

IWC Guidance for organisers of off-shore recreational boating events to minimise risk of collisions with cetaceans.

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Collisions between sailing vessels and cetaceans have been reported for a number of species, with large whales being the most common. Ritter (2009) described 66 incidents between 2003 and 2008, but this is likely only a small fraction of the total incidents. Many of these collisions have caused serious damage to the vessel, as well as, likely serious or fatal injury to the whale. Several vessels have been left severely incapacitated or have sunk following collisions with whales; hence there is also a significant risk to crew safety.

In 2008 alone, there were at least 10 reports of collisions believed to be with whales during off-shore sailing yacht races, five of which occurred during the Artemis Transat, accounting for more than 20% of the fleet participating in that event. In April 2009, seven of the eight vessels competing in the Volvo Ocean Race had reported hitting something although none of the collisions have been confirmed as with whales. There are several examples of more recent incidents, further indicating an increasing trend during the past 10 years.

Off the east coast of the United States, there are areas designed to reduce the collision risk to highly endangered North Atlantic right whales, which vessels are either required to avoid or if transiting the area to maintain speeds of less than 10knots. In April 2009, organisers of the Volvo Ocean Race provided routing instructions to competitors to avoid an area on the approaches to Boston, USA which represents critical habitat for right whales. In this case the organisers chose to give routing instructions and allow the competitors to continue racing at maximum speed. During the Global Ocean Race in 2010, an international NGO established collaboration with the regatta organizers so as to make sailors aware of the collision risks and to encourage them to report cetacean sightings as well as collisions, should they occur, via a specially prepared form.

There is currently insufficient information on the response of whales to approaching sailing vessels to suggest any technological solutions that are known to substantially reduce risk. The current options for reducing risk are therefore limited to avoiding action by the vessel and routing vessels away from areas with large numbers of whales. Taking action to avoid a collision requires both detecting the whale in time and an appropriate avoidance manoeuvre. Good visual lookouts may be kept on boats with large crews in good sighting conditions during daylight hours, but this is not possible during poor weather or darkness and/or for single-handed events. Sailing vessels may also be travelling at their fastest speeds in wind strengths that create poor sighting conditions.

Routing vessels away from known or likely concentrations of whales or timing events during periods when whales are unlikely to be in the area will significantly reduce risk. There are a number of different options for providing routing advice or instructions at different spatial scales, depending on what data are available regarding whales. In the analysis by Ritter (2009), humpback whales and sperm whales accounted for 72% of reported collisions where species was identified, suggesting particular attention should be given to these species. However, there may well be areas with concentrations of other species such that these other species present the greatest collision risk. Both humpback and sperm whales are relatively well studied in terms of their habitat characteristics and movements and so there is potential to suggest routing advice based on oceanography, bathymetry and movement patterns. In some areas there are also considerable data from sightings surveys, regular whale watching activities, satellite telemetry projects or whaling records of areas where concentrations of animals are likely. Humpback whales may also have a distinct seasonal distribution and be concentrated on quite narrow migration routes.

In addition, the following procedure is suggested for off-shore sailing races:

(1) Collating baseline data

During race planning, gather data on the seasonal and temporal patterns of whale distribution and movements along the route. In many cases there will be no data but the route may pass through certain habitat types that may relate to whale concentrations and inferences about seasonal migration may also be possible. Gathering information on large oceanographic and physiographic features like currents, fronts or seamounts might also help identifying potential cetacean hot spots. **A list of resources to collate data on whale abundance, the location of MPAs for cetaceans and information on vessel-whale collisions is given in Annex 1.**

(2) Route planning

- (a) At the planning stage of the event, allow for the concept of physical or virtual (defined by GPS) marks that would define the race route (e.g. leaving a particular island to starboard or a passing north of a specified waypoint) and potentially avoid high density areas. Try to define routes that will cross likely features that concentrate whales (e.g. continental shelf break, large oceanic fronts) as close to perpendicular as possible. Avoid areas of complex bathymetry such as seamount and gullies with appropriate routing instructions.
- (b) At the planning stage of the event allow for as wide a time window as possible in order to coincide with seasons when whale density is likely to be lowest
- (c) Evaluate the options for timing and routing instructions that appear to minimise risk on the basis of the available information

(3) Informing sailors

- (a) Ensure competitors are informed about the areas where whales are most likely to be encountered so that if possible they can maintain a better lookout in these areas.
- (b) Provide competitors with general advice on the species most likely to be encountered. For example, whales tend to aggregate and so seeing one is an

indication that there are likely to be others in the area. Some behavioural characteristics are also relevant to collision risk (e.g. a sperm whale lifting its flukes is likely to dive deep for over 30 minutes whereas a humpback whale lifting its flukes may only dive for a few minutes). Other whales, such as fin whales, do not show the fluke and may be therefore harder to spot. Fin and humpback whales may also have a distinct seasonal distribution; the latter species can be concentrated on quite narrow migration routes.

(c) All competitors should be provided with briefing materials on what to do and look for in the event of a collision. In particular, pieces of whale skin are sometimes left on the vessel. These can be analysed using genetic techniques to identify the cetacean species involved. Race organisers should provide each vessel with suitable containers and preserving fluid so that skin samples can be collected. Any skin samples collected should be stored on board the vessel until appropriate arrangements have been made for analysis to avoid breaching CITES regulations.

(4) Reporting

Collecting data on collision events is critical to help understanding the problem and developing mitigation measures. The International Whaling Commission (IWC) has developed a global database and all incidents should be reported to the IWC (<http://iwc.int/ship-strikes> or by email to shipstrikes@iwc.int).

As more information becomes available through co-operation between yachtsmen, sailing organisations, race organisers and scientists there will be scope for developing more effective mitigation measures. At present however a good lookout and careful route planning are the most effective ways of reducing risk. If collisions with whales are taken into account at the planning stage of events then choosing routes to minimise risk should not detract from the event and will benefit whales and competitors.

To foster the dialogue between scientists, race organizers and sailors, the IWC has established two ship strike coordinators.

Working together with the IWC to develop mitigation measures and facilitate their practical application is recommended. To get in touch with the IWC ship strike data coordinators use the following email addresses:

Fabian Ritter - ritter@m-e-e-r.de

Simone Panigada - panigada@inwind.it

For further information on ship strikes please have a look at:

<http://iwc.int/ship-strikes>

ANNEX 1: Ship strike mitigation measures, educational resources, reporting tools and websites relevant for sailors and sailing race organizers

A) Educational resources

State	Applicable	Resource	Title	Developed by	Contents
US	Right whale habitats	Interactive CD-ROM	A Prudent Mariner's Guide to Right Whale Protection	US stakeholders	Information on right whales ship strikes reduction http://www.nero.noaa.gov/shipstrike/doc/mtr.html
BE	World wide	Leaflet	Whales: Avoiding Collisions Prevents Damage	Govt. of Belgium, IFAW	Available in English, Franch, Spanish, Chinese & Arabian http://www.iwcoffice.org/sci_com/shipstrikes.htm
IT	Mediterranean Sea	Ship strike poster	Collisions with cetaceans in the Med	Tethys Research Institute	What to do in case of a strike http://www.tethys.org/collision/download/poster_collisions_en.jpg
US	Right whale habitats	Ship strike placard	Guidelines for mariners	NOAA	Precautionary measures http://www.nero.noaa.gov/shipstrike/doc/guidelines%20placard_high.pdf
	World wide	Global Map of MPAs	MPAs for Whales, Dolphins and Porpoises		

B) Reporting

Applicable	URL	Online IWC ship strike data base	Developed by	Notes
World wide	http://www.iwcoffice.org/ship-strikes	Online IWC ship strike data base	IWC	
US waters	http://www.nmfs.noaa.gov/pr/health/coordiators.htm	Contact details for NMFS regional offices	NOAA, NMFS	
Australian waters	http://data.marinemammals.gov.au/	Online reporting tool (coming soon)	Australian Marine Mammal Centre	
Mediterranean Sea	http://tethys.org/collision/index.htm	Online reporting tool	Tethys Research Institute	
Pelagos Sanctuary	http://www.souffleursdecume.com/etudes_collisions.html	Reporting sheet via download	Souffleurs D'écumes	

C) Websites

URL	Developed by	Contents	Notes
http://www.nmfs.noaa.gov/pr/shipstrike/	NOAA	Ship Strikes and North Atlantic Right Whales	
http://channelslands.noaa.gov/focus/alert.html	NOAA	Reducing ship strikes on large whales	
http://www.iwcoffice.org/ship-strikes	IWC	Ship strikes and cetaceans	Access to IWC data base via this site
http://m.e-e-r.de/index.php?id=473&L=2	M.E.E.R. e.v.	General information and awareness raising (special focus on Canary Islands)	Bilingual English/German
http://www.pacificwhale.org/BWA	Pacific Whale Foundation	Awareness raising	
http://souffleursdecume.com/english/index_EN.html	Souffleurs d'écumes	General information on ship strikes (special focus on the Mediterranean Sea)	Bilingual English/French
http://uk.whales.org/issues/boat-traffic	Whale and Dolphin Conservation, WDC	Info on ship strikes with reference to research projects	

D) Speed reduction

State	Area (State)	Waters/port affected	Measure(s)	Time frame	Implementation	Cetacean related rationale	URL
US	East Coast (Massachusetts)	Cape Cod Bay SMA*	Seasonal SMA, mandatory 10 knots speed restriction	1 Jan - 15 May (for all vessels 20 m or longer)	2008, renewed in 2013	NOAA To reduce collision risk between right whales and ships	http://www.nmfs.noaa.gov/pr/shipstrike/archive.htm#routing
US	East Coast (Massachusetts)	Off Race Point SMA*	Seasonal SMA, mandatory 10 knots speed restriction	1 Mar - 30 April (for all vessels > 20 m or longer)	2008, renewed in 2013	NOAA To reduce collision risk between right whales and ships	http://www.nmfs.noaa.gov/pr/shipstrike/
US	East Coast (Massachusetts)	Great Sout Channel SMA*	Seasonal SMA, mandatory 10 knots speed restriction	1 May - 31 Jul (for all vessels > 20 m or longer)	2008, renewed in 2013	NOAA To reduce collision risk between right whales and ships	http://www.nmfs.noaa.gov/pr/shipstrike/
US	US - Mid Atlantic	6 Seasonal SMAs*	mandatory 10 knots speed restriction	1 Nov -30 Apr (for all vessels > 20 m or longer)	2008, renewed in 2013	NOAA To reduce collision risk between right whales and ships	http://www.nmfs.noaa.gov/pr/shipstrike/
US	US - Southeast	Brunswick, Fernandina, Jacksonville SMA*	mandatory 10 knots speed restriction	15 Nov - 15 Apr (for all vessels > 20 m or longer)	2008, renewed in 2013	NOAA To reduce collision risk between right whales and ships	http://www.nmfs.noaa.gov/pr/shipstrike/
US	US - Northeast	DMA**	recommendation to avoid these areas or reduce speed to 10kn		2002	NOAA To protect unexpected aggregations of right whales	http://www.nero.noaa.gov/whaletra/plan/dam/
US	West coast (Alaska)		General provision that "vessels operate at a slow, safe speed when near a humpback whale"			NOAA	http://www.nps.gov/gkba/2010-07-08.htm
US	West coast (Alaska)	Glacier Bay National Park	mandatory 10 kn speed limitation			Park Service	http://www.gpo.gov/fdsys/pkg/CFR-2012-title36-vol1/pdf/CFR-2012-title36-vol1-sec13-1174.pdf
US	West Coast (California)	Shipping lanes into Los Angeles and Long Beach	recommended 10 kn speed reduction when blue whales are in the area			NMFS, US Coast Guard	http://channelslands.noaa.gov/focus/alert.html
ES	Strait of Gibraltar		recommendation to reduce speed to 13 kn	Apr - Aug	Jul 2007	IMO	
ARG	Province of Chubut	Golfo Nuevo, Peninsula Valdez	10 knots speed limit within navigation corridor	1 Jun - 30 Nov	2009	Argentine Coast Guard	To reduce collision risk between southern right whales and ships

E) Further reading

Medium	Author(s)	Title	Notes	URL	Notes
Book	Erich Hoyt	Marine Protected Areas for Whales, Dolphins and Porpoises		http://www.cetaceanhabitat.org/cetacean_protected_areas.php	
IMO Document	IMO	Guidance Document for Minimizing the Risk of Ship Strikes with Cetaceans	MEPC.1/Circ.674, 31 July 2009	www.imo.org/blast/blastDataHelper.asp?data_id=26244	
Scientific publication	Fabian Ritter	Collisions of sailing vessels with cetaceans worldwide: First Insights into a seemingly growing problem	J. CETACEAN RES. MANAGE. 12(1): 119–127, 2012	http://tinyurl.com/hszlff4	Doc. Name "12_1p119_128Ritter.pdf"

* SMA = Seasonal Management Area (mandatory)

** DMA = (Voluntary) Dynamic Management Area set up dynamically as right whale aggregations are reported