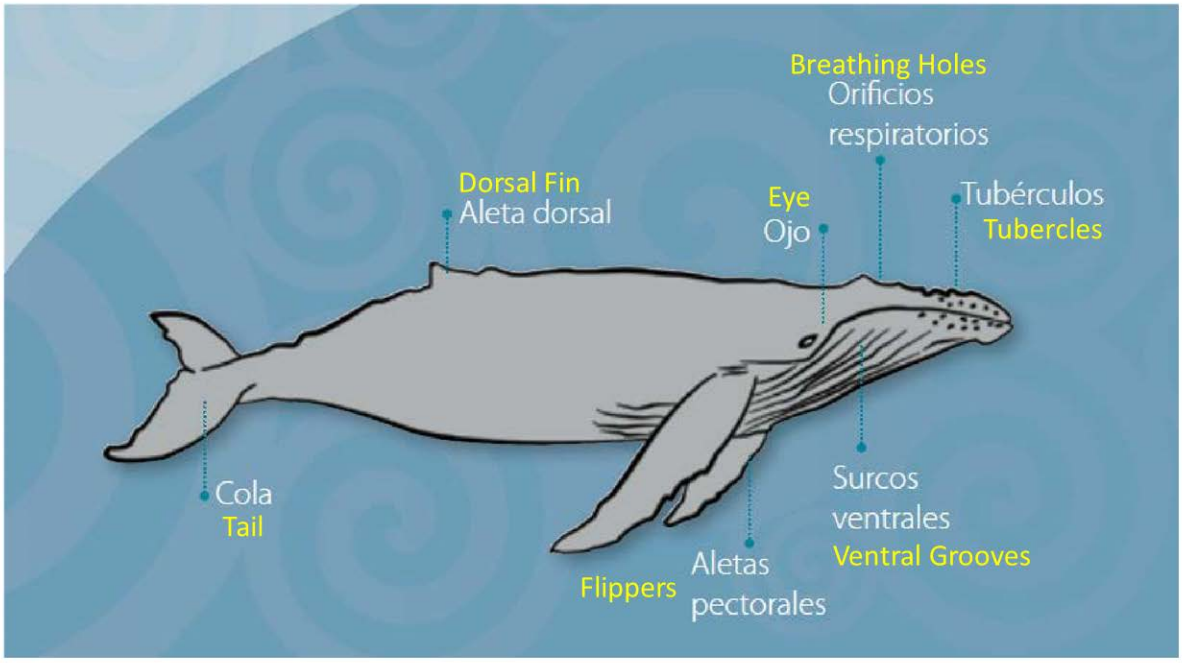
Color

Its color is greyish black, but most have white spots of different sizes on the ventral part, on the sides and on the tail. The tail is different in each individual.

Tail

The tail is located in a horizontal position. It is composed of two flukes with edges in the shape of an elongated 'S', separated by a median notch. In adults, the tail is 4.5 m from one end to the other. A whale swims by moving its tail up and down, unlike fish that have their tails upright and move them from side to side.

Illustration 2 Humpback whale



Flippers

They have a size of up to 5 meters or a third of the total length. They are probably the most distinctive feature of the species; no other cetacean has those flippers so long. In most whales, these flippers are white in the lower side and black or partially white in the upper side.

Dorsal fin

It is located in the upper part in the last third of the body. It is small and has a size less than 30 cm, but it has a wide base. Its shape is varied, sometimes it is triangular, falcate, or rounded.

Head

Viewed from above, the head is broad and rounded at the tip. What is distinctive about the head is that it has tubercles (fleshy appendages) along the upper jaw and on the tip and sides of the lower jaw, each with hair which is believed to enhance sensory ability. Near the chin, there is a fleshy protrusion with abundant tubercles that increases in size with age. The beards that hang from the upper gingiva are black or dark grayish in color and can have a size of up to 1 m in length.

Breathing holes

Humpback whales breathe through two holes located above their head, which remain closed while the whale dives and only open when the whale comes out to breathe on the surface. When coming out, the sound is so loud that it can be heard up to 100 m away.

6.2. Behavior

Humpback whales generally form small groups of less than 5 animals, most of the time in pairs and sometimes alone. They swim slowly, on average at 4-5 km/h but can occasionally go up to 10 km/h or more. They have a displacement pattern made up of a prolonged dive of 3 to 6 minutes and then they come out to the surface to breathe 3 to 5 times every 10 to 20 seconds. When they begin a prolonged dive, whales generally arch their body to gain momentum and initiate a deeper dive, in doing so they can also lift their tails. This pattern can change at any time if the whales enter a period of social interaction.

7. ACTIONS TO TAKE IN CASE OF SIGHTING

7.1. PREVENTIVE MEASURES

According to the Recommendations to protect whales on the Pacific coast of Panama,[1] it is recommended that, in order to help reduce the risk of lethal collisions with cetaceans, vessels should proceed to sail at a speed of no more than 10 knots as soon as it is safe and practical to do so. This must be applied during the period from June 1 to October 31 of each year, in both lanes of the access channel to the port terminal.

SIGHTING LEADER

During the whale sighting season, from June 1 to October 31 of each year, for the extraordinary execution of dredging activities, there must be an expert Marine Biologist aboard the vessel and

[1] Subcommittee on Safety of Navigation (NAV), 59th Session Period: September 2-6, 2013. See http://www.imo.org/es/MediaCentre/MeetingSummaries/NCSR/Paginas/NAV-59.aspx

assistant team,[2] who shall act as a whale sighting watcher, and in the case of the detection of an individual or group of individuals of marine mammals within the project area of direct influence (1 km from radius from the limits of the implementation area (see Illustration 1), who shall lead the actions of:

- Evasion
- Temporary suspension of activities
- Daily sighting report and application of this protocol (see Annex 1).

7.2. SIGHTING OF MARINE MAMMALS DURING DREDGING OPERATIONS

If through the use of navigation and remote sensing instruments (e.g., high-range radars or binoculars), or through direct observation of the Sighting Leader, the presence of one or more individuals of the species covered by this protocol is identified, the captain of the vessel shall carry out – under the direction of the Leader – the following actions:

i. Slow down the vessel or support vessel to the minimum speed until reaching 400 m of the whale or group of whales and keep this speed constant.

ii. Carefully observe the behavior, evaluate the whale direction and speed, as well as their diving pattern, to establish the route to prevent a collision with the whale or whales present. A distance of at least 100 m shall be maintained. This will help reduce vessel track corrections while minimizing disturbance to whales.

iii. Continue at a maximum speed of 4 knots until whales pass or change course.

iv. If the whales are doing a surface activity with jumping and particularly with repeated flipper and tail strokes, proceed with even more caution and keep the distance of 100m, as the vessel presence may interrupt periods of socialization.

v. In the event that the sighting involves groups where there are juvenile whales, the evasive maneuver shall be performed with more care. Juvenile whales are very curious and sometimes try to get close to vessels. The mother may interpret this as a dangerous situation and will try to keep its juvenile offspring away at all costs, which can lead to risky situations that it is preferable to avoid. Never try to get the vessel between the mother and its offspring.

vi. Sediment discharge through the use of the bottom gates shall be suspended until the whale or whales have moved away from the area at least 400 meters.

vii. Restart activities progressively, avoiding sudden accelerations and movements.

[2] Guides accredited by the Competent Tourism Authority and belonging to Tourism Operators and/or Community Tourism Centers, may be onboard instead.

Schematically, the approach radii described are shown in Illustration 3.

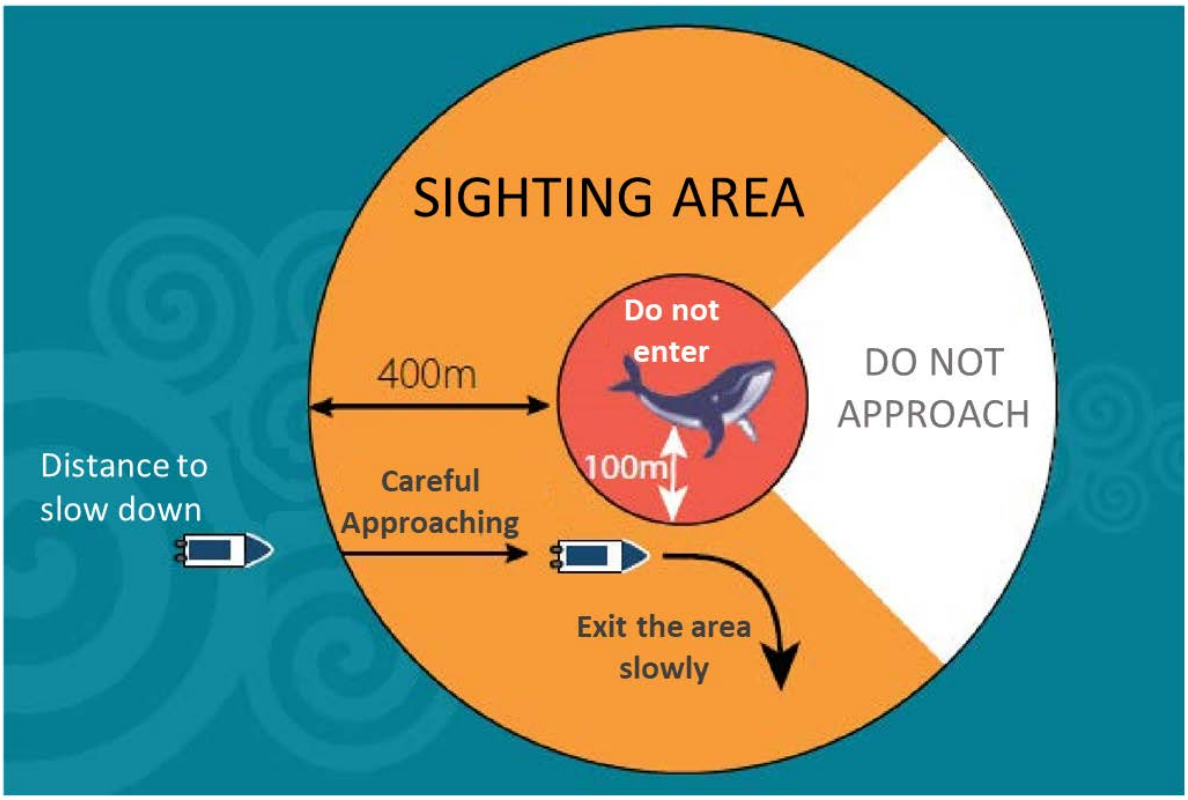


Illustration 3 Approach scheme to humpback whales

8. COLLISION WITH MARINE MAMMALS DURING DREDGING OPERATIONS

In the event of a collision with one of the species considered in this document, the Sighting Leader shall:

i. Inform the YILPORT Operations area through radio Channel 16, and include the following information immediately:
   a. Type of animal or animals affected
   b. Number of animals affected
   c. Approximate size
   d. Sea conditions (high and low tide/waves)
   e. Condition of the animal (alive, injured, dead)

ii. Office in charge of CCTV or *Planner* receiving communication from the vessel shall relay this information URGENTLY to the Officer in Charge of the YILPORT HSE Department.

iii. Based on the information submitted, the Officer in Charge of the YILPORT HSE shall issue a notice to the **ECU 911**.

Depending on the instructions received from the Authority (Ministry of the Environment and Water), the **PROTOCOL OF RESPONSE TO MARINE MAMMALIAN STRANDING** shall be activated.

Everything that is carried out shall be informed in a report that collects the information necessary to identify the animal or animals involved, the place and conditions of the collision, and other details as set out in Annex 1 of this document. This report shall be kept on file with the HSE department.

ANNEX 1. DAILY SIGHTING REPORT

Report on Stranding Attention No. 0000-Year

Date: _dd/mm/yy_

By: (Include full name and position of the officer writing the report)

SIGHTING DETAILS

a. Detection method: (visual, remote sensing with navigation equipment)
b. Time of Sighting: _hh:mm_
c. Sighting Location: _____ (Include photograph, and description of the location of the animals in relation to the vessel)
d. Species and number of animals sighted: _____ (if possible, identify stages of development and gender).
e. Approximate size: _____ (in meters)
f. Sea conditions (high and low tide/waves)
g. Environmental conditions: _____
h. Condition of animal (alive, wounded, dead, visible wounds, remains of human artifacts: hooks, nets, ropes, others)
i. Time of report to YILPORT staff: _hh:mm_
j. Time of report to ECU 911: _hh:mm_

DESCRIPTION OF THE SIGHTING AREA

The site where the specimen(s) was found shall be described (sketch map in relation to the project area and/or vessel route), and also include the UTM 17S coordinates of the sighting.

ACTIONS TAKEN

Details of the actions carried out by the Sighting Leader, and the Captain of the vessel, as well as the crew if they participate.

The detail must include the chain of command, the personnel involved, the actions taken, and the results obtained.

CONCLUSIONS AND RECOMMENDATIONS

The conclusions shall be described based on the conditions observed in the animal and events that occurred during the event.

PHOTOGRAPHS

Signature of Officer in Charge

_____

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