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THE NAVIGATOR

Inspiring professionalism in marine navigators

FREE

Watching out for whales

Detecting, protecting and avoiding whales at sea

A free publication by **The Nautical Institute** in association with the **Royal Institute of Navigation**

sponsored by IFAN

NAV BRIEF

David Patraiko FNI
Director of Projects, The Nautical Institute

Having a whale of a time?

Whales have always fascinated me, both as a seafarer and whenever I see footage of them on the television, or read about them online. According to a recent report from the WWF and its partners entitled *Protecting Blue Corridors*, six out of the 13 great whale species are now officially classified as endangered or vulnerable. Ever-increasing amounts of shipping traffic is leading to more collisions between whales and vessels.

In this edition of *The Navigator*, we focus on detecting, protecting and avoiding whales at sea. Avoiding whale strikes is the collective responsibility of all stakeholders within the shipping industry. According to the IMO and NOAA (*National Oceanic and Atmospheric Administration*), all sizes and types of ship or vessel, including recreational, commercial and governmental vessels have the potential to collide with nearly all kinds of marine species, including whales. Damage to vessels notwithstanding, the whale will likely come off the worse in the exchange. The increase in the number, size and speed of ships means that the threat of ships striking whale and other marine species is also getting bigger.

This point is raised in Captain Aly Elsayed's feature on page 4, which looks at why it is important to plan for whale avoidance, right from the earliest passage planning stage, and then employ best practice while at sea to avoid hitting these beautiful marine mammals.

Often, the first challenge is simply learning where marine mammals are, or are likely to be. Habitat and whale route maps are slowly improving, and charts are beginning to incorporate this information. A cleverly designed map from the WWF and its partners illustrates some of the major whale migration routes and critical areas around the world, breaking the information down by the different whale species on page 6.

An insight into best practice around voluntary whale avoidance routing comes from MSC on page 8, while George Shaw from the Royal Institute of Navigation casts his usual expert eye over technology and how its evolution might help seafarers plan routes more effectively to miss striking whales. Finally, our usual 'take ten' round-up on page 11 of top tips and pieces of advice to remember has been designed to help navigators keep this vital topic at the front of their minds, from passage planning to detecting and avoiding whales at sea.

Please pass this copy of *The Navigator* on to others when you have finished reading it, and discuss its contents with your team. Together, we can work towards a future where whales can be protected and vessels routed specifically to avoid collisions and strikes for the good of all parties and species involved.

INSIDE THIS ISSUE

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ALL AT SEA

Emma Ward

We welcome your news, comments and opinions on the topics covered in *The Navigator*

To get in touch with us, please contact the editor, Emma Ward, at navigator@nautinst.org

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We welcome your news, comments and opinions on the topics covered in *The Navigator*. We reserve the right to edit letters for space reasons if necessary. Views expressed by letter contributors do not necessarily reflect those held by The Nautical Institute

Watching out for whales

Whale strikes remain a concern for all seafarers, as does the protection and conservation of these marine giants. Read on for some useful links, tips and resources to help you learn more about avoiding strikes, understanding the habits of whales and factoring their preservation into passage planning.

If you spot any broken links, or would like to suggest resources that we have not included here, please do get in touch!

The mariner's view

This video from the OCEAN project brings together knowledge and experience from seafarers and conservationists around the world for some really practical advice from people who understand conditions at sea – well worth a watch. Find it at https://www.youtube.com/watch?v=IJzKNEvFDjc

Protecting blue corridors

The WWF believes that whales and dolphins play a critical role in protecting our climate and ocean health. Its global initiative brings together experts, policymakers and wider industrial stakeholders to design conservation solutions to safeguard whales and dolphins and protect their migratory routes. You can read more about this, and the WWF's recent report, Protecting Blue Corridors, at: https://wwfwhales.org/protecting-blue-corridors

Whales on the move

Another useful resource from the WWF is available at https://wwfwhales.org/news-stories/whales-on-the-move. This offers several fascinating facts about the migratory behaviour of whales, as well as the methods being used to 'map' their routes and how we can help protect these ocean giants from the threats they are facing.

Seen a whale?

Up-to-date reporting helps map where whales travel, and shape the routes vessels take in future. Log your sightings at https://iwdg.ie/iwdg-reporting-app/

Protecting whales from vessel strikes

As mariners, we share the sea with countless marine creatures – yet we often overlook how our vessels impact their lives. As responsible seafarers, this is an issue we can no longer ignore. **Captain Aly Elsayed AFNI**, from the IWC expert panel on preventing whale strikes, looks at some of the dangers that whales face and how we can help keep them safe

I recall a particular voyage passing the Cape of Good Hope. A group of whales appeared near our vessel, and I called my crew to witness the incredible sight. At that moment, I was focused only on the beauty of the scene, never considering that our large, fully loaded tanker might be disturbing them. I never considered the possibility that these creatures, perhaps feeding or recovering from a deep dive, could be vulnerable to our presence.

Reflecting on that now, I realise how much more we, as mariners, can do to minimise our impact on marine life. These species are not fish; they are air-breathing, warm-blooded marine mammals that nurture their young and are highly vulnerable.

Understanding the risks

Whales face significant dangers from vessel strikes, not just from large ships but also from recreational, fishing and offshore vessels. The risk is particularly high in regions with dense whale populations or where migration routes overlap with busy shipping lanes. Whales sometimes move or rest only just beneath the surface, making them incredibly difficult to detect. Navigational equipment, no matter how advanced, cannot always pick up a whale recovering just one metre below the water level. Even the most vigilant watchkeeping may not prevent an unintentional collision from happening.

Compounding the problem, whales may fail to react to vessel noise as they draw near. They can struggle to locate approaching ships due to underwater sound reflections, confusion from multiple vessel sounds, or the hull blocking engine and propeller noises. If a whale has not had previous negative encounters with a vessel, it might not even recognise ships as a danger. So, what can we do as mariners to help?

Slow down!

Scientists and conservationists have long called for ships to slow down in areas where whale populations are dense. Studies show that reducing speed to below 13 knots significantly lowers the risk of fatal strikes, with many experts advocating for speeds under 10 knots in critical habitats. Slower speeds give whales more time to detect and avoid vessels, and in the event of a collision, the impact is far less severe. While speed reduction may not always be practical due to operational constraints, we must consider it whenever possible.

Particularly Sensitive Sea Areas (PSSAs)

The International Maritime Organization (IMO) has issued circulars to protect whales from ship strikes and has designated Particularly Sensitive Sea

Areas (PSSAs) to protect key marine environments, including whale habitats. The World Shipping Council produced a WCS Whale Chart to assist mariners with voyage planning to minimise the risk of ship strikes to cetaceans – you can find a version on the next page, but the online version is continually updated. However, vessel strikes remain a major concern. More protected areas may be necessary that take into account whale migration routes and seasonal feeding grounds.

Navigators must stay informed about where these areas are and incorporate them into passage plans accordingly. For example, in the United States, there are designated Seasonal Management Areas (SMAs) in the Northeast, Mid-Atlantic, and Southeast, where vessel speed restrictions are enforced to protect right whales. Additionally, NOAA Fisheries has established Dynamic Management Areas (DMAs) and Slow Zones, voluntary programmes that notify vessel operators to reduce speed when right whales are detected. In Canada, static zones require vessels longer than 13 metres to travel at a speed not exceeding 10 knots over the ground in the Gulf of St Lawrence.

Awareness is key. Some critical information can be found in sailing directions issued by hydrographic offices, which sometimes provide details on whale presence and migration patterns. Coastal states and port authorities may also issue regional advisories about whale activity, and navigational charts may include whale caution zones. Integrating this data into passage planning is vital to reducing risks.

Navigating operational and regulatory challenges

While reducing speed or altering course to avoid whales makes sense from a conservation standpoint, operational realities must still be considered. As one shipmaster pointed out, 'Avoiding whales or reducing speed is not a clause in the charter party, and the ship will be fined if we slow down or take a significant deviation.'

This quote highlights the need for regulatory adjustments that support conservation without penalising ship operators. Balancing environmental protection with operational efficiency remains a challenge, but one that we must address collectively.

In addition to routing, maintaining a vigilant watch for marine mammals is crucial to avoid striking protected species. When safety permits, ships should slow down when mother/calf pairs or groups of whales are observed forward of the ship. Mariners should take precautionary measures and exercise caution when sighting a whale at the surface, as this may indicate the presence of submerged whales nearby.

CSMART Marine Mammals Avoidance Training advises that ships should also consider altering course around whales, maintaining a minimum distance of 100 metres whenever possible. If a whale is sighted in the ship's path or in close proximity, reducing speed is a necessary precaution.

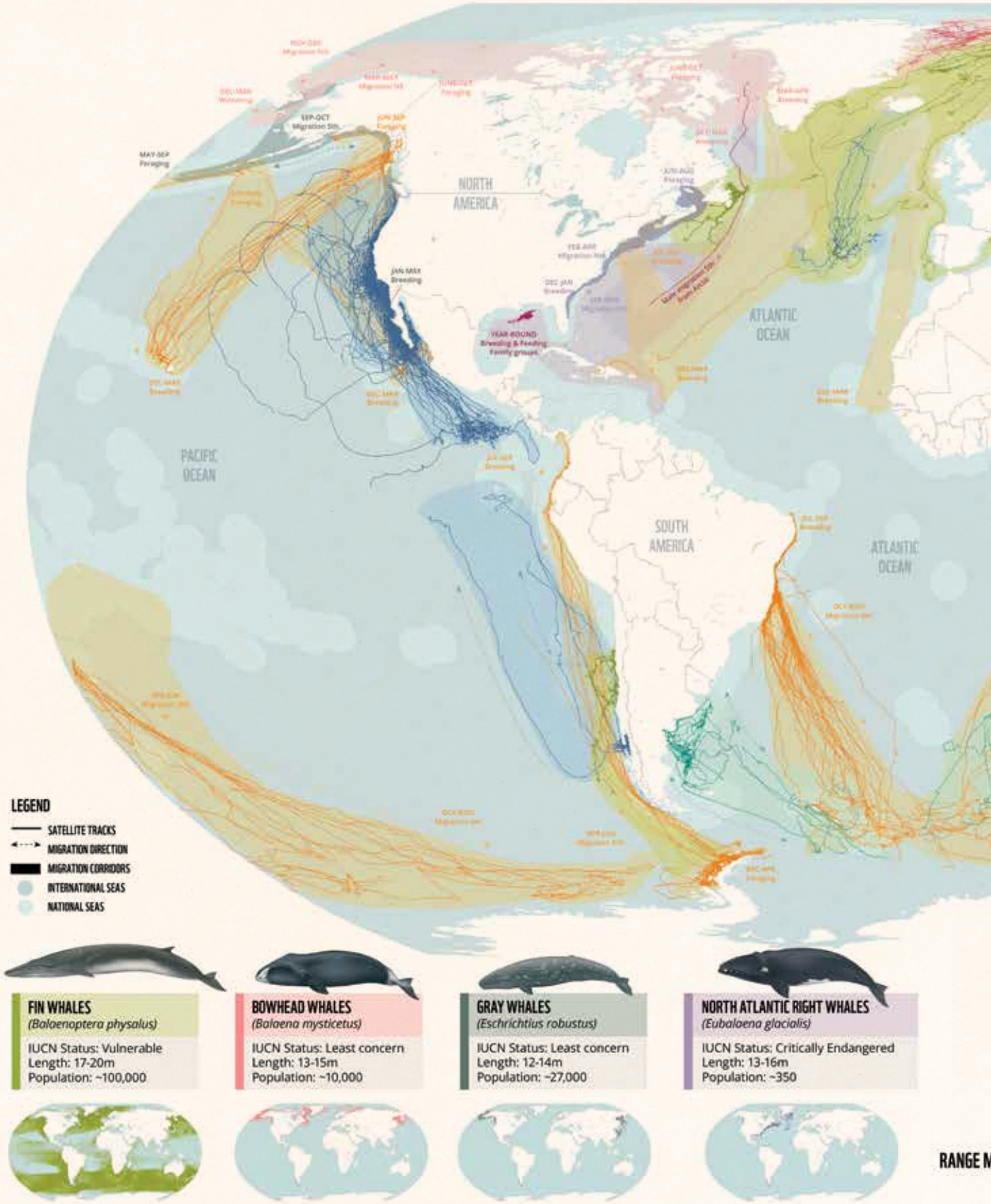
A shared responsibility

Protecting whales is not solely the responsibility of ship operators or regulatory bodies; it is a collective effort involving mariners, shipowners, charterers and policymakers. We must advocate for regulations that prioritise whale conservation while ensuring realistic implementation for the industry. Technological advancements, such as real-time whale detection systems, acoustic monitoring and improved route planning tools, can further aid in mitigating vessel strikes.

The maritime industry must also do more to educate seafarers on this issue. Mariners should take the initiative to watch videos, read scientific articles and familiarise themselves with whale behaviour and migration patterns. Understanding the species that inhabit the waters we navigate can help us make informed decisions that reduce our impact.

Preventing whale strikes is a complex issue, but every step we take – reducing speed, adjusting routes and staying informed – helps protect these magnificent creatures. Our ships and whales share the same ocean. It is our responsibility to navigate with care and respect, ensuring that future generations of mariners and marine life continue to coexist.

WHALE SUPERHIGHWAYS



FIN WHALES
(Balaenoptera physalus)
IUCN Status: Vulnerable
Length: 17-20m
Population: ~100,000

BOWHEAD WHALES
(Balaena mysticetus)
IUCN Status: Least concern
Length: 13-15m
Population: ~10,000

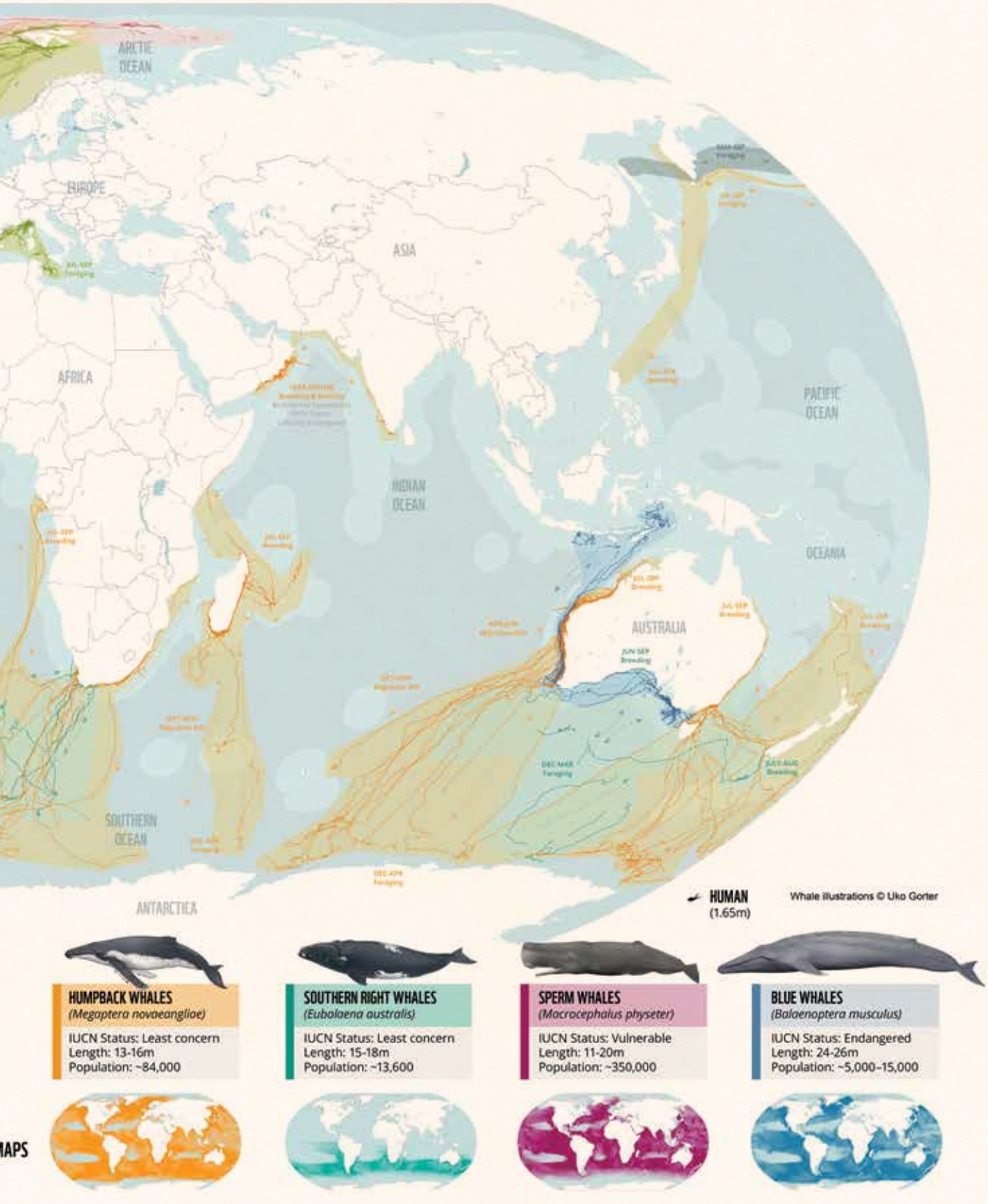
GRAY WHALES
(Eschrichtius robustus)
IUCN Status: Least concern
Length: 12-14m
Population: ~27,000

NORTH ATLANTIC RIGHT WHALES
(Eubalaena glacialis)
IUCN Status: Critically Endangered
Length: 13-16m
Population: ~350

RANGE M

References: WWFwh

The WWF and its partners present a global view of blue corridors for whales, combining satellite tracking data from over 1000 tags from 50 researchers. They help uncover the migration patterns of whales and their critical habitats.



TETHYS · Wildlife Conservation Society · CONICET · OKEANOS · forestry, fisheries & the environment

hales.org/references

WATCH-OUT

In this series, we take a look at issues affecting the safety of mariners and the species with whom we share our oceans and seas

Voluntary whale avoidance routing

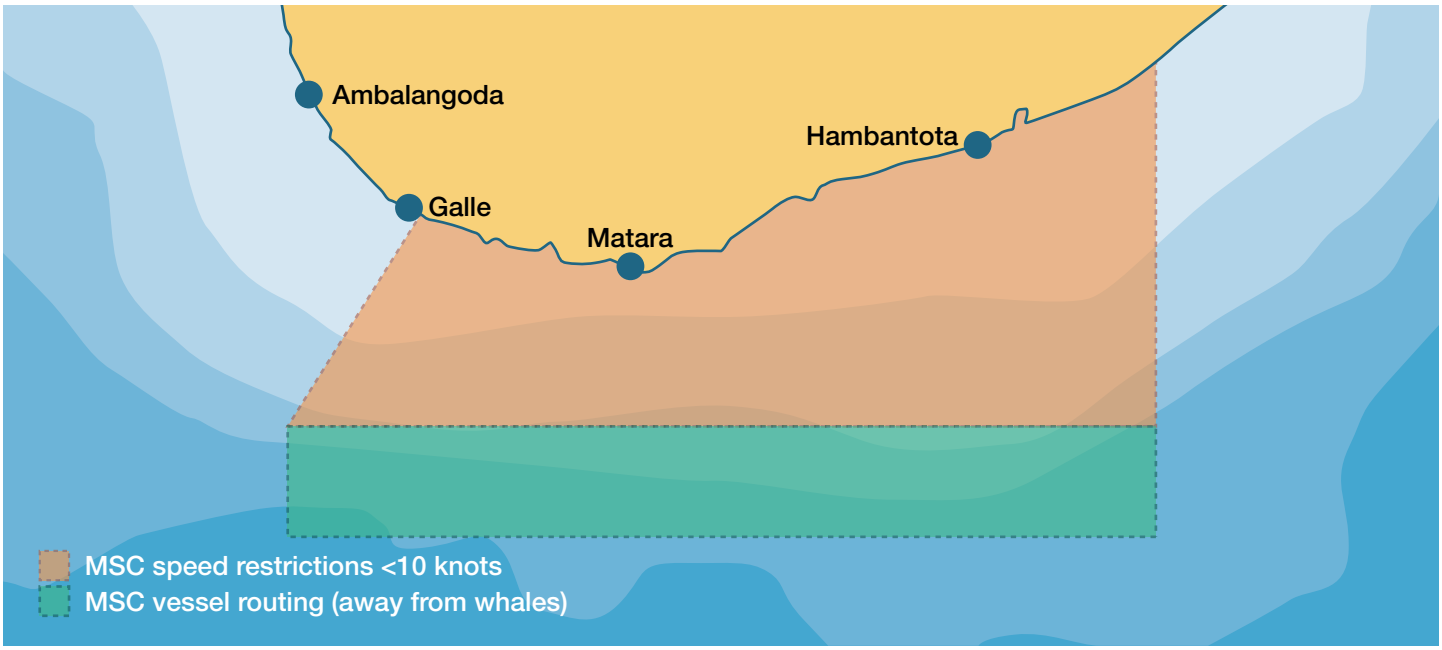
Keeping a lookout and knowing when to move to avoid danger – or to avoid putting other vessels or marine mammals at risk – is one of the key skills for any mariner. But better yet is not to be in a situation where the danger is going to occur. While you should always keep a lookout for whales, if you're in the same place that many whales are gathering, for example, on a major migration route, there's already a problem. Even better would be to make sure that your route avoids these areas at the planning stage.

Luckily, we already know the location of many of the areas where whales are likely to gather and feed, and when migrations are likely to occur, and that knowledge is getting better all the time. Many areas are subject to mandatory speed reductions or other restrictions on vessels in a bid to protect whales and other marine mammals. However, it is becoming more common for shipping companies to factor voluntary whale avoidance routing into their passage plans in a bid to avoid facing vessel strikes altogether. Even small changes, by a matter of a few nautical miles, can be enough to make a huge difference.

For example, MSC has chosen to re-route its ships on the west coast of Greece with the specific aim of reducing the risk of collision with endangered sperm whales in the Mediterranean sea. More than half of the sperm whales found stranded on the Greek coast in the region have displayed evidence of vessel strikes – more than any other whale population in the world. Studies have identified the Hellenic Trench, to the west and south of the Peloponnese and southwest of Crete, as a critical habitat for these whales. The area of most concern is currently a major container shipping route. Voluntary re-routing by companies to avoid the area is a substantial contribution to the survival of at-risk whales.

EVEN SMALL CHANGES, BY A MATTER OF A FEW NAUTICAL MILES, CAN BE ENOUGH TO MAKE A HUGE DIFFERENCE

Similarly, the company has shifted its routes off the coast of Sri Lanka by 15 nautical miles to protect endangered blue whales and other marine wildlife. These decisions were taken following discussions with major environmental NGOs, to make sure the right moves were made in the right places. According to the NGO Coalition comprising the International Fund for Animal Welfare (IFAW), OceanCare and WWF Greece. "*By making small re-routing changes, MSC is making a significant difference for these endangered whales… Now we need other shipping companies to show similar leadership – if all ship traffic using this area made these minor adjustments, the ship strike risk to sperm whales would be reduced by almost 75 percent.*"



The Nautical Institute's Mariners' Alerting and Reporting Scheme (MARS) – *https://www.nautinst.org/resource-library/mars.html* – comprises a fully searchable database of incident reports and lessons, updated every month. If you have witnessed an accident or seen a problem, email Captain Paul Drouin at mars@nautinst.org and help others learn from your experience. All reports are confidential – we will never identify you or your ship.

Stepping outside the comfort zone

Deck cadet **Chelsa Maria George Paul** talks about her experiences at sea, her ambitions to rise through the ranks and her desire to be a good role model for women all over the world who want to build a career at sea

Why did you decide to pursue a career at sea?

I craved something that would test my limits, shape my character and let me see the world with my own eyes. There's something deeply humbling and powerful about being surrounded by the sea. It teaches patience, perspective and purpose. This career gave me strength, courage and a sense of purpose I carry every time I step on board.

As a woman, I wanted to walk a path few dared, to show young girls that even the waves can't stop us. Now, I carry this journey not just for me, but for every women who dreams of chasing something bold.

What do you find most interesting or challenging about your current role?

No two days are ever the same. One moment I'm on the bridge, assisting the chief officer in navigational watch and the next day I'm involved in drills or learning about cargo operations. The most challenging part is being away from family and managing responsibilities in a high-pressure environment.

As a female cadet stepping outside the comfort of home and my own country, I had to quickly adapt, not just to the ship's operations, but also to the dynamics of a male-dominated environment. It taught me to be observant, tactful and emotionally intelligent while dealing with different personalities on board. Building mutual respect and maintaining professionalism are just as important as learning technical skills.

Where do you see yourself in five years' time? Ten?

In five years, I see myself as a second officer, confidently leading bridge watches and contributing to safe, efficient operations. In ten years, I see myself as a chief officer or Master, running a vessel with pride and possibly running my own business or initiative that empowers women in shipping and beyond.

Name: Chelsa Maria George Paul

Current Position: Deck Cadet

Company: Anglo-Eastern Ship Management

BUILDING MUTUAL RESPECT AND MAINTAINING PROFESSIONALISM ARE JUST AS IMPORTANT AS LEARNING TECHNICAL SKILLS

How do you use technology to increase your skills and help you in your duties?

Technology plays a key role in both my learning and performance on board. From using advanced systems that are available on board to staying updated through maritime learning platforms and simulation-based apps. I use platforms like YouTube and follow maritime news pages to keep updated about the maritime industry and other social media platforms to document my journey and connect with other seafarers.

Beyond technology, I always look to my seniors for guidance. Their experience has been invaluable in helping me grow, both technically and professionally. I actively engage with the local branch of The Nautical Institute – India SW, and regularly participate in the events and discussions conducted by the Youth Forum of Nautical Institute, India SW. These sessions offer real-world insights, mentorship and the chance to interact with like-minded professionals.

George Shaw FRIN

Spotting whales from space?

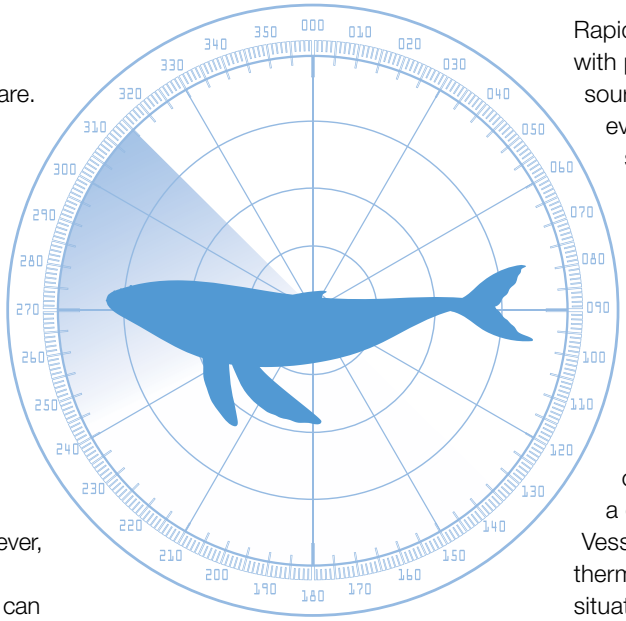
Space and AI technologies are increasingly able to provide information that helps mariners plan routes to avoid whales at sea – but old-fashioned look-out skills are still needed. George Shaw from the Royal Institute of Navigation investigates further

In an ideal world, all whales would be continuously tracked so mariners can receive instant alerts about where they are. While this is currently impractical and uneconomic, technologies that support passage planning and situational awareness are evolving all the time.

Space technologies provide worldwide maritime coverage for satellite navigation, communications and remote vessel monitoring. Low Earth Orbit (LEO) satellites, such as the 'Argos' constellation, actively track some radio-tagged whales, capturing whale migration routes to allow 'blue corridor' mapping that does not rely just on terrestrial sightings. However, LEO satellites 'hug' the plant closely (at altitudes of 160km to 2,000km), so they can only view any ocean area for a few minutes in each orbital period, which are typically between 90 minutes to two hours)

The proximity of LEO satellites supports very high definition optical imagery for sea areas in low-cloud daylight conditions. Efficient analysis of the multitude of images produced requires AI image recognition, harnessing the power of supercomputing and deep-learning to detect the presence of whales automatically, without the need to radio tag individual whales. AI processing of sequential images could track whale movements, improve mapping of 'blue corridors' and perhaps eventually provide regular dynamic updates of whale locations to help mariners avoid striking them in transit – if routes have not already been shifted in response

As technology evolves to produce more detailed seasonal whale maps, this should improve confidence in accurate voyage planning to avoid whale strikes.



AS TECHNOLOGY EVOLVES TO PRODUCE MORE DETAILED SEASONAL WHALE MAPS, THIS SHOULD IMPROVE CONFIDENCE IN ACCURATE VOYAGE PLANNING TO AVOID WHALE STRIKES

Rapid detection of whales from space with powerful AI (complementing crowd-sourced sightings from vessels) could eventually support digital maritime services that update mariners at sea about whales' locations in real time.

Visual look-out

Currently, however, if a passage plan requires the vessel to traverse a known whale area, reducing speed should make timely whale detection more likely. Since shipboard radar and AIS cannot spot whales, maintaining a consistent visual look-out is vital. Vessels equipped with combined optical/thermal sensors (primarily for enhanced situational awareness) may also enhance mariners' awareness of whales. However, such systems may not reliably alert against whales at a sufficient range for avoidance by themselves.

Thermal sensing of whale blows can work well at night or in poor visibility, as spouts tend to be more detectable than whales themselves. Thermal imaging with day/night high resolution and the ability to penetrate cloud is gradually emerging for LEO satellites and may eventually benefit whale observation.

In summary, despite exciting trends emerging in AI and satellite technology, diligent visual monitoring remains crucial for detecting whales close to the vessel. Observational skills can be honed by practice, experience and by using environmental and emotional cues. As with all navigation, avoiding whales requires mariners to use 'all available information' and to practise high levels of seamanship to keep whales and vessels safe at sea.

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TAKE 10

Ten ways to safeguard whales and plan ahead to avoid vessel strikes

1
Critical creatures
Whales are an incredibly important part of our planet's biodiversity and critical to our ocean sustainability – any damage to whales hurts us all and our planet.

2
Appreciation
Many mariners love the sight of whales and feel privileged to share the oceans with them, often alerting the crew when they are sighted in order to share the joy.

3
Knowledge
Seafarers often have a poor understanding of whale behaviour and the risks ships pose to whales. Unlike dolphins who play in the bow wave of a ship, whales can be unaware of the approach of a ship and are at risk from it.

4
Learn more
There are many resources listed in this issue of *The Navigator* and more are created and updated all the time.

5
Plan evasion
It's better not to be in the same space as whales. Plan to avoid known positions and migration routes. Tools and sources of advice (not least the WWF map on pages 6 and 7) include Sailing Directions and local advisories.

6
Speed kills
When it is not possible to avoid areas with whales, speed reduction to at least 13 knots, or better yet 10 knots or less, give whales a better chance to avoid ships. If the worst does happen, it will reduce the impact of a strike.

7
Be vigilant
Whales are often just on or just under the surface and may be obscured by sea state or darkness – but a keen lookout might identify a whale 'blowing' or breaching.

8
Take advice
There are many whale protection areas and Particularly Sensitive Sea Areas (PSSA), both mandatory and voluntary. Please take part in in any schemes that are available to the best of your ability.

9
Voluntary participation
Where voluntary participation needs to be justified on a 'commercial basis', shipowners, managers and charterers should take into consideration the adverse consequences to their ship, in terms of loss of time, reputation and regulatory impact.

10
Share
Detecting and avoiding whales is a relatively new activity for merchant mariners, so please learn all you can about how this can be effective and share those ideas with your fellow mariners (mentoring), managers and the environmental community.

LIKE OUR TOP 10 TIPS?

Find the others at https://www.nautinst.org/technical-resources/navigator.html

WIN AN IPAD

Just post a picture of you with your *Navigator* on Instagram, including the hashtag **#NAVsnap**, or send us a message on Facebook with your photo attached (www.facebook.com/thenauticalinstitute) and tell us the name of your ship or your college, if you have one. Let us know if you're a member of The Nautical Institute, too (everyone gets entered in the draw, whether you are a member or not!) Or send us the information in an email!

AND THE WINNER THIS ISSUE IS...

Kavindra Kariyawasam is the lucky winner of our ipad for this issue. He's an AB sailing on the containership *MV Jan*, and sent us this picture from the breakroom on board. Send us a selfie, we love seeing where our readers are!

Kavindra Kariyawasam
NAVIGATOR CHAMPION