

# GET WITH THE BEAT! THE REGULATION OF UNDERWATER NOISE IN SOUTH AFRICA

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## SUMMARY

Anthropogenic noise in the oceans, including from shipping and seismic surveys, is of concern as it often adversely impacts marine life and biodiversity. It is considered to be the number-one ocean pollutant today. The authors review major international legal instruments regarding underwater noise as a marine pollutant and examine them in the South African context. The authors find, *inter alia*, that a distinction between substance-based pollution (such as chemical pollution) and energy-based pollution (such as noise) is currently lacking. It is also found that very little literature is available on the impacts of shipping and seismic noise on small fish, turtles and cetaceans, a state of affairs that calls for a precautionary approach. It is recommended: (1) South African legal instruments that regulate underwater noise should be revised and aligned with international legal frameworks; (2) more scientific research should be conducted on the cumulative impacts of shipping and seismic surveys on the South African marine environment; and (3) the public participation process should be effectively monitored to ensure full compliance with the requirement to consult all affected and interested persons. Doing so would have wider implications for developments in the western Indian Ocean region regarding shipping, port construction and seismic explorations.

## 1 INTRODUCTION

The noise emitted by commercial ships and seismic surveys used during offshore oil and gas exploration projects are among the most significant sources of anthropogenic underwater noise in the ocean.<sup>1</sup> Commercial shipping is the main source of low-frequency anthropogenic sound. It is an ongoing activity as approximately 80 per cent of consumer goods are transported by sea.<sup>2</sup> It was estimated that sea-borne trade would increase by 3,8 per cent annually between 2018 and 2023, and would increase low-frequency ambient noise.<sup>3</sup> This estimated annual increase was disrupted by the global COVID-19 pandemic as shipping rates decreased significantly in the first quarter of 2020 owing to strict lockdown restrictions.<sup>4</sup> Within the third quarter of 2020, lockdown restrictions were eased and the shipping industry began to recover as demand for essential goods increased and shipping rates soon returned to their pre-COVID-19 levels<sup>5</sup> with, for instance, freight rates from China to South America increasing by 443 per cent in the first quarter of 2021.<sup>6</sup>

The commercial shipping industry has for decades contributed significantly to the growth of the South African economy, with the industry employing 25 000 workers by 1996 and generating approximately ZAR 1.5 billion in revenue.<sup>7</sup>

<sup>1</sup> See Peng, Zhao and Liu "Noise in the Sea and Its Impacts on Marine Organisms" 2015 12 *International Journal of Environmental Research and Public Health* 12304 12306; Kavanagh, Nykänen, Hunt, Richardson and Jessopp "Seismic Surveys Reduce Cetacean Sightings Across a Large Marine Ecosystem" 2019 9 *Scientific Report 1*; Miller, Thompson, Johnston and Santillo "An Overview of Seabed Mining Including the Current State of Development, Environmental Impacts, and Knowledge Gaps" 2018 4 *Frontiers in Marine Science* 1; Jasny "Sounding the Depths II: The Rising Toll of Sonar, Shipping and Industrial Ocean Noise on Marine Life" (2005) <https://www.nrdc.org/resources/sounding-depths-ii-rising-toll-sonar-shipping-and-industrial-ocean-noise-marine-life> (accessed 2023/06/09) 3.

<sup>2</sup> Dotinga and Oude Elferink "Acoustic Pollution in the Oceans: The Search for Legal Standards" 2000 31 *Ocean Development & International Law* 151 153.

<sup>3</sup> United Nations Conference on Trade and Development (UNCTAD) *Review of Maritime Transport* (UNCTAD/RMT/2018) 2018 1 and 2. Also see Erbe, Marley, Schoeman, Smith, Trigg and Embling "The Effects of Ship Noise on Marine Mammals: A Review" 2019 6 *Frontier in Marine Science* 1 2.

<sup>4</sup> The shipping industry was significantly affected by the pandemic because most factories shut down their production temporarily during the first quarter of 2020, and most ports closed or reduced their staff, which slowed down cargo handling speed, while many shipping lanes reduced the number of operating ships. See Larsen "How COVID-19 Is Affecting the Shipping Industry – and How to Navigate Through the Storm" (21 January 2021) <https://blog.greencarrier.com/how-covid-19-is-affecting-the-shipping-industry-and-how-to-navigate-through-the-storm/> (accessed 2021-08-10).

<sup>5</sup> See Attinasi, Bobasu and Gerinovic "What Is Driving the Recent Surge in Shipping Costs?" (March 2021) [https://www.ecb.europa.eu/pub/economic-bulletin/focus/2021/html/ecb.ebbox202103\\_01~8ecbf2b17c.en.html](https://www.ecb.europa.eu/pub/economic-bulletin/focus/2021/html/ecb.ebbox202103_01~8ecbf2b17c.en.html) (accessed 2021-08-10).

<sup>6</sup> United Nations Conference on Trade and Development (UNCTAD) "Container Shipping in Times of COVID-19: Why Freight Rates Have Surged, and Implications for Policymakers" (2021) 84 UNCTAD/PRESS/PB/2021/2.

<sup>7</sup> Strauss Daly Attorneys "The Ship Market and Maritime Finance in South Africa: An Overview" (15 September 2016) <https://www.golegal.co.za/shipping-law-ship-market-maritime-finance-south-africa-overview/> (accessed 2021-08-16).

This industry is reliant on the seven major operational ports in South Africa,<sup>8</sup> of which Durban is currently the busiest and largest port, accounting for approximately 60 per cent of the country's total shipping revenue.<sup>9</sup> Owing to the anticipated growth of the commercial shipping industry<sup>10</sup> and the heavy reliance of landlocked Southern African Development Community (SADC) states on these ports, their expansion seems inevitable.<sup>11</sup>

Furthermore, the National Ports Authority of South Africa<sup>12</sup> has planned several development projects to expand the ports under government initiatives such as the National Development Plan (NDP),<sup>13</sup> Operation Phakisa<sup>14</sup> and the Comprehensive Maritime Transport Policy (CMTP) of South Africa.<sup>15</sup> Through the implementation of these initiatives, it can be argued that an increase in shipping within the South African maritime domain will also increase the level of low-frequency noise emitted therein. Thus, effective regulation under South African law of noise emitted by ships is imperative.

<sup>8</sup> Namely, Saldanha Bay, Cape Town, Port Elizabeth (Gqeberha), Ngqura (Coega), East London, Durban and Richards Bay. See Koper and Plön *The Potential Impacts of Anthropogenic Noise on Marine Animals: Recommendations for Research in South Africa* EWT Research and Technical Paper No 1 for the Endangered Wildlife Trust, South Africa 2012 21.

<sup>9</sup> Sinha "7 Major Ports of South Africa" (1 August 2021) <https://www.marineinsight.com/knowledge/ports-of-south-africa/> (accessed 2021-09-16).

<sup>10</sup> Koper and Plön EWT Research and Technical Paper No 1 54.

<sup>11</sup> Draper and Scholvin *The Economic Gateway to Africa? Geography, Strategy and South Africa's Regional Economic Relations* Occasional Paper No 121 for the Economic Diplomacy Programme of the South Africa Institute of International Affairs (SAIIA) (2012) 15–20. The right of landlocked states to access the sea through neighbouring coastal states is recognised by article 125(1) of the 1982 United Nations Convention on the Law of the Sea (LOSC) 1833 UNTS 3; 21 ILM 1261 (1982). Adopted: 10/12/1982; EIF: 16/11/1994. See, for instance, Vrancken and Swanepoel "Landlocked States" in Vrancken and Tsamenyi *The Law of the Sea: The African Union and Its Member States* (2017) 730 and 737–745.

<sup>12</sup> Established in terms of s 3(1) of the National Ports Act No 12 of 2005. According to s 11(1) of the Act, "the main function of the National Ports Authority is to own, manage, control, and administer ports to ensure their efficient and economic functioning, and in doing so the Authority must [*inter alia*]

- (a) plan, provide, maintain and improve port infrastructure;
- (b) prepare and periodically update a port development framework plan for each port, which must reflect the Authority's policy for port development and land use within such port."

<sup>13</sup> Adopted on 15 August 2012.

<sup>14</sup> Operation Phakisa is a government initiative that was established in 2014 with the aim of rapidly unlocking the potential of the South African oceans by fast tracking the growth and development of six areas of industry, namely marine transport and manufacturing, offshore oil and gas, aquaculture, marine protection services and ocean governance, small harbours development, and coastal and marine tourism. Operation Phakisa "Operation Phakisa: Moving South Africa's Oceans Economy Forward" (undated) [https://www.environment.gov.za/sites/default/files/docs/publications/operationsphakisa\\_movingSA\\_oceanseconomyforward.pdf](https://www.environment.gov.za/sites/default/files/docs/publications/operationsphakisa_movingSA_oceanseconomyforward.pdf) (accessed on 2023-06-09) 1. See also Roux and Horsfield "Review of National Legislations Applicable to Seabed Mineral Resources Exploitation" in Banet (ed) *The Law of the Seabed* (2020) 287–307.

<sup>15</sup> Department of Transport *Comprehensive Maritime Transport Policy (CMTP) for South Africa* (2017).

As mentioned previously, as far as the exploration and exploitation of marine non-living resources are concerned, seismic surveys<sup>16</sup> used by the oil and gas industry are the major source of high-intensity underwater noise, and have the ability to cause significant injury to marine life.<sup>17</sup>

South Africa has become a big importer of oil to meet an increasing demand for an adequate supply of energy.<sup>18</sup> For the sake of the country's economic growth and stability, it has become vital to reduce importation costs by increasing the exploitation of local oil and gas resources.<sup>19</sup> Although seismic surveys for the exploration of oil and gas reserves have been used in South Africa since the 1980s, the advance of technology has since made exploitation even more feasible.<sup>20</sup> The exploration of offshore reserves in South Africa is said to be now at its highest level, with multinational companies such as Shell, Total E&P and Exxon Mobil all obtaining exploration licences.<sup>21</sup>

However, because the seismic surveys used by this industry emit high-intensity sound, at source levels of 262 dB with the potential to travel 4 000 kilometres from source, the surveys have given rise to significant controversy,<sup>22</sup> particularly in light of increasing global concerns regarding the impact of seismic-survey noise on marine biodiversity.<sup>23</sup> In addition, fishing

<sup>16</sup> A seismic survey is "the study in which seismic waves generated through compressed air are used to image layers of rock below the seafloor in search of geological structures to determine the potential presence of naturally occurring hydrocarbons". See *Sustaining the Wild Coast NPC v Minister of Mineral Resources and Energy* [2022] ZAECKMHC 55.

<sup>17</sup> Duarte, Chaouis, Collin, Costa, Devassy, Eguiluz, Erbe, Gordon, Halpern, Harding, Havlik, Meekan, Merchant, Miksis-Olds, Parsons, Predragovic, A Radford, C Radford, Simpson, Slabbekoom, Staaterman, Opzeeland, Winderen, Zhang and Juanes "The Soundscape of the Anthropocene Ocean" 2021 371 *Science* 1 5.

<sup>18</sup> Surbun "The Regulation of Offshore Seismic Surveys for Petroleum Resources in South Africa's Maritime Realm" 2016 22(1) *South African Journal of Environmental Law and Policy (SAJELP)* 129 130.

<sup>19</sup> *Ibid.*

<sup>20</sup> Petroleum Agency SA "Management of Seismic Surveys in South Africa: From a Regulatory Perspective" (undated) <https://www.petroleumagencysa.com/images/pdfs/Seismics.pdf> (accessed 2020-07-14). During seismic surveys used by the petroleum industry, air gun arrays are towed on a ship and fired in quick succession, emitting low-frequency sound at high intensity.

<sup>21</sup> Surbun 2016 *SAJELP* 131.

<sup>22</sup> Purdon "Calming the Waves: Using Legislation to Protect Marine Life From Seismic Surveys" 2018 58 *South African Institute of International Affairs Policy Insights* 1 3.

<sup>23</sup> Surbun 2016 *SAJELP* 135; Kavanagh, Nykänen, Hunt, Richardson and Jessopp "Seismic Surveys Reduce Cetacean Sightings Across a Large Marine Ecosystem" 2019 9.19164 *Scientific Reports* 2; Wright "Reducing Impacts of Noise From Human Activities on Cetaceans" 2014 *WWF Report* 30; and Ngema "Seismic Activity Could Be Causing Dolphin Beachings in KZN" (2018-06-13) *IOL News* <https://www.iol.co.za/dailynews/seismic-activity-could-be-causing-dolphin-beachings-in-kzn-15454709> (accessed 2021-09-30). Also see Pichegru, Nyengera, McInnes and Pistorius "Avoidance of Seismic Survey Activities by Penguins" (24 November 2017) *Scientific Reports* <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5701127/> (accessed 2021-09-30). Also see Bega "Shell's Seismic Surveys on the Wild Coast Will Be Destructive, Scientist Says" (2021-11-12) *Mail & Guardian* <https://mg.co.za/environment/2021-11-12-shells-seismic-survey-on-the-wild-coast-will-be-destructive-scientist-says/> (accessed 2023-06-09).

industry stakeholders have expressed concerns that seismic-survey noise might reduce catches and thus affect the profitability of their industry.<sup>24</sup>

Much like the commercial shipping industry, the offshore hydrocarbon extraction industry is also set to expand. This is to be achieved in terms of the Operation Phakisa government initiative established to unlock the ocean's potential to grow the economy by focusing on six key areas, including offshore oil and gas extraction. An increase in the number of seismic surveys conducted to explore potential for offshore hydrocarbons would increase underwater noise. Since both commercial shipping and offshore oil and gas extraction activities are set to increase,<sup>25</sup> this article reviews the major international legal instruments (to which South Africa is bound) that regulate underwater noise emitted by ships and seismic surveys.

Heading 2 below identifies the international instruments ratified by South Africa regulating commercial shipping noise and heading 3 identifies the international instruments applicable to seismic-survey noise. These international instruments are identified to determine South Africa's obligations to prevent or minimise anthropogenic noise in the marine environment. Under heading 4, the United Kingdom's regulations on commercial shipping and seismic-survey noise are discussed to highlight the lessons that South Africa can learn. Heading 5 looks at the South African regulations applicable to commercial shipping noise and heading 6 identifies the South African law regulating seismic-survey noise. Heading 7 highlights case law that has led to the suspension of seismic surveys in South African waters. Heading 8 then sets out recommendations for the revision of South African legal instruments regulating seismic surveys and commercial shipping.

## **2 INTERNATIONAL INSTRUMENTS REGULATING COMMERCIAL SHIPPING NOISE**

### **2.1 Global regulation of commercial shipping noise**

Under article 21(f) of the United Nations Convention on the Law of the Sea (LOSC),<sup>26</sup> a coastal state has the right to adopt laws and regulations relating to the preservation of its marine environment "and the prevention, reduction and control of pollution".<sup>27</sup> The Convention defines "pollution of the marine environment" as

"the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other

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<sup>24</sup> Russell *Assessing the Impact of Seismic Surveys on South African Fisheries Research Report for the Responsible Fisheries Alliance* (2018) 8.

<sup>25</sup> Surbun 2016 *SAJELP* 129 130; also see Purdon 2018 *SAILA Policy Insights* 1 3.

<sup>26</sup> 1833 UNTS 3; 21 ILM 1245 (1982). Adopted: 10/12/1982; EIF: 16/11/1994.

<sup>27</sup> See also art 19(2)(h) regarding wilful and serious pollution from foreign ships during passage.

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legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.”<sup>28</sup>

This definition does not expressly mention noise as a pollutant, but it also does not expressly mention other sources of pollution, such as the discharge of oil or the dumping of waste. While sound is clearly not a “substance”, it is undoubtedly a form of “energy”, and its introduction by human beings into the marine environment, directly or indirectly, constitutes pollution for the purposes of LOSC when it results, or is likely to result, in deleterious effects.<sup>29</sup>

The protection of the marine environment is specifically regulated in Part XII of LOSC, under which all states parties are required to preserve and protect the marine environment.<sup>30</sup> Article 194 places an obligation on states parties to safeguard the marine environment by individually and collectively taking all measures “necessary to prevent, reduce and control pollution of the marine environment from any source”.<sup>31</sup> Each state party must also ensure that it prevents the spread of pollution emanating from activities performed within its maritime domain into areas beyond that domain.<sup>32</sup> The measures adopted to control pollution from vessels must also include regulations on the “design, construction, equipment, operation and manning of vessels”<sup>33</sup> and the protection and preservation of “rare or fragile ecosystems, ... habitats of depleted, threatened or endangered species”, as well as “other forms of marine life”.<sup>34</sup>

Unsurprisingly, LOSC does not include specific rules or standards that must be followed by states parties to fulfil their obligation to prevent, reduce or control underwater shipping noise. Thus, it is necessary to read the provisions of LOSC jointly with the provisions of other international instruments that deal more specifically with underwater noise.

The Convention on the International Maritime Organization (IMO Convention)<sup>35</sup> states that the mandate of the International Maritime

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<sup>28</sup> Art 1(1)(4) of LOSC.

<sup>29</sup> Advisory Committee on Acoustic Impact *Marine Mammals and Noise: A Report to Congress from the Marine Mammal Commission* (2007) 5. See also Osseily, Husseiny and Sweidan “Design and Implementation of Frequency Generator of a Portable Sound Wave Fire Extinguisher” 2020 7(2) *International Journal of Electronics and Communication Engineering* 11; Proelss *United Nations Convention on the Law of the Sea: A Commentary* (2017) 23; European Maritime Safety Agency *Sounds: Status of Underwater Noise From Shipping – Study on Inventory of Existing Policy, Research and Impacts of Continuous Underwater Noise in Europe* (2021) 40; European Marine Board “Addressing Underwater Noise in Europe: Current State of Knowledge and Future Priorities” (October 2021) *Future Science Brief no 7 24*.

<sup>30</sup> Art 192 of LOSC. See also art 65 of LOSC, relating to the protection and conservation of marine mammals.

<sup>31</sup> Art 194(1) of LOSC.

<sup>32</sup> Art 194(2) of LOSC.

<sup>33</sup> Art 194(3)(b) of LOSC.

<sup>34</sup> Art 194(5) of LOSC.

<sup>35</sup> 289 UNTS 48 (1948). Adopted: 06/03/1948; EIF: 17/03/1958. Prior to 1982, the title of the instrument was “Convention on the Intergovernmental Maritime Consultative Organisation”. The IMO was previously known as the “Intergovernmental Maritime Consultative Organisation”.

Organization (IMO) is, *inter alia*, to encourage the general adoption of “the highest practicable standards” relating to “maritime safety, the efficiency of navigation, and the prevention and control of marine pollution from ships”.<sup>36</sup> Although the Convention does not specifically mention underwater noise, in 2001, the IMO Assembly identified it as a form of pollution having the potential to degrade the marine environment and affect marine living resources significantly.<sup>37</sup> Furthermore, in 2014, the IMO’s Marine Environmental Protection Committee (MEPC) adopted “Guidelines for the Reduction of Underwater Noise From Commercial Shipping to Address Adverse Impacts on Marine Life”.<sup>38</sup> The Guidelines list propellers, hulls, and onboard machinery as sources of commercial shipping noise, with propeller cavitation as the main source of underwater shipping noise. Propeller cavitation can be reduced by improving the design of propellers and optimising the propeller’s load in a manner that allows water to flow uniformly, thereby reducing the noise emitted.<sup>39</sup> The Guidelines recommend that commercial vessels be mounted with “four-stroke engines” and that hulls be constructed evenly to minimise cavitation.<sup>40</sup> It is noted that the regular maintenance of propellers and hulls can also reduce cavitation.<sup>41</sup>

These guidelines, however, are not binding under international law and therefore do not have to be adopted into the domestic regulations of the IMO member states. This is made clear by paragraph 3 of the Guidelines, which states:

“These non-mandatory Guidelines are intended to provide general advice about the reduction of underwater noise to designers, shipbuilders and ship operators. They are not intended to form the basis of a mandatory document.”<sup>42</sup>

To prevent, reduce and control pollution, IMO member states that are also LOSC states parties may arguably be expected to incorporate the IMO Guidelines into their domestic law<sup>43</sup> in the performance of their duties under articles 194(1) and 211(2) of LOSC.<sup>44</sup>

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<sup>36</sup> Art 1(a) of the IMO Convention.

<sup>37</sup> IMO Assembly “Guidelines for the Designation of Special Areas Under Marpol 73/78 and Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas” Resolution adopted by the IMO Assembly (29 November 2001) A.927(22) Annex 2 par 2.2.

<sup>38</sup> IMO “Guidelines for the Reduction of Underwater Noise From Commercial Shipping to Address Adverse Impacts on Marine Life” Adopted at the sixty-sixth session of the MEPC (7 April 2014) MEPC.1/Circ.833 [https://www.ascobans.org/sites/default/files/document/AC21\\_Inf\\_3.2.1\\_IMO\\_NoiseGuidelines.pdf](https://www.ascobans.org/sites/default/files/document/AC21_Inf_3.2.1_IMO_NoiseGuidelines.pdf) (accessed 2021-04-21).

<sup>39</sup> Par 7.2.1 of IMO Guidelines for the Reduction of Underwater Noise.

<sup>40</sup> Par 7.3.1 of IMO Guidelines for the Reduction of Underwater Noise.

<sup>41</sup> Par 10 of IMO Guidelines for the Reduction of Underwater Noise.

<sup>42</sup> Par 3.1 of IMO Guidelines for the Reduction of Underwater Noise.

<sup>43</sup> According to art 1(a) of the IMO Convention, the function of the IMO is to adopt the “highest practicable standards” to deal with matters concerning vessel-based pollution, while art 194(1) of LOSC requires states parties to take “all measures necessary to prevent, reduce and control pollution of the marine environment” and art 211(2) of LOSC requires states parties to adopt vessel-based pollution laws that are consistent with international rules and standards “established through the competent international organisation”.

<sup>44</sup> This is supported by the fact that the IMO is the “competent international organization” [as mentioned in LOSC] with the responsibility “to promote cooperation amongst States at global, regional, sub-regional levels in areas such as navigation and the protection and

Under the auspices of the IMO, the International Convention for the Prevention of Pollution from Ships (MARPOL)<sup>45</sup> was adopted. MARPOL specifically regulates pollution emitted by ships and places stricter obligations on states parties to prevent it. Among the aims of MARPOL is the need to “achieve the complete elimination of intentional pollution of the marine environment by oil and other harmful substances and the minimisation of accidental discharge of such substances”.<sup>46</sup> However, the specific use of the term “substances” without the inclusion of “energy” indicates that noise is not regulated as a marine pollutant by MARPOL.<sup>47</sup> This interpretation is supported by the fact that MARPOL, in its annexes, provides detailed regulations for all substance-based pollutants, but makes no mention of underwater noise.<sup>48</sup> In light of this regulatory gap in MARPOL, it is necessary to examine other international instruments and the extent to which they regulate shipping noise.

In addition to the above-mentioned efforts by the IMO to regulate underwater noise, the International Whaling Commission (IWC), established in terms of the 1946 International Convention for the Regulation of Whaling (ICRW),<sup>49</sup> has identified shipping noise as a form of pollution having the ability to affect cetaceans and other taxa significantly.<sup>50</sup> As part of its efforts to minimise the impacts of shipping noise, the IWC’s Scientific Committee drafted the “General Principles for Whale Watching”.<sup>51</sup> These principles provide guidance on how shipping vessels (that is, whale-watching ships) must be operated in areas where large populations of cetaceans are

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preservation of the marine environment” from pollution emitted by ships. See Beckman and Sun “The Relationship Between UNLOS and IMO Instruments” 2017 2 *Asia-Pacific Journal of Ocean Law and Policy* 201 219; also see Proelss *United Nations Convention on the Law of the Sea: A Commentary* 474–475. The IMO is also recognised as the “only international body” with the authority to develop international “guidelines, criteria and regulations [...] for ships routing systems”. See Beckman and Sun 2017 *Asia-Pacific Journal of Ocean Law and Policy* 219. The IMO also acts as the relevant “competent international organization” to guide states in the development of international agreements regulating international shipping and “the protection and preservation of the marine environment, particularly in the areas” without adequate rules and standards. See Beckman and Sun 2017 *Asia-Pacific Journal of Ocean Law and Policy* 220.

<sup>45</sup> 1340 UNTS 184; 12 ILM 1319 (1973); 17 ILM 456 (1978). Adopted: 02/11/1973; EIF: 02/10/1983.

<sup>46</sup> Preamble of MARPOL and also see art 1(1) of MARPOL.

<sup>47</sup> Das “Acoustic Habitat Degradation Due to Shipping in the Indian Ocean” in Hufnagel (ed) *Changing Ecosystems and Their Services* (2020) 63.

<sup>48</sup> See Annex I (regulating oil discharge), Annex II (noxious liquid substances), Annex III (harmful substances), Annex IV (sewage disposal), Annex V (garbage disposal) and Annex VI (air pollution).

<sup>49</sup> 161 UNTS 74 (1946). Adopted: 27/06/1946; EIF: 24/03/1957.

<sup>50</sup> IWC “Report of the Scientific Committee SC56” (2004) Annex K item 12.2.5.1 (4) [https://archive.iwc.int/pages/view.php?search=%21collection73+%&k=&modal=&display=list&order\\_by=title&offset=0&per\\_page=240&archive=&sort=DESC&restypes=&recentdaylimit=&foredit=&ref=2119](https://archive.iwc.int/pages/view.php?search=%21collection73+%&k=&modal=&display=list&order_by=title&offset=0&per_page=240&archive=&sort=DESC&restypes=&recentdaylimit=&foredit=&ref=2119) (accessed 2021-04-26).

<sup>51</sup> 1996 General Principles for Whale Watching as updated by the 2022 General Principles for Whale Watching (IWC 68 (2022) *Revision of General Principles for Whale Watching*) <https://iwc.int/private/downloads/RQjCQUOPdaiCUdz3vUu99g/IWC68-General-Principles-for-VWV.pdf> (accessed 2023-07-03).

present.<sup>52</sup> The principles also require these ships to be designed and constructed in a manner that reduces noise production.<sup>53</sup>

However, these principles are not binding and were specifically drafted to regulate the whale-watching industry; they may therefore not apply to commercial shipping. The IWC's Scientific Committee has acknowledged the need to fill this regulatory vacuum by calling on the IWC and IMO to collaborate in their work to reduce shipping noise.<sup>54</sup> Efforts towards harmonising their work are evident in the formulation of an agreement of cooperation between the two organisations<sup>55</sup> and the IMO granting the IWC observer status.<sup>56</sup> Furthermore, in 2010, the IWC's Scientific Committee endorsed the shipping-noise-reduction goal set by the IMO to reduce shipping noise by 3 decibels (dB) in 10 years and 10dB in 30 years.<sup>57</sup> In addition, the IWC emphasised the need to develop new designs to reduce noise from ship propulsion according to the IMO Guidelines and to work collaboratively with the IMO to meet the internationally recognised goal to reduce noise from commercial shipping.<sup>58</sup>

## 2.2 Regional regulation of commercial shipping noise

In the sub-Saharan region, marine pollution is regulated by the 1981 Convention and Protocol for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region<sup>59</sup> (Abidjan Convention) and its East African equivalent, the 1985 Nairobi Convention.<sup>60</sup> The Abidjan Convention defines

<sup>52</sup> See IWC "Whale Watching" (undated) accessed at [https://iwc.int/management-and-conservation/whalewatching#:~:text=The%20IWC%20General%20Principles%20for,whales%20from%20whale%20watching%20operations.\(accessed 2023-07-03\)](https://iwc.int/management-and-conservation/whalewatching#:~:text=The%20IWC%20General%20Principles%20for,whales%20from%20whale%20watching%20operations.(accessed%202023-07-03).). Also see paragraph 1 of the 2022 General Principles for Whale Watching.

<sup>53</sup> Paragraph 2(i) of the General Principles for Whale Watching.

<sup>54</sup> IWC "Report of the Scientific Committee SC62" (2010) Annex E item 12.4.

<sup>55</sup> Entered into in 2009. See IMO "Intergovernmental Organizations Which Have Concluded Agreements of Cooperation With IMO" (undated) <https://www.imo.org/en/OurWork/ERO/Pages/IGOsWithObserverStatus.aspx> (accessed 2021-09-16).

<sup>56</sup> IWC "Chair's Report of the 58<sup>th</sup> Annual Meeting" (2006) par 16.1.1.2.

<sup>57</sup> As accepted at the International Workshop on Shipping Noise and Marine Mammals held by the Okeanos Foundation for the Sea in Hamburg, Germany from 21–24 April 2008 [http://whitelab.biology.dal.ca/lw/publications/OKEANOS.%20Wright%20\(ed\)%202008.%20Shipping%20noise.pdf](http://whitelab.biology.dal.ca/lw/publications/OKEANOS.%20Wright%20(ed)%202008.%20Shipping%20noise.pdf) (accessed 2021-09-16) 1. See Wright, Simmonds and Vernazzani "The International Whaling Commission: Beyond Whaling" 2016 *Frontiers in Marine Science* 3 1 3.

<sup>58</sup> IWC "Report of the Workshop on Acoustic Masking and Whale Population Dynamics, 4–5 June 2016, Bled, Slovenia" (2016) IWC/SC/66B/REP-10 3.

<sup>59</sup> 20 ILM 746 (1981). Adopted: 23/03/1981; EIF: 05/08/1984.

<sup>60</sup> UNEP *Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region and Related Protocols* (Nairobi Convention). T-XT8525. Adopted 21/06/1985; EIF: 30/05/1996 <https://wedocs.unep.org/handle/20.500.11822/25960>.

pollution similarly to LOSC and lists “energy” as a potential pollutant.<sup>61</sup> The Abidjan Convention also places an obligation on its contracting parties to formulate and adopt protocols that prescribe “measures, procedures and standards to prevent, reduce, combat and control pollution from all sources” in the West and Central African region.<sup>62</sup> Contracting parties are also required to enact national laws and regulations to fulfil their obligations under the Convention and “endeavour to harmonize their national policies” accordingly.<sup>63</sup> In addition, contracting parties must cooperate with competent international organisations to “establish and adopt recommended practices, procedures, and measures to prevent, reduce, combat and control pollution from all sources” and ensure that they do not directly or indirectly transfer damage or hazards “from one area to another or transform one type of pollution into another”.<sup>64</sup> They are also required to adopt measures to “prevent, reduce, combat and control pollution ... caused by dumping from ships”.<sup>65</sup>

As established above, the noise emitted by ships is a pollutant regulated by LOSC and because of its definition of pollution, shipping noise is also regulated by the Abidjan Convention. However, much like LOSC, the Abidjan Convention does not contain specific rules or standards on how its contracting parties should “prevent, reduce, combat and control” this pollution. Instead, it includes provisions that are specific to substance-based pollutants such as oil.<sup>66</sup>

Much like the Abidjan Convention, the Nairobi Convention defines pollution similarly to LOSC, but its geographic scope is limited to the Western Indian Ocean (WIO).<sup>67</sup> Furthermore, the Nairobi Convention regulates noise, including shipping noise, in the general sense and does not specify how, for instance, shipping noise should be measured, and nor does it provide guidance on how to reduce or control the effects of shipping noise.<sup>68</sup> Considering the increase in commercial shipping within the WIO, regional policies to effectively regulate shipping noise are required.<sup>69</sup> In this

<sup>61</sup> Art 2 of the Abidjan Convention. See art 4, 8, 11 and 13(2) of the Abidjan Convention for the obligations of contracting parties to “prevent, reduce, combat and control pollution” emanating from their activities in the marine environment.

<sup>62</sup> Art 4 of the Abidjan Convention.

<sup>63</sup> *Ibid.*

<sup>64</sup> *Ibid.*

<sup>65</sup> Art 6 of the Abidjan Convention.

<sup>66</sup> See art 5 and 6 of the Abidjan Convention. Also see articles 1(2) and 7 of the Abidjan Convention Protocol Concerning Co-operation in Combating Pollution in Cases of Emergency of 1981.

<sup>67</sup> Art 2(b), 4, 5 and 6 of the Nairobi Convention.

<sup>68</sup> Wildlife Conservation Society, Madagascar & Western Indian Ocean Program “Threats Posed to Marine Life in the Western Indian Ocean from Anthropogenic Ocean Noise and Shipping, Including Ship Strikes” (2018) [https://wedocs.unep.org/bitstream/handle/20.500.11822/25668/Ocean\\_Noise.pdf?sequence=1&isAllowed=y](https://wedocs.unep.org/bitstream/handle/20.500.11822/25668/Ocean_Noise.pdf?sequence=1&isAllowed=y) (accessed 2021-04-24) 4 and 5.

<sup>69</sup> See Wildlife Conservation Society, Madagascar & Western Indian Ocean Program [https://wedocs.unep.org/bitstream/handle/20.500.11822/25668/Ocean\\_Noise.pdf?sequence=1&isAllowed=y](https://wedocs.unep.org/bitstream/handle/20.500.11822/25668/Ocean_Noise.pdf?sequence=1&isAllowed=y) 4. Art 3(a) and (b) of the Charter of the Indian Ocean Rim Association (IORA) state that the objectives of the IORA are, among others, to promote economic growth in a manner that is sustainable for future generations and “to formulate and

regard, the IMO and IWC guidelines may assist in developing region-specific guidelines.<sup>70</sup>

### 3 INTERNATIONAL INSTRUMENTS REGULATING SEISMIC-SURVEY NOISE

#### 3.1 Global regulation of seismic-survey noise

According to article 77(1) of LOSC, states have the sovereign right to explore for and exploit the non-living natural resources within the seabed and subsoil of their continental shelves.<sup>71</sup> However, this exploration and exploitation cannot be to the detriment of the marine environment.<sup>72</sup> As such, LOSC states parties must take all necessary measures within their financial and technological capabilities to “prevent, reduce or control pollution” emanating from any source.<sup>73</sup> States parties are also required to implement measures to minimise pollution from the devices used and installations made during the process of exploring for and exploiting the marine environment’s natural resources.<sup>74</sup> Furthermore, states parties must jointly and individually regulate the design, construction, and operation of these installations and devices.<sup>75</sup>

In addition, LOSC requires its states parties to adopt laws and policies to effectively “prevent, reduce and control pollution [...] arising from or in connection with seabed activities subject to their jurisdiction [...]”.<sup>76</sup> In the process of doing so, states parties must ensure that their laws, regulations and measures are not “less effective than international rules, standards and recommended practices and procedures”.<sup>77</sup> Article 204 of LOSC places a

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implement projects ... [on] the protection of the environment”; however, shipping noise regulations are yet to be drafted by the Association.

<sup>70</sup> See Wildlife Conservation Society, Madagascar & Western Indian Ocean Program [https://wedocs.unep.org/bitstream/handle/20.500.11822/25668/Ocean\\_Noise.pdf?sequence=1&isAllowed=y](https://wedocs.unep.org/bitstream/handle/20.500.11822/25668/Ocean_Noise.pdf?sequence=1&isAllowed=y) 6.

<sup>71</sup> Art 76(1) of LOSC defines the continental shelf as “the seabed and subsoil of submarine areas that extend beyond” the territorial sea.

<sup>72</sup> Art 208 of LOSC. Also see Proelss *United Nations Convention on the Law of the Sea: A Commentary* 611.

<sup>73</sup> See art 192, 193 and 194(1) of LOSC. As mentioned under heading 2.1 above, the LOSC definition of pollution can be interpreted to include noise as a marine pollutant.

<sup>74</sup> Art 194(3)(c) of LOSC.

<sup>75</sup> *Ibid.*

<sup>76</sup> Art 208(1) of LOSC.

<sup>77</sup> Art 208(3) of LOSC. Pollution emanating from seabed activities is regulated, *inter alia*, by the provisions of: the IMO’s *Convention on Oil Pollution Preparedness, Response and Co-operation* ((1990) 1891 UNTS 78. Adopted 30/11/1990; EIF: 13/05/1995); the IMO’s *Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances, 2000* (Adopted: 15/03/2000; EIF: 14/06/2007); the IMO’s “Code for the Construction and Equipment of Mobile Offshore Drilling Units, 2009 (2009 MODU Code)” Resolution adopted by the Assembly (2 December 2009) Res. A.1023(26); the IMO’s “Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental Shelf and in the Exclusive Economic Zone” Resolution adopted by the Assembly (19 October 1989) Res. A.672(16); and, the IMO’s “Safety Zones and Safety of

duty on its states parties to monitor their exploration and exploitation activities, and observe, measure, evaluate and analyse any possible risks or effects that these activities may pose to the marine environment.<sup>78</sup> This duty is therefore twofold: (i) states must gather data through observance and measurement; and (ii) “the information reflecting the actual state of the marine environment” must then be evaluated and analysed. Through this combined approach, states are able “to assess the risks and effects of pollution”.<sup>79</sup> Since both effects and risks of pollution must be monitored, article 204 is preventative. Therefore, to comply with this article and the definition of pollution in article 1(1)(4), states must “include potential harmful effects in their assessments”.<sup>80</sup> In support of this, article 206 provides that if states parties have any reason to believe that an exploration or exploitation activity within their jurisdiction is likely to cause “substantial pollution or significant and harmful changes to the marine environment”, environmental assessments must be conducted.<sup>81</sup> The environmental assessments referred to in article 206 are environmental impact assessments (EIA) conducted before the execution of planned exploration and exploitation activities to assess the potentially harmful effects they may have on the marine environment.<sup>82</sup> The results of the assessments must subsequently be published or provided to competent international organisations, which will then make them available to all states.<sup>83</sup>

LOSC does not, however, contain detailed requirements on when and how EIAs must be conducted; it only demands that they be conducted.<sup>84</sup> Thus, it is necessary to fill this gap by looking at the provisions of other international instruments.

The Convention on the Conservation of Migratory Species of Wild Animals (CMS)<sup>85</sup> was adopted with the specific aim of conserving and protecting migratory species “for the good of mankind”.<sup>86</sup> This aim has been realised

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Navigation Around Offshore Installations and Structures” Resolution adopted by the Assembly (18 October 1989) Res. A.671(16).

<sup>78</sup> In terms of this duty, all states parties (not just flag or coastal states) are “obliged to monitor the risks or effects of pollution”. However, because states must “endeavour” to monitor pollution “as far as practicable”, this is a duty to employ best efforts. Thus, states are not required to achieve a specific result but are required to take certain action to monitor the marine environment. See Proelss *United Nations Convention on the Law of the Sea: A Commentary* 1360.

<sup>79</sup> Proelss *United Nations Convention on the Law of the Sea: A Commentary* 1361.

<sup>80</sup> *Ibid.*

<sup>81</sup> Art 206 of LOSC.

<sup>82</sup> Proelss *United Nations Convention on the Law of the Sea: A Commentary* 1370.

<sup>83</sup> Art 205 of LOSC.

<sup>84</sup> Craik *The International Law of Environmental Impact Assessment: Process, Substance and Integration* (2008) 99; Yialourides “Protecting and Preserving the Marine Environment in Disputed Areas: Seismic Noise and Provisional Measures of Protection” 2018 36 *Journal of Energy & Natural Resources Law* 141 159; Proelss *United Nations Convention on the Law of the Sea: A Commentary* 1370–1371.

<sup>85</sup> 1651 UNTS 333; 19 ILM 15 (1980); ATS 1991/32; BTS 87 (1990), Cm. 1332 (1979). Adopted 23/06/1979; EIF: 1/11/1983. South Africa is one of 131 parties to the CMS. It ratified the Convention in 1991. See CMS Parties and Range States <https://www.cms.int/en/parties-range-states> (accessed 2022-09-10).

<sup>86</sup> Preamble to the CMS. Also see art II(1) and (2) of the CMS.

through, *inter alia*, the CMS parties' resolutions on seismic surveys and other seabed activities. For example, Resolution 9.19, "Adverse Anthropogenic Marine/Ocean Noise Impacts on Cetaceans and Other Biota" was adopted at the Ninth Meeting of the Conference of the Parties to CMS.<sup>87</sup> Resolution 9.19 was subsequently repealed by Resolution 12.14, "Adverse Impacts of Anthropogenic Noise on Cetaceans and Other Migratory Species" at the Twelfth Meeting of the Conference of the Parties to CMS.<sup>88</sup>

According to Resolution 12.14, parties are "strongly urged" to prevent the effects of underwater emissions on marine species and, when prevention is not possible, to reduce or mitigate such effects.<sup>89</sup> The resolution also endorsed the "CMS Family Guidelines on Environmental Impact Assessments for Marine Noise-Generating Activities".<sup>90</sup> These guidelines stipulate, *inter alia*, how EIAs for seismic surveys must be conducted and the "mitigation and monitoring plans" that must be incorporated by oil and gas stakeholders.<sup>91</sup> However, despite the above-mentioned efforts of the CMS conference parties, their resolutions are soft laws with only persuasive authority; as such, they do not create the same legal obligations as the adopted treaty (CMS).<sup>92</sup>

Similar to the CMS, the Convention on Biological Diversity (CBD)<sup>93</sup> also makes provision for the protection of marine life from pollution. According to article 14(1)(a) of the CBD, conference parties are required to formulate procedures requiring the performance of EIAs when intended projects may "have significant adverse effects on biological diversity".<sup>94</sup> Conference parties are also required to allow the public to participate in the EIA process as much as possible. Furthermore, article 22(2) of the CBD also requires parties to fulfil their obligations under the Convention in conjunction with their obligations under other applicable international instruments on the law of the sea. Thus, CBD conference parties who are also parties to LOSC and CMS

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<sup>87</sup> UNEP/CMS/Resolution 9.19 (2008). This resolution, *inter alia*, recalled the LOSC obligations to preserve and protect the marine environment, and outlined the duty that parties have "to endeavour to control" the impact of underwater noise on habitats of vulnerable species and areas where "marine mammals or other endangered species may be concentrated". See Resolution 9.19 3, par 1.

<sup>88</sup> UNEP/CMS/Resolution 12.14 (2017). Resolution 12.14 recalls the previously mentioned provisions of Resolution 9.19.

<sup>89</sup> See Resolution 12.14 4 par 4. Also see 4 par 6, requiring parties to conduct EIAs and ensure that the strategic planning stage of the EIAs also consider a "holistic ecological approach".

<sup>90</sup> See Annex to Resolution 12.14 4 par 7.

<sup>91</sup> See Annex to Resolution 12.14 5 par 17–19.

<sup>92</sup> Wiersema "The New International Law-Makers? Conference of the Parties to Multilateral Environmental Agreements" 2009 31(1) *Michigan Journal of International Law* 231 249–250.

<sup>93</sup> 1760 UNTS 79; 31 ILM 818 (1992). Adopted: 05/06/1992; EIF: 29/12/1993.

<sup>94</sup> Art 2 of the CBD defines biological diversity to include "marine and aquatic ecosystems". Also see UNEP "Marine and Coastal Biodiversity: Impacts on Marine and Coastal Biodiversity of Anthropogenic Underwater Noise and Ocean Acidification, Priority Actions to Achieve Aichi Biodiversity Target 10 For Coral Reefs and Closely Associated Ecosystems, and Marine Spatial Planning and Training Initiatives" Decision XII/23 of the Twelfth Meeting of the Parties to CBD (2014) 2 par 3(g).

must also comply with the previously mentioned obligations on environmental protection under these instruments.

In addition, CBD parties are encouraged to take all practical measures necessary to minimise and mitigate the adverse impacts of anthropogenic noise through, for instance, combining acoustic and habitat mapping of species that are sensitive to sound and spatial planning in areas where such species are most susceptible to noise.<sup>95</sup> Parties are also encouraged to make use of spatio-temporal management systems for marine activities and use their knowledge of population patterns to minimise noise at critical habitats and life-cycle stages.<sup>96</sup>

In addition to the above-mentioned instruments, the United Nations Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention)<sup>97</sup> also protects the marine environment from underwater noise by requiring parties to conduct EIAs when they intend to perform projects that may adversely affect the environment and its biodiversity.<sup>98</sup> In Appendix I, “offshore hydrocarbon production” is a listed activity requiring the performance of an EIA before commencement of the activity; and the standards that the EIA must meet are listed in Appendix II.<sup>99</sup> The Espoo Convention also indicates that these EIAs must include a public participation component.

### 3 2 Regional regulation of seismic survey noise

Contracting parties to the Abidjan Convention have made an effort towards regulating seismic-survey operations, as is evident in the 2017 adoption of the additional protocol “Environmental Norms and Standards for Offshore Oil and Gas Exploration and Exploitation Activities” (2017 Protocol to the Abidjan Convention).<sup>100</sup> Here, pollution is defined to include “energy” as a marine pollutant,<sup>101</sup> and parties are obligated to “prevent, mitigate, combat and control pollution” emanating from offshore exploration and exploitation operations.<sup>102</sup> Furthermore, parties are required to adopt the “precautionary principle” when exploring and exploiting the marine environment for resources to prevent “irreversible damage ... to marine and coastal

<sup>95</sup> Decision XII/23 2 par 3(e).

<sup>96</sup> Decision XII/23 2 par 3(f).

<sup>97</sup> 1989 UNTS 309, 30 ILM 800 (1991). Adopted: 25/02/1991; EIF: 10/09/1997.

<sup>98</sup> Art 2 of Espoo Convention. The provisions of Espoo can be seen as also applying to the marine environment because the Convention’s definition of “impact” includes effects that a proposed activity may have on “flora, fauna [ and] water”. See art 1(vii) of the Espoo Convention. It can also be argued that the Espoo Convention provisions protect the environment from acoustic pollution because by its nature, noise, especially low-frequency noise is transboundary, and its effects can be observed in areas beyond the jurisdiction of its source.

<sup>99</sup> The Appendix requires that the EIA include information such as the description and purpose of the activity, as well as the potential impact it may have in the environment.

<sup>100</sup> Protocol adopted at the Twelfth Meeting of the Contracting Parties to the Abidjan Convention (27–31 March 2017) UNEP/ABC-WACAF/COP.12/10.

<sup>101</sup> See art 1(xvi) of the 2017 Protocol to the Abidjan Convention.

<sup>102</sup> See art 4(1) of the 2017 Protocol to the Abidjan Convention.

ecosystems” caused by the introduction of “energy”.<sup>103</sup> The Protocol further requires parties to adopt special mitigation measures for sensitive marine areas to ensure that marine species are protected from the adverse effects of seismic surveys.<sup>104</sup> Parties must also conduct EIAs during all stages of the seismic surveys. The Protocol contains a comprehensive list of requirements with which environmental assessments must comply, which includes identifying the potential environmental impacts of the surveys and any mitigation measures that will be implemented to minimise these impacts.<sup>105</sup>

Under the Nairobi Convention, parties are obligated to prevent pollution of the marine environment emanating from any source.<sup>106</sup> Contracting parties are also required to adopt all necessary measures to “prevent, reduce and combat pollution” directly or indirectly resulting from seabed exploration and exploitation activities.<sup>107</sup> Parties must also perform, or require natural or juridical persons conducting seabed projects to perform, EIAs where there is a likelihood that the projects would cause “substantial pollution, or significant and harmful changes” to the marine environment.<sup>108</sup> Furthermore, in terms of the Nairobi Convention’s *Protocol Concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region*,<sup>109</sup> parties are also required to regulate activities performed in the marine environment and prohibit activities that have adverse effects on wild endangered species and their habitats.<sup>110</sup> Contracting parties are further obligated to establish protected areas to safeguard marine fauna and flora and their habitats.<sup>111</sup> In such protected areas, parties must, *inter alia*, prohibit the destruction of plants and animals, regulate any activity that is “likely to harm or disturb the fauna or flora, including the introduction of non-indigenous animal or plant species”, and regulate and control any activity concerning “the exploration or exploitation of the sea-bed”.<sup>112</sup> Apart from prohibiting disturbances to species during sensitive periods such as breeding,<sup>113</sup> the Protocol does not expressly regulate noise emissions.

#### **4 THE UNITED KINGDOM’S REGULATIONS FOR COMMERCIAL SHIPPING AND SEISMIC SURVEY NOISE**

The regulations of the United Kingdom (UK) are discussed in this section to identify whether there are lessons that can be learnt from them to develop South African law. The UK’s regulations applicable to commercial shipping

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<sup>103</sup> Art 4(2) of the 2017 Protocol to the Abidjan Convention.

<sup>104</sup> Art 14 of the 2017 Protocol to the Abidjan Convention.

<sup>105</sup> See Annex IV of the 2017 Protocol to the Abidjan Convention.

<sup>106</sup> See art 4 of the Nairobi Convention.

<sup>107</sup> Art 8 of the Nairobi Convention. Also see art 12 of the Convention regarding the prevention of environmental damage caused by dredging activities.

<sup>108</sup> Art 13 of the Nairobi Convention.

<sup>109</sup> T-XT8550. Adopted: 21 June 1985; EIF: 30/05/1996.

<sup>110</sup> Art 4 of the Nairobi Convention Protocol.

<sup>111</sup> See art 8 of the Nairobi Convention Protocol.

<sup>112</sup> Art 10(e), (f) and (g) of the Nairobi Convention Protocol.

<sup>113</sup> See art 4(c) of the Nairobi Convention Protocol.

and seismic-survey noise will be relied upon because the UK has a well-established marine sector, especially as far as marine consultancy, marine engineering, and marine science and technology are concerned.<sup>114</sup> Over recent years, the UK has also strengthened its commitment to marine environmental protection to become a global leader in sustainable development.<sup>115</sup> Moreover, the UK has a rapidly growing shipping industry, which plays a vital role in its economy.<sup>116</sup> As mentioned previously, increased shipping activity increases underwater noise.<sup>117</sup>

Lastly, the UK is a state party to the relevant global marine environmental protection instruments that have been ratified by South Africa – namely, LOSC, the CMS and the CBD. Like South Africa, the UK is also a member state of the IMO and the IWC.

#### 4 1 The UK's regulation of commercial shipping noise

Commercial shipping is regulated under the UK's Merchant Shipping Act.<sup>118</sup> However, this Act regulates pollution emitted by ships as far as it relates to the discharge of harmful substances – for example, pollution resulting from the discharge of noxious liquid, sewage, and oil.<sup>119</sup> The Merchant Shipping Act does not expressly mention underwater noise, but the Merchant Shipping and Fishing Vessels Regulations<sup>120</sup> govern the noise levels onboard ships. These regulations control noise to create a safe working environment for seafarers, but do not regulate underwater noise to protect the marine environment and its biodiversity.

<sup>114</sup> Houses of Parliament: Parliamentary Office of Science & Technology *Deep-Sea Mining* (Post-PN-0508) Postnote 508 of September 2015 1; see also UK Parliament Hansard "UK Deep Sea Mining Industry" vol 654 (20 February 2019) <https://hansard.parliament.uk/Commons/2019-02-20/debates/19022027000002/UKDeepSeaMiningIndustry> (accessed 2021-10-07).

<sup>115</sup> See Hogg "World Ocean Day: UK Leads In Marine Protection As Government Signs Up To New '30by30' Commitment" (10 June 2021) <https://www.climateaction.org/news/world-ocean-day-uk-leads-on-marine-protection-as-government-signs-up-to-new> (accessed 2022-07-15). Also see Department for Environment, Food & Rural Affairs, Foreign, Commonwealth & Development Office and Honorable Lord Goldsmith Press Release "UK Escalates Support For Global Marine Environment at UN Ocean Conference" (29 June 2022) <https://www.gov.uk/government/news/uk-escalates-support-for-global-marine-environment-at-un-ocean-conference> (accessed 2022-07-16).

<sup>116</sup> Hellenic Shipping News Worldwide "New Report Shows Importance of Shipping to UK Economy" (2019-12-28) <https://www.hellenicshippingnews.com/new-report-shows-importance-of-shipping-to-uk-economy/> (accessed 2021-10-05). See also Maritime UK "A World-Class Maritime Centre" (undated) [https://www.maritimeuk.org/documents/105/Maritime\\_UK\\_booklet.pdf](https://www.maritimeuk.org/documents/105/Maritime_UK_booklet.pdf) 2.

<sup>117</sup> Merchant, Brookes, Faulkner, Bicknell, Godley and Witt "Underwater Noise in UK Waters" 2016 *Scientific Reports* 1.

<sup>118</sup> 21 of 1995.

<sup>119</sup> S 128 and 129, and Chapters II and V, as well as Schedule 4 of the Merchant Shipping Act. The Merchant Shipping Act regulates pollution in the same way that MARPOL does, as discussed under heading 2 1 above.

<sup>120</sup> The Merchant Shipping and Fishing Vessels (Control of Noise at Work) Regulation No 3075 of 2007.

Similarly, the Maritime and Coastguard Agency's Codes of Practice<sup>121</sup> also regulate noise onboard shipping vessels. These codes collectively regulate the assessment of the risk caused by noise and vibrations on ships, identify measurement methods for noise and vibrations, and call for control mechanisms that can reduce or eliminate noise and vibrations.<sup>122</sup>

Moreover, the Merchant Shipping (Passenger Ship Construction: Ships of Classes III to VI (A)) Regulations also regulate noise emitted by ships.<sup>123</sup> These regulations specifically govern how passenger ships must be constructed to protect human beings from shipping noise.<sup>124</sup>

The above-mentioned legislative instruments regulate shipping noise only as far as it affects human beings. To provide protection also to the marine environment, it would therefore be necessary to amend the instruments. In 2019, scientific research resulted in the creation of the United Kingdom's first shipping-noise map,<sup>125</sup> and it has been noted that this data could assist policymakers in the establishment of further marine-protected areas to reduce the effects of low-frequency shipping noise on marine species.<sup>126</sup>

## 4.2 The UK's regulation of seismic-survey noise

The UK's Joint Nature Conservation Committee (JNCC) was the first public body to develop guidelines for the mitigation of anthropogenic noise emitted during seismic surveys.<sup>127</sup> Under these guidelines, three key phases of seismic surveys are regulated – namely, planning, mitigation and reporting.<sup>128</sup> The guidelines provide that an oil and gas contractor must apply for authorisation to conduct a seismic survey as part of the planning process.<sup>129</sup> This authorisation is granted by the Minister of the Department of Energy and Climate Change according to the provisions of the Offshore Petroleum Activity (Conservation of Habitats) Regulations of 2001.<sup>130</sup> Upon

<sup>121</sup> United Kingdom Maritime & Coastguard Agency (Marine Information Note) MIN 588 (M + F) "Codes of Practice for Controlling Risks Due to Noise and Vibration on Ships" [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/783146/MIN\\_588\\_Codes\\_of\\_Practice\\_for\\_Controlling\\_Risks\\_due\\_to\\_Noise\\_and\\_Vibration\\_on\\_Ships.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/783146/MIN_588_Codes_of_Practice_for_Controlling_Risks_due_to_Noise_and_Vibration_on_Ships.pdf) (accessed 2021-10-06) 1.

<sup>122</sup> United Kingdom Maritime & Coastguard Agency [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/783146/MIN\\_588\\_Codes\\_of\\_Practice\\_for\\_Controlling\\_Risks\\_due\\_to\\_Noise\\_and\\_Vibration\\_on\\_Ships.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/783146/MIN_588_Codes_of_Practice_for_Controlling_Risks_due_to_Noise_and_Vibration_on_Ships.pdf) 2.

<sup>123</sup> Reg No 2515 of 1998.

<sup>124</sup> Reg 7–14 and 62 of the Merchant Shipping (Passenger Ship Construction: Ships of Classes III to VI (A)) Regulations of 1998.

<sup>125</sup> Whiteley "CEFAS Scientists Create First UK Map of Shipping Noise" (4 March 2019) *BBC News Inside Out East* <https://www.bbc.com/news/uk-england-suffolk-47375006> (accessed 2021-10-06).

<sup>126</sup> *Ibid.*

<sup>127</sup> Wright and Cosentino "JNCC Guidelines for Minimising the Risk of Injury and Disturbance to Marine Mammals From Seismic Surveys: We Can Do Better" 2015 100(1) *Marine Pollution Bulletin* 231; Erbe "International Regulation of Underwater Noise" 2013 41(1) *Acoustics Australia* 15.

<sup>128</sup> JNCC Guidelines for "Minimising the Risk of Injury to Marine Mammals From Geophysical Surveys" (2017) 1 and 2.

<sup>129</sup> JNCC Guidelines (2017) 3.

<sup>130</sup> See reg 4 of the Offshore Petroleum Activity Regulations of 2001.

receiving approval from the Department, the JNCC Guidelines must then be taken into account to minimise the impacts of underwater noise.<sup>131</sup> According to the Guidelines, during the planning phase of the survey, a contractor must consider ways of conducting it in a manner that emits the lowest noise and identify the marine mammals that could potentially be present in the survey area.<sup>132</sup> The Guidelines also provide that areas of significance to marine species (that is, marine habitats and the species that dwell within these areas) should be identified during the planning phase.<sup>133</sup> Concerning the mitigation phase, the Guidelines indicate that passive acoustic monitoring devices and marine mammal observers should be used before the commencement of the survey and during all operations.<sup>134</sup> Before firing an air gun, a pre-shooting search must be conducted to ascertain if there are any marine mammals within the 500-metre mitigation zone.<sup>135</sup> This search must be at least 30 minutes long in waters less than 200 metres deep and at least 60 minutes in waters deeper than 200 metres.<sup>136</sup> If marine mammals are observed within the vicinity of the survey, a soft-start protocol must be implemented with a minimal delay of 20 minutes before the commencement of air-gun shooting.<sup>137</sup> Upon the completion of an oil-and-gas seismic survey, the Guidelines also indicate that the marine-mammal observers should submit a report to the JNCC, and the Department of Energy and Climate Change should establish whether the licensing rules, conditions and JNCC Guidelines were complied with during the survey.<sup>138</sup>

## 5 SOUTH AFRICA'S REGULATION OF COMMERCIAL SHIPPING NOISE

The Merchant Shipping Act<sup>139</sup> and the Ship Registration Act<sup>140</sup> regulate various aspects of shipping, including the licensing and registration of ships<sup>141</sup> and the requirements to ensure the “safety of ships and life at sea”<sup>142</sup> according to the International Convention for the Safety of Life at Sea (SOLAS).<sup>143</sup> Under the Merchant Shipping Act, cargo or passenger ships

<sup>131</sup> JNCC “The Protection of Marine European Protected Species From Injury and Disturbance: Guidance for the Marine Area in England and Wales and the UK Offshore Marine Area” (2010) [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/681834/Protection\\_Marine\\_EP\\_Injury\\_Disturbance.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/681834/Protection_Marine_EP_Injury_Disturbance.pdf) (accessed 2021-10-06) 45.

<sup>132</sup> JNCC Guidelines (2017) 4.

<sup>133</sup> JNCC Guidelines (2017) 6. Schedule 1 of the Conservation of Offshore Marine Habitats and Species Regulations 2017 lists all European protected species, and Annex I and II of EC Habitats Directive for habitats and species Council (Directive 92/43/EEC) lists special areas of conservation.

<sup>134</sup> JNCC Guidelines (2017) 7.

<sup>135</sup> JNCC Guidelines (2017) 11.

<sup>136</sup> JNCC Guidelines (2017) 12.

<sup>137</sup> JNCC Guidelines (2017) 12 and 14. See also Erbe 2013 *Acoustics Australia* 15.

<sup>138</sup> JNCC Guidelines (2017) 18.

<sup>139</sup> 57 of 1951.

<sup>140</sup> 58 of 1998.

<sup>141</sup> See ss 68–72 of 57 of 1951. Also see s 16 of 58 of 1998.

<sup>142</sup> See ch V of 57 of 1951 and s 18(1)(bb) of 58 of 1998.

<sup>143</sup> 1184 UNTS 3 (1974) Adopted: 1/11/1974; EIF: 25/05/1980.

must be inspected by a surveyor appointed by the South African Maritime Safety Authority (SAMSA) to ensure that they have been constructed in a manner that complies with the safety regulations of the Act before a safety certificate to operate at sea can be issued.<sup>144</sup> According to the regulations of the Act,<sup>145</sup> ships must be constructed with watertight subdivided bulkheads, fitted with watertight doors, and installed with fire protection equipment.<sup>146</sup> The regulations also provide that plans and particulars relating to hulls, propellers and other machinery be submitted to, and approved by, the Minister of Transport before a ship is constructed.<sup>147</sup> However, these regulations do not make provision for the construction of propellers and other vessel machinery in a manner that reduces cavitation so as to decrease the noise emitted by ships as envisaged by the IMO.<sup>148</sup> Furthermore, noise is only mentioned in the Crew Accommodation Regulations<sup>149</sup> and SAMSA's 2018 Marine Notice<sup>150</sup> insofar as it relates to the requirement for accommodation spaces to be constructed in a manner that reduces the transmission of noise from vessel machinery and equipment.<sup>151</sup> These regulatory requirements to protect humans on board ships from noise are similar to the provisions of the SOLAS "Code on Noise Levels On Board Ships",<sup>152</sup> because neither of them mentions constructing vessels with a view to reducing underwater low-frequency noise emitted by ships.<sup>153</sup>

Under the Ship Registration Act, a ship's registration may be denied in instances where the ship does not meet safety regulations or poses any risk of pollution.<sup>154</sup> However, the Act does not define pollution or mention underwater noise as a pollutant that could result in the denial of a ship's registration. Pollution emanating from ships is specifically regulated by the Marine Pollution (Prevention of Pollution from Ships) Act (MPPPSA),<sup>155</sup> which was enacted to give effect to MARPOL.<sup>156</sup> In the MPPPSA, emissions from ships are regulated to the extent that they are provided for under MARPOL. Although MARPOL does not expressly define pollution, it does mention that states parties must "prevent the pollution of the marine

<sup>144</sup> See ss 190, 191, 192, 193 and 194 of 57 of 1951. See also Annex reg 1 of the Second Schedule of 57 of 1951.

<sup>145</sup> The Construction Regulations, 1968 in terms of Act 57 of 1951 (GN R79 in GG 1955 of 19-01-1968).

<sup>146</sup> Reg 8, 18, 48, 109(1), 111(1), 116(1), 118 and 121 of the Construction Regulations, 1968.

<sup>147</sup> Reg 6 and Annex 1 of the Construction Regulations, 1968.

<sup>148</sup> See the noise-quieting IMO guidelines mentioned under heading 2 1 above.

<sup>149</sup> The Crew Accommodation Regulations, 1961 in terms of Act 57 of 1951 (GN R1064 in GG 43 of 1961-11-24).

<sup>150</sup> South African Maritime Safety Authority "New Building Procedures – Ships and Boats" Marine Notice No 20 of 2018.(7 June 2018) SM6/5/2/1.

<sup>151</sup> See reg 8 and 10 of the Crew Accommodation Regulations, 1961. Also see SAMSA "Record of Particulars: New Building – Non-SOLAS Convention Size Vessel (Class VII, VIIA, VIII, IXA, X, XI & XII)" Appendix D2 to Marine Notice No 20 of 2018 (SM 12/1/5).

<sup>152</sup> Resolution of the IMO Maritime Safety Committee (2012) RES MSC.337(91).

<sup>153</sup> See, for instance, par 1.2, 4.1, 4.2, 5.1 and Appendix 3 item 2.1 of the Code on Noise Levels On Board Ships.

<sup>154</sup> S 18(1)(aa) of the Ship Registration Act.

<sup>155</sup> 2 of 1986.

<sup>156</sup> See the discussion on MARPOL under heading 2 1 of this article.

environment by the discharge of harmful substances or effluents containing such substances".<sup>157</sup> MARPOL then defines a harmful substance as

"any substance which, if introduced into the sea, is liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea."<sup>158</sup>

The exclusion of energy as a pollutant emitted by ships and the sole mention of harmful substances in the MPPPSA indicates that it does not regulate noise emitted by ships.<sup>159</sup>

On the other hand, the provisions of the Marine Living Resources Act (MLRA)<sup>160</sup> protect the marine environment from pollution emitted by ships by requiring the state to exercise its powers under the Act with due regard for the application of the precautionary approach to manage and develop marine living resources,<sup>161</sup> the protection of all species in the marine ecosystem,<sup>162</sup> and the need to preserve marine biodiversity and minimise pollution.<sup>163</sup> The Act further provides that the Minister of Forestry, Fisheries and the Environment may require anyone intending to apply for a commercial or subsistence fishing right first to submit an environmental impact assessment report.<sup>164</sup> The Minister may also determine certain sustainable conservation and management measures that must be applied by an applicant, including the use of a particular type of vessel or gear.<sup>165</sup> The Act also gives the Minister the authority to revoke, suspend or reduce a fishing right if it is necessary to protect "a particular marine living resource".<sup>166</sup> In addition, the Minister may declare an area a marine protected area,<sup>167</sup> *inter alia*, to "conserve and protect marine and coastal ecosystems"<sup>168</sup> or biodiversity,<sup>169</sup> a particular species or population, and its

<sup>157</sup> See Schedule of the MPPPSA; art 1(1) of MARPOL.

<sup>158</sup> Schedule of the MPPPSA; art 2(2) of MARPOL.

<sup>159</sup> The pollutants that are regulated under the MPPPSA are oil, noxious liquid substances, harmful substances, sewage, and garbage. See Schedule to the MPPPSA; Annex I, II, III, IV and V of MARPOL.

<sup>160</sup> 18 of 1998.

<sup>161</sup> S 2(c) of the MLRA.

<sup>162</sup> S 2(e) of the MLRA.

<sup>163</sup> S 2(g) of the MLRA.

<sup>164</sup> S 18(3) of the MLRA.

<sup>165</sup> S 18(7) of the MLRA.

<sup>166</sup> S 28(4) of the MLRA.

<sup>167</sup> S 22A(1)(a) of the National Environmental Management: Protected Areas Act 57 of 2003 (NEMPAA) as inserted by s 5 of the Protected Areas Amendment Act 21 of 2014. The Minister also has the authority to draft regulations on the prevention of marine pollution and the "management and protection of marine protected areas", see s 77(2)(w) and (x)(i) of the MLRA.

<sup>168</sup> S 22A(2)(a) of NEMPAA.

<sup>169</sup> S 22A(2)(b) of NEMPAA.

habitat.<sup>170</sup> Furthermore, the Minister can also restrict or prohibit any activities that have the potential to affect the environment adversely.<sup>171</sup>

In addition to the MLRA, environmental protection is specifically regulated by the National Environmental Management Act (NEMA).<sup>172</sup> Section 2 of NEMA lists the principles that apply to activities that may significantly affect the environment, and section 2(4)(a) specifically provides that sustainable development requires consideration that:

- “(i) ... the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;<sup>173</sup>
- “(ii) ... pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied”;<sup>174</sup> [... and]
- “(vii) a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions.”<sup>175</sup>

Pollution is defined in NEMA as

“any change to the environment caused by substances, radioactive or other waves or noise, odours, dust or heat [...] emitted from any activity [...] engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems.”<sup>176</sup>

The Act further provides that any person “who causes, has caused or may cause significant pollution or degradation of the environment” is required to take “reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring” or where it cannot be prevented to “minimise and rectify such pollution or degradation of the environment”.<sup>177</sup> The reasonable measures that must be taken include:

- the ceasing, modification, or control of any act, activity, or process that causes pollution or degradation; or
- implementing any measures necessary to “eliminate any source of ... pollution or degradation”; or
- remedying the effects of such pollution or degradation.<sup>178</sup>

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<sup>170</sup> S 22A(2)(c) of NEMPAA. The above-mentioned powers of the Minister regarding marine protected areas were previously regulated by s 43 of the MLRA.

<sup>171</sup> S 22(g) of NEMPAA. The above-mentioned powers of the Minister regarding marine protected areas were previously regulated by s 43 of the MLRA, which was repealed by s 90(3) of NEMPAA as inserted by s 15 of the Protected Areas Amendment Act.

<sup>172</sup> 107 of 1998.

<sup>173</sup> S 2(4)(a)(i) of NEMA.

<sup>174</sup> S 2(4)(a)(ii) of NEMA.

<sup>175</sup> S 2(4)(a)(vii) of NEMA.

<sup>176</sup> S 1(1)(xxiv) of NEMA.

<sup>177</sup> S 28(1) of NEMA.

<sup>178</sup> S 28(3)(c), (e) and (f) of NEMA.

NEMA also gives persons acting in the public interest *locus standi* to approach the courts for relief from those who have contravened or intend on contravening the environmental protection provisions of the Act.<sup>179</sup>

Furthermore, in 2008, the National Environmental Management: Integrated Coastal Management Act (NEMICMA)<sup>180</sup> was enacted as the marine-environmental-management-specific Act to regulate the preservation and protection of the marine environment in line with NEMA.<sup>181</sup> NEMICMA, therefore, provides that the obligation to prevent or minimise pollution under section 28 of NEMA is also applicable to “the owner or person in charge of a vessel” who plans to undergo an activity that has caused or is likely to cause adverse effects to the coastal environment.<sup>182</sup> NEMICMA gives the Minister of Environmental Affairs the discretion to issue “a written coastal protection notice” when they suspect that any intended activity will or is likely to adversely affect the environment.<sup>183</sup> This notice can prohibit any intended coastal activity in its entirety, or request that appropriate steps be taken to protect the environment, or instruct the person intending to carry out an activity to first investigate and evaluate the impacts of such activity on the environment.<sup>184</sup> NEMICMA assigns the same meaning to pollution as that provided in section 1 of NEMA,<sup>185</sup> and specifically regulates the discharge of effluent and waste by ships.<sup>186</sup> However, it makes no mention of noise as a pollutant emitted by ships.

It can thus be argued that the lack of noise-specific shipping legislation providing for, among other matters, the use of noise-quieting machinery to reduce the noise emitted by ships as envisaged by the IMO leaves a legislative gap, making the realisation of NEMA’s environmental management principles difficult.

## 6 SOUTH AFRICA’S REGULATION OF SEISMIC-SURVEY NOISE

Seismic surveys for the exploration of oil and gas reserves are regulated by NEMA, the NEMA Environmental Impact Assessment Regulations of 2014 (NEMA EIA Regulations)<sup>187</sup> and the Mineral and Petroleum Resources Development Act (MPRDA).<sup>188</sup> The Petroleum Agency of South Africa

<sup>179</sup> S 32(1) of NEMA.

<sup>180</sup> 24 of 2008.

<sup>181</sup> S 5(1) and (2) of NEMA.

<sup>182</sup> S 58(2)(b)(iii) of NEMICMA. The coastal environment is defined as “the environment within the coastal zone” and the coastal zone is defined to include “coastal waters and the exclusive economic zone”. Coastal waters are then defined as “marine waters that form part of the internal waters or territorial waters of the Republic” as referred to in ss 3 and 4 of the Maritime Zone Act 15 of 1994. See s 1(1) of NEMICMA.

<sup>183</sup> S 59(1) of NEMICMA.

<sup>184</sup> S 59(1)(a) and (b)(i) and (ii) of NEMICMA.

<sup>185</sup> See s 1(1) of NEMICMA.

<sup>186</sup> Ss 69 and 70 and Schedule 2 of NEMICMA.

<sup>187</sup> GN R982 in GG 38282 of 2014-12-04.

<sup>188</sup> 28 of 2002 as amended by the Mineral and Petroleum Resources Development Amendment Act 49 of 2008 (MPRDAA), and the Mineral and Petroleum Resources

(PASA) is the state regulator responsible for granting licences for the exploration and exploitation of offshore oil and gas.<sup>189</sup>

As mentioned previously, section 2 of NEMA lists the principles that relate to the sustainable management of the environment, and these principles are also applicable to seismic surveys because they must also be conducted in a manner that prevents or minimises pollution and the degradation of the environment.<sup>190</sup> To fulfil the environmental management principles set out in section 2, section 24 of NEMA stipulates that the potential impacts of an intended activity that may significantly affect the environment must be investigated and assessed before authorisation is granted.<sup>191</sup> This would include assessing the environment likely to be affected by the intended activity, identifying the mitigation and monitoring measures that can be applied to minimise adverse impacts, and allowing for public participation throughout all the phases of the investigation.<sup>192</sup>

The NEMA EIA Regulations list the activities that require prior authorisation according to section 24 of NEMA. These activities include offshore dredging operations, petroleum extraction processes, and any other operation that requires a prospecting, exploration or mining right.<sup>193</sup> To obtain the environmental authorisation to carry out activities that may adversely affect the environment, an environmental assessment must be conducted, and this assessment must include an EIA and EIA report. The latter must, among other things, outline the location of the proposed activity<sup>194</sup> and give a detailed account of how the proposed activity will be conducted, as well as identify its potential impacts on the environment and any mitigation measures that will be applied to minimise impacts.<sup>195</sup>

As with the provisions of NEMA, under the MPRDA, anyone intending to conduct activities associated with the extraction of oil and gas must acquire the necessary environmental authorisation and a reconnaissance permit, exploration right, or production right<sup>196</sup> before commencing any reconnaissance, exploration, or production operations.<sup>197</sup> The environmental

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Development Regulations GN R527 in GG 26275 of 2004-02-23. In the future, the MPRDAA may be amended by the Mineral and Petroleum Resources Amendment Bill of 2012 (GN R1066 in GG 36037 of 2012-12-27).

<sup>189</sup> See ss 70 and 71 of the MPRDA. Also see Petrol Agency SA "What is Petroleum Agency SA?" (undated) <https://www.petroleumagency.com> (accessed 2021-09-30).

<sup>190</sup> See s 2(4)(a)(i), (ii) and (vii) of NEMA as discussed under heading 4 of this article.

<sup>191</sup> See s 24(1)(a) of NEMA. Also see s 23(2) of NEMA.

<sup>192</sup> S 24(4)(a), (b), (c), (d), (e) and (f) of NEMA.

<sup>193</sup> Listing Notice 1 GN R983, Listed Activity 19, 20 and 21; see also Listing Notice 2 GN R984, Listed Activity 17 and 18.

<sup>194</sup> Regulation 3(b) of Appendix 3 of the NEMA EIA 2014 Regulations.

<sup>195</sup> Regulation 3(g)(v) and (viii) of Appendix 3, also see regulation 3(i) of Appendix 3 of the NEMA EIA 2014 Regulations.

<sup>196</sup> S 5A of the MPRDAA. See also s 38A of the MPRDA as inserted by the MPRDAA.

<sup>197</sup> According to s 1 of the MPRDA, an exploration operation is defined as "the re-processing of existing seismic data, acquisition and processing of new seismic data or any other related activity to define a trap to be tested by drilling, logging and testing, including extended well testing, of a well with the intention of locating a discovery"; a production operation is defined as "any operation, activity or matter that relates to the exploration, appraisal, development and production of petroleum" and a reconnaissance operation is defined as "any operation

authorisation to conduct these activities will only be granted upon the submission and approval by the Minister of Mineral Resources and Energy of an environmental management plan and environmental management programme.<sup>198</sup> The MPRDA provides further that these documents must include the establishment of “baseline information concerning the affected environment to determine protection, remedial measures and environmental management objectives”, an investigation and assessment of the impact that the proposed activity will have on the environment, as well as an indication of how an activity that is likely to cause pollution or environmental degradation will be modified, remedied, controlled or stopped to protect the environment.<sup>199</sup> The Mineral and Petroleum Resources Development Amendment Act (MPRDAA)<sup>200</sup> later repealed the MPRDA provisions relating to environmental management plans and programmes. Under the MPRDAA, to obtain environmental authorisation to commence oil and gas extraction operations, the environmental reports that are required by NEMA must be submitted to and approved by the Minister.<sup>201</sup>

Furthermore, a reconnaissance permit or production right will only be granted by the Minister if they are satisfied that the reconnaissance or production operation will not result in any “unacceptable pollution, ecological degradation or damage to the environment”.<sup>202</sup> The above-mentioned interrelationship between the MPRDA and NEMA therefore means that seismic surveys conducted in terms of reconnaissance permits, exploration, or production rights granted under the MPRDA must not only comply with the environmental provisions under NEMA, but also environmental assessment requirements in terms of the NEMA EIA Regulations. This interrelationship also indicates that the noise emitted by seismic surveys authorised under the MPRDA is also regulated in terms of the definition of pollution provided by NEMA. However, a legislative gap remains as far as the adoption of activity-specific regulations is concerned – especially with respect to how EIAs must be conducted to monitor and mitigate noise emitted during seismic operations conducted by the offshore oil and gas industry. It is submitted that such a gap could be filled with regulations similar to the JNCC Guidelines.

## **7 RECENT LITIGATION TO SUSPEND SEISMIC SURVEYS IN SOUTH AFRICAN WATERS**

In December 2021, Shell was scheduled to commence a 3D seismic survey for the exploration of hydrocarbons off South Africa’s Wild Coast. However, the public, including environmentalists, expressed great concern regarding

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carried out for or in connection with the search for a mineral or petroleum by geological, geophysical and photogeological surveys and includes any remote sensing techniques, but does not include any prospecting or exploration operation”.

<sup>198</sup> S 74(4)(a) of the MPRDA; see also s 79(4)(b) as amended by s 57(d) of the MPRDAA, and also see s 83(4)(b) of the MPRDA as amended by s 61 of the MPRDAA.

<sup>199</sup> S 39(3) of the MPRDA.

<sup>200</sup> 49 of 2008.

<sup>201</sup> See s 38B and 57 of the MPRDAA.

<sup>202</sup> S 84(1)(c) of the MPRDA and s 75(1)(c) as amended by s 54 of the MPRDAA.

the potential impact of this survey on South African marine ecosystems and the consequences for community members such as small-scale fishermen who rely on the oceans to make a living.<sup>203</sup> To prevent Shell from commencing its seismic operations off the Wild Coast, environmentalists sought an interdict against Shell based on the fact that the 3D survey had the potential to cause irreparable harm to marine life.<sup>204</sup> This interdict was sought as an urgent remedy pending the outcome of a separate review application regarding the renewal of Shell's exploration right.<sup>205</sup> The review was based on the argument that Shell's exploration activities would be *prima facie* unlawful because it did not apply for, nor receive, the requisite environmental authorisation in terms of NEMA.<sup>206</sup> Furthermore, it was also contended that the granting of an exploration right to Shell amounted to unjust administrative action because the public was not allowed to participate fully in the process nor appeal the decision.<sup>207</sup>

The application for the interdict was, however, unsuccessful, because the court was not satisfied that the applicants had shown that there was a "well-grounded apprehension of irreparable harm if the interim relief is not granted and the ultimate relief is eventually granted" nor that the balance of convenience favoured them.<sup>208</sup> The court further stated that, because the case before it did not concern the full exercise of Shell's exploration right and its implications for the environment, but rather whether the planned seismic survey "should be interdicted pending the final determination of a separate review application", it used its discretion to answer this question in the negative.<sup>209</sup>

Following the dismissal of this application, another interdict was sought against Shell in the Eastern Cape Division of the Grahamstown High Court on 17 December 2021.<sup>210</sup> The application was twofold: 1) to prohibit Shell from proceeding with its seismic survey pending the outcome of the review application; and 2) to suspend the survey until Shell had acquired the

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<sup>203</sup> Bega "Urgent Interdict Filed to Block Shell's Coast Seismic Survey" (30 November 2021) <https://mg.co.za/environment/2021-11-30-urgent-interdict-filed-to-block-shells-wild-coast-seismic-survey/> (accessed 2021-12-02). See also Dayimani "Shell Blasted: Public Outrage Mounting Over Seismic Survey on Wild Coast" (27 November 2021) <https://www.news24.com/news24/southafrica/news/shell-blasted-public-outrage-mounting-over-seismic-survey-on-wild-coast-20211127> (accessed 2021-12-06).

<sup>204</sup> Bega <https://mg.co.za/environment/2021-11-30-urgent-interdict-filed-to-block-shells-wild-coast-seismic-survey/>.

<sup>205</sup> *Border Deep Sea Angling Association v Minister of Mineral Resources and Energy* [2021] ZAECGHC 111.

<sup>206</sup> *Border Deep Sea Angling Association v Minister of Mineral Resources and Energy supra* par 18 and 19.

<sup>207</sup> *Border Deep Sea Angling Association v Minister of Mineral Resources and Energy supra* par 20.

<sup>208</sup> *Border Deep Sea Angling Association v Minister of Mineral Resources and Energy supra* par 40.

<sup>209</sup> *Border Deep Sea Angling Association v Minister of Mineral Resources and Energy supra* par 41.

<sup>210</sup> *Sustaining the Wild Coast NPC v Minister of Mineral Resources and Energy* [2021] ZAECGHC 118.

requisite environmental authorisation under NEMA.<sup>211</sup> The court granted the interdict on the basis that Shell's intended survey was likely to cause irreparable harm to marine life, thus infringing on the constitutionally protected environmental rights<sup>212</sup> of traditional communities along the Wild Coast – namely, the Amadiba, Dwesa-Cwebe, and Sicambeni. This irreparable harm would then negatively affect the livelihoods of small-scale fishers in these local communities.<sup>213</sup> In addition, the court held that the suspension of the survey was justified because it would unduly infringe on the cultural and spiritual rights of the traditional communities whom Shell failed to adequately consult, and it had failed to adopt sufficient measures to minimise the risk of harm.<sup>214</sup>

Both the Minister of Mineral Resources and Energy and Shell subsequently applied for leave to appeal this decision, but it was dismissed because Bloem J found that the appeal would not have any practical effect. After all, Shell could not conduct its survey before the decision on the review application regarding its environmental authorisation had been passed.<sup>215</sup> If successful, Shell would then only conduct its seismic surveys from “December 2022 to May 2023”.

In March 2022, an interdict was sought to suspend a seismic survey by Searcher Goedata UK Limited and Searcher Seismic (Australia) (hereafter, Searcher), off the West Coast.<sup>216</sup> This interdict was sought pending the outcome of an appeal against the granting of a reconnaissance permit to Searcher. The applicants, who are small-scale fishers, argued that the seismic survey should be suspended because the reconnaissance permit was unlawful owing to Searcher's failure to comply fully with the requirement to consult interested and affected persons.<sup>217</sup> It was argued that Searcher's failure to consult small-scale fishing communities and its publication of survey notices in the media in English and Afrikaans specifically excluded poor and illiterate communities from the public participation process.<sup>218</sup> The applicants further argued that the seismic survey posed an “immediate risk to marine and bird life” as well as to their livelihoods, food security and

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<sup>211</sup> *Sustaining the Wild Coast NPC v Minister of Mineral Resources and Energy* [2021] *supra* par 1.

<sup>212</sup> See s 24 of the Constitution of the Republic of South Africa, 1996.

<sup>213</sup> *Sustaining the Wild Coast NPC v Minister of Mineral Resources and Energy* [2021] *supra* par 38, 44, 45 and 52–65.

<sup>214</sup> It was expressed, for instance, that the Amadiba community regards the sea as a sacred place with healing properties and where their ancestors reside. Several traditional healers in the area often go to the sea to perform rituals and heal the sick. The community, therefore, indicated that the intended survey had the impact of possibly upsetting their ancestors in a manner that would negatively affect their relationship with the sea. See *Sustaining the Wild Coast NPC v Minister of Mineral Resources and Energy* [2021] *supra* par 14.

<sup>215</sup> Omarjee “Shell, Mantashe Lose Court Bid Challenging Wild Coast Seismic Survey Interdict” (17 February 2022) <https://www.news24.com/fin24/companies/just-in-shell-mantashe-lose-court-bid-to-challenge-wild-coast-seismic-survey-interdict-20220217> (accessed 2022-03-02).

<sup>216</sup> *Adams v Minister of Mineral Resources and Energy* [2022] ZAWCHC 24.

<sup>217</sup> *Adams v Minister of Mineral Resources and Energy* *supra* par 7 and 8.

<sup>218</sup> *Adams v Minister of Mineral Resources and Energy* *supra* par 8, 9 and 14.

cultural rights.<sup>219</sup> The court held that the snoek fish (a source of protein for impoverished communities on the West Coast and of income for small-scale fishers) would be impacted by the survey, in turn negatively affecting the rights of these two groups of people, especially “the right to food as envisaged in section 27(1)(c) of the Constitution”.<sup>220</sup> It was further added that fishing is a definitive feature of the culture and heritage of communities along the West Coast.<sup>221</sup>

The court held that it would be impossible to determine that the survey would not result in “unacceptable pollution, degradation or damage to the environment without engaging meaningfully with all interested and affected parties”, including the small-scale fishers. Moreover, the court indicated that “the consultation process and its results [are] an integral part of the fairness” of an application for a reconnaissance permit.<sup>222</sup> The exclusion of the small-scale fishers and the indigenous communities of the West Coast from the public participation process, therefore, compromised the fairness of the application process. Thus, the court granted the interdict in favour of the applicants.<sup>223</sup>

As mentioned previously, an interdict was granted in December 2021 to prevent Shell from proceeding with its seismic survey off the Wild Coast, pending the review of its exploration right and the subsequent renewals thereof. On 1 September 2022, the Makhanda High Court delivered its judgment<sup>224</sup> in the review application sought under section 6(2) of the Promotion of Administrative Justice Act (PAJA).<sup>225</sup> The applicants contended that the administrative decisions (the exploration right and its renewals) were unlawful on three grounds: 1) they were procedurally unfair; 2) relevant considerations were not taken into account; and 3) applicable legal prescripts were not complied with.<sup>226</sup> In terms of the first ground, it was noted that the decision to grant the exploration right to Shell constituted an administrative action, which, in terms of the Constitution, had to be procedurally fair.<sup>227</sup> However, because the respondents did not consult traditional communities such as the Dwesa-Cwebe, these communities were unaware of the exploration right or its renewals; yet the seismic survey to be conducted in terms of the exploration right was likely to affect, *inter alia*, their spiritual and cultural rights. As a result, the court found that it was

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<sup>219</sup> *Adams v Minister of Mineral Resources and Energy supra* par 16, 17 and 24.

<sup>220</sup> *Adams v Minister of Mineral Resources and Energy supra* par 29, 30, 31, 32 and 33.

<sup>221</sup> *Adams v Minister of Mineral Resources and Energy supra* par 34 and 35.

<sup>222</sup> *Adams v Minister of Mineral Resources and Energy supra* par 17 and 39.

<sup>223</sup> *Adams v Minister of Mineral Resources and Energy supra* par 50.

<sup>224</sup> *Sustaining the Wild Coast NPC v Minister of Mineral Resources and Energy* [2022] ZAECKMHC 55.

<sup>225</sup> 3 of 2000.

<sup>226</sup> *Sustaining the Wild Coast NPC v Minister of Mineral Resources and Energy* [2021] *supra* par 83.

<sup>227</sup> *Sustaining the Wild Coast NPC v Minister of Mineral Resources and Energy* [2021] *supra* par 85–87. In terms of s 33(1) of the Constitution, everyone has the right to administrative action that is fair. The Promotion of Administrative Justice Act (PAJA) 3 of 2000 was enacted to give effect to this right.

procedurally unfair.<sup>228</sup> Regarding the second ground, the court held that the respondents failed to take into account relevant considerations – for instance, the potential adverse impact that underwater noise would have on marine and bird life on the Wild Coast – and failed to apply the precautionary approach where there was limited scientific knowledge on this impact.<sup>229</sup> The court also highlighted that the area for which the exploration right was granted is of “special legal status”, thus requiring a high level of protection.<sup>230</sup> In respect of the last ground, it was held that the respondents failed to ensure that historically disadvantaged persons actively participated in and benefited from the mineral and petroleum industry.<sup>231</sup> In summation, based on the above-mentioned grounds, the court held that the exploration right was unlawful and the renewals were legally untenable and consequently set them aside according to section 8 of PAJA.<sup>232</sup>

## 8 RECOMMENDATIONS

South Africa is a known global biodiversity hotspot, which extends into the marine realm;<sup>233</sup> almost the entire exclusive economic zone (EEZ) of South Africa constitutes a large important marine mammal area (IMMA) when individual IMMAs are combined.<sup>234</sup>

Given the expected increase in anthropogenic noise in the marine environment in South Africa owing to government initiatives such as Operation Phakisa, a revision of local legal regulations of underwater noise in line with international law is recommended. As established above, LOSC states parties must prevent, minimise or control pollution in the marine environment emanating from shipping. To fulfil this obligation, it is recommended that South Africa incorporate the IMO Guidelines into law and, as such, adopt noise-specific regulations on the design and construction of ships and equipment with a view to minimising noise emissions. These regulations would include the design of propellers, or the optimisation of propeller loads, to ensure that noise emissions are reduced. Furthermore, as set out in the Guidelines, these regulations would require ships to be fitted with four-stroke engines and hulls to be constructed in a manner that reduces cavitation.

<sup>228</sup> *Sustaining the Wild Coast NPC v Minister of Mineral Resources and Energy* [2021] *supra* par 90–103.

<sup>229</sup> *Sustaining the Wild Coast NPC v Minister of Mineral Resources and Energy* [2021] *supra* par 107–132.

<sup>230</sup> *Sustaining the Wild Coast NPC v Minister of Mineral Resources and Energy* [2021] *supra* par 130.

<sup>231</sup> *Sustaining the Wild Coast NPC v Minister of Mineral Resources and Energy* [2021] *supra* par 133–136. See also s 80(1)(g) and 2(d) and (f) of the MPRDA.

<sup>232</sup> *Sustaining the Wild Coast NPC v Minister of Mineral Resources and Energy* [2021] *supra* par 136.

<sup>233</sup> Pompa-Mansilla, Ehrlich and Ceballos “Global Distribution and Conservation of Marine Mammals” 2011 108(33) *Proceedings of the National Academy of Sciences* 13600-5 13603.

<sup>234</sup> See Marine Mammal Protected Areas Task Force “IMMAs” (undated) <https://www.marinemammalhabitat.org/imma-eatlas/> (accessed 2022-03-26).

<sup>250</sup> Plön and Rossouw “Focusing on the Receiver: Hearing in Two Focal Cetaceans Exposed to Ocean Economy Developments” 2022 196 *Applied Acoustics* 108890.

Moreover, it has been established that LOSC states parties must adopt laws and policies that effectively prevent and control pollution emanating from seabed activities conducted within their jurisdictions. As a LOSC state party, it is recommended that South Africa develop standards on how EIAs must be performed. As mentioned in the previous section, because of the environmental risk associated with seismic surveys, the failure to fully consult with interested and affected persons during the EIA process has been regarded as a just cause for suspending them and for setting aside exploration rights. Thus, it would be necessary for the standards adopted on EIAs to include requiring the public participation process to match that of the Espoo Convention.

Furthermore, the South African Department of Mineral Resources has been criticised for having limited capacity for “compliance monitoring and enforcement” with regard to terrestrial operations, let alone seabed operations.<sup>235</sup> It has been reported that, in some instances, “environmental compliance monitoring and enforcement is entirely absent”.<sup>236</sup> It has also been claimed that the Department has limited experience and knowledge on how to monitor and enforce compliance with “environmental management plans or programmes and conditions of environmental authorisations” associated with “seabed prospecting and mining” activities.<sup>237</sup> It is therefore necessary for seabed activities, including seismic surveys, to be effectively monitored and for the South African regulations to be enforced as envisaged by the CMS and the CBD.

It is also recommended that a shipping noise map similar to that of the UK be developed for the South African marine environment. Such a shipping noise map would then guide South African policymakers on the establishment of additional marine protected areas to protect sensitive marine species and habitats from low-frequency noise. Much like the IMO Guidelines, it is also recommended that the JNCC Guidelines be adopted into domestic law – especially the mitigation measures to minimise the cumulative impact of seismic-survey noise on biodiversity in the South African maritime domain.

The development of South Africa’s regulations on underwater noise as recommended would also serve as a leading example for its African counterparts and other developing states.

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<sup>235</sup> Banet *The Law of the Seabed* 309.

<sup>236</sup> *Ibid.*

<sup>237</sup> *Ibid.*