Report of the intersessional work on Anthropogenic Underwater Noise

Submitted by the Chair of the Intersessional Correspondence Group

The Commission is requested to:

- *note the intersessional progress made by the intersessional correspondence group and the Conservation Committee*
- *approve the seismic questionnaire*
- *endorse the new workplan*

Since at least 2004, the IWC Scientific and Conservation Committees have been discussing the effects of noise on cetaceans. Cetaceans rely on sound for survival. It is their primary sense, and it is necessary for successful foraging, migration, and reproduction. Man-made (anthropogenic) ocean noise has increased dramatically in recent years, with sources ranging from shipping to seismic exploration, drilling, and construction. Anthropogenic ocean noise is identified as a priority threat in the IWC Conservation Committee's Strategic Plan, and research is ongoing to better understand the impact of noise on cetaceans and the effectiveness of various approaches to reducing exposure.

At IWC67 in 2018, the Committee approved proposals for additional work on Anthropogenic Underwater Noise, such as the formation of an intersessional correspondence group to further scope this work and collaboration with other organisations. It also approved a revised workplan for the Commission, which included preliminary activities on underwater noise. At the same meeting, an IWC Resolution on Underwater Noise (Resolution 2018-4) was adopted.

With the postponement of IWC68, the ICG reviewed the existing CC workplan 2016-2020 as relates to underwater noise and, at the virtual CC2020, proposed several changes (blue text, Annex 1) for activities to be started during 2021- 2. As part of the suggested workplan actions the intersessional group held a virtual meeting in December 2020 to review work and recommendations of other organisations on underwater noise and further scope a workplan for this topic (Annex 3 and 4).

A further workshop is being planned prior to IWC68.

A questionnaire to compile global information on marine seismic surveys for hydrocarbon exploration, including currently ongoing activities and planned activities for the next 5 years [2022-2027], has been developed. The questionnaire was submitted to the Scientific Committee (68D) and approved. With the approval of the CC the survey can be circulated through a notification from the IWC Secretariat to all member States, as well as other relevant international organisations, such as the CBD, the CMS/ACCOBAMS/ASCOBANS Joint Noise Working Group, the EU MSFD TG Noise Group, among others.

The Conservation Committee is asked for input on the questionnaire and endorsement (Annex 2).

COOPERATION WITH THE IMO

The IMO started a process in 2008 to develop non-mandatory technical guidelines for reducing ship noise and the IWC participated in the IMO correspondence group. The IMO adopted its Guidelines for the reduction of underwater noise from commercial shipping to address adverse impacts on marine life in 2014 (IMO, 2014), however there has been very little uptake on the guidelines and a wide recognition that further work was needed at IMO to address the issue of underwater noise from shipping.

At MEPC 76 in 2021, the IMO agreed to review the 2014 Guidelines and identify next steps. This was addressed in the Ship Design and Construction Sub-Committee (SDC 8) in January 2022. An outcome from this meeting was the establishment of a correspondence group coordinated by Canada to work on updating the IMO noise guidelines and identification of next steps. In accordance with recommendation (SC2184) encouraging further intersessional collaboration and coordination between the Scientific Committee and the Conservation Committee on underwater noise, representatives of the CC AUN CG and SC along with the Secretariat have joined the IMO CG to contribute to discussions reviewing the Guidelines. The process has involved three rounds of input in the form of questionnaires on general issues to be addressed. The IMO Correspondence Group is tasked with providing a report to SDC 9 in early 2023.

WORKPLAN

For the CC meeting in 2020 the ICG developed a workplan for 2021-2022. Intersessional work has been ongoing in most of the areas (Annex 1).

A new workplan for the next intersessional period 2022-2024 will be developed during a workshop in September 21-22 and will be presented at IWC68 for CC input and endorsement.

Annex 1
Anthropogenic Underwater Noise Workplan 2020-2022

Aim	Deliverable/ Action	Progress	Responsibility	Timescale	Funding allocated
Consider and act upon, as appropriate, the advice and recommendations from the SC on the impacts of anthropogenic noise on cetaceans. Establish linkages between the IWC and other relevant bodies to ensure the dissemination of IWC advice on anthropogenic noise.	Further identify and engage with appropriate regional and international bodies addressing anthropogenic noise and progress any opportunities for capacity building, in particular with regards the IMO (*IWC/64/Rep5. IWC/64/Rep1*). Following recommendations from the 68B IWC SC meeting, coordinate with SC on the scoping of the CC workplan on underwater noise. Review management recommendations from other IGOs working on this topic	Provision of a paper to the IMO Marine Environment Protection Committee (MEPC), providing an update of recent information on underwater noise from shipping. Since then the IWC has continued engagement with the International Maritime Organization on this issue, including attendance at a workshop on 'Quieting Ships to Protect the Marine Environment: Technical Workshop' organised jointly by the IMO and Canada. Engagement with the UN including contribution to the report of the UN Secretary General on Anthropogenic Underwater noise to the Open Ended Informal Consultative Process on	**Conservation Committee** **Secretariat** **Intersessional Group on Anthropogenic Sound**	2020-on going	

		Oceans and Law of the Sea (18-22 June 2018) and Executive Secretary participation as a panellist at this meeting.			
	Review progress of outreach activities and information flow, specifically providing advice on how the IWC could further enhance its outreach and capacity building activities. **Seismic exploration:** 1.) Review the existing recommendations coming previously from the IWC, and any need for update. 2.) Compile published and unpublished literature on this issue. 3.) Engage with appropriate regional and international bodies addressing seismic exploration (i.e. CMS) to scope further work on dissemination of guidelines related to Anthropogenic Underwater noise. 4.) A report will be submitted to the 69A IWC SC and the CC meeting. **Coordinate with other existing initiatives or groups within the IWC** (i.e. ship strike, WW, stranding, etc.) to identify other		**Conservation Committee** **Secretariat** **Intersessional Group on Anthropogenic Sound**	2020-2022 2020-2022	

	important issues and synergies related to anthropogenic underwater noise (i.e. vessel noise)				
	Provide a report to the Commission synthesising progress in addressing IWC Recommendations on the mitigation and management of anthropogenic noise.	Can be undertaken using outputs from the database of recommendations. To be considered for IWC69	**Conservation Committee Chair Secretariat**		
	Consider recommendations arising from relevant workshops and publications including: • Increased Marine Activities on Cetaceans in the Arctic (*IWC/65/Rep07 Rev1* • Planned workshop on the evaluation of stress and sound (*IWC66 rep1 (2015) 12.4.3)*.	SC and CC workshops on underwater noise will be held during this intersessional period and, amongst other objectives will consider recommendations arising from other relevant workshops and publications. The reports of these workshops will be presented to IWC69.			

Annex 2

Proposed questionnaire regarding the IWC global review of marine seismic airgun surveys

Reyes Reyes, M.V.[1], Andriolo, A.[2,3,] Cosentino, M.[4,5,] Entrup, N.[6,] Weilgart, L.[6,7]

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[3.] Instituto Aqualie, Avenida Doutor Paulo Japiassú Coelho, 714 Salas 201 e 202 - Cascatinha, 36033-310, Juiz de Fora, MG, Brasil.
[4.] Whalesafari Andenes, Norway
[5.] Aarhus University, Denmark
[6.] OceanCare, Switzerland
[7.] Dalhousie University, Canada

Last year, at the IWC 68c SC meeting, an intersessional correspondence group was formed to work on a questionnaire that could be circulated among stakeholders to compile data related to marine seismic surveys for hydrocarbon exploration, including currently ongoing activities and planned activities for the next 5 years [2022-2027].

Questions will be directed to governmental agencies, private companies, nongovernmental organisations, and research institutions. We aim to circulate the questionnaire through a notification from the IWC Secretariat to all IWC member states, as well as other relevant international organisations, such as the CBD and CMS Secretariat, the EU Commission and others, inviting them to ask their respective, specialized groups, such as the CMS/ACCOBAMS/ASCOBANS Joint Noise Working Group, the EU MSFD TG Noise Group, among others, to contribute information to this project. Once all the information is gathered, a Geographical Information System will be implemented to map the data, and recommendations will be outlined. A final document will be prepared to be circulated within the IWC CC, the IWC SC and the Commission, as well as other organizations and bodies.

Questionnaire

The aim of this questionnaire is to compile information on ongoing and planned marine seismic surveys in national and international waters, in order to get a sense of the global scale, timing and locations of these activities and identify sensitive areas where potential impacts from impulsive noise on cetaceans can occur.

1. WHICH COUNTRY ARE YOU BASED IN:

2. WHAT TYPE OF ORGANISATION DO YOU WORK FOR:

- Governmental agency
- Non-governmental organisation
- Private industrial company
- Research institution
- Other

3. DOES YOUR ORGANISATION CARRY OUT SEISMIC SURVEYS AT SEA?

4. WHAT IS THE NAME OF THE ORGANISATION YOU WORK FOR?

5. DOES YOU ORGANISATION HAVE ANY CURRENT MARINE SEISMIC RELATED ACTIVITIES AND/OR PLANNED FOR THE NEXT 5 YEARS (2022-2027) IN NATIONAL OR INTERNATIONL WATERS?

IF YES,

5.1. PLEASE PROVIDE INFORMATION ON LOCATION AND TIMING (DATES AND DURATION).

6. ARE YOU ALLOWED TO PROVIDE ADDITIONAL INFORMATION ON SEISMIC SURVEYS?

IF YES,

6.1 PLEASE PROVIDE THE FOLLOWING WITH AS MUCH DETAIL AS POSSIBLE:

- SIZE OF THE ARRAY IN CU.IN.
- NUMBER OF AIRGUNS
- FREQUENCY RANGE
- SOURCE INTENSITY
- SOURCE TECHNOLOGY

7. DOES YOUR COUNTRY REQUIRE ENVIRONMENTAL IMPACT ASSESSMENTS BEFORE MARINE SEISMIC ACTIVITIES CAN BE APPROVED AND/OR OTHER OR ADDITIONAL ASSESSMENT PROCEDURES? IF SO, PLEASE PROVIDE DETAILS IF POSSIBLE.

8. IS THERE ANY REGULATION ON MARINE SEISMIC ACTIVITIES IN NATIONAL WATERS? IF SO, PLEASE SPECIFY.

9. IS THERE ANY REGULATION PROVIDING SPECIFIC PROTECTION PROVISIONS FOR CETACEANS FROM ACOUSTIC DISTURBANCE IN NATIONAL WATERS? IF SO, PLEASE SPECIFY.

10. ARE THERE ANY MITIGATION MEASURES APPLIED BEFORE, DURING AND/OR AFTER MARINE SEISMIC ACTIVITIES? IF SO, PLEASE SPECIFY.

11. PLEASE PROVIDE ANY FURTHER RELEVANT INFORMATION, INCLUDING REFERENCES, AND LINKS TO DATABASES, GREY LITERATURE, AND WEBSITES AS APPROPRIATE.

12. IF YOU AGREE TO BE CONTACTED FOR FURTHER INFORMATION, PLEASE PROVIDE A CONTACT EMAIL:

Annex 3

ANTHROPOGENIC UNDERWATER NOISE ICG
Note of meeting, 3 December 2020

1. Purpose and agenda

The purpose of this meeting was to take forward planning for development of a Conservation Committee work programme on Anthropogenic Underwater Noise, whilst it was not possible to meet in person. It was still hoped that a workshop (most likely virtual) could take place before the Scientific Committee meeting next year.

The agenda is in Annex A and the list of participants in Annex B.

2. Update on IWC work to date

2.1. Review of the CC AUN Workplan

Iñíguez presented the interim workplan (2020-2021) (CC/68A/12.1/01) agreed at the recent CC meeting and asked for any feedback.

Payeur (France) suggested the addition of a deliverable relating to IWC engagement with the process to develop a legally binding treaty on BBNJ with respect to underwater noise (see also 2.2).

Entrup (OceanCare) referred to the IWC Resolution on Noise 2018-4 which "Instructs the Scientific Committee to continue its work regarding anthropogenic underwater noise and cetaceans, with a particular focus on: (1) evaluation of the extent and degree of exposure of cetaceans to different types of noise" and proposed that it would be beneficial to try to understand the global scope of planned seismic activities to find "hot spots" for seismic surveys, , e.g. for the next five years (2021-2026). Thus, could be done by approaching IWC Member States focal points, as well as working in partnership with CMS through the CMS/ACCOBAMS/ASCOBANS Joint Working Group which does also include, as a separate unit, stakeholders from the industry. Vanesa Reyes (as main contact person), Artur Andriolo and Nicolas Entrup volunteered to draft a document to initiate a review on seismic exploration for the actual noise workshop in 2021.

2.2 Next steps for implementation and further development of the CC workplan

2.2.1. Strategic issues for the AUN on the following topics.

Iñíguez drew attention to the need to identify and agree the following topics on which the group could work:

i. Seismic exploration
ii. Vessel noise (ship noise, whale watching and recreational)
iii. Military sonar
iv. Underwater construction (offshore renewables)
v. Operational activities (i.e. oil platform, wind turbine)
vi. Destruction of ammunition

All topics are important, but it is relevant to prioritise issues to be done in the short and medium term. This item of the agenda will be further discussed during the 2021 workshop; however the group has decided to start working on seismic exploration in order to make progress. An intersessional working group by Vanesa Reyes (Point of Contact), Artur Andriolo and Nicolas Entrup was established. This group will review existing IWC recommendations and those from other international organizations on this issue. This document will be used at the 2021 workshop to further develop a workplan on this topic.

2.2.2. Review progress of outreach activities and information flow
Already covered by the document Sarah presented. No other comments on this.

2.2.3. Engagement with Other Organisations on AUN
Smith (Secretariat) introduced the paper written by Webster (Secretariat) and thanked CMS, ASCOBANS and OceanCare for their contributions (Annex 4). This provided a brief summary of IWC work to date and a review of recent work by other organisations and opportunities for the IWC to engage including:

- Work of the UN and, currently the development of the legally binding treaty on BBNJ
- IUCN and the work of its noise task force, in which the IWC is involved through the Gray Whale CMP with regards to seismic surveys off Sakhalin, Russia
- IMO including efforts by Canada and others to introduce a new MEPC agenda item and work output on AUN. IWC has been engaging with this but discussion in MEPC has been postponed to 2021
- Work of the biodiversity related conventions, particularly CMS, ASCOBANS and ACCOBAMS and development of the CBD post 2020 framework
- OSPAR work on ambient noise monitoring and pressure indicators (discussed at the recent SC pre-meet on noise)
- Arctic Council- noting there could be new concerns from changes in shipping associated with receding ice.

Regarding cooperation with CMS, Frisch-Nwakanma said that several members of the Joint Noise Working Group of CMS, ASCOBANS and ACCOBAMS were also on this call. She suggested that the Group thought about whether they wanted to rely on such informal cross-representation, or whether a more formal participation of an expert representing the IWC should be considered.

Frisch-Nwakanma urged the group, when considering engagement in the BBNJ process, to reflect on the possible role of Member Countries as well. As Secretariats, the possibilities for influencing these processes were limited, as they were very much country-driven. It would therefore be useful to identify how both the Member Countries and the Secretariat could best carry the recommendations of IWC bodies into this process.

Nicolas Entrup, OceanCare, pointed out that there is additional recognition of the threat posed by underwater noise on marine species within the United Nations General Assembly Fisheries Resolution which encourages further research, compiling a data base of peer-reviewed scientific studies, as well as looking into the potential socioeconomic impacts of anthropogenic noise on fisheries, etc. Among other aspects, the FAO's Committee on Fisheries (COFI) encouraged the FAO to conduct a study on the impacts of anthropogenic noise on fish and invertebrates, marine resources and associated socioeconomic impacts. The potential impacts of ocean noise on fish resources and fisheries have also been the subject

of a workshop co-hosted by the General Fisheries Commission for the Mediterranean (GFCM) and OceanCare where a set of recommendations have been developed. In May 2020 an MOU was formed between the GFCM and OceanCare to undertake the study addressing potential socioeconomic impacts of noise and fisheries resources. Results are expected to be available in the second half of 2021. He also suggested that it might be beneficial to review potential work addressing anthropogenic noise through the Antarctic Treaty System.

IFAW noted some additional IUCN motions on this issue including one on Quiet Oceans (Motion 024), which will be debated in their members assembly and a Moratorium on sonar use in Macronesia (Motion 026), which has been voted on remotely. IFAW is also engaged with IMO MEPC work and pleased to collaborate with IWC on this. Finally, IFAW suggested that it would be useful to identify in the document specific opportunities to provide input from the IWC to different international organisations and where it can be influential, as well as the best ways to engage with them.

Frisch-Nwakanma welcomed Livermore's suggestion that opportunities for input to the processes of other organizations be highlighted in the document. CMS would also be very interested in the findings. She also suggested that the paper be used for identifying opportunities for synergies with those who were also working for the conservation of cetaceans. There might, for example, be scope for trying to promote each other's guidance in one's own for a, and potentially also for developing joint guidance in future.

Jan Haelster (Belgium) drew attention to the work of ASCOBANS on beaked whales and military sonar and was pleased to see IWC engagement in their recent meeting. The issue of beaked whale strandings was raised at the ASCOBANS MOP9 (7-11 September 2020). The recent strandings in the North-East Atlantic caused considerable concern about the status of populations. MOP9 agreed to establish an intersessional WG to summarize available data, discuss potential reasons for strandings, discuss mitigation, and to make recommendations to countries, including relevant military organizations. This group which met for the first time on 17 November 2020, was not limited to Parties to ASCOBANS: NGOs, IGOs, non-Party Range States and countries faced with similar problems would be welcome to join. The group is to report back to th^{e} 26th Meeting of the ASCOBANS Advisory Committee (AC26), scheduled for 8-12 November 2021.

The group agreed to add the relevant additional information above to the paper (Action: Secretariat with input from Netherlands, OceanCare, Fundacion Cethus, IFAW) and review a revised document at its next meeting. It would also consider formal IWC presentation on the CMS/ASCOBANS/ACCOBAMS noise group.

2.2.4 Adopt workplan on these issues
The AUN ICG adopted the workplan on the aforementioned issues but it was agreed that further discussion will be taken during the 2021 workshop.

2.2.5 Coordinate with other existing initiatives or groups within the IWC
In principle the group identified the need to work together with the Scientific Committee and the Conservation Committee, particularly with the Bycatch Mitigation Initiative, Environmental Concern subcommittee, Human Induced Mortality, the Whale Watching Standing Working Group (WWSWG), the Strandings Expert Panel and Steering Group, the Conservation Management Plan Standing Working Group (CMP SWG) and the Ship Strike Working Group (SSWG).

3.AUN ICG Role

The group agreed with the need to upgrade the AUNICG to the AUN Working Group. This item will be further discussed during the 2021 workshop.

4.UPDATE OF THE AUN WORKPLAN 2020-2024

It was agreed that the workplan 2020-2024 will be developed during the 2021 workshop. During this meeting the group agreed to continue engagement with other organizations, such as IMO and start developing some of the topics identified (i.e., seismic exploration).

5. FUNDING

There were no funding requirements at this stage.

6. AGREEMENT OF NEXT STEPS

The group agreed to hold a workshop in 2021, preferably before the Scientific Committee meeting (provisionally in March). In preparation for this workshop, two intersessional working groups have been established. It would also be checked what meetings of other organisations on this issue would be taking place.

Group A
Members: IWC Secretariat, Kinnenging, Entrup, Reyes and Livermore
Input to the Secretariat paper on "Review of Underwater Noise work undertaken in other International Organisations"

Group B
Members: Reyes (PoC), Andriolo and Entrup
Review existing recommendations in the IWC and also in other international afora regarding seismic exploration.
It is also agreed that the 2020-2024 Plan will be developed during the aforementioned workshop.

7. OTHER ISSUES

There were no other issues during this meeting.

Annex A

Agenda

1. ADOPTION OF AGENDA
2. UPDATE ON IWC WORK TO DATE

2.1 Review of the AUN Workplan 2016-2020 (CC/68A/12.1/01)
2.2 Review previous recommendations by the IWC on AUN.
2.3 Next steps for implementation and further development of the CC work plan
2.3.1 Strategic issues for the AUN on the following topics:

a) Seismic exploration

b) Ship noise
c) Underwater Construction
d) Whale watching
e) Wind turbine underwater noise

2.3.2. Review progress of outreach activities and information flow
2.3.3. Engagement with other relevant bodies or organizations
-IMO (IWC/64/Rep5; IWC/64/Rep1; ….
- CMS
- BBNJ
2.3.4. Adopt workplan on these issues.
2.3.5. Coordinate with other existing initiatives or groups within the IWC
3. AUN ICG ROLE
4. UPDATE OF THE AUN WORKPLAN 2020-2024
5. FUNDING
6. AGREEMENT OF NEXT STEPS
7. OTHER ISSUES

Annex B

List of participants

Argentina
Miguel Iñíguez (Convener)

Belgium
Jan Haelters

Brazil
Artur Andriolo (Co-convener)

France
Clément Payeur

Mexico
Lorenzo Rojas Bracho (Chairman of the IWC Conservation Committee)

Netherlands
Niels Kinnenging

UNEP/CMS Secretariat
Heidrun Frisch-Nwakanma

IWC Secretariat
Sarah Smith

Fundación Cethus
Vanesa Reyes

IFAW
Sharon Livermore

OceanCare
Nicolas Entrup
Lindy Weilgart (also with Dalhousie University, Canada)

Annex 4

Review of Underwater Noise work undertaken in other International Organisations

December 2020

INTRODUCTION

Anthropogenic noise in the marine environment has increased markedly over the last century. Initial concerns of the potential negative effects of anthropogenic noise on marine biodiversity were raised by the scientific community in the 1970s and research on the subject expanded in the 1980s. Due to their extreme reliance on underwater sounds for basic life functions, cetaceans are particularly sensitive to noise pollution, which is now recognised as a major global threat to those species and the marine environment in general.

The issue of underwater noise and its effect on marine biodiversity has received increasing attention, and recognition by international and regional organisations. A range of work programmes have been established by intergovernmental organisations and other international fora.

IWC work on underwater noise

Previous IWC recommendations on anthropogenic underwater noise have highlighted the need for research on impacts of noise on cetaceans but also the wider environment and trophic levels, cooperation with other organisations working on this issue and that absence of scientific certainty should not prevent the implementation of management efforts to reduce noise and keep quiet areas quiet.

The IWC has also highlighted its primary contribution should be to ensure that cetacean related issues and specific impacts on cetaceans are considered in other underwater noise initiatives and that the strong scientific and other expertise of the IWC is made available through collaborative efforts.

The IWC Scientific Committee and Conservation Committees have been discussing the impacts of noise on cetaceans since the 1990's. Resolution 1998-6 identified the impacts of anthropogenic noise as a priority topic for investigation. In its report to the 56th Commission meeting, the Scientific Committee concluded that military sonar, seismic exploration, and other noise sources such as shipping pose a significant and increasing threat to cetaceans, and made a series of recommendations to member governments regarding the regulation of anthropogenic noise. Following a workshop on masking in 2016 (International Whaling Commission, 2016), the Scientific Committee consolidated a number of its recommendations related to underwater noise and these were listed in the contribution of the IWC to the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea (UNCLOS ICP19) in 2018. The IWC also participated in the IMO (International Maritime Organization) correspondence group developing the 2014 guidelines (IMO, 2014) and provided a short summary update paper to the Marine Environment Protection Committee (MEPC) in 2018 (IWC, 2018a). In addition, the Commission passed a Resolution, 2018-4 (IWC, 2018b) on anthropogenic underwater noise in 2018 that recognised the increasing concern over ocean noise, and clarified next steps for the Scientific and Conservation Committees in order to better understand and manage the threat.

The IWC interest is on direct impacts on cetaceans but also on other ecosystem effects, particularly those that affect prey species and by extension, cetaceans. Cetaceans depend on sound for their

survival. It is their primary sense and essential for successful foraging, migration and reproduction. In recent years there has been a rapid growth in man-made (anthropogenic) ocean noise, generated from a range of sources including shipping, seismic exploration, drilling and construction. The IWC Resolution 2018-4 noted that cetacean research and conservation management efforts should include the protection of the acoustic habitat and the impacts of anthropogenic underwater noise on lower trophic levels, including fish and invertebrates.

Anthropogenic ocean noise is highlighted as one of the priority threats in the Strategic Plan of the IWC Conservation Committee, and work continues at the Scientific Committee to better understand the impact of noise on cetaceans, and the effectiveness of different approaches to reducing exposure.

This paper provides a review of current work in other international organisations and on IWC collaboration with other organisations on this issue to date, in order to inform discussions on next steps for the IWC on underwater noise and further opportunities for partnership with others.

REVIEW OF RECENT WORK BY OTHER INTERNATIONAL ORGANISATIONS

The United Nations

Several United Nations General Assembly (UNGA) Resolutions relate to underwater noise. In June 2018, the United Nations organised a meeting under the 'Open-ended Informal Consultative Process on Oceans and the Law of the Sea' on underwater noise which IWC contributed to. This resulted in resolutions to conserve ocean health (73/124) that noted an "urgent need" for research and cooperation to address the effects of anthropogenic underwater noise.

This built on previous Resolutions of the General Assembly (61/222 on "Oceans and the law of the sea", 2006; 62/215 on "Oceans and the law of the sea", 2007) which encourage further studies on impacts of ocean noise and requests the Division to compile these studies received from Member states to make them available on their website. This mandate was extended through resolution 64/71 to include intergovernmental organisations, and the request has been renewed annually, most recently in the UNGA Oceans Resolution UNGA/RES/74/19/279 (December 2019).

The United Nations are currently negotiating a legally binding treaty to improve conservation of biodiversity in the high seas (BBNJ). The new treaty will include provisions that could allow for the creation of fully protected marine protected areas (MPAs) beyond national jurisdictions (roughly speaking, in the "high seas") and establish uniform environmental impact assessment and management standards for activities beyond national jurisdiction. These two objectives of the future treaty are of relevance to the issue of underwater noise as a form of transboundary pollution.

IUCN

The IUCN Species Survival Commission (SSC) Cetacean Specialist Group, in its current Conservation Action Plan for Dolphins, Whales and Porpoises 2002-2010 (2003) identified the rise of underwater noise as a threat to cetaceans and has observed that such pollution is likely to increase unless serious steps are taken to curtail it.

At the 2004 IUCN World Conservation Congress, IUCN Members expressed concern that over the last century, underwater noise levels had increased as a result of human activities. Such activities include oil, gas and mineral exploration and production, military activities, including employment of active sonar systems, explosions and training, pile driving and other forms of offshore construction and vessel traffic. This resulted in the IUCN Resolution 3.068 Undersea noise pollution. Since then, IUCN

has worked with governments and industry to identify and implement measures that promote the reduction of human-generated ocean noise.

In 2016 IUCN launched a Guide[1] which outlines means of responsible and effective planning of offshore geophysical surveys and other forms of environmental imaging. It focuses on protecting marine mammals but is adaptable for application where the focus is on any locally important species.

At the next IUCN World Conservation Congress (Marseille, France 2021) Motion 126 (Advancing conservation and sustainable use of marine biological diversity in the ocean beyond national jurisdiction), put forward by the Natural Resources Defense Council (NRDC) and 13 co-sponsors, will give IUCN members the opportunity to provide input for a conservation-oriented high seas regime and encourages States, to develop an international legally binding instrument under UNCLOS on the conservation and sustainable use of marine biological diversity in Areas Beyond National Jurisdiction (ABNJ). The motion aims to ensure that the final treaty text provides for the rapid establishment in the high seas of a well-managed network of MPAs, science-based assessment and management of individual and cumulative effects of human activities and climate change, and effective institutional arrangements to ensure full implementation, monitoring, compliance, and enforcement. The treaty should ensure that, if environmental assessments find that an activity poses significant adverse effects, such activity is managed to prevent such impacts or is not permitted to proceed.

IUCN Noise Task Force (NTF)

There is a long-standing collaboration between IUCN and the IWC on matters of mutual interest. In recent years these have focussed on the Western Gray Whale Advisory Committee (WGWAP) and the newly formed IUCN Marine Mammal Protected Areas Task Force (MMPATF). The most recent meeting was that of the Noise Task Force, held as a virtual meeting from 7-9 April 2020, focussing on key agenda items related to advice regarding seismic surveys and other noise-related issues off Sakhalin Island, Russian Federation. Aside from seismic surveys, the NTF regularly comments on the acoustic monitoring component of the annual Joint Programme for Western Gray Whale Monitoring and on various specific noise-related issues such as the need for a new control site to monitor underwater sound in the north-eastern Sakhalin region, improved methods for detecting noise anomalies during 'routine' production operations, and the potential role of new technology for acoustic monitoring of industrial activity and whale behaviour.

The report is available on the WGWAP website (https://www.iucn.org/western-gray-whale-advisory-panel/panel/task-forces/seismic-surveys-and-noise-task-force). The last meeting was held 17-19 November 2020.

International Maritime Organization (IMO)

In 2014 the MEPC approved Guidelines for the Reduction of Underwater Noise from Commercial Shipping to Address Adverse Impacts on Marine Life (MEPC.1/Circ.833). Since the establishment of the Guidelines, scientific evidence regarding the adverse impacts of underwater noise on the marine environment has continued to grow.

Canada, co-sponsored by the United States and Australia, is proposing a new IMO work output on underwater noise. The initiative has most recently gained support from the European Union and its Member States. Under the 2020 World Maritime Theme of "Sustainable Shipping for a Sustainable Planet" the new work proposal requests the MEPC to task the Ship Design and Construction Sub-

[1] IUCN, 2016. Effective planning strategies for managing environmental risk associated with geophysical and other imaging surveys: A resource guide for managers.

Committee to review the 2014 Guidelines to identify barriers to their implementation and ways to address them, identify new technology and innovations that may help reduce underwater vessel noise and potential co-benefits for energy efficiency and GHG reduction, and recommend measures to further prevent and reduce underwater radiated noise and encourage action.

The IWC continues to engage with this Canadian initiative and to participate in IMO meetings. Due to the global pandemic MEPC 75 (2020) has been delayed and subsequently reduced to virtual meetings. Unfortunately, under the reduced agenda all underwater noise issues have been deferred until MEPC 76 (June 2021).

Biodiversity related conventions

The Post 2020 Biodiversity Framework

At its next Conference of Parties, the CBD will adopt a post-2020 global biodiversity framework, as a shared framework for the Multilateral Environmental Agreements (MEAs) other Multilateral fora and the global community towards the delivery of a 2050 Vision of "Living in Harmony with nature". Member governments would then be expected to incorporate related targets and indicators (as appropriate to national circumstances) in revised National Biodiversity Strategies and Action Plans. Work to develop the framework, and to identify related contributions of the biodiversity related Conventions in particular is ongoing through the so-called "Bern consultation process" . The IWC is inputting to this through its membership of the Liaison Group of the Biodiversity related Conventions.

The existing biodiversity framework (2012-2020) and its Aichi Targets[2] includes Target 8: "By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity". Though this is taken to include noise pollution, it is not explicitly mentioned and there may be opportunities to strengthen this in the new framework.

The Convention on Biological Diversity (CBD)

This year (Oct 2020) the CBD produced a draft paper on underwater noise for its Technical series which is currently being refined after comments: "*Anthropogenic Underwater Noise: Impacts on marine and coastal biodiversity and habitats, and mitigation and management measures"*.

This report was prepared by the Secretariat of CBD, on the basis of COP decision 14/10, paragraph 5, wherein the Conference of the Parties "takes note of the work of the Executive Secretary, and requests the Executive Secretary to continue to work on the compilation and synthesis of information related to the impacts of anthropogenic underwater noise on marine and coastal biodiversity, and means to avoid, minimize and mitigate these impacts."

Convention on the Conservation of Migratory Species of Wild Animals (CMS)

The Conference of Parties to CMS adopted its first Resolution on underwater noise in 2008. Since then, several Resolutions have followed, and guidance was developed for use by Parties and industry.

Resolution 12.14 *Adverse Impacts of Anthropogenic Noise on Cetaceans and Other Migratory Species* was adopted in 2017. It calls for further internationally coordinated research on the impact of underwater noise on CMS-listed marine species and their prey, their migration routes and ecological coherence. It urges Parties to prevent adverse effects on CMS-listed marine species and their prey by

[2] https://www.cbd.int/sp/targets/

restricting the emission of underwater noise; and where noise cannot be avoided, to ensure a reduction or mitigation of anthropogenic marine noise.

Resolution 12.14 also, in line with similar calls made by Parties to CMS daughter Agreements ASCOBANS and ACCOBAMS, calls for noise-related considerations to be taken into account during planning stages of activities, especially by making effective use of Environmental Impact Assessments (EIA). It recommends the use of Best Available Techniques (BAT) and Best Environmental Practice (BEP), and endorses Guidelines on Environmental Impact Assessments for Marine Noise-generating Activities.

These Guidelines are designed to provide regulators with tailored advice presenting Best Available Techniques (BAT) and Best Environmental Practice (BEP) to apply in domestic jurisdictions, as appropriate, to create Environmental Impact Assessment (EIA) standards between jurisdictions seeking to manage marine noise-generating activities. They cover the following industries or noise sources:
a. Military and civil high-powered sonar
b. Shipping and vessel traffic
c. Seismic surveys (air gun and alternative technologies)
d. Construction works
e. Offshore platforms
f. Playback and sound exposure experiments
g. Pingers (acoustic deterrent/harassment devices, navigation)
h. Other noise-generating activities (acoustic data transmission; wind, tidal and wave turbines, future technologies).

The EIA Guidelines are accompanied by detailed Technical Support Information, which outlines the specific vulnerability of different species groups and their prey, and provides valuable background information for managers. At CMS COP13 (Feb 2020), Decisions related to underwater noise (Decisions 13.58-13.60) were taken which instruct the Secretariat to add a further module to the Technical Support Information, the *Advisory Note: Further Guidance on Independent, Scientific Modelling of Noise Propagation*. Further, it was decided that following a review process, a paper on *Best Available Technology (BAT) and Best Environmental Practice (BET) for Three Noise Sources: Shipping, Seismic Airgun Surveys, and Pile Driving* would be published as an issue in the CMS Technical Series, making it easily available as guidance for Parties and other stakeholders.

Given the global significance of this topic, and the impacts on many marine species, following from a bilateral working group between the daughter Agreements ASCOBANS and ACCOBAMS, since 2014 the Joint Noise Working Group (JNWG) serves as an expert advisory group to CMS as well. The JNWG supports the implementation of the mandates of all three organisations. It is open to participation by relevant experts from the fields of science, policy and relevant civil society organizations that are members and observers of the scientific and advisory bodies of CMS, ACCOBAMS and ASCOBANS. It further has the possibility on calling on an Industry Advisory Group (IAG) on Underwater Noise, which it can invite to address specific questions and give advice to the JNWG.

Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas – ASCOBANS

In 2000, the 3rd Meeting of the Parties to ASCOBANS adopted Resolution 3.4 *Disturbance*, inviting Parties and Range States to introduce guidelines on measures and procedures for seismic surveys, and to work with military authorities to reduce disturbance to small cetaceans. Since then, three other resolutions on the topic have been adopted, Resolution 4.5 *Effects of Noise and of Vessels* (2003); Resolution 5.4 *Adverse Effects of Sound, Vessels and Other Forms of Disturbance on Small Cetaceans*

(2006), which also noted the recommendations arising from IWC SC58 on potential impacts of seismic surveys to cetaceans; and Resolution 6.2 focusing on noise from offshore construction activities for renewable energy production (2009).

In 2008, an Intersessional Working Group on the Assessment of Acoustic Disturbance was formed to examine and evaluate human activities causing noise disturbance and related best practices in noise management in relation to the work of ASCOBANS. The Working Groups on underwater noise serving ACCOBAMS and ASCOBANS were merged in 2012, and in 2014 CMS joined in, forming the Joint Noise Working Group. Reports from the JNWG can be found here.

All four species action plans adopted under ASCOBANS refer to the threat of underwater noise. In 2020, ASCOBANS Parties adopted the CMS Family Guidelines on Environmental Impact Assessment for Marine Noise-generating Activities (Resolution 8.11 (Rev.MOP9)). The 4-year ASCOBANS Work Plan requires the ASCOBANS Advisory Committee, with support of the relevant Working Groups, to review new information on underwater noise, its impacts on small cetaceans and their prey species, mitigation measures, technological developments, best practices and guidelines. This task is due for the 26th Meeting of the Advisory Committee, scheduled for 8-12 November 2021.

Agreement for the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area- ACCOBAMS

There is a strong, long-standing collaboration between the IWC and ACCOBAMS on many issues including matters related to population assessment, ship strikes, bycatch, whale watching, noise, chemical pollution and CMPs. Most recently, the IWC Secretariat provided input to the ACCOBAMS Meeting of Parties in November 2019, where the IWC was represented by its Chair. The need to continue and improve co-operation was reiterated by both sides at the ACCOBAMS Scientific Committee meeting in February 2020 and opportunities for further collaboration were recently discussed in a virtual meeting between the IWC and ACCOBAMS Secretariats.

ACCOBAMS Parties have adopted numerous Resolutions regarding anthropogenic noise including Resolution 2.16 *Assessment and Impact Assessment of Man-Made Noise* adopted by the 2nd MOP in 2004; as well as in 2007, 2010, 2013 and 2016 and 2019.

In 2012, the working groups on underwater noise serving the ACCOBAMS and ASCOBANS Agreements were merged. In 2014, CMS was also included. The CMS Guidelines on Resolution 12.14 are also relevant to ASCOBANS and ACCOBAMS.

In 2018, a joint IUCN-IWC-ACCOBAMS workshop was held and developed recommendations to evaluate how the data and process used to identify important marine mammals areas (IMMAs) can assist in identifying areas of high risk for ship strikes. “The workshop agreed that IMMAs could potentially be used to identify high risk areas for other threats, including combined threats, e.g. bycatch and noise. The workshop noted that some measures may help address multiple threats (e.g. keeping vessels and whales apart and/or reduced vessel speed may reduce ship strikes and noise impacts). The workshop requested the IWC Scientific Committee consider this issue.

In 2019 ACCOBAMS Resolution 7.13 Anthropogenic Noise, replacing Resolution 4.17, also included slightly revised “Guidelines to address the impact of anthropogenic noise on cetaceans in the ACCOBAMS Area”. This Resolution Stresses the importance of (i) developing noise hotspot maps in the Black Sea during the 2020-2022 triennium; (ii) further developing with the Joint CMS/ACCOBAMS/ASCOBANS Working Group on Noise (JNWG) the concept of “quiet zones” as outlined in Recommendation 10.5 of the ACCOBAMS Scientific Committee with a focus on a

quantitative elaboration and evaluation of the scientific evidence for establishing such areas both in space and time. ACCOBAMS also held a workshop on "sonars and cetaceans' interactions" in October 2019 which aimed to improve dialogue and cooperation of national navies with ACCOBAMS, especially regarding military activities.

The European Union

In 2008 the European Parliament and Council agreed the Marine Strategy Framework Directive (MSFD: 2008/56/EC), requiring all EU Member States (MS), to reach or maintain Good Environmental Status (GES) by 2020. GES is described in eleven descriptors and all Member States must set criteria and methodological standards for each descriptor in their marine waters. Descriptor 11 focuses on the energy in the marine environment, including underwater noise.

Descriptor 11: Energy incl. Underwater Noise: "Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment".

In June 2020, the Commission adopted a report on the first implementation cycle of the Marine Strategy Framework Directive. This report shows that while comprehensive, the EU's framework for marine environmental protection should be further developed to be able to tackle major pressures such as unsustainable fishing practices, plastic litter, excess nutrients, underwater noise and other types of pollution. Based on these findings, it is unlikely that Member States will achieve GES for descriptor 11 by 2020.

The new EU Biodiversity Strategy for 2021-2030 (adopted in May 2020) aims to strengthen the protection of marine ecosystems and to restore them to achieve "good environmental status". It stresses the need for an ecosystem-based approach to the management of human activities at sea.

OSPAR commission

In 2014 OSPAR adopted the monitoring guidance (Monitoring Guidance for Underwater Noise in European Seas) within the Common Implementation Strategy for the Marine Strategy Framework Directive Impulsive Noise Indicator (Agreement 2014-08).

The following year the Ambient Noise Monitoring Strategy was devised and adopted (Agreement 2015-05). This outlines an approach for monitoring underwater sound using sound maps, generated from a combination of models and measurements.

OSPAR adopted the Coordinated Environmental Monitoring Programme (CEMP) Guidelines for Monitoring and Assessment of loud, low and mid-frequency impulsive sound sources in the OSPAR Maritime Region (OSPAR Agreement 2017-07) in 2017. The same year OSPAR undertook its first regional assessment of the pressure from impulsive noise as part of the Intermediate Assessment of the state of the North-East Atlantic.

The impulsive noise assessment was updated in 2019, allowing for a first multi-year assessment. An impulsive noise risk of impact indicator is currently under development, which will assess the impact on specific indicator species.

Arctic Council

Protection of the Arctic Marine Environment (PAME) a WG of the Arctic Council has recently (2019) published a report on State of Knowledge Review on Underwater Noise in the Arctic as an overview of the current scientific knowledge in this area.