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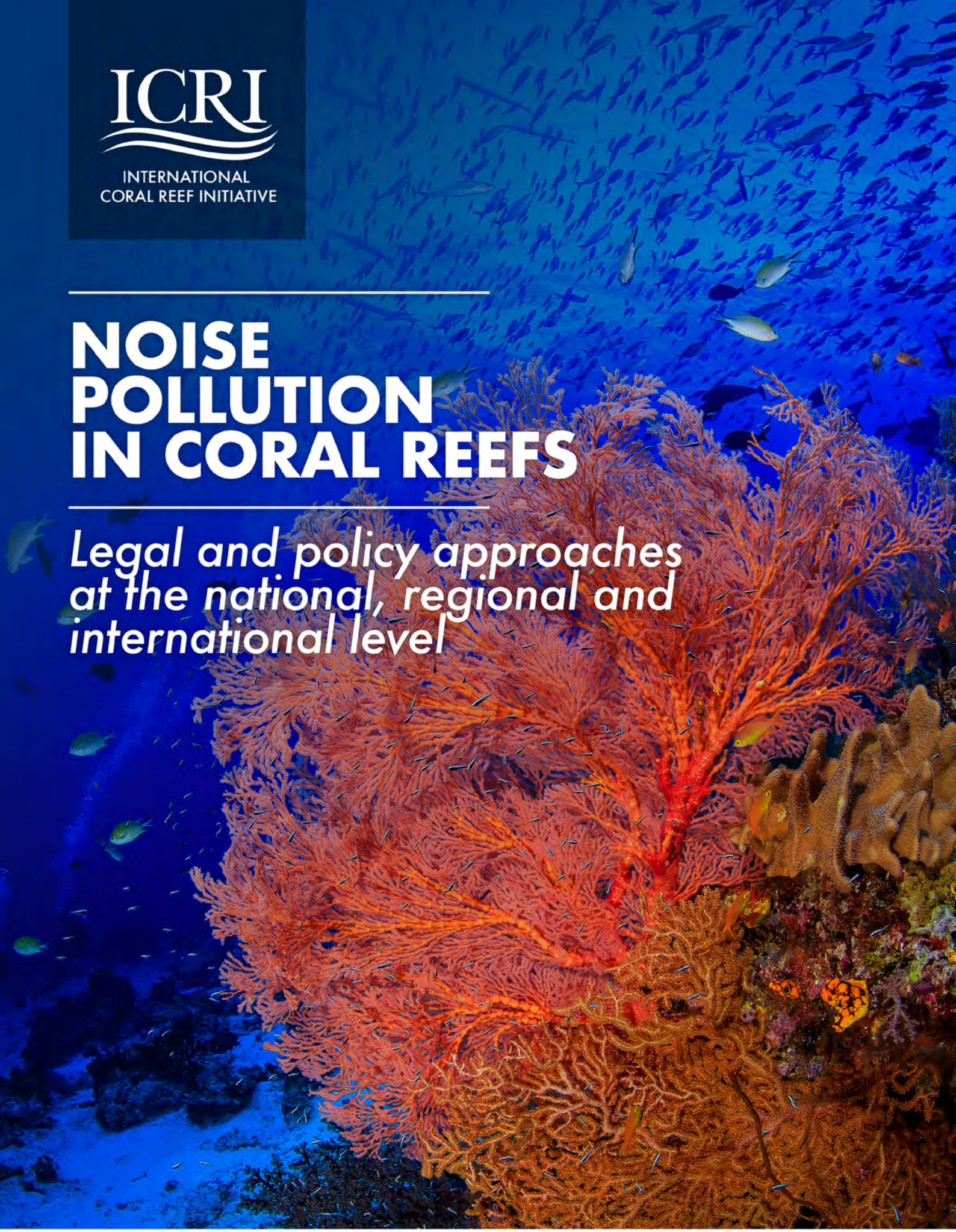
CORAL REEF INITIATIVE

NOISE POLLUTION IN CORAL REEFS

Legal and policy approaches at the national, regional and international level



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NOISE POLLUTION IN CORAL REEFS
LEGAL AND POLICY APPROACHES AT THE NATIONAL, REGIONAL AND INTERNATIONAL LEVEL

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Anthropogenic noise in the marine environment derives from a multitude of sources, including marine installations for renewable as well as fossil energies (wind turbines, oil platforms…), seismic surveying, petroleum and mineral exploration and extraction, seabed mapping, military operations, commercial shipping, fishing vessels, recreational activities…

Appropriate legal response is needed to mitigate the underwater noise pollution resulting from those activities at the national, regional and international levels.

Examples of such policies are here developed, showing the diversity of lever available to address underwater noise pollution.

NATIONAL LEGAL MEASURES AND POLICIES TO TACKLE NOISE POLLUTION IN CORAL REEFS

Australia

Australia could be the first country to adopt legally binding rules on ocean noise pollution **specifically dedicated to coral ecosystems,** in the context of the Great Barrier Reef protected area.

The *Reef 2050 Long-Term Sustainability Plan* has been developed in 2018. Noise pollution is included in the main threats to the Reef. The Plan provides for developing ***'a guideline specific to the Great Barrier Reef on assessing and managing impacts of underwater noise on species'***, which is being led by the Great Barrier Reef Marine Park Authority.

The *Great Barrier Reef Marine Park Regulations 1983* require the Park Authority **to consider the potential impacts of activity (including noise) on the environment in deciding whether to grant permission in relation to an activity,** and impose any conditions on the permission.

A *Management Plan* developed in 2014 by the North-East Shipping Management Group provides that the Park Authority and the Australian Maritime Safety Authority should keep under review opportunities to **conduct research into noise monitoring tools and methods and implications for ship noise mitigation strategies.**

The South Australian Department of Planning, Transport and Infrastructure (DPTI) have developed the ***Underwater Piling Noise Guidelines*** **in 2012.**

France

The National Order of 17 December 2012 **the definition of good ecological status of marine waters** stipulates that such a status is achieved when the following conditions are cumulatively met: detection capabilities and acoustic communication of large whales are not altered by anthropogenic noise disturbances; ecological functional zones used by sensitive species are protected from noise disturbance; direct or indirect accidental mortality due to noise disturbance is marginal.

Canada

Canada was the first country to provide a **financial incentive to reduce marine noise** in 2017 through offering **discounted rates for quieter ships.**

Seychelles

The Seychelles Environment Protection Act of 2016 **also explicitly considers noise pollution among other sources on pollution.** According to Art. 14(d), the Minister may prescribe standards for noise emissions from various sources, which must be prevented, controlled and reduced. A **maximum emission standard** authorized in order to preserve the environment must be defined (Art. 25). The obligations consecrated are *a priori* also applicable in a maritime environment and in coral reefs.

United States

The National Oceanic and Atmospheric Administration adopted an **action plan to research and manage underwater noise and its effects on marine species.** The development of national guidance for acoustic impact threshold, the utilization of National Marine Sanctuaries for preserving, restoring and maintaining **natural acoustic habitats and species associated, as well as developing quieter technologies are recommended.**

A **voluntary certification programme** for the North American marine industry, ***Green Marine,*** exists since 2007. One of the indicators is underwater noise, and the objective addressed to ship owners, ports, terminals, shipyards and Seaway corporations operating at sea in Canada or in the United States is to manage noise sources at all times to reduce impacts on marine mammals.

European Union

The Marine Strategy Framework Directive of 17 June 2008, establishing a framework for community action in the field of marine environmental policy, provides for a **programme of measures to reach good environmental status** on the basis of 11 descriptors. Descriptor 11 aims at ensuring that ***"Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment".*** Two indicators further defined by the Commission (2010/477/EU) address the main concerns related to this descriptor: **loud, low and mid frequency impulsive sounds** (seismic surveys, piling, sonars, explosions); and **continuous low frequency sounds,** (commercial shipping, windfarms, underwater pipelines carrying gas and liquid).

A Technical group on Underwater Noise was established in 2010. Its work includes the setting up of a register of loud impulsive noise and of a joint monitoring programme for continuous noise. ***Monitoring Guidance for Underwater Noise in European Seas*** has been issued in 2014.

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North-East Atlantic

The OSPAR Commission's work also distinguishes between "impulsive" and "ambient" or "continuous" types of underwater noise pollution. An ***Impulsive Noise Registry*** **has been developed in collaboration with the International Council for the Exploration of the Sea (ICES)** from 2015. A specific database, with time and location of impulsive noise sources in OSPAR area was issued and is now also used by the **HELCOM Commission** (Baltic sea).

The **first international assessment of impulsive noise activity** was made in 2017. According to OSPAR's website, *"Reported activity was largely due to seismic survey activity. Sound sources categorized as Low or Very Low intensity were more common than higher intensity sources".* Knowledge gaps have been identified. Besides, **an impulsive noise impact indicator has been approved** in April 2018. Future work is planned to develop further common indicators, in order to identify ***"priority areas for improved spatial planning*** *to assess and manage the effects of noise in the marine environment"* (OSPAR website).

As regards continuous noise, a **Monitoring Strategy for Ambient Underwater Noise** was developed in 2015 as well as joint monitoring programmes, and an Inventory of Noise Mitigation Techniques was developed for both impulsive and ambient noise.

ACCOBAMS

The Meeting of the Parties to the **Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area** has adopted several resolutions on anthropogenic noise, and developed a ***Guidance on underwater noise mitigation measures*** in 2013. The guide is the result of a cooperation between representatives of the industry, scientists and NGOs, and provides for the implementation of noise mitigation measures by the industrial sector.

INTERNATIONAL
LEGAL MEASURES AND POLICIES TO TACKLE NOISE POLLUTION IN CORAL REEFS


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At the international level, treaty and customary laws (both legally binding for States), are fully applying. Noise pollution can be considered as a source of transboundary pollution, which implies:

- **The application of United Nations Convention on the Law of the Sea** (UNCLOS, 1982), **noise pollution being a form of energy** and therefore a source of marine pollution (Art. 1(4)). States are required to take **all measures necessary to prevent, reduce and control pollution of the marine environment** (Part XII), including by anthropogenic noise, inclusive of those necessary to protect rare of fragile ecosystems, endangered species and other forms of marine life (Art. 194). Obligations are also related to monitoring and environmental assessment.
- The application of the **United Nations straddling Fish Stocks Agreement** (1995), requiring states to assess the impacts of fishing on targeted stocks and species belonging to the same ecosystem or associated with, or dependent upon, the targeted stocks, and protect biodiversity.
- **The application of customary environmental law principles:** principle of prevention and due regard obligation, obligation to cooperate and to evaluate the impacts of activities, etc.

United Nations

The **United Nations General Assembly**, in resolutions 72/72 and 72/73 for instance, calls for the increase of studies and research in the field of underwater noise pollution. Prevention is fully integrated in the Sustainable Development Goal 14, aiming to the ***"reduction and prevention of marine pollution of all kinds" by 2025***. Resolution 71/312 of June 2017, *Our Ocean, our future: call for action,* contains a specific reference to underwater noise pollution.

Sustainable Fisheries Resolution (A/RES/68/71, 2013), encouraged the Food and Agriculture Organization (FAO) to consider this issue. **FAO noted that the IMO Guidelines may also be applied to fishing vessels**. The 2012 T***echnical Guidelines for Responsible Fisheries 13,*** dedicated to recreational fisheries, identify boat noise as a source of disturbance to wildlife. Reduction of speed limits is suggested.

The Secretary general devoted its 2018 annual report (A/73/68) **to this subject**, following the nineteenth session of the United Nations Open-ended Informal Consultative Process on Ocean and the Law of the Sea dedicated to "Anthropogenic underwater noise".

International Maritime Organization (Specific work done by international organizations)

The Marine Environment Protection Committee (MEPC) of the IMO, in 2014, approved the first ***guidelines for the reduction of underwater noise from commercial shipping to address adverse impacts on marine life*** (MEPC.1/Circ.833). They apply to **any commercial ship** and consist of providing general advice to designers, shipbuilders and operators. They include definitions and underwater noise measurement standards. In 2018, Member States have been encouraged to develop further the work done with those guidelines. Other tools of the IMO could be used in order to mitigate underwater noise pollution, like the ***Revised guidelines for the identification and designation of Particularly Sensitive Sea Areas*** (PSSAs) (res. A.982(24), 2005), recognizing that noise from ships can adversely affect the marine environment and living resources of the sea.

Secretariat of the Convention on Biological Diversity

In 2012, the CBD Secretariat encouraged Parties, other Governments and relevant organizations, to: "(c) take measures, as appropriate, to ***minimize the significant adverse impacts of anthropogenic underwater noise on marine biodiversity…*** (and) (d) develop indicators and explore frameworks for monitoring…" (Decision XI/18). A CBD-IMO expert workshop met in London in 2014. It highlighted the need for a ship identification system, but also to identify regional and international initiatives, to take noise into account in the designation of marine protected areas, and to identify critical thresholds for underwater noise. The definition of restriction zones is not sufficient to offset the consequences of this pollution.
In 2014, Decision XII/23 on ***Impacts on marine and coastal biodiversity of anthropogenic underwater noise encourages States to take appropriate measures,*** such as defining types or intensities of underwater noise, conducting research, impact assessments, developing quieter technologies, engaging industry. The Secretariat encouraged, in 2018, to continue to work on the impacts of noise pollution and means to avoid, minimize and mitigate them.

Secretariat of the Convention on Migratory Species

Guidelines on Environmental Impact Assessments for Marine Noise-generating Activities have been endorsed in 2017 (Res. 12.14, *Adverse Impacts of Anthropogenic Noise on Cetaceans and Other Migratory Species*). **For each relevant activity, the environmental impact asessment must provide information** on:

- the description of the area, of the equipment and activity, the modelling of noise propagation loss,
- the species impact, the mitigation and monitoring plans,
- the reporting plans, and the consultation and independent review.

Other initiatives

Anthropogenic sound was included as one of the priority threats in the *International Whaling Commission IWC Conservation Committee Strategic Plan*. **A Resolution specially dedicated to anthropogenic underwater noise was adopted in 2018** (Res. 2018-4).

The International Union for the Conservation of Nature, in 2016, published the ***Effective planning strategies for managing environmental risk associated with geophysical and other imaging surveys: A resource guide for managers.*** It gathers good practices and was developed in collaboration with oil industries. It recommends restricting the study area and limiting estimated noise levels, using real-time visual and acoustic monitoring of noise levels, or stopping the study if marine species are too close or show strong reactions to the activity.

As regards military activities, the North Atlantic Treaty Organization **(NATO)** developed a ***Code of Conduct for the Use of Active Sonar to Ensure the Protection of Marine Mammals within the Framework of Alliance Maritime Activities*** (MC-0547).

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RECOMMENDATIONS

Those initiatives are rapidly developing and show the diversity of means for action. The use of guidelines and **voluntary** instruments (which are not legally binding) covers a large number of activities.
However, they remain generally **sectoral**, concerning certain noise sources in particular, or certain means to tackle noise pollution separately. It can also be noted that no regulation concerns yet **specifically underwater noise pollution in coral reefs**, except the future Great Barrier reef Guidelines in Australia. A coordinated international response, more unified, is to be enhanced. Experts from eight universities and environmental organizations are, thus, calling for the **adoption of new global standards and strategies to reduce the use of high-decibel seismic exploration techniques by industry and governments in the search for natural resources**. It would include restrictions on activities in biologically sensitive areas, as well as for better collection and consideration of ecological scientific data on the areas in which studies are carried out, in order to minimize their impacts. In addition, they call for the establishment of an overall limit on accumulated noise.

The legal frameworks and tools that must be enhanced or developed are:

- **Encouraging research, gathering of data and improving of knowledge** on ocean noise pollution for a better understanding and a legal decision-making based on the best available science information.
- The geographical and spatiotemporal restriction of activities near coral reefs through marine protected areas, and the creation of specific **"quiet areas"**.
- The consideration of underwater noise pollution when defining and establishing **marine spatial planning policies.**
- The definition of **threshold and criteria**: recognizing the importance of using the lowest practicable level when sound is purposely introduced into the environment and defining limits on intensity and duration.
- The **regulation of boat traffic and use of sonars,** and the definition of engine size, boat type and gears, potentially depending on the location of the activity.
- The systematic realization of **underwater environmental impact assessments** as requested in international law, and the implementation of **cumulative** impact assessments.
- The development of mitigation and alternative quieter technologies.
- Enhanced **cooperation and capacity building.** Sharing of information, creation of a toolbox and exchange of best experiences including cross-sectoral information, definition of monitoring programs.
- Providing economic incentives that encourage the reduction of noise pollution, such as reduced tax and subsidies for technological innovations, incentivizing vessels to travel in convoy to reduce cumulative noise levels, using specially designed propellers to reduce cavitation, and the use of electrical engines.

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