



WHALE SHIP STRIKES

P R O J E C T

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WHALE SHIP STRIKES



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WHALE SHIP STRIKES

DID YOU KNOW THAT EVERY YEAR THOUSANDS OF WHALES ARE HIT BY SHIPS IN TRANSIT?



Outcomes are not always fatal of course, but even non-lethal interactions can cause **suffering and injury to the animal** and visible scars. Collisions are dangerous not only for cetaceans, but also **for people on board**.

Collisions between ships and whales are estimated to range from **thousands to tens of thousands each year**. A sure fact is that the whales hit from the ships are in increase because the traffic in the seas and the oceans is growing. The peak is reached above all in the summer months, when the marine traffics become **particularly intense**.

WHICH SPECIES ARE MOST AFFECTED?

Amongst the species that are mostly affected by this phenomenon are those which hunting has already brought to the **brink of extinction**: sperm whales, whales, blue whales and right whales.

These animals, like all cetaceans, come to the surface to breathe and can remain there **for long periods of time**: such behaviour, associated with their large size that slow down the reaction time and movements, is among the causes that make these 2 species **more vulnerable to collisions**.

In addition, whales are **migratory animals**: they usually spend the summer months in the cold Arctic and Antarctic waters, and then move with the arrival of winter towards warmer waters. The increasing maritime traffic in whale breeding grounds and along their migratory routes increases the collision's risk. Some of the world's busiest ports and canals overlap with important whale habitats.

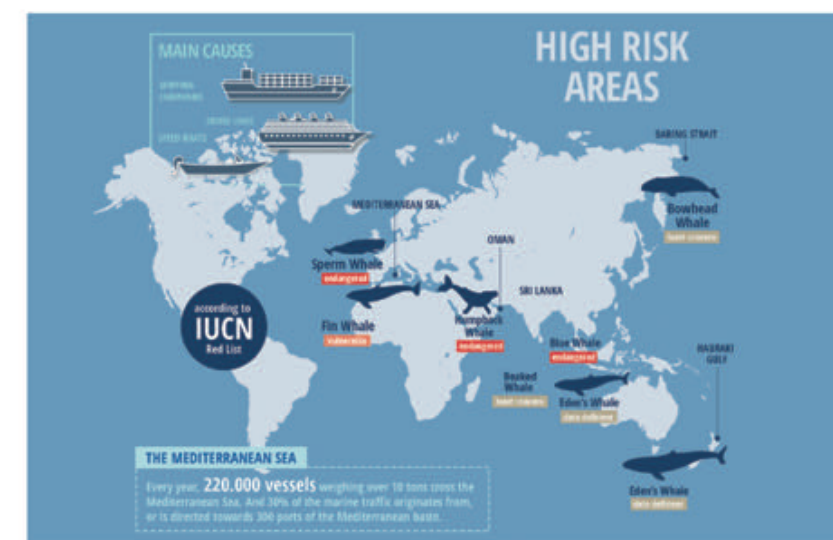


IMPORTANT MARINE MAMMELS AREA

Hot spots for these animals can be identified by the Important Marine Mammals Area (IMMA). These are discrete **portions of habitats** that are outlined to better manage the specie's conservation.

Such areas include, for example, **breeding, feeding, migratory areas and critical habitats to the survival** of endangered marine mammal species.

It has been found that IMMA represent a systematic approach for the identification of important habitats, and they can be useful to identify potential high-risk areas for collisions with ships. In particular, if an IMMA contains a species or population that is vulnerable to ship collisions, and has passed through major ships, the area may be reported for further investigation and potential mitigation.



Aree a rischio

- Bering Strait •
- West Coast of North America •
- Eastern tropical Pacific •
- Peru •
- Southern Chile •
- Australia •
- Indian Ocean •
- Arabian Sea, Oman Coast •
- Somalia and Yemen •
- Coastal waters of south-east Africa •
- Mauritius •
- Indus Canyon •
- Laccadive Sea •
- Southern Sri Lanka •
- Brazil •
- Greenland •
- North Atlantic Ocean •
- Azores Islands (Portugal) •

An example is **the Alborán Sea Corridor (IMMA)**, an area that includes the Strait of Gibraltar, where there's a voluntary zone where speeds below **13 knots** are recommended, as well as a traffic separation scheme (TSS). The speed limitation zone was notified to seafarers via VHF radio notifications.

However, there is no evidence of a slowdown in the designated area and the measure **has not been officially approved**. It also seems like that most ships are not aware of the 13-knot speed recommendation.

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MEDITERRANEAN SEA

One of the **busiest seas in the world**, in fact it is estimated that hosts 20% of maritime trade, 10% of world container production and over 200 million passengers. From the mid-1990s to the mid-2000s, the Mediterranean Sea experienced a 58% increase in shipping traffic and it is expected to increase further within the next 15 years.

Obviously, to this estimate, is added the increased **risk of collisions** with cetaceans (every year, are killed by these clashes between 8 and 40 common whales about, and only in the western Mediterranean). Sperm whales and Fin whales are migratory species, in fact they transit seasonally in these areas (they are therefore subpopulations).



Some studies have found the presence of Sperm whales **along the coast** (about 10 miles away), often being on the route of cargo ships, while as for the Common whales, sighted more widely, these are more exposed to collisions with passenger ships crossing the basin in the direction of the islands (the case of whales is more difficult because it isn't easy to predict their movements being much more dispersed off the coast). Sperm whales and Fin whales are migratory species, in fact they transit seasonally in these areas (they are therefore subpopulations).

IMMA'S AREA

- North-western Mediterranean Sea
- Corridor in the Alborán Sea
- Balearic Islands
- Eastern Mediterranean Sea (Hellenic Trench)
- Campano Archipelago and Pontino Archipelago
- Ischia and Ventotene
- Lampedusa

DID YOU KNOW THAT...

*the foot that portrays
the whale "Codamozza"
crossing the Mediterranean*



There are many testimonies of cetaceans left **seriously injured** by impacts with boats. One of the best known is the **case of Codamozza**, a Common whale sighted for the first time in 2005 in the Pelagos Sanctuary by Tethys Institute's researchers, which had initially been noted for the lack of the left lobe of the caudal fin and was later observed without the tail.

It is believed that the cause of this disability is due to the **impact with a ship**. This Mediterranean whale is surely a valid testimony of what could be the fate of these specimens.

SOLUTIONS

RAISING AWARENESS OF THIS ISSUE IS CRUCIAL TO REDUCING THE PHENOMENON.

MANY DO NOT YET KNOW ABOUT THE POSSIBILITY OF COLLISION BETWEEN CETACEANS AND SHIPS, THIS IS A PROBLEM THAT CANNOT BE AVOIDED, FOR THIS REASON WE'RE TRYING TO MAKE PEOPLE KNOW THAT THE RISK EXISTS AND MUST BE MITIGATED.

1 During the day, it is important to have an observer to check the presence of cetaceans on the track line, to inform and alert the captain and avoid injuring the animal. If the use of a figure of this type is difficult, you can opt for the introduction of automated systems that can detect the presence of a cetacean through acoustic methods.

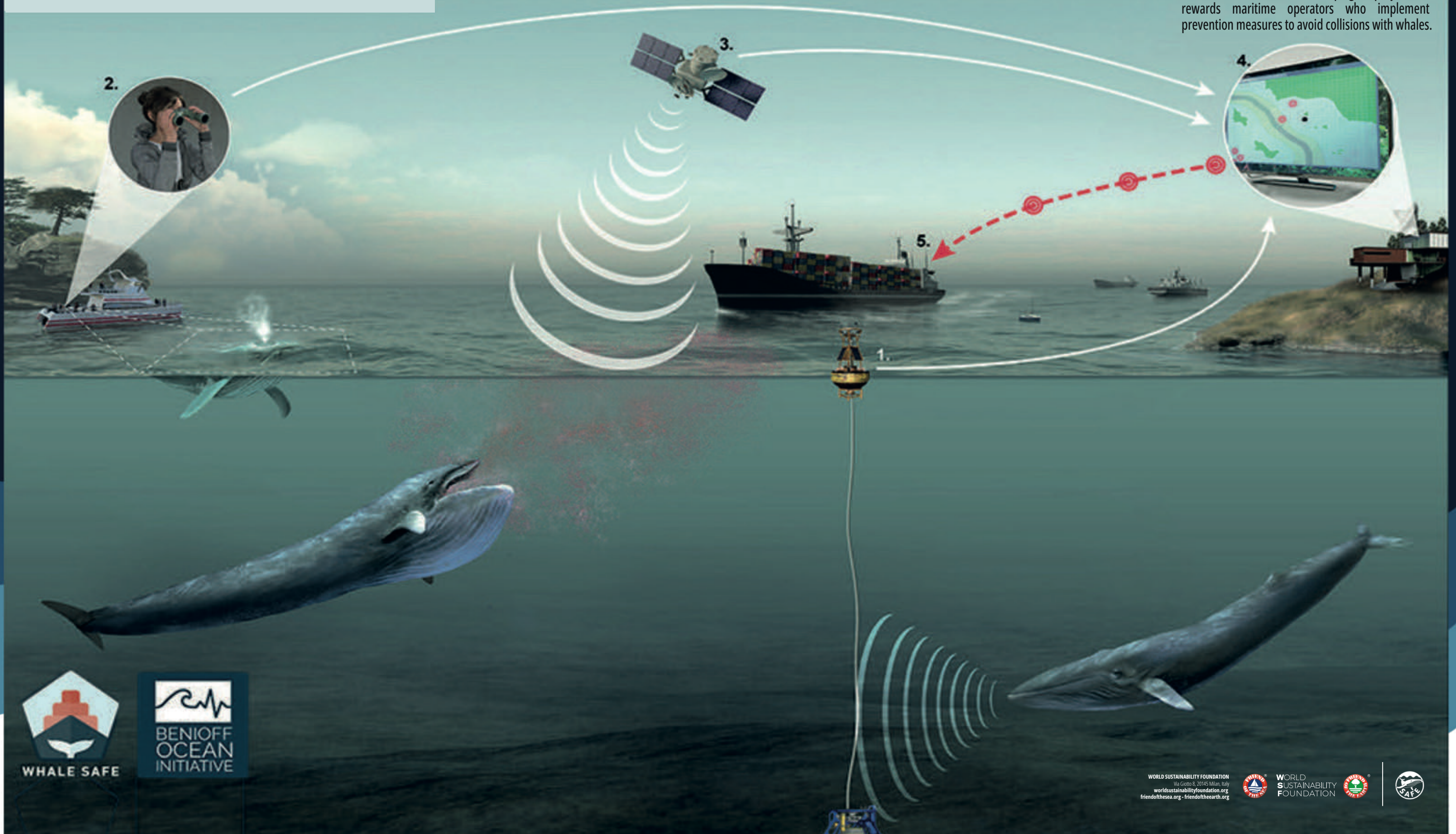
2 The routing of ships (i.e. traffic separation systems) can be particularly useful to reduce the phenomenon

3 Impose slow down measures in the areas most frequented by whales.

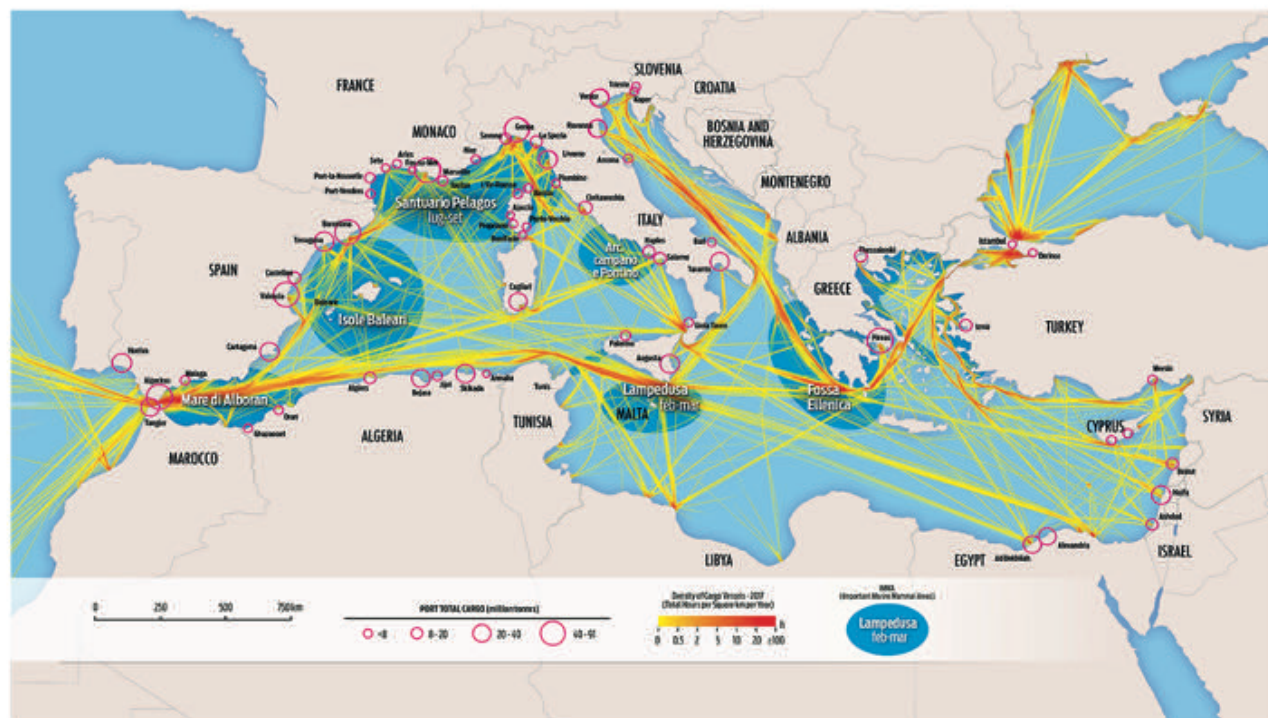
4 Installation on ships of infrared cameras capable of automatically alerting the harbour master to the presence of cetaceans

5 find and test instruments to be able to share observations of cetaceans in real time, to be able to create a word-of-mouth between ships and port authorities and to slow down in time

6 Friend of the Sea certification, a sustainable navigation standard that aims to improve the sustainable use of marine resources by the marine industry: this includes "Save the Whales" campaign, a project that rewards maritime operators who implement prevention measures to avoid collisions with whales.



WHALE SHIP STRIKES



HOW TO AVOID COLLISIONS.

SURELY IT IS NOT EASY TO TRACE THE PATH OF WHALES, ESPECIALLY WITH CLIMATE CHANGE, WHICH HAS LED TO A RISE IN GLOBAL AND OCEAN TEMPERATURES, AND CONSEQUENTLY ALSO THE MIGRATORY ROUTES OF THE WHALES HAVE CHANGED AND WILL CONTINUE TO CHANGE IN THE FUTURE.

The map depicting maritime traffic in the IMMA's areas

One thing is certain: a great way to mitigate the phenomenon is to impose **speed limits** on ships in areas where there may be whales. Knowing the potential areas most at risk in the Mediterranean Sea and the busiest routes, it was possible to **create a map**:



In the map it is possible to notice as the marine traffic crosses the IMMA and how much it is concentrated in **these areas**.

Only some areas: for example, **Spain** has recently created a new migration corridor of the Mediterranean are protected for marine cetaceans, declared as National AMP (Marine Protected Area) in June 2018 and as a specially protected area of Mediterranean importance under the Barcelona Convention in December 2019.

In 2023 **Spain, France, Italy and Monaco** promoted the designation of Particularly Sensitive Marine Areas (**PSSA**) in the north-western Mediterranean by the International Maritime Organization (**IMO**): this area includes the Pelagos Sanctuary and the Migration Corridor for marine cetaceans in Spain, but currently only voluntary mitigation measures are present. In addition, in France a collision prevention system, the REPCET (**REal time Plotting of CETaceans**).



SAVE THE WHALES FROM SHIP STRIKES

Currently, the covered surface in the Mediterranean is **very low** (only 0.03% of the areas are completely protected, while Algeria, Bosnia and Herzegovina, Cyprus, Egypt, Lebanon, Libya, Malta, Montenegro, Morocco, Syria and Tunisia do not yet have fully protected areas) and this is **ineffective for the protection of cetaceans**. Levels of protection should be extended to other risk zones in order to mitigate collisions.

We need management plans that are made compulsory, and not just proposed.

Very useful is what has been adopted in the **South-Eastern United States**, where boats over 20 meters in length cannot travel at speeds above 10 knots between November and April, when whales give birth and are more vulnerable.

The same could be done in the Mediterranean as well, knowing the times when whales are most abundant in areas at risk. A **speed limit** that would not only help these beautiful animals, but also save fuel, reduce pollution and reduce the risks to passengers and boats.



In this regard, a study has shown that calculating a general reduction of 10% of the speed of the ships all over the world, **a reduction of 50%** of the risk of collisions could be obtained. The probability of a fatal collision can be expressed as the probability that the collision will occur multiplied by the probability that it will eventually be fatal.

It should be noted that these estimates were made only on the basis of incidents with **North Atlantic Right whales** and may not be directly applicable to other species or populations.

There is no reason to expect large differences between species in the event of a collision, but it is more likely that the relationship between speed and speed of impact varies between species due to different factors (swimming speed and manoeuvrability). However, **these differences are difficult to predict**.

The solution could be to have an **emergency plan** to be implemented in the areas considered most at risk, so we can be prepared.

- by Federica Azzali



QUESTIONNAIRE FOR SHIP OWNERS

1 ▶ WHAT WOULD YOU DO TO MITIGATE THE RISK OF WHALE COLLISIONS?

- a) I would slow down
- b) I would change route to get to my destination
- c) I would opt for observation shifts on board
- d) I wasn't aware of this problem

2 ▶ IN ADDRESSING THE WHALE COLLISION ISSUE, DO YOU BELIEVE ADDITIONAL EXTERNAL SUPPORT OR RESOURCES ARE NECESSARY? IF SO, WHAT KIND?

3 ▶ WHAT ARE YOUR PERSONAL THOUGHTS OR PERSPECTIVES ON THIS ISSUE?

4 ▶ WOULD YOU CONSIDER REDUCING SPEED AS A PROACTIVE MEASURE TO DECREASE THE LIKELIHOOD OF WHALE STRIKES? IF NOT, WHAT ALTERNATIVE STRATEGIES WOULD YOU PROPOSE?

5 ▶ DO YOU OFTEN ENCOUNTER CETACEANS ALONG YOUR ROUTES?

- a) Yes
- b) No

6 ▶ HAVE YOU EVER EXPERIENCED A COLLISION WITH A CETACEAN?

- a) Yes
- b) No

7 ▶ IF YOU HAVE ENCOUNTERED WHALE COLLISIONS, COULD YOU SPECIFY HOW MANY TIMES DURING THE YEAR? ADDITIONALLY, HAVE THESE INCIDENTS BEEN REPORTED TO RELEVANT AUTHORITIES?

8 ▶ WHAT DAMAGE HAS YOUR VESSEL SUFFERED?

9 ▶ COULD YOU TELL IF THE WHALE WAS INJURED OR DECEASED?

- a) The whale was injured
- b) The whale was deceased
- c) No, I couldn't tell

10 ▶ ARE THERE ANY SPECIFIC TOOLS OR TECHNOLOGIES ONBOARD YOUR VESSEL DESIGNED TO PREVENT WHALE COLLISIONS? IF SO, COULD YOU PLEASE IDENTIFY THEM?

RESULT

▶ What emerged from the answers is that **50% would slow down**, **7% would change route**, **22% would opt for observation shifts on board** and finally **22% were not aware of this problem**.

In addition, **most respondents** were very interested in solving this problem and some ideas were also suggested: for example, **taking courses** to explain the extent of this problem, indicating areas of whale migration, have instruments available that can detect in real time the presence of cetaceans and other animals (for example, the echo sounder).

The importance of **sharing information** between vessels was also stressed.

The collision's problem is therefore taken seriously by most respondents and this gives us hope for a **genuine collaboration**, which can lead to important results in terms of cetacean's protection.

PUBLIC QUESTIONNAIRE

WE THEN DECIDED TO SUBMIT **A MORE GENERAL QUESTIONNAIRE** TO THE PUBLIC, AND WHAT EMERGED IS WORRYING: **AT LEAST 50% OF RESPONDENTS WERE NOT AWARE OF THIS ISSUE!**

THIS GIVES US AN EXTRA MOTIVATION TO **EDUCATE ABOUT COLLISIONS AND RAISE PUBLIC AWARENESS.**

A POSITIVE NOTE IS CERTAINLY THE FACT THAT MOST RESPONDENTS SAY THEY ARE **UNWILLING TO BUY PRODUCTS CARRIED BY SHIPS COLLIDING WITH CETACEANS** AND PASSENGERS AGREE, MOREOVER, ON THE IMPOSITION OF SLOW DOWN MEASURES, GIVING PRIORITY TO THE CONSERVATION OF WHALES RATHER THAN THE ARRIVAL ON TIME TO DESTINATION.

THESE RESULTS HAVE BEEN **QUITE STIMULATING** AND WE BELIEVE THAT COLLABORATION BETWEEN THE DIFFERENT BODIES IS NECESSARY TO ACHIEVE RESULTS.

WE'RE WILLING TO DO OUR PART, HOW ABOUT YOU?



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SOURCES

- Balene colpite dalle navi: qual è la soluzione?**
<https://www.green.it/balene-colpite-dalle-navi/#:~:text=Si%20stima%20che%20le%20collisioni,nei%20mari%20e%20negli%20oceani.>
- Marine Mammals info**
<https://marine-mammals.info/collision-strike/>
- Blue corridors Report**
https://www.wwf.ch/sites/default/files/doc-2022-02/2022-02-17_WWF-Blue-Corridors-Report.pdf
- Azzali, M., Impetuoso, A., Mussi, B., Miragliuolo, A., Battaglia, M., Antolovich, W. 2003. Analysis of acoustic signals emitted from a nursery school of sperm whale (Physeter macrocephalus) recorded off Ventotene Island (Southern Tyrrhenian Sea, Italy). European Research on Cetaceans 17: 22-25.
- Azzellino, A., Airoidi, S., Gaspari, S., Nani, B. 2008. Habitat use of cetaceans along the Continental Slope and adjacent waters in the Western Ligurian Sea. Deep Sea Res. I, 55, 296-323.
- In rotta di collisione: balenottere e capodogli minacciati dalle grandi imbarcazioni**
<https://whalesanddolphins.tethys.org/it/in-rotta-di-collisione-balenottere-e-capodogli-minacciati-dalle-grandi-imbarcazio,-&>
- IMMAS SEARCHABLE DATABASE**
<https://www.marinemammalhabitat.org/immas/immas-searchable-database/>
- Traffic and collisions: the project**
<https://tethys.org/activities-overview/conservation/ship-strike-mitigation/traffic-and-collisions/>
- Pelagos sanctuary**
<https://pelagos-sanctuary.org/threats/>
- La terribile storia di Codamozza**
<https://whalesanddolphins.tethys.org/it/la-terribile-storia-di-codamozza/>
- The Role of Slower Vessel Speeds in Reducing Greenhouse Gas Emissions, Underwater Noise and Collision Risk to Whales**
<https://www.frontiersin.org/journals/marine-science/articles/10.3389/fmars.2019.00505/full>
- Balene a rischio nel Mediterraneo: 40 uccise ogni anno**
<https://www.wwfroma.it/aggiornamenti-dal-wwf-roma/84-balene-a-rischio-nel-mediterraneo-40-uccise-ogni-anno>

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