

Annex J

Report of the Subcommittee on Non-Deliberate Human-Induced Mortality of Cetaceans

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1. INTRODUCTORY ITEMS

1.1 Opening remarks

Leaper welcomed the participants and highlighted the key work areas of the Subcommittee on bycatch and ship strikes. The bycatch work is closely coordinated with the IWC's Bycatch Mitigation Initiative (BMI) and the IWC Ship Strikes Working Group.

1.2 Appointment of chair and rapporteurs

Leaper and Minton were elected as chairs of the meeting. Babey and Long were rapporteurs.

1.3 Adoption of agenda

The agenda was adopted.

1.4 Available documents

Documents available for discussion included: HIM 01-05, HIM 07-17, HIM 19-22 and HIM 24. HIM 05 and HIM 09 to be discussed in the SM Subcommittee. SM 09, O 06, and Rep 02 were considered. For Info 06, 07, 08, 09, 38, 41, 42, 44, 45, 47, 49, 50, 51, 52, 57.

2. BYCATCH AND ENTANGLEMENTS

2.1 IWC'S Bycatch Mitigation Initiative

SC/69B/HIM 22 provided an update on the progress by the IWC's Bycatch Mitigation Initiative (BMI) since

SC69A. The Bycatch Expert Panel has several new members appointed to help address gaps in geographical representation as well as technical expertise (see <https://iwc.int/management-and-conservation/bycatch/expert-panel-on-bycatch>). The Standing Working Group (SWG), chaired by Svoboda, Netherlands, currently has 36 members, and membership to the SWG remains open. The new BMI workplan for the period 2025-2028 will be drafted by the BMI Coordinator in collaboration with the Expert Panel, then reviewed by the bycatch Standing Working Group and at the Conservation Committee meeting in September prior to presentation for endorsement and adoption at IWC69.

The Bycatch Coordinator has continued to participate in the Consortium for the Conservation of the Atlantic Humpback Dolphin (CCAHD) working groups on bycatch and fundraising (see SM item 5.4 on SC/69B/HIM/09) and engaged with the Ghana Marine Mammal Network. As part of the BMI capacity building efforts, virtual training on the Bycatch Risk Assessment toolbox (ByRA) was provided to scientists and technicians from Thailand's Department of Marine and Coastal Resources in May 2023. Further ByRA training workshops are planned in South America in 2024 to build local capacities on bycatch assessment for both marine and freshwater cetaceans including participants from range countries of the CMP for South American river dolphins. The Spanish version of the ByRA manual has been updated for the upcoming training, and a Portuguese version is expected soon.

The IWC is a beneficiary partner in the 'Coordinated Development and Implementation of Best Practice in Bycatch Reduction in the North Atlantic region' (CIBBRiNA) project (see 2.2.2). As part of the work of the BMI, the IWC will contribute to work on bycatch solutions through the expertise of its Expert Panel on Bycatch and the Scientific Committee. The BMI has also continued to engage with affiliated projects which can benefit from advice from the Bycatch Expert Panel and a broader dissemination of results and outreach opportunities.

The Subcommittee commended the impressive work undertaken by the IWC's BMI and its coordinator (Passadore) under the current workplan. The Subcommittee looks forward to updates on progress with the 2025-28 workplan at the next SC meeting.

2.1.1 Bycatch in Indian Ocean, including collaboration with IOTC

The BMI programme of work related to bycatch in the Indian Ocean is described in SC/69B/HIM/22, including collaboration with IOTC described in SC/69B/O/06, including:

- FAO/GEF Common Oceans Program – Tuna Project. In 2023, IWC started working on with Regional Fisheries Management Organisations, national governments, experts and the fishing industry to improve understanding and management of cetacean bycatch in tuna fisheries in the Indian and western Pacific Oceans. The project aims to address the lack of information about cetaceans, cetacean bycatch and fisheries, by undertaking a gap analysis and a spatial bycatch risk assessment for the Indian Ocean.
- Collaboration with the Indian Ocean Tuna Commission (IOTC) Working Party on Ecosystems and Bycatch (WPEB). At WPEB19, the IWC summarised previous work and planned activities relevant to the assessment of cetacean bycatch in tuna fisheries focused on the Indian Ocean (FI 06). The IOTC welcomed this contribution and noted that in response to the paper an offer was made from the Spanish Institute of Oceanography to share cetacean sightings data from their observer programs onboard purse seine and longline vessels. The IOTC welcomed the plans for IWC-led training workshops and agreed that the locations of these would be defined according to the needs in the region and would likely focus on member countries with gillnet fisheries.
- The IWC project in the Indian Ocean includes funding for a consultancy to conduct a spatial rapid

risk assessment by gear type and a workshop on bycatch gap analysis. In 2024, the Terms of References for these activities will be defined in collaboration with the IWC Bycatch Expert Panel.

IOTC Resolution 23/06 on the conservation of cetaceans includes calls for the IOTC Scientific Committee to provide advice on appropriate measures for mitigating the effects of interactions with cetaceans by IOTC fisheries and to develop best practice guidelines for the safe release and handling of encircled cetaceans by 2025. The WPEB19 participants acknowledged the recently signed Cooperation Agreement between IOTC and IWC and noted that at the next meeting of the WPEB the IWC will provide advice on best practices for the release and handling of cetaceans including materials from the Expert Advisory Panel on Entanglement Response. The 'Guidelines for the safe and humane handling and release of bycaught small cetaceans from fishing gear' (Hamer and Minton, 2020), which were endorsed by the Committee as well as by experts from the Convention on Migratory Species, will be presented to address this request.

Attention: S

*The Subcommittee welcomed the ongoing and strengthening collaboration between the IWC BMI and the IOTC. The Subcommittee encourages ongoing participation in the IOTC WPEB and **recommended** that the BMI use the available funding and consultancy to build on the Ecological Risk Analysis described in FI 49 (see below) using additional sources of data that provide more detailed representations of fisheries effort as well as cetacean distribution.*

Data sources for this risk analysis can include the newly available data from Spain, Global Fishing Watch data on IUU fishing, IWC archives, published papers, Important Marine Mammal Areas databases, and the data presented in FI 09 and SC/69B/HIM/21.

To address increasing concern about the extent of cetacean bycatch in the Indian Ocean, particularly in expanding drift gillnet fisheries, an ecological risk assessment including a productivity-susceptibility analysis (PSA) was adapted to investigate the vulnerability of cetaceans to bycatch in tuna fisheries, particularly in drift gillnets, pelagic longlines, and purse seines within the IOTC Area of Competence (FI49). The PSA revealed that overall, drift gillnets present a higher risk than pelagic longlines and purse seines. Species at higher risk include oceanic small delphinids, medium-sized delphinids, and, to a lesser extent, baleen whales. Risk was also relatively high for several large oceanic delphinids in pelagic longline fisheries. Risk for purse seine fisheries was lower than for other gears but was relatively high for some baleen whales (particularly *B. edeni*). Most species with high susceptibility to capture also had high vulnerability scores based on their life history traits. An assessment of the spatial overlap between cetacean occurrence generated by AquaMaps (<https://www.aquamaps.org>) and tuna fishing effort as represented by tuna catches reported to the IOTC revealed that the spatial overlap between gillnet fisheries and baleen whales is limited to the northern portion of the Indian Ocean. Small and large oceanic dolphins exhibit similar patterns of overlap for all three gears, with high overlap in the northern Indian Ocean with gillnets, and with pelagic longlines and purse seines in the western tropical Indian Ocean. Large-toothed whale distribution overlaps extensively with the three gears, including gillnets in the northern Indian Ocean and pelagic longlines in the southern and southwestern parts of the IOTC area.

In discussion, the author noted some limitations to the proxies used for cetacean distribution and fishing effort. Raw effort data for longline and purse seines is now available and will be incorporated in a new analysis to avoid the need to use catch data as a proxy for effort in these fisheries. The Subcommittee welcomed this and noted that other studies (e.g., Elliott *et al.*, 2023; FI 09) also provide other ways to

estimate gillnet effort.

FI 08 describes the potential of the application of the U.S. Marine Mammal Import Provisions Rule for IOTC Members. The U.S. Marine Mammal Protection Act Import Provisions Rule is the first unilateral attempt to address cetacean bycatch at a global level by leveraging the U.S. market. The Rule requires that nations exporting certain fish and fish products to the U.S. apply for a 'Comparability Finding' that demonstrates marine mammal bycatch policies are comparable to certain pillars in the U.S. legal scheme for marine mammal bycatch. The majority of IOTC Members have fisheries listed under the Import Rule, which may offer opportunities for improving bycatch management. It was noted that this preliminary review is one portion of an ongoing, broader analysis of unilateral and multilateral approaches to bycatch management in the Indian Ocean across multiple scales.

The Subcommittee thanked the authors for this summary of complex policy issues.

FI 09 describes a case study focusing on gill net fisheries in Pakistan to identify new methodologies to fill information gaps in the fisheries. The study trialed different approaches to better document, monitor, and understand drift gillnet fleets and, ultimately, bycatch, through satellite imagery. Image annotation, deep learning on satellite images, and port-based interviews in Pakistan, were used to quantify and describe the Pakistani tuna drift gillnet fleet and bycatch. Low-cost image annotation methods and deep learning are powerful tools to provide information on a fleet where other monitoring and surveillance are missing. However, additional supporting information from local expertise, ground-truthing, and other considerations are necessary for robust estimates of fleet size. The authors estimate that there are roughly 600 vessels in the gillnet fleet, which is likely an underestimate, with most vessels between 15 to 26 m in length LOA.

The Subcommittee welcomed this study, and recognised its value as a model for future similar analyses in the Indian Ocean and the methods could be applied in other regions with data-poor fisheries. In discussion, it was noted that the barriers to increased use of AIS were a combination of cost and fishers being reluctant to report on their location.

2.1.2 Bycatch Mitigation Initiative Peru

SC/69B/Rep/02 describes the advances in the BMI Peru Pilot Project. As an initial stage, an external consultancy was agreed by representatives from different ministries of the Peruvian Government (representatives of IMARPE and PRODUCE) and the IWC Secretariat. The objectives of the consultancy were to 1) produce a synthesis and analysis of existing information on cetacean, fisheries, bycatch, socio-economic and supply chain information at two fishing communities in Peru: Máncora in northern Peru and Tambo de Mora and San Andrés on the southern coast of Perú, and 2) use the collected information to identify gaps and stakeholders should be involved in the implementation of project activities. The draft report was presented to the Secretariat and the Peruvian Government in February 2024. The study included an inventory and mapping of fishing gears and effort as well as the distribution of cetacean bycatch and strandings, providing some visual representations of overlap and risk area. The compiled data, including that from fisheries interviews and digital repositories of the Instituto del Mar del Perú (IMARPE), indicated that the gillnet fisheries in both study areas are associated with the highest cetacean bycatch.

The report suggests: (1) monitoring programs to obtain bycatch rates (BPUE) in surface and bottom gillnet fisheries in both areas; (2) assessments in the coastal gillnet fishery for elasmobranchs along the central Peruvian coast to determine current levels of dusky dolphin bycatch and retention; (3)

establishment of monitoring protocols to standardize the data to be collected (species, condition, fishing effort, gear characteristics) and to make the results comparable (BPUE, mortality, retention) among studies; (4) strandings assessments in the Ica region; (5) assessments of the distribution and abundance of cetacean species in neritic areas; (6) documentation of the dynamics of fishing, changes in the number of vessels, fishing areas, characterisation of fishing gear and fishing operations; (7) studies on the level of use, distribution chain, motivations and socio-economic aspects of the consumption and trade of cetacean meat in the Ica region; (8) coordinated efforts to reduce the entanglement of humpback whales in fisheries in the port of Máncora; (9) research on spatial/temporal distribution models of habitat preferences for cetacean species to identify critical habitat overlaps with fisheries; (10) strengthening of the technical capacity of observers, technicians and those responsible for surveys to accurately identify cetacean species; and (11) Improvement of both diagnostic and detection tools to determine the causes of cetacean mortality.

It was noted that the inclusion of larger, more industrialised ports would increase the understanding of the distribution of fishing and the overlap with cetacean distributions. However, the author noted that coastal gillnet fisheries were the focus of the report. It was highlighted that of the 28 species known to reside in the area only eight were considered in the report due to data gaps.

Attention: S

*The Subcommittee congratulated the authors on this work and **recommended** that the suggested actions in SC/69B/Rep/02 would greatly help to progress the BMI Peru Pilot Project.*

2.1.3 IWC Focus on cetacean bycatch in the western central Pacific Ocean

In August 2023, the Bycatch Coordinator summarized the IWC's previous work and planned activities relevant to the assessment of cetacean bycatch in tuna fisheries in the western central Pacific Ocean to the Western and Central Pacific Fisheries Commission (WCPFC) Scientific Committee (FI 07). The IWC invited the WCPFC-SC19 to: (1) note the possible benefits to member countries to collaboratively work with the IWC in addressing cetacean bycatch; (2) endorse the IWC project in the context of the GEF/FAO Common Oceans ABNJ Tuna project Phase 2; (3) provide inputs and advise on how best to fulfil the objectives of IWC project; and (4) provide suggestions on possible means of collaboration between IWC and WCPFC and its member countries in assessing cetacean bycatch in tuna fisheries. However, SC19 did not support the proposal from the IWC to engage in an ABNJ project on assessing and mitigating cetacean bycatch and its impacts on cetacean populations in the WCPO (WCPFC20-2023 SC19-01).

The Subcommittee noted the consideration of South Pacific island small cetaceans at SC69B (see Annex Q, item 2), and that further work of the BMI in the South Pacific region could be informed by these discussions.

2.2 Collaboration on bycatch mitigation with IGOs

2.2.1 CCAMLR and bycatch in trawls

In 2022, SC-CAMLR reconvened its Working Group on Incidental Mortality Associated with Fishing (WG-IMAF) and also reached out to IWC-SC for assistance in better understanding the reasons for humpback whale mortalities in the krill trawl fishery, and how to avoid them in the future. The subsequent assistance provided by IWC-SC has been gratefully received. SC/69B/HIM/08 summarises discussions within various CCAMLR meetings and workshops in 2023 relating to WG-IMAF and whale entrapment.

The WG-IMAF has requested assistance to refine the design of additional data collection by observers and crew when whale entanglements occur, including development of training materials, prior to the 2024 meeting of WG-IMAF/SC-CAMLR. WG-IMAF also requested collaboration on the provision of advice for krill trawling operators to minimise whale entrapment/entanglement.

The WG-IMAF extended an invitation to members of the IWC-SC to collaborate further beyond 2024. The Subcommittee established an intersessional group to work between SC69B and SC70 with the Terms of Reference to provide advice on the following:

1. design of additional data to be collected by observers and crew when whale entanglements occur, including development of training materials/instructions (in time for joint WG-FSA/WG-IMAF-24 meeting, 30 September - 11 October 2024);
2. methods to monitor the frequency and behaviour of whales around krill fishing vessels;
3. development of technology to study how whales are interacting with krill trawling nets;
4. advise on the design of effective cetacean exclusion devices, considering a convex shape to the exclusion mesh to deflect whales (and seals) away from the net mouth; and
5. the potential to devise move-on rules, smaller-scale spatial management in the form of krill fishing exclusion zones, and other mitigation tools.

[Members of ICG Biuw, Double, Favero, Forster, Heinemann, Hines, Johnson, Kelly, Landry, Leaper, Long, Mattila, Meyer, Parker, Passadore, Reeves, Robson, Soffker, Stimmelmayer, Walker and Weinrich.]

Aranha and Torres-Florez described a humpback whale entanglement in a South Atlantic shrimp trawl fishery off Santa Catarina, Brazil. The whale had recently lost its fluke but remained caught in the vessel's gear. The authors suggested that entanglements in South Atlantic trawl fisheries are underreported, and that the incident described also raised a number of legal issues.

The Subcommittee thanked the authors for the information about this incident and noted that there were very few direct reports that describe large whale entanglement in trawls. Such reports with descriptions of the nature of the entanglement add to the knowledge of the mechanisms of large whale entanglements which can inform mitigation measures.

2.2.2 CIBBRiNA

HIM 13 provides an update on the Coordinated Development and Implementation of Best Practice in Bycatch Reduction in the North Atlantic, Baltic and Mediterranean Regions (CIBBRiNA) project. The grant agreement for the EU LIFE funded project was signed in July 2023. The project aims to contribute to several treaty and EU objectives in minimising, and where possible eliminating, incidental bycatch of endangered, threatened and protected species of marine mammals, birds, turtles and elasmobranchs. One of the most important objectives is to achieve successful cross-sectoral cooperation between fishers, regulatory authorities, researchers and other key stakeholders, both within and between countries. The project consists of ten work packages and eight case studies focusing on implementing effective mitigation measures and improved monitoring programmes, running from September 2023 until September 2029. The total project budget is 12,4M euros, of which 8,3M (67%) is EU grant. The Dutch Ministry of Agriculture, Nature and Food Quality is the coordinating beneficiary of the project, and the consortium consists of 45 partners from ten EU countries, along with Iceland, Norway and the UK, as well as the IWC, through its Bycatch Coordinator, several pelagic fishing industry organisations and ICES. The Stakeholder Advisory Board comprises members from 30 organisations including OSPAR, ASCOBANS and five fisheries Advisory Councils. A description and progress update for each of the work packages is detailed in SC/69B/HIM/13.

The Subcommittee commended the breadth and scope of the project and is looking forward to further updates on the bycatch assessment and mitigation toolkits, which will be very useful for others around the world.

2.3 Review new methods and estimates of bycatch and entanglement rates, risks and mortality

SC/69B/HIM/04 describes the compilation of humpback whale stranding events on the Peruvian coast between 1997 and 2023. 78 stranded specimens were counted and 32% (n=25) presented signs of entanglement. The northern zone had the highest occurrence of stranding events from June to November, as well as the most related to entanglement. There was evidence of entanglement in surface gillnets targeting sharks, tuna, and other large pelagic fish, and trammel fisheries targeting coastal fish species. The results indicate entanglement issues for humpback whales throughout the Peruvian coast during migration to their breeding areas, and especially in the northern area. Therefore, joint work between authorities and artisanal fishermen is urgently needed to mitigate threats to humpback whales and to benefit the fishing community. The authors recommend measures including placing markings on used fishing nets, alternative economic livelihoods for fishers, and reporting of interactions and/or loss of nets to mitigate ghost fishing. The study highlighted the interest of citizens to report stranding events and the need for training and capacity-building programs for post-mortem internal and external assessment, but the authors noted a need for increased training and capacity as well as equipment to collect data during stranding events.

The Subcommittee welcomed the increased efforts in recent years by the Government in Peru to address bycatch issues and noted the opportunities for the IWC BMI and Strandings Initiative to continue to provide support through training and capacity building programmes including through the BMI Peru Pilot Project (see 2.1.2).

SC/69B/HIM/15 reports on the use of the bycatch risk assessment (ByRA) toolbox to create data management tools and analysis systems for marine mammal bycatch in Chilean fisheries. Examples of fisheries and marine mammal species with varying amounts of data and relevant techniques for modeling bycatch risk are shown, including right whales/crab traps (high uncertainty), sperm whales/artisanal Chilean sea bass longline gear (medium uncertainty), dusky dolphins/artisanal pelagic purse-seine (low uncertainty). ByRA results will provide Chilean agencies with information on areas and seasons of bycatch risk, which will contribute to the process of concentrating management efforts where the risk is greatest and avoid over-regulation. The author noted that although the project has ended capacity building is underway so that government agencies can continue with this as more data is gathered.

The Subcommittee thanked the authors for this interesting work and highlighted the value of the ByRA as one of the tools being used in the BMI and the IWC support for bycatch risk assessment around the world.

SC/69B/HIM/17 provided an update on cetacean landing (and limited stranding) data collected along the coast of Ghana from April 2023 to March 2024. A total of 332 individual cetaceans were reported between April 2023 - March 2024, with the dominant species being the Clymene dolphin (*Stenella clymene* -35.3%) and the Pantropical spotted dolphin (*Stenella attenuata* - 21%). The minor peak landing period was in August and the major peak was in December 2023, repeating trends observed in 2022. These periods coincide with the upwelling period when dolphin prey is in abundance. Drift gillnets remain the dominant gear associated with cetacean catches in all communities. Hotspot communities for cetacean landings also remain Dixcove (31.2%), Tema (26.2%) and Axim (17.5%). The authors expressed interest in collaboration

with IWC's BMI to further improve assessment and monitoring of bycatch as well as to explore means to reduce bycatch in the fisheries and communities identified as 'hotspots'.

There was considerable discussion regarding the sale and utilisation of cetacean meat in Ghana, and concern regarding the challenge that this poses for bycatch mitigation. The authors noted that through collaboration with government officials, enforcement measures have been implemented in some ports which has resulted in the reduction of cetacean landings. The authors expressed a desire for support and guidance on how to collect additional scientific data and samples from landed cetaceans as well as how to differentiate between true bycatch and targeted takes among the carcasses that are documented at landing sites.

Attention: S

*The Subcommittee commended the impressive amount of data collected by the bycatch monitoring project in Ghana and **recommended** that the IWC provide technical support to the project to expand its assessment and sampling protocols through the BMI and Strandings Initiative as requested.*

SC/69B/HIM/21 presents the development of multi-method and multi-taxa approaches to bycatch risk assessment of humpback whales and loggerhead turtles (*Caretta caretta*) from artisanal fisheries in the Arabian Sea. The ByRA Toolbox was used as a GIS platform from which to conduct the risk assessment (Hines *et al.*, 2020). Raster stress layers of artisanal fishing vessel density were developed from vessel counts undertaken during cetacean surveys and freely accessible Sentinel 2 satellite imagery over a limited study area in the Gulf of Masirah, Oman. The ByRA approach combined the stress layer with kernel density maps from satellite telemetry data representing habitat utilisation. The final step of the risk assessment process applied an exposure/consequence ranking model to the mapped features accounting for the specific influences that species attributes and fisheries interactions were projected to have on the populations. The remote sensing methods proved successful and demonstrated humpback whales and loggerhead turtles had similar exposure/consequence values, but that the whales were at higher risk within the limited confines of the study area. The next phase of the study will focus on the development of automated detection of vessels from satellite imagery and superimposing the vessel detections with effort metrics from remote electronic monitoring studies of vessels in the same study area.

The Subcommittee thanked the author for this work that was partly funded by the IWC. The subcommittee also highlighted the need for higher resolution satellite imagery to be available more readily and more cheaply for these types of studies. Furthermore, the Subcommittee pointed out that pilot studies have demonstrated the benefits of public participation GIS, and work with fishers to enable them to map their fishing efforts could further enhance the project. This study that demonstrated the versatility of the ByRa Toolbox in assessing the risk to different species from different sources, using data acquired from both manual surveys and remote sensing products. The Subcommittee encouraged the continuation and expansion of this work to include the technical improvements suggested by the authors.

SC/69B/HIM/WP/07 describes interview survey work in the Brazilian Amazon. A total of 1,616 interviews were conducted between February 2021 - July 2022 with fishers over 10 Brazilian states where river dolphins occur. Bycatch was reported in 574 responses; 64.5% denied (n = 993) or did not respond (n = 49) to the question of having entangled a river dolphin. Interviewees provided information on the species caught and the type of fishing gear. Around 45% of the 574 respondents declared a dolphin bycatch of one animal per year and 5% reported they had caught more than 10 dolphins. The resulting estimate was

around 1,080 animals to be entangled per year by the fishers that were interviewed.

The Subcommittee commended the impressive number of interview responses achieved. The author confirmed that no incentives were provided and that interviews were voluntary, but the high percentage of fishers not responding to the question on bycatch would have biased the bycatch rates and probably resulted in an underestimation of total bycatch.

2.4 Reporting bycatch and entanglements (small and large cetaceans), including National Progress Reports

At the start of SC69B, only 11 National Progress Reports had been received by the Secretariat. The reports can be accessed via the portal and can be queried by year or country to generate summary tables of reported bycatch and ship strikes. A query of the received reports indicated around 20 ship strikes and 70 large whale entanglements are documented. The Subcommittee noted that the low response rate was disappointing and discussed possible ways to encourage reporting, including consulting with the Commission and heads of delegation on how reporting could be improved and incentivised.

2.5 Review mitigation measures for preventing bycatch and entanglement

SC/69B/HIM/02 describes mitigation measures to reduce entanglement risk of North Atlantic right whales in U.S. waters. One emerging solution that has the potential to reduce risk to whales while allowing fishermen to harvest fish and shellfish during buoy line closures is on-demand fishing (also known as ropeless, buoyless, or pop-up) without persistent vertical buoy lines. These systems provide fishermen the opportunity to fish in closed areas and reduce entanglement risk by decreasing the amount of vertical line in the water. On-demand systems from various manufacturers have been tested under commercial fishing conditions through collaborative efforts between the commercial fishing industry, researchers, government, and NGOs. In 2024, the NOAA Gear Library of on-demand systems that are lent to fishermen has grown to include 480 systems from ten different manufacturers. To effectively implement on-demand fishing, fishermen, managers, enforcement, and other ocean users require near real-time access to subsurface gear locations and other metadata to reduce fishing gear conflicts. NOAA Fisheries is working on integrating geolocation of deployed on-demand fishing systems through collaborations with the EarthRanger program at the Allen Institute for Artificial Intelligence and on-demand gear manufacturers. In 2023, NOAA Fisheries and partners held an On-Demand Interoperability Workshop to convene experts and facilitate developing standards for acoustic communications and data standards.

The Subcommittee welcomed this report and commended the amount of effort and investment being made in developing on-demand and associated geolocation systems. It was noted that fishers may be concerned about information on the location of their gear being widely available. Long noted that the systems being developed could limit the availability of information on gear locations to vessels that were within a certain range.

SC/69B/HIM/14 reports on a trial of simple gear modifications to reduce entanglements in static pot gear (creels) within Scotland. The Scottish Entanglement Alliance (SEA) estimated that six humpback whales, 30 minke whales, and 30 basking sharks become entangled annually. Where entanglement type was known, 83% of minke whales, 50% of humpback whales, and 76% of basking sharks were caught in floating groundlines between creels pots (Leaper *et al.*, 2022). Collaboration with fishers on Scotland's west coast was established to trial sinking groundline and assess its practicality. Over 1,500 gear hauls were reported, with the fishers encountering very few problems with the re-roped fleets, in some cases preferring them to gear made up with floating line. The project also deployed depth sensors and filmed gear with a remotely operated vehicle (ROV). Floating rope was found to form arches with a mean height at the

maximum point of 3.7m off the seabed.

The Subcommittee congratulated those involved in the project, in particular the collaboration with fishers and the potential for a low-cost option to greatly reduce entanglement risk. The Subcommittee noted that work to reduce entanglement risks in Scottish pot (creel) fisheries had progressed, following recommendations from the Committee, through the stages of identifying the entanglement problem and gathering data on the mechanisms to a successful trial of gear modifications using negatively buoyant rope. The collaboration between fishers, researchers, government and NGOs had been maintained throughout, resulting in changes to the gear that were practical to implement and had support from the fishers involved. The next stage of more widespread implementation beyond a successful trial is where many bycatch mitigation projects experience challenges.

Attention: CG

*The Subcommittee **recommended** that the Scottish Government develop and implement a plan as soon as possible to enable the widespread implementation of negatively buoyant line in Scottish creel fisheries. This should include: (1) further engagement with fishers in a wider geographic area to familiarise them with the results of the trial and continue the fisher-led approach; (2) a socio-economic analysis, developed in consultation with stakeholders, to set out a range of possible implementation options that could be consulted on; (3) collaboration with wider work taking place as part of the UK Bycatch Mitigation Initiative; and (4) an update on progress to the Committee at SC70.*

The National Institute of Fisheries Science (NIFS) in Korea has developed finless porpoise escape devices in stow nets since 2017 and is continuing to monitor its efficacy since 2021. The results on the research of bycatch reduction mechanisms and performance improvement of the devices were reported as detailed in SC/69B/HIM/07 and Lee *et al.* (2022). The results showed a zero bycatch rate in nets equipped with escape devices. Video footage of porpoises near the nets indicates that porpoises do not use the escape hatches, but rather do not enter the nets at all, indicating that the escape devices may be perceived by marine mammals as complex structures that can be detected and avoided. Evaluation of a ropeless system for fishing traps indicated that this is not feasible in Korean fisheries, but as an alternative, gear tensioning systems are being tested to remove any slack line and prevent marine mammal entanglement. NIFS is also focusing on acoustic warning devices, aiming to establish a correlation between the sounds and behaviors of marine mammals to improve the operational efficiency of the devices and further reduce bycatch.

The Subcommittee noted the success of the modifications to the stow nets in reducing bycatch and that this could inform mitigation in similar gear elsewhere. The Subcommittee also looked forward to further information on the gear tensioning system to remove any slack from vertical lines because this is a common problem in many pot/trap fisheries.

SC/69B/HIM/16 evaluates the effectiveness of upcycled plastic drink bottles as acoustic reflectors and a low-cost mitigation method to reduce dolphin bycatch in gill and trammel nets and their potential impact on target species catch. Observed trials with (treatment) and without (control) plastic bottles in bottom set trammel nets and gillnets recording dolphin bycatch and target species catch were conducted between November 2020 and February 2024. A total of 251 sets (130 control and 121 treatment) resulted in bycatch of six franciscana dolphins and two bottlenose dolphins in control sets and one franciscana dolphin bycatch in treatment sets. The results showed upcycled plastic bottles used as acoustic reflectors

in bottom set trammel nets and gillnets reduced bycatch of dolphins (including franciscana) and had no effect on target species catch compared to control sets.

In discussion, it was noted that the 130 m spacing between bottles seemed very large and, in some areas, this would be longer than some nets in artisanal fisheries. The author responded that the aim in future trials is to reduce the spacing to 50 m apart. In addition, the author highlighted that no bottles had been lost. However, it is imperative to consistently monitor the bottles as they deteriorate and collapse over time and frequent usage. Regular replacement is crucial to sustain the acoustic reflector effect and prevent bottle loss. Methods are being developed for easier replacement of the bottles rather than the current system which uses knots to attach the bottles to the head rope.

The Subcommittee congratulated the authors for this exciting and inspiring work.

Attention: SC, NI

The Subcommittee:

1. **Recommended** expanding the trials of plastic bottle acoustic reflectors to similar fisheries with bycatch issues in other areas in Brazil and around the world;
2. **Encouraged** the development of a manual and/or a peer-reviewed journal paper that can provide guidance to others wishing to trial the method in fisheries using similar gears;
3. **Strongly encouraged** the BMI to include this gear modification in the toolbox of mitigation options to trial.

2.6 Review guidance for estimating r_{max} for use in population models for small cetaceans

SC/69B/HIM/19 provides guidance on estimating the maximum intrinsic rate of increase, r_{max} , for population models of small cetaceans. The approaches from most to least reliable are: (1) Use of empirical estimates of observed per capita population growth rates when the population is sufficiently low to be considered unaffected by density dependence; (2) Estimation of r_{max} using a population model fitted to data that include estimates of abundance and removals; (3) Approaches using matrix population models or life tables; (4) Application of allometric/life history relationships that have been developed using meta- analyses; and (5) Rule of thumb estimates. The strengths and weaknesses of each approach are described with considerations for use of r_{max} estimates in risk analyses.

The Subcommittee thanked the group for this work which completed the requested tasks related to r_{max} and encouraged the authors to submit the paper to a peer reviewed journal to ensure the work is widely available. It was noted that the approaches described can also be applicable to large whales and there are several examples of this in the paper.

Attention: SC

The Subcommittee recommended that: (1) any assessments of anthropogenic mortality on small cetacean populations that use r_{max} within the assessment process use the definition of r_{max} agreed by the Committee in 2023; and (2) estimates of r_{max} should refer to the guidance in SC69B/HIM/19 to justify the approach taken and the assumptions that have been made.

2.7 Review proposals for best practice protocols for releasing free-swimming, entangled small cetaceans

An intersessional working group was formed in 2022 following a request from the large whale entanglement response team who were receiving numerous requests for guidance on disentangling free-swimming small cetaceans. In parallel NOAA developed an extensive set of guidelines for the US. At IWC SC69A these guidelines were reviewed, and the intersessional working group was tasked with adapting them for an international audience taking into account possible resource and capacity constraints. SC/69B/HIM/03 represents a shortened adaptation of the NOAA guidelines, or focusing only on boat-based interventions, with an emphasis on human and animal safety. The IWC large whale entanglement response team has reviewed these guidelines. The Subcommittee commended the work and this globally helpful development.

Attention: SC, CC, CG, G

*The Subcommittee **endorsed** the guidelines in SC/69B/HIM/03 as Best Practices for the Disentanglement of Free-Swimming Small Cetaceans and **recommended** that they are made available through the IWC website and other dissemination channels.*

The Subcommittee discussed options for effective distribution of the guidelines (e.g., through the Global Stranding Network and regional websites and networks), including translation into other languages. Discussions centered around the balance of creating a shortened version to increase use without losing key information about preparation and safety and creating more risk. It was suggested that an illustrative summary could be useful. It was also noted that some of the tools used in disentanglement are specialised and there may be a need to support teams with further information on how to use such tools.

2.8 Progress on previous recommendations

2.8.1 Bycatch of common dolphins in Biscay (North Atlantic)

In 2023, the Committee had noted that bycatch levels of common dolphins in the Bay of Biscay remain a concern with no evidence of any decrease in bycatch. Therefore, the Committee had recommended urgent action by the European Commission and relevant member states to implement advice for combinations of temporal closures of all fishing métiers of concern and application of pingers on pair trawlers that ICES (2022) evaluated as necessary in order to achieve the quantitative objectives agreed by OSPAR and to be fully consistent with conservation objectives under EU legislation (SC2385). The IWC Executive Secretary had also written (August 2023) to the range states and the EU Commission to inform them of the Committee's ongoing concerns and recommendations.

Using age-at-death data collected on a large number of stranded common dolphins on the Atlantic seaboard of France, FI 41 revealed evidence of a decline in survivorship over the last two decades with a novel framework that can reveal demographic tipping points. The study found that adult life expectancy decreased by 7 years between 1997 and 2019. The decrease in survivorship directly results from high mortality pressures in the common dolphin population in the Northeast Atlantic Ocean.

The Subcommittee noted that the estimated decrease in population growth rate of 2% could have substantial implications and increases the concern over levels of bycatch from this population. This change is also greater than would be predicted based on the estimated bycatch if it is assumed that the Northeast Atlantic population is a single management unit. The Subcommittee noted the value of this approach for examining population trends in relation to bycatch, which can provide an earlier warning of a declining

population than is likely to be detectable from surveys to estimate abundance.

SC/69B/HIM/10 describes an emergency measure under the Common Fisheries Policy implemented by France following several action plans deemed insufficient by the French Council of State and the EU Commission aimed at reducing bycatches of small cetaceans in fishing gear. The decree banned fishing gears associated with high risk of bycatch of small cetaceans (midwater otter and pair trawls, bottom pair trawls, purse seines, gillnets and trammel nets of vessels >8 m) in areas of ICES subareas 8 a, b, c, d under French jurisdiction from 22 January to 20 February inclusive for the years 2024 to 2026. Common dolphin strandings were assessed during the closure period in 2024. In the ICES zone affected by the ban on high-risk gear, (i.e. from the Spanish border to 48° North), 141 strandings of small cetaceans were reported to the National Strandings Network during the period from 22 January to 20 February 2024. Given comparable weather conditions during the risk period, several hundred strandings would have been expected according to observations from previous years. The strandings recorded during the ban of certain fishing gears from deaths unrelated to bycatches in fishing gear (pathologies, topographical accidents, separation of mother and calf, etc.) appear to be consistent with mortality rates excluding bycatch in previous years. The apparent bycatch rate of small cetaceans (proportion of strandings showing traces of bycatch among the fresh and slightly putrefied animals examined by the stranding network) during the period from 22/01 to 20/02 has been between 50% and 90% since 2012. Provisional data indicates this rate will be around 10% in 2024. A total of 385 small cetaceans were found stranded between 21/02 and 25/03. Although the data are still being consolidated, cases of small cetaceans showing signs of death in fishing gear have returned to usual levels for a winter season following the end of the closure period.

FI 50 reports on the ongoing work by the Spanish Government to minimise incidental catches of cetaceans in the Bay of Biscay. In January 2022, Spain approved a national plan for the reduction of accidental catches in fishing activities (PNRCAAP) of many protected species, including cetaceans. Its objectives are to evaluate the problem of accidental bycatch in the Spanish fleet, implement a monitoring programme and propose technical solutions that will aim to reduce the bycatch of sensitive species. There are eight strategic actions in the Plan, including monitoring of cetacean abundance, monitoring fishing fleets, identification of those posing the highest risks, and the identification and testing of mitigation measures. Spain has also put in place several relevant measures including legislative measures such as the use of pingers in certain fisheries, time/area closures and increased onboard observers' effort in certain fisheries. Two draft national conservation plans include considerations and measures related to bycatch. One of them is the draft recovery plan for the Iberian harbour porpoise, and the other one is the draft global conservation plan for all mysticetes, deep-diving cetaceans and small cetaceans under jurisdictional waters of Spain.

The Subcommittee welcomed the measures taken by France and Spain in 2024 and noted the evidence for a substantial reduction in common dolphin bycatch during the period of the fisheries closures. The spatial extent of the closures matched the area recommended by ICES but the closure period was shorter than ICES had advised as necessary in order to achieve the quantitative objectives agreed by OSPAR. Further evaluation will be needed to estimate total bycatch in 2024 and the subsequent years (2025 and 2026) covered by the closures. This will determine the extent to which further measures may be required.

Attention: CG

The Subcommittee recommended:

1. Continued work to estimate total annual bycatch;
2. That a longer closure period may be needed;

3. *Further examination of seasonal patterns to assess whether the closure period included the timing of the highest bycatch risk;*
4. *Using the three-year period of the closures to develop and implement a longer-term strategy for structural changes to fisheries in the Bay of Biscay that minimise bycatch of cetaceans and other protected species but enables continuation of a viable fishing industry, including by transitioning to fishing gears with less deleterious side-effects on biodiversity.*

2.8.2 Harbour porpoise bycatch issues in Europe

Reports submitted to the IWC SC in 2020 and 2022 (Pierce *et al.*, 2020, 2022; Read *et al.*, 2020) highlighted the precarious state of the Iberian harbour porpoises due to high bycatch mortality. SC/69B/HIM/12rev1 provides an update of information on the biology, ecology, threats and conservation status. The Committee had previously noted that the level of bycatch of Iberian harbour porpoise is considered unsustainable and will consequently cause a population-level decline. In 2022 the Committee recommended immediate actions to effectively reduce, and where possible eliminate, bycatch of harbour porpoise throughout Iberian Peninsula waters. Information published since spring 2022 includes papers by Torres-Pereira *et al.* (2022, 2023) on aerial surveys in Portugal and bycatch mortality estimated from strandings, respectively. A review by Pierce *et al.* (In Press) is due to be published later this year. Recent data suggests that the annual bycatch mortality rate could be around 8-10.4%. A scenario simulating an 8% bycatch rate estimated the collapse of the population to extinction in 30-40 years.

FI 50 and FI 51 describes the recovery plan for the Iberian porpoise by the Spanish Government. The plan delimits a critical area for the species located in the Galician waters, which is where the species is most locally abundant and where the greatest number of strandings are recorded. A study has been carried out to characterise the distribution and depth where the porpoises are concentrated and the areas with greatest abundance. Based on these results, the use of pingers by the fleet fishing in depths of greater than 80 m (where the majority of the porpoise population is found), is proposed as a measure to reduce bycatch.

Attention: CG

*The Subcommittee welcomed the information from Spain regarding the recovery plan for the Iberian porpoise and the proposal for mitigation measures in some of the gill net fisheries and would welcome an update from Portugal at SC70. It **reiterated** the previous recommendation of the Committee (SC2221) for immediate actions to effectively reduce, and where possible eliminate, bycatch of harbour porpoise throughout Iberian Peninsula waters.*

The Subcommittee established an IWC intersessional group to respond to requests from the contracting governments directly concerned, to review, or provide advice on, the items (i) to (ix) below, and suggests that the group may consult with other experts and organisations (including ASCOBANS, ACCOBAMS and ICES) as required:

1. information relevant to a separate assessment of the Iberian porpoise for the IUCN Red List;
2. information on the genetic status of this population;
3. information on the limits of the distribution, noting that movements of these animals into the Celtic Sea and Western Mediterranean have been recorded;
4. mechanisms to increase the information available on the bycatch of Iberian porpoise,

- especially in small-scale fisheries;
5. ways to improve the use of stranding data to estimate bycatch mortality;
 6. information that becomes available on the life history and ecology of this species (e.g., abundance, age structure, reproductive status, diet);
 7. information on the closely related African porpoise population;
 8. information on the health status and causes of mortality of the Iberian porpoise, including anthropogenic mortality not directly caused by fishing;
 9. current and available approaches to reduce Iberian porpoise bycatch and potential future actions; and
 10. ways to enhance the coordination of research on and conservation of Iberian porpoise between different organisations and projects.

[ICG members Cisternino, Dolman, Fernandez-Maldonado, Freitas, Leaper, Sequeira, Van Waerebeek, Zerbini.]

FI 45 describes the abundance estimates of harbour porpoises and other cetacean species in the Northeast Atlantic from SCANS-IV surveys that were completed in the summer of 2022. A study area of approximately 1.8 million km² ranging from the Strait of Gibraltar to southern Norway was covered; the largest coverage and effort of all the SCANS surveys to date. Data were collected by aerial survey (> 71,000 km covered) using the circle-back method for eight teams, and by a ship survey (> 4,000 km covered) in offshore waters of the Bay of Biscay using the two-team tracker method to account for animals missed on the transect line. Design-based abundance estimates showed that the most abundant species were harbour porpoise (409,000), common dolphin (439,000) and striped dolphin (187,000). No significant trends in harbour porpoise abundances could be detected in any of the four management units.

The Subcommittee welcomed the series of SCANS surveys and noted the importance of such surveys in the understanding of small cetacean abundance in Europe. The Subcommittee encourages further funding to continue this important time series.

FI 44 estimates the trend in population abundance for Belt Sea harbour porpoise over 18 years (2005-2022). A mortality limit was computed applying the modified Potential Biological Removal (mPBR) method based on the regionally agreed conservation objective to restore or maintain 80% of carrying capacity over 100 years with an 80% probability. Results show a strong negative trend (-2.7% p.a.; 95% CI: -4.1%; + 1.3%) in abundance over the past 18 years, with a 90.5% probability. The mortality limit was estimated to be 24 animals, which the current bycatch estimates (approx. 900 porpoises/year from the commercial Danish and Swedish set net fishery fleets, no data from Germany and other fishery types) exceed by far. The frequency and quality of data available on abundance for this population are higher than those available for the majority of marine species and suggest a population decline associated with likely unsustainable levels of bycatch.

None of the authors were present and so it was not possible to discuss this paper in detail. It was noted that the Bayesian analysis in FI 44 showed a negative trend which had not been detected in the management units considered in FI 45.

Attention: CG

*The Subcommittee **drew attention to** the high bycatch estimates for the Belt Sea harbour porpoise, which are considerably higher than the OSPAR thresholds, and **recommended** further mitigation*

*actions. The Subcommittee also highlights the differences in the statistical significance in the estimates of trends in abundance between analyses methods and **encouraged** further consideration.*

The Subcommittee noted that the European Cetacean Society (ECS) had recently adopted a Letter of Concern regarding the need to prevent European harbour porpoise bycatch; FI 57. ECS stated that despite decades of scientific attention to this issue, there are no harbour porpoise populations in European waters where bycatch has been adequately managed. ECS therefore requested that the competent authorities urgently adopt and enforce regulations for effective measures to minimise and, where possible, eliminate harbour porpoise bycatch.

FI 47 describes the Trilateral Wadden Sea Plan, which aims to preserve the conservation status of the Trilateral Wadden Sea Cooperation Area and has specified two conservation targets for the harbour porpoise related to abundance and habitat. The authors examined the methods, frequency and spatial coverage of monitoring activities for Denmark, Germany and the Netherlands and made a number of recommendations to overcome the challenges of monitoring in the complex Wadden Sea habitat.

In discussion, it was noted that some porpoises displayed limited home ranges throughout the year, suggesting a possible residency for some of the animals using the Wadden Sea area, and that this might have implications for the areas considered as management units. The authors noted that the sample size was small (six animals) so results need to be interpreted with caution, and it is anticipated that further work increasing sample sizes will help to inform management units.

The Subcommittee noted that it had not received any new information at SC69B regarding the Baltic harbour porpoise and expressed concern at the lack of further closures of fisheries with high bycatch risk which had been recommended at SC69A (SC2378). However, the Subcommittee welcomed the listing of the Baltic Proper harbour porpoise on Appendix 1 of the Convention on Migratory Species at CMS COP14 in 2024 (SC2381).

2.8.3 Franciscana

At SC69A the Committee reviewed the status of franciscana and recommended that estimates of franciscana bycatch be presented and reviewed at SC69B.

SC/69B/SM/09 presents abundance estimates and mortality of franciscana dolphins in the Franciscana Management Area (FMA) Babitonga, South Brazil. Line transect boat surveys were conducted in this entire area in December 2023 and abundance estimates ($n = 35$) were 32% lower than that obtained by Cremer and Simões-Lopes (2008) for the period of 2000-2003 ($n = 50$). Average annual mortality was estimated at 6.6%, and mortality recorded in 2019 corresponded to 20.6% of the population. Despite the uncertainty associated with the new abundance computed in this study, the mortality that has been recorded over the last 21 years strongly indicates the possibility of decline. For such a small population, the loss of any individual directly affects its stability and increases the risk of extinction. This highlights the urgent need for action to enable the survival of this population, including the creation of a marine protected area in this region that covers the home-range of franciscana dolphins, with gillnet fishing exclusion areas. Further analysis will be undertaken and presented to the Committee in 2026.

Attention: CG

*The Subcommittee **reiterated its concern** about the small population of franciscana dolphin in the*

*Franciscana Management Area Babitonga and **recommended** the Brazilian Government to implement protected areas and management measures to help the conservation of this population.*

SC/69B/HIM/24 provides a review of bycatch estimates of franciscana dolphins across all management areas to assist the Committee in developing a Comprehensive Assessment of this species. The Committee had completed the review of the species' status at SC69A but had agreed that further review of the bycatch estimates should be conducted. Estimates of bycatch mortality are available for many of the eleven recognized Franciscana Management Areas (FMAs) and some information on bycatch is available for all FMAs. The authors suggest that the most effective way to progress with a review of bycatch estimates is through a workshop where experts and data analysts are invited to discuss existing and potentially new estimates that could be used in a Comprehensive Assessment. It is proposed that such a workshop be held in 2025 in South America and that a report of the workshop be presented to the Committee with the goal of initiating the assessment in 2026.

Attention: SC

*The Subcommittee agreed that a Comprehensive Assessment of the franciscana requires accurate estimates of human-induced mortality. The Subcommittee **agreed** that a review of bycatch estimates would advance the work of the Committee towards an assessment of the franciscana and **recommended** this review be conducted by invited experts during an intersessional workshop proposed under CMP.*

The review of franciscana bycatch estimates during the workshop will be planned by an ICG established under Sucunza with Tor to: (1) Plan the review of franciscana bycatch estimates to be conducted during a CMP workshop; and (2) Select invited experts for the review (Sucunza (Convenor), Cremer, Domit, Iñiguez, Leaper, Minton, Palka, Passadore, Porter, Trujillo, Zerbini).

2.9 Workplan

Topic	Intersessional 2024/26	2026 Annual meeting
Bycatch Mitigation Initiative		Continue to review and provide input on pilot projects and FAO/GEF Common Oceans Program – Tuna Project, as required
Rates and risks	Workshop on franciscana bycatch rates in 2025	Continue to review. Review of franciscana workshop outcomes
Mitigation		Continue to review
Bycatch and entanglement in endangered populations	ICG to provide advice on Iberian harbour porpoise according to ToR	Continue to review
Collaboration on bycatch mitigation	Continue collaboration with FAO, IOTC and others	Continue to review
Collaboration with CCAMLR on bycatch in Southern Ocean krill fishery	Continue collaboration on bycatch issues according to ToR of ICG	Review progress

3. SHIP STRIKES

3.1 Review new methods and estimates of rates of ship strikes, risks of ship strikes and mortality (including review progress on ship strikes database)

FI 38 describes a model to estimate the number of encounters along the routes taken by offshore sailing racing vessels, taking into account the characteristics of whales and vessels. The model was applied on two legs of the Ocean Race 2023, a crewed round-the-world sailing race for monohulls. The model also allows for assessing the relevance of establishing exclusion zones along the routes. Estimates from the model were very close to the number of encounters reported by skippers, and the method can be used to suggest routes that reduce the risk of encounters. Further work will apply the encounter model to shipping to estimate the number of cetacean encounters on a more global scale. Another step will be to incorporate a cost model into the risk assessment process which would allow estimation of both the potential financial impact of a collision and the cost of a collision to biodiversity.

The Subcommittee noted with concern the high number of collisions with marine megafauna (19 collisions from 10 yachts) reported during the Ocean Race 2023. There has been an increasing number of collisions reported during such races and the Subcommittee commended the authors for providing advice on areas that should be avoided to reduce risk. It was also noted that the model predictions aligned well with actual reports, presumably because whales are not able to detect and respond to fast sailing yachts, particularly those with foils.

Attention: SC, I

*The Subcommittee **agreed** to add an item to the workplan to update the IWC guidance for organisers of offshore sailing races including highlighting the information on Important Marine Mammal Areas (IMMAs) and relevant information from SC/69B/ForInfo/38. The Subcommittee further noted that the Ocean Race route goes through several IMMAs and the newly designated NW Mediterranean Particularly Sensitive Sea Area (PSSA) and **recommended** communicating this information to race organizers and encouraging them to take these into account when designing racecourses.*

Panigada mentioned that within the LIFE SeaDetect project, a study on assessing fin whale behaviour towards approaching vessels will be conducted during June 2024. Fastloc Limpet satellite transmitters and CATS tags will be deployed on fin whales to describe the closest point of approach, to better understand whale behaviour and inform appropriate mitigation measures. It is hoped that results will be presented at SC70.

SC/69B/HIM/11 describes an analysis of ship strike risk in the U.S. Greater Farallones and Cordell Bank National Marine Sanctuaries by evaluating new and potential alterations to Vessel Speed Reduction (VSR) programs through modeling the expected effect on ship strike risk. The model suggests significantly different levels of benefit from each management approach. When comparing all scenario combinations, a year-round, Sanctuary-wide VSR with 85% cooperation approximately doubles the reduction in strike risk compared to a shipping lane-only, seasonal VSR with 65% cooperation. The shipping industry has indicated that expanding the VSR to year-round adds predictability that will contribute to increases in program cooperation. Year-round and Sanctuary wide VSR benefits blue whales more than humpback whales, while increases in the number of vessels slowing to 10 kts or less benefit humpback whales more than blue whales.

Attention: CG

*Based on the results in SC/69B/HIM/11 that showed a substantial reduction in risk and noting the feedback from the shipping industry on the advantages of permanent measures, the Subcommittee **recommended** extending the Vessel Speed Reduction (VSR) throughout the whole year.*

It was noted that the risk model assumed a constant probability of whale avoidance with vessel speed. This parameter is a difficult to estimate but can have a large influence on estimates of risk based on encounter rate models. Hines noted an estimate of maneuverability for each vessel type will also be part of the work on a forthcoming model.

Attention: SC

*The Subcommittee agreed that a better understanding of the relationship between vessel characteristics, speed and risk would inform models and **recommended** an evaluation of the data within the ship strike database to assess whether there was sufficient new information to update previous estimates (e.g., Conn and Silber (2013)).*

3.1.1 Ship Strike Working Group and database update

SC/69B/HIM/20 provides updates on activities progressing the IWC ship strike workplan. It notes the progress made in high-risk areas and populations, created and convened an Expert Panel, the management of the Ship Strike Database, and development of a draft work plan for 2025-28. The IWC Ship Strike Expert Panel was established in May 2023 with 21 members ranging in expertise and spatial distribution. The Expert Panel has developed four sub-groups to address more specific tasks, including the Data Review Group, Rerouting Group, Educational Content, and Assessing the Arabian Sea Humpback Whale analysis. The Panel reports to the Standing Working Group on Ship Strikes and the Scientific Committee. Additional activities to advance the ship strikes workplan range from stakeholder meetings and workshop attendance including IMO (see SC/69B/0/06).

O'Loughlin (Ship Strikes and Strandings Data Manager) also reported on progress with the IWC Ship Strikes Database. There have been over 20 new reports to the database in the last year. She noted the acquisition and work that has begun on integrating data collated from yacht racing reports, which includes data collated by Ritter (2012). The next large dataset that needs to be acquired and integrated is the data held by NOAA in the U.S. The Data Manager will continue reaching out to other dataset holders. Over the past year, there have been 13 requests for data. These requests include several for data based on particular species, one based on vessel type, and several regionally specific ones. Species and region data were also provided to support work by the In-Depth Assessments Subcommittee and the Implementation Simulation Trials Subcommittee. Those interested in access to data are encouraged to use the IWC Research and Database Request Form found on the IWC website.

The Subcommittee commended the progress on the database and continued to encourage the inclusion of data from the US. It was noted that some National Progress reports did include ship strike reports, and these should be cross-checked to ensure they had all been included in the database.

Attention: SC

*The Subcommittee noted the great value of the database. The Subcommittee **recommended** that the*

proposal for part of the time of the Data Manager role to continue the ingestion of datasets, work with data providers, standardising and processing data and responding to data requests, as well as to support other work within the IWC Ship Strike Programme, should be put forward as a budget request.

3.2 Mitigation of ship strikes in high-risk areas

3.2.1 Review progress towards assessing and mitigating ship strikes in previously identified high-risk areas.

3.2.1.1 Canary Islands

Fernández updated the Subcommittee on data from the Canary Islands Cetacean Stranding Network. These show that ship collisions have possibly affected a total of 80 cetaceans, belonging to 12 species that were examined in the last 24 years. 38 of these cases were confirmed as ship strikes by postmortem studies, whereas the remaining 42 were cases with some evidence of strikes but ante-mortem trauma diagnosed could not be confirmed. The sperm whale is the most affected species; 104 specimens have been stranded in this period, and of these 44% (46 cases) either presented with some evidence (21 individuals) or with a confirmed ship strike diagnosis (25 individuals). The average annual number of identified cases of ship strikes affecting sperm whales was 1.9. There have been 3 sperm whales with evidence of ship collision detected in the last four years.

Aguilar provided an update on survey around the Canary Islands, an acoustic distance line-transect survey in 2010 rendered a best estimate of sperm whales of 224 whales (95% CI lognormal 120–418) (Fais *et al.*, 2016). Preliminary results from a survey in 2021 using the same methods and covering the same area resulted in a best estimate of 117 whales (95% CI lognormal 59 – 219). This apparent decline (per Taylor *et al.*, 2007) may warrant a reclassification of sperm whales in the Canary Islands from IUCN Vulnerable to Critically Endangered of Extinction.

Fernández noted the causes of the decline might be synergistic, including the observed high rate of ship strikes and environmental reasons. However, oceanographic data do not show significant changes in temperature or salinity at the foraging depths of sperm whales in the last two decades (Gonzalez-Pola *et al.*, 2023). Fernández noted that ship strikes are the main cause of anthropogenic mortality of sperm whales in the Canary Islands.

FI 52 describes progress in actions reducing ship strikes promoted by the Spanish Ministry for Ecological Transition and Demographic Challenge. The national action plan includes research projects in the Canary Islands starting in 2022 on sperm whale distribution including tagging, health surveillance, thermal cameras, and maritime traffic analysis. The research includes three years of acoustic monitoring, photo-ID, biopsy sampling, and deployment of 10 satellite tags on sperm whales. This work is ongoing and may be extended to 2025. Results from tagging and biopsy sampling are not yet available. The study of maritime traffic is based on AIS data from 2022, and identification of risk index areas has been completed showing preliminary areas of potential risk, around the ports of Santa Cruz de Tenerife and Las Palmas de Gran Canaria. This analysis will be updated when all the data from the project become available. Similar studies are also underway around the Balearic Islands including passive acoustic monitoring, biopsy sampling and satellite tagging. In addition, a pilot project to test effectiveness of mitigation actions is ongoing involving monitoring from ferry routes between Baleares and the mainland. In addition, a risk analysis has been completed based on AIS maritime traffic data from 2022 which identified areas of potential risk located between the port of Denia on the mainland and Ibiza and surrounding the port of Mallorca.

The Subcommittee noted the previous concerns and recommendations by the Committee about the level of ship strike mortality to sperm whales around the Canary Islands and that this is considered a high-risk area in the IWC Ship Strike Strategic Plan. In 2019 the Committee noted the need to immediately implement mitigation measures that will reduce the risk of vessel-whale collisions in the Canary Islands archipelago. The main risks are from fast ferries between the islands which pass through areas of sperm whale habitat. The Subcommittee noted that the average number of observed annual mortalities due to ship strikes is such that there is a risk of localised depletion, and the preliminary abundance estimate for 2021 was around half of the estimate from 2010 (Fais *et al.*, 2016). The Subcommittee welcomed the increased level of engagement from government and stakeholders that had supported the research projects discussed and allowed thermal cameras to be installed on two ferries operating on the routes with the greatest overlap with areas where sperm whales are present. However, it was noted that detection systems can only reduce risk when accompanied by an appropriate response from the vessel. The Subcommittee noted that the designation of the PSSA around the archipelago which was created by the IMO in 2005 could provide opportunities for Spain to propose additional Associated Protective Measures (APMs), noting that the APMs for the recently designated NW Mediterranean PSSA included voluntary speed reductions.

Attention: CG, I

The Subcommittee **agreed** that some data presented, although not fully reviewed or published, increased the level of concern for this population, and reiterated the **recommendation** to implement mitigation measures that will reduce the risk of vessel-whale collisions. The Subcommittee additionally **recommended**:

- 1) *If the ongoing studies indicate the potential of whale detection and reporting systems to be effective, these should progressively be expanded to all fast ferry operators in areas with demonstrated sperm whale populations and ship strikes, and protocols to be developed to facilitate vessels to respond most effectively to whale detections.*
- 2) *Consideration of spatial-temporal measures, such as zones with reduced speeds, if the ongoing surveys, tagging and analysis of shipping indicate the potential for these to be effectively implemented.*
- 3) *More research and survey data about sperm whale population in areas where fast ferries operate is urgently needed.*
- 4) *Have representation from the fast ferry industry on the IWC Expert Panel to provide advice on the operational characteristics of these vessels.*

The Subcommittee also discussed mechanisms beyond the work of the Scientific Committee, Ship Strikes Working Group and Expert Panel on ship strikes that might enable the IWC to further support efforts to address the conservation issues associated with ship strikes around the Canary Islands. One suggestion was to consider a Conservation Management Plan (CMP) which could be developed in conjunction with the national plan for deep diving cetaceans by Spain. However, it was noted that CMPs were mainly intended to facilitate several range states working together. Another mechanism developed by the IWC are Small Cetacean Task Teams which are created to provide timely conservation advice on immediate actions to support recovery and threat abatement activities.

The Subcommittee agreed to approach the Task Team steering group to give consideration to the

possible implementation of a Task Team based initiative in the Canary Islands.

3.2.1.2 North-Western Mediterranean Particularly Sensitive Sea Area (PSSA)

Following a proposal from Spain, France, Italy and Monaco the International Maritime Organization designated the North-Western Mediterranean region as a Particularly Sensitive Sea Area (PSSA) in December 2023. The designation was based on biodiversity reasons, with the aim of reducing ship strikes with cetaceans (particularly fin and sperm whales) which inhabit this area of intense maritime traffic. The PSSA area includes the Spanish Mediterranean Cetacean Migration Corridor, located between the coast of Catalonia and Valencia and the Balearic Islands, declared a Marine Protected Area by the Spanish Government; the Pelagos Cetacean Sanctuary in the Ligurian Sea; and three Important Marine Mammal Areas (IMMA) identified by the International Union for Conservation of Nature (IUCN).

Four recommendatory associated protective measures (APMs) apply to ships over 300 gross tons:

1. Mariners should navigate with particular caution within the PSSA, in areas where large and medium cetaceans are detected or reported and reduce their speed to between 10-13 knots as voluntary speed reduction (VSR).
2. Mariners should keep an appropriate safety distance or speed reduction measure from any large and medium cetaceans observed or detected in close quarter situation.
3. Mariners should broadcast on VHF or other available means on scene, the position of medium and large cetaceans observed or detected within the designated PSSA and transmit the information and the position to a designated coastal Authority or Authorities.
4. Mariners should report any collision with cetaceans to a designated coastal Authority or Authorities, which should forward this information to the IWC global cetacean ship strikes database.

The four governments are working closely to implement these APMs.

Attention: CG

The Subcommittee welcomed the designation of the PSSA and noted its previous recommendations relevant to the Associated Protective Measures (APMs), including that (1) routing options do not seem to be possible in the area so the most effective way to reduce risk is through speed reductions, and (2) that any measures that are implemented are fully monitored and evaluated in terms of the risk reduction that is expected to be achieved, including through the use of AIS data to assess levels of industry cooperation.

*The Subcommittee noted that the APMs rely on detection or reporting systems of whale presence to provide information on where vessels should reduce speed. The Subcommittee **recommended** that where such systems were not available, or had not been shown to be effective, then ship strike risk would be reduced for vessels which were able to reduce speed when transiting through the PSSA.*

3.2.2 Review new research relevant to mitigation

SC/69B/HIM/01 describes reducing the risk of collisions between vessels and whales by placing observers on vessels to enable avoidance manoeuvres in response to whale sightings from the vessel. The efficacy of this approach will depend on a number of factors and has been investigated through modelling and observational studies. SC/69B/HIM/01 investigated the effectiveness of avoidance manoeuvres by a

90,901 gross ton cruise ship (Cunard Queen Elizabeth) off the west coast of the US 24 cases were analysed where the vessel responded to a sighting of a single individual or group of humpback whales. In all of these there was an alteration of course and in four cases also a reduction in speed. The track of the vessel was examined through the avoidance maneuvers and compared the distance between the closest point of approach to the original sighting location as a result of the maneuver with that if the vessel's course had not changed. The results show that a vessel of the size of the Queen Elizabeth can take avoiding action in response to sightings of whales, which would be expected to reduce the collision risk. However, unless speeds are reduced, it is not possible to take effective action for whales detected closer than 1000m ahead of the vessel. The project will continue in 2024 and is intended to contribute to developing further guidance for ships' crews as to how to reduce ship strike risk when whales are sighted.

The Subcommittee discussed the value of further data to determine the effectiveness of evasive action in response to whale sightings and how this depends on ship size, type and speed. The Subcommittee encouraged data collection on vessel responses to whale detections and noted the value of having observers on vessels to facilitate this. These data would allow assessments of the expected risk reduction that could be achieved dependent on whale species, vessel characteristics and observation conditions.

3.3 Progress on previous recommendations

South of Sri Lanka

Following a number of recommendations from the Scientific Committee, IWC had co-sponsored a paper to the IMO Marine Environment Protection Committee (MEPC) in July 2023 proposing the establishment of a new traffic separation scheme south of Sri Lanka to reduce ship strike risks to blue whales and improve maritime safety. Despite strong support from the industry and several Member States, the proposal was not accepted and MEPC decided that further discussion and cooperation between the co-sponsors and the coastal state involved was needed.

3.4 Workplan

The Subcommittee discussed SC/69B/WP/09 - a proposal to convene a workshop on vessel strike risk assessment and associated mitigation measures. The Subcommittee supported the proposal and suggested the objectives include developing metrics that could be consistently applied to analyses and making the associated code or platform publicly available as well as facilitating access to AIS data. Given the topics addressed by SC/69B/HIM, members suggested holding the workshop in Spain or the Canary Islands.

Several members volunteered to serve on the workshop steering group: Aguilar, Collins, Fernandez, Freitas, Hines, Johnson, Leaper, Long, Mallette, O'Loughlin, Panigada, Weinrich and Willson.

Topic	Intersessional 2024-26	2026 Annual meeting
Rates and risks	Review new methods and estimates of rates of ship strikes, risk of ship strikes and mortality including progress on ship strike database	Continue to review
	Hold workshop in 2025 (see ToR in appendix)	Review workshop outcomes
Mitigation	Review new information related to mitigation methods	Continue to review
Update guidance for organisers of offshore sailing races	Develop updated guidance in collaboration with Expert Panel	Review updated guidance

Continued co-operation
with IMO

Secretariat to maintain dialogue
with IMO Secretariat. Attend relevant IMO
meetings Collaborate with IWC Expert Panel
to provide advice on any routing proposals as
required

Continue to review

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