Update on the IWC ship strike database

RUSSELL LEAPER AND GREG DONOVAN

INTRODUCTION

The need for a global database of incidents involving collisions between vessels and whales has been recognised by both the IWC Scientific and Conservation Committees, as well as other bodies such as the International Maritime Organization (IMO) and ACCOBAMS. The objectives of a single global database include: (1) to allow use of all available data to generate larger sample sizes in order to investigate how factors such as speed and vessel type relate to collision risk – this should lead to better ways to model risk and identify high risk areas; (2) to improve ability to identify areas where the impacts of ship strikes may be of particular conservation concern at the population level, based on the numbers of reported incidents and/or modelling of risk; and (3) to improve potential to develop the most effective mitigation measures.

In 2006, it was proposed that the IWC should establish a global database of collision events. A draft database template was proposed by the Vessel Strike Data Standardization Working Group (Van Waerebeek and Leaper, 2007) and discussed at IWC59. The format and structure of the database was agreed by the Scientific Committee and endorsed by the Conservation Committee and Commission. Following IWC59, the database was populated with data, mainly from published sources, and as of April 2008, there were 763 records. These data and suggestions for further work were summarised in the second report of the Vessel Strike Data Standardization Working Group (Van Waerebeek and Leaper, 2008).

At IWC60, the Committee recommended that the best way forward would be for the Secretariat to undertake the following activities with advice from members of the Committee.

> (a) collate information from 2008 Progress Reports and SC60 papers;
> (b) work with an appropriate contractor to refine the database and develop the web-based system;
> (c) encourage holders of historic data to submit data either via the web-based system, in a replicate database, or through newly developed paper forms (the database can be queried if there is uncertainty whether data have already been entered);
> (d) investigate ways to ensure that governments, industry and other relevant bodies are made fully aware of the database (including a dedicated section of the IWC website) and the importance of supplying information either via the web or paper forms;
> (e) assess the amount of information gathered to estimate the likely resources needed to maintain and populate the database for both historical and ongoing data;
> (f) based on the experience gained, develop a detailed medium-term funding proposal for consideration at next year's meeting

A Ship Strike Review Group of Leaper (Convenor), Ferguson, Mattila, Panigada, Rowles, Van Waerebeek, and Weinrich was convened with the terms of reference to advise on (a)-(f) above (Donovan and Ritter also joined the group intersessionally).

PROGRESS ON THESE ITEMS

(a) Collation of new information (2008 Progress Reports, SC60 papers and data provided intersessionally)

A total of 26 ship strike incidents were reported in National Progress reports presented at SC60. These included collisions that may not have proved fatal. Where sufficient information was available, these have been entered into the database, but in many cases further details are still being sought.

The Committee also received two regional systematic reviews of ship strike incidents. Carrillo and Ritter (2008) presented results from a study of vessel collisions in the Canary Islands and Behrens and Constantine (2008) examined collisions with Bryde's whales in New Zealand. These reviews highlighted the need for a detailed examination of local and regional data to populate the database. Of 13 incidents involving definite or probably collisions with Bryde's whales in New Zealand between 1996 and 2007, identified in SC/60/BC9, only one had been previously noted and entered into the database. While the database had 23 reported incidents from the Canary Islands, SC/60/BC6 identified 59 strandings, found to involve vessel-whale collisions. These studies

show that detailed local knowledge is likely to be able to identify considerable more records than have been so far identified in major published sources.

Reports for the database were received intersessionally from Ecuador (1 incident – SC/61/BC5) and Brazil (3 incidents – SC/61/BC4). This information is included in papers that will be discussed at SC61.

A number of collisions between sailing yachts and whales were also reported in the media during 2008. These will be entered in to the database following discussion of SC/61/BC1 which reviews all collisions with sailing vessels between 1966 and 2008. Similar to regional reviews, reviews of collision reports by those with specialist knowledge of a certain marine sector appear likely to uncover a considerable number of incidents that are not in the current database.

The shipstrikes@iwcoffice.org email address was established in October 2008 and since then there have been an additional 9 reports of incidents world-wide that have been noticed and reported by interested scientists and Commissioners from media reports.

Overall, the combination of data presented at IWC60, historical reviews and new incidents reported from 2008/09 has amounted to around 150 potential new records for the database. Many of these are still in the process of being entered and validated.

(b) Structure of current database and web-based data entry system

The original database used MS Access for all data entry with empty replicate databases sent to potential data holders who might contribute. These replicate databases could then be synchronised with the master database in order to generate the single centralised database. While this system worked for a limited number of data holders entering multiple records, it did not allow for simple reporting of single incidents. Thus it was decided at IWC60 to switch to a web based data entry system.

The database is now held on the IWC server and can be accessed remotely. Accredited persons can install an MS Access front end on to their own machines in order to view data and run queries. Web based data entry is available to all users. The structure of the database has been altered to some extent in the transition from MS Access to SQLserver to facilitate web based data entry, but the basic fields remain the same. Following some trials with running queries on the initial data set, further categorical variables have been introduced wherever possible. The full list of data fields and lookup tables can be sent on request by emailing shipstrikes@iwcoffice.org.

Web based data entry (http://www.iwcoffice.co.uk/sci_com/shipstrikes.htm)

Development of the web based data entry system was the major intersessional task prior to IWC61. The web based data entry system is designed mainly for use by mariners and the general public with limited knowledge of cetaceans. It is a compromise between trying to gather all the available information without seeming too complex and onerous. The system was developed by an external contractor (Andrew Blackburn of Glasstube Ltd, www.glasstube.co.uk) and is based on a preliminary set of questions which determine a number of pages of questions which are subsequently displayed. The design was agreed after a meeting attended by Blackburn, Leaper, Donovan and Tandy. The initial set of questions relate to whether the collision incident itself was observed, whether the whale became stuck on the bow, or whether a carcass was seen floating or found stranded. This structure should allow the data review group to match multiple records that may be of the same incident (e.g. a collision incident and subsequent discovery of a carcass on shore). The design is intended to be flexible to allow the pages, questions, additional notes and further pop-up help to be configured from within the database tables. Thus it should be possible in many cases to incorporate suggestions from members of the Committee and other users for improvements. Extra categories can also be added to the lookup tables of categorical values as required.

Data review and validation (remote access to the database for accredited persons)

The web based data entry system was only completed in May 2009 and so there has been little scope for the data review group to work on new records. There is a need for further discussion and refinement of the data review process at SC61 in order provide efficient processing of historical and new records from multiple sources. This includes linking records that are identified as either different reports of the same incident allowing for the fact that this may not be certain.

(c) Historical data

Some progress has been made intersessionally with reviews of historical data presented to the Committee for discussion at SC61. These reviews highlight the quantity of additional data that can be gathered by detailed investigations regionally or for a particular marine sector.

(d) Outreach efforts to encourage reporting

The IWC website now has a dedicated page on ship strikes which gives a summary of the issues and links to the database. The IWC Secretariat and members of the Committee also attended the 58th meeting of the Marine Environmental Protection Committee of the IMO which included discussion of the ship strikes issue and a presentation on the IWC database. In addition, a leaflet has been prepared by the Government of Belgium for distribution throughout the shipping industry giving information about the ship strike issue and reporting incidents to the IWC database. The web based data entry system only became active immediately prior to IWC61 and so it is too early to judge the likely response. The only reports received via the shipstrikes@iwcoffice.org email so far have been from people involved in the IWC. This does suggest further efforts will be needed to reach a wider audience.

(e) Populating and maintaining the database

Developing the web based data entry system proved to be more complex and time consuming than expected. Thus less progress was made than anticipated in entering data and the data review group were not called upon to review records. There are still some small refinements needed for the data entry system and developing tools to facilitate data review and validation by the data review group. Once these are developed, data gathering will be the main task. Around 150 incidents (historical and new reports combined) were identified in the intersessional period that were not in the database.

(f) Medium-term funding proposal

We hope that the information in this paper will be useful for the Committee's discussions on how to develop the database further over the forthcoming years, and that a proposal can be developed at SC61.

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