

ARTICLE

Assessing Drifting Fish Aggregating Device (dFAD) Abandonment under International Marine Pollution Law

Valentin Schatz

Faculty of Sustainability, Leuphana University of Lüneburg (Germany)
Email: valentin.schatz@leuphana.de

(First published online 2 May 2024)

Abstract

This article asks whether the abandonment of drifting fish aggregating devices (dFADs) is illegal under international marine pollution law. To answer this question, it provides a brief overview of the general international legal framework for the protection of the marine environment as well as specific legal regimes, namely the London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (LC), its 1996 Protocol (LP), and Annex V of the International Convention for the Prevention of Pollution from Ships (MARPOL). The article concludes that the abandonment of dFADs contravenes the LC/LP and/or, depending on the preferred interpretation, MARPOL Annex V. The decision as to which of the two regimes is applicable depends on whether dFAD abandonment can be classified as ‘incidental to, or derived from the normal operations of vessels ... and their equipment’ or not. The negligent loss of dFADs always violates MARPOL Annex V. The article also shows that certain state practice and *opinio juris* suggests a parallel applicability of the two regimes with respect to deliberate dFAD abandonment. While such a development would ensure more comprehensive coverage of the relevant standards and prohibitions, a clear regulatory decision as to which of the two regimes is the correct one would be preferable from an implementation and enforcement perspective.

Keywords: Abandoned, lost, and discarded fishing gear (ALDFG); Drifting fish aggregating devices (dFADs); Marine pollution; International Maritime Organization (IMO); International Convention for the Prevention of Pollution from Ships (MARPOL); London Dumping Convention; London Dumping Protocol

1. Introduction

Marine litter, in particular plastic pollution, is an important challenge for contemporary ocean governance.¹ The fishing industry is a significant contributor to marine litter, including plastics. Indeed, according to recent estimates, abandoned, lost, and discarded fishing gear (ALDFG)² is the source of up to 61% of marine litter in the open

¹ See, e.g., M. Haward, ‘Plastic Pollution of the World’s Seas and Oceans as a Contemporary Challenge in Ocean Governance’ (2018) 9 *Nature Communications*, article 667.

² On ALDFG, see generally G. Macfadyen, T. Huntington & R. Cappell, *Abandoned, Lost or Otherwise Discarded Fishing Gear* (Food and Agriculture Organization of the United Nations (FAO), 2009), pp. 1–28.

© The Author(s), 2024. Published by Cambridge University Press. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted re-use, distribution and reproduction, provided the original article is properly cited.

ocean.³ ALDFG comprises various kinds of fishing gear, including so-called drifting fish aggregating devices (dFADs), which are a significant source of ALDFG given their common loss or abandonment.⁴ While scientific and legal definitions of what constitutes a dFAD vary,⁵ they can be described as a ‘permanent, semi-permanent or temporary [floating] structure, which is deployed and/or tracked, and used to aggregate fish for subsequent capture’.⁶ They typically consist of a floating structure (such as a raft), a submerged structure (made of, for example, old netting, canvas or ropes), and an instrumented echosounder buoy equipped with a satellite tracking system to monitor their position. Notwithstanding developments towards biodegradable designs,⁷ most dFADs are made at least partly of plastic, whereas the components of the buoy (batteries, solar panels, etc.) contain additional potentially harmful materials.⁸

More than 85% of all floating objects (natural and human-made) that are fished in the sea are estimated to be dFADs.⁹ Because of their relatively low cost, large numbers, and drifting nature, over 90% of dFADs are estimated to be lost, abandoned or discarded at sea.¹⁰ While unintentional loss of dFADs may occur when the satellite buoy malfunctions or when the dFAD sinks, deliberate abandonment ‘can be caused by dFADs drifting off fishing grounds or fishers moving to other fishing areas’, in which case ‘fishers deliberately abandon the dFAD because the travelling cost of retrieving it is too high’.¹¹ Thus, deliberate dFAD abandonment generally occurs for commercial reasons. Accordingly, dFADs have the third highest risk of contributing to ALDFG of all fishing gear.¹² Industrial purse seine tuna fleets are by far the main

³ K. Richardson, B.D. Hardesty & C. Wilcox, ‘Estimates of Fishing Gear Loss Rates at a Global Scale: A Literature Review and Meta-Analysis’ (2019) 20(6) *Fish and Fisheries*, pp. 1218–31.

⁴ T. Imzilen et al., ‘Recovery at Sea of Abandoned, Lost or Discarded Drifting Fish Aggregating Devices’ (2022) 5(7) *Nature Sustainability*, pp. 593–602, at 593; N.S. Vogt-Vincent et al., ‘Sources of Marine Debris for Seychelles and Other Remote Islands in the Western Indian Ocean’ (2023) 187 *Marine Pollution Bulletin*, article 114497.

⁵ R. Bealey & E. Dyer, ‘Standardizing FAD Definitions between RFMOs’, Sept. 2022, *International Pole & Line Foundation*, IOTC-2022-WGFAD03-16, available at: <https://iotc.org/sites/default/files/documents/2022/09/IOTC-2022-WGFAD03-16.pdf>.

⁶ FAO, *Voluntary Guidelines on the Marking of Fishing Gear* (FAO, 2019), para. 16(c), available at: <https://www.fao.org/responsible-fishing/resources/detail/en/c/1470106>; See also P. He et al., ‘Classification and Illustrated Definition of Fishing Gears’, FAO Fisheries and Aquaculture Technical Paper 672 (FAO, 2021), p. 9, available at: <https://www.fao.org/documents/card/en/c/b4966en>.

⁷ L. Escalle et al., ‘Towards Non-Entangling and Biodegradable Drifting Fish Aggregating Devices: Baselines and Transition in the World’s Largest Tuna Purse Seine Fishery’ (2023) 149 *Marine Policy*, article 105500.

⁸ M. Pons et al., ‘Benefits, Concerns, and Solutions of Fishing for Tunas with Drifting Fish Aggregation Devices’ (2023) 24(6) *Fish and Fisheries*, pp. 979–1002, at 986.

⁹ A. Dupaix et al., ‘Surface Habitat Modification Through Industrial Tuna Fishery Practices’ (2021) 78(9) *ICES Journal of Marine Science*, pp. 3075–88, at 3082.

¹⁰ L. Escalle et al., ‘Report on Analyses of the 2016/2018 PNA FAD Tracking Programme’, Western & Central Pacific Fisheries Commission (WCPFC), Aug. 2018, available at: <https://meetings.wcpfc.int/node/10653>.

¹¹ Pons et al., n. 8 above, p. 986.

¹² E. Gilman et al., ‘Highest Risk Abandoned, Lost and Discarded Fishing Gear’ (2021) 11 *Scientific Reports*, article 7195, p. 4.

users of dFADs.¹³ They often rely on such devices to aggregate and subsequently catch tropical tuna species because tropical tunas, such as skipjack tuna (*Katsuwonus pelamis*), are attracted by floating objects, thereby considerably increasing the efficiency of purse seine fisheries.¹⁴ It has been estimated that the total number of dFADs deployed annually by tuna fishing vessels could exceed 100,000.¹⁵

In the context of dFADs, harmful environmental impacts include entanglement (including ‘ghost-fishing’), habitat perturbation (including the so-called ecological trap), stranding, spread of invasive species, and dispersal of microplastic.¹⁶ As such, the minimization of ALDFG from dFADs would contribute to the fulfilment of the 2030 Agenda for Sustainable Development and, in particular, Sustainable Development Goal (SDG) 14 (‘life below water’).¹⁷

Against the backdrop of large-scale dFAD abandonment, its harmful environmental impacts, and evidence that large-scale loss and abandonment form part of the business model of a number of industrial purse seine fisheries, this article addresses the question whether the abandonment of dFADs is illegal from the perspective of international marine pollution law.¹⁸ Early work on this topic by Churchill argues that dFAD abandonment does violate international marine pollution law.¹⁹ However, the issue

¹³ See, e.g., R.B. Cabral, P.M. Aliño & M.T. Lim, ‘Modelling the Impacts of Fish Aggregating Devices (FADs) and Fish Enhancing Devices (FEDs) and Their Implications for Managing Small-Scale Fishery’ (2014) 71(7) *ICES Journal of Marine Science*, pp. 1750–9.

¹⁴ A. Maufroy et al., ‘Massive Increase in the Use of Drifting Fish Aggregating Devices (dFADs) by Tropical Tuna Purse Seine Fisheries in the Atlantic and Indian Oceans’ (2017) 74(1) *ICES Journal of Marine Science*, pp. 215–25; D. Gershman, A. Nickson & M. O’Toole, *Estimating the Use of FADs Around the World: An Updated Analysis of the Number of Fish Aggregating Devices Deployed in the Ocean* (The Pew Charitable Trusts, 2015), available at: <https://www.pewtrusts.org/en/research-and-analysis/reports/2015/11/estimating-the-use-of-fads-around-the-world>.

¹⁵ Imzilen et al., n. 4 above, p. 593; L. Escalle et al., ‘Quantifying Drifting Fish Aggregating Device Use by the World’s Largest Tuna Fishery’ (2021) 78(7) *ICES Journal of Marine Science*, pp. 2432–47, at 2442 (20,000 to 40,000 annual deployments in the Western Central Pacific Ocean alone).

¹⁶ See, e.g., Pons et al., n. 8 above, pp. 985–6; Imzilen et al., n. 4 above, p. 593; T. Davies et al., ‘Potential Environmental Impacts Caused by Beaching or Drifting Fish Aggregating Devices and Identification of Management Solutions and Uncertainties’, Apr. 2017, IOTC-2017-WGFAD01-08 Rev_1, pp. 6–7, available at: https://iotc.org/sites/default/files/documents/2017/04/IOTC-2017-WGFAD01-08_Rev_1.pdf; M. Purves, M.S. Adam & R. Bealey, ‘A Polluter Pays Principle for Drifting FADs: How it Could be Applied?’, Oct. 2021, IOTC-2021-WGFAD02-08, pp. 5–8, available at: <https://iotc.org/sites/default/files/documents/2021/09/IOTC-2021-WGFAD02-08.pdf>; J. Mourot et al., ‘Analyses of the Regional Database of Stranded Drifting Fish Aggregating Devices (dFADs) in the Pacific Ocean’, WCPFC, 29 July 2023, SC19-2023/EB-WP-04, available at: <https://meetings.wcpfc.int/node/19394>.

¹⁷ United Nations General Assembly (UNGA) Resolution 70/1, ‘Transforming Our World: The 2030 Agenda for Sustainable Development’, UN Doc. A/RES/70/1 (2015), available at: <https://sdgs.un.org/sites/default/files/publications/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>; K.N. Scott, ‘SDG 14: Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development’, in J. Ebbesson & E. Hey (eds), *The Cambridge Handbook of the Sustainable Development Goals and International Law* (Cambridge University Press, 2022), pp. 354–75, at 360–1.

¹⁸ For an overview of what international marine pollution law entails see J. Harrison, *Saving the Oceans through Law: The International Legal Framework for the Protection of the Marine Environment* (Oxford University Press, 2017), pp. 92–165.

¹⁹ R.R. Churchill, ‘Just a Harmless Fishing Fad – or Does the Use of FADs Contravene International Marine Pollution Law?’ (2021) 52(2) *Ocean Development & International Law*, pp. 169–92.

remains unsettled both in the academic literature²⁰ and in adjudication proceedings under the rules of the Marine Stewardship Council (MSC). A 2022 decision in an adjudication that formed part of an MSC certification objection procedure (MSC AGAC Adjudication) raised additional arguments regarding the legality of dFAD abandonment.²¹ In 2024, another MSC independent adjudicator agreed with these arguments in an *obiter dictum* that did not, however, provide any additional reasoning.²² The MSC independent adjudicators are neither members of true international courts or tribunals, nor – usually – experts in public international law.²³ However, their opinions can influence future legal assessments within²⁴ and beyond the MSC.²⁵ Therefore, the legality of dFAD abandonment must be regarded an open question.

The issue of fishing gear abandonment is located at the intersection of international fisheries law²⁶ and marine pollution law, which makes this activity subject to a fragmented legal regime that involves a variety of legal instruments and regulatory actors. While the International Maritime Organization (IMO) has a broad pollution-related mandate that includes pollution from fishing vessels, the mandates of the Food and Agriculture Organization of the United Nations (FAO) and regional fisheries management organizations (RFMOs) include the development of global and regional standards for fisheries, respectively. Indeed, some RFMOs have adopted binding conservation and management measures (CMMs), which contain prohibitions of deliberate fishing gear abandonment that apply also to dFADs.²⁷ Such regionally applicable CMMs may be

²⁰ Pons et al., n. 8 above, p. 986.

²¹ Marine Stewardship Council (MSC), *In the Matter of an Objection to the Final Draft Report and Determination on the Proposed Certification of the AGAC Four Oceans Integral Purse Seine Tropical Tuna Fishery (Indian Ocean)*, Decision of the Independent Adjudicator, 21 Apr. 2022, available at: <https://fisheries.msc.org/en/fisheries/agac-four-oceans-integral-purse-seine-tropical-tuna-fishery/@assessments> (MSC AGAC Adjudication).

²² MSC, *In the Matter of an Objection to the Final Draft Report and Determination on the Proposed Certification of the ANABAC Indian Ocean Purse Seine Skipjack Tuna Fishery under the MSC Standard for Sustainable Fishing*, Decision of the Independent Adjudicator, 7 Feb. 2024 (MSC ANABAC Adjudication) para. 20, available at: <https://fisheries.msc.org/en/fisheries/anabac-indian-ocean-purse-seine-skipjack-fishery/@assessments>.

²³ On the function of the independent adjudicator in the MSC objections procedure see MSC, ‘The MSC Objections Procedure’, 2023, available at: <https://www.msc.org/en-au/what-you-can-do/engage-with-a-fishery-assessment/the-msc-objections-procedure>.

²⁴ There is no formal system of precedent in MSC adjudication; see MSC AGAC Adjudication, n. 21 above, p. 41 (‘this decision has no value as precedent’). However, in the interests of consistency in the interpretation and application of the MSC Standard, independent adjudicators aim for harmonization of their jurisprudence; see, e.g., MSC ANABAC Adjudication, n. 22 above, para. 20 (‘I am satisfied that the reasoning of my brother Adjudicator is sound, and the objector has offered no compelling reason to reach a different conclusion’).

²⁵ More generally on the interaction of the MSC and international law see M. Karavias, ‘Interactions between International Law and Private Fisheries Certification’ (2018) 7(1) *Transnational Environmental Law*, pp. 165–84.

²⁶ For an explanation of what the term ‘international fisheries law’ entails see V.J. Schatz & A. Honniball, ‘International Fisheries Law’, in A. Carty (ed.), *Oxford Bibliographies in International Law* (Oxford University Press, 2019), pp. 1–28, at 1.

²⁷ See, e.g., South East Atlantic Fisheries Organisation (SEAFO), ‘SEAFO System 2022’, Art. 8(c), available at: <http://www.seafo.org/Documents/SEAFO-System> (‘no vessel shall deliberately abandon fishing gear, except for safety reasons, notably vessels in distress and/or life in danger’); International Commission for the Conservation of Atlantic Tunas (ICCAT), ‘Recommendation 19-11 on Abandoned, Lost or Otherwise Discarded Fishing Gear’, 2019, para. 1, available at: <https://www.iccat.int/Documents/Recs/compendiopdf-e/2019-11-e.pdf>

argued to implement and complement the global marine pollution law prohibitions under investigation in this article. That said, the regulatory role of the FAO and RFMOs with regard to dFADs, including the aspect of marine pollution, is not the focus of this article.²⁸

To answer the question of the legality of dFAD abandonment under international marine pollution law, this article will provide an in-depth analysis of the applicable legal framework developed under the auspices of the IMO. Before doing so, Section 2 will provide a brief overview of the general international legal framework for the protection of the marine environment contained in Part XII of the United Nations Convention on the Law of the Sea (UNCLOS).²⁹ Section 3 will examine the specific international legal regime concerning pollution by dumping, namely the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention or LC),³⁰ and its 1996 Protocol (London Protocol or LP).³¹ The article turns, in Section 4, to an analysis of the international legal regime which concerns the pollution from vessels under the International Convention for the Prevention of Pollution from Ships (MARPOL),³² Annex V of which contains provisions on the discharge of garbage, including fishing gear. Section 5 addresses the relationship between the two regimes and a delimitation of their respective scopes. The concluding Section 6 is devoted to a brief discussion of the implementation and enforcement of the analyzed prohibitions.

2. General Framework for the Protection and Preservation of the Marine Environment under Part XII UNCLOS

To understand the role of the LC/LP and MARPOL with regard to ALDFG in the broader international legal framework concerning the protection and preservation of the marine environment, it is necessary to take a look at Part XII UNCLOS. The provisions of Part XII that concern the protection of the marine environment from pollution do not explicitly address ALDFG.³³ However, many categories of marine litter must be qualified as ‘marine pollution’ within the meaning of Article 1(1)(4) UNCLOS;³⁴ this includes ALDFG from dFADs.³⁵ Therefore, state parties must address

(‘fishing vessels authorized to fish species managed by ICCAT in the Convention area are prohibited from abandoning and discarding fishing gear except for safety reasons’).

²⁸ See, e.g., L. Song & H. Shen, ‘An Integrated Scheme for the Management of Drifting Fish Aggregating Devices in Tuna Purse Seine Fisheries’ (2023) 30(1) *Fisheries Management and Ecology*, pp. 56–69, at 61–6.

²⁹ Montego Bay (Jamaica), 10 Dec. 1982, in force 16 Nov. 1994, available at: https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf.

³⁰ London (United Kingdom (UK)), 29 Dec. 1972, in force 30 Aug. 1975, available at: <https://www.imo.org/en/OurWork/Environment/Pages/London-Convention-Protocol.aspx>.

³¹ London (UK), 7 Nov. 1996, in force 24 Mar. 2006, available at: <https://www.imo.org/en/OurWork/Environment/Pages/London-Convention-Protocol.aspx>.

³² London (UK), 2 Nov. 1973, in force 2 Oct. 1983, available at: [https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-\(MARPOL\).aspx](https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx).

³³ S. Hodgson, *Legal Aspects of Abandoned, Lost or Otherwise Discarded Fishing Gear* (FAO, 2022), p. 8.

³⁴ A. Stöfen-O’Brien, *The International and European Legal Regime Regulating Marine Litter in the EU* (Nomos, 2015), pp. 94–5.

³⁵ Churchill, n. 19 above, p. 172.

this source of pollution to fulfil their general ‘obligation to protect and preserve the marine environment’ under Article 192 UNCLOS. This obligation is further concretized by the obligations in Article 194 UNCLOS to take measures to prevent, reduce, and control pollution of the marine environment from any source, including fishing vessels.³⁶ In giving effect to these obligations, Article 197 UNCLOS requires state parties – besides taking measures of their own – to cooperate ‘on a global basis and, as appropriate, on a regional basis, directly or through competent international organizations’.

These general provisions are further concretized and complemented by a set of obligations that specifically concern pollution by dumping (Articles 210 and 216 UNCLOS) and pollution from vessels (Articles 211, 217–218 and 220 UNCLOS).³⁷ States are additionally obliged to establish ‘global and regional rules, standards and recommended practices and procedures’ to prevent, reduce, and control pollution by dumping (Article 210(4) UNCLOS) and ‘international rules and standards’ to prevent, reduce, and control vessel-source pollution (Article 211(1) UNCLOS). In this context, the most important (and in the case of vessel-source pollution, the only) international organization mandated to establish international rules and standards is the IMO.³⁸ With regard to pollution by dumping, the main treaties adopted under the auspices of the IMO are the London Convention and the London Protocol, discussed in Section 3. Pollution from vessels is addressed primarily through MARPOL, with provisions on the discharge of garbage, including fishing gear, contained in MARPOL Annex V, discussed in Section 4. As will be shown in the following sections, the LC/LP and MARPOL Annex V are relevant to the issue of ALDFG – including lost, abandoned, and discarded dFADs.³⁹ Sections 3 and 4 will also examine the question whether the LC/LP and MARPOL Annex V must be classified as international minimum standards binding on all state parties to UNCLOS pursuant to Articles 210(6) and 211(2) UNCLOS, respectively (both of which are so-called rules of reference that incorporate rules external to UNCLOS).⁴⁰

3. Prohibition of Deliberate dFAD Abandonment under the London Convention and Protocol

The objective of the LC/LP regime is for the contracting parties to ‘protect and preserve the marine environment from all sources of pollution’ and to ‘take effective measures to

³⁶ While international law contains a variety of specific sets of norms for fishing vessels in certain subject-matter areas, this is not the case for the general rules concerning the protection of the marine environment; see further R.R. Churchill, ‘Fishing Boats’, in A. Peters (ed.), *Max Planck Encyclopedia of Public International Law* (Oxford University Press, 2018).

³⁷ Stöfen-O’Brien, n. 34 above, pp. 105–10.

³⁸ T. Stephens, ‘Article 197’, in A. Proelss (ed.), *United Nations Convention on the Law of the Sea (UNCLOS): A Commentary* (C.H. Beck/Hart/Nomos, 2017), pp. 1328–33, para. 17; F. Wacht, ‘Article 210’, in Proelss, *ibid.*, pp. 1407–18, para. 12; K. Bartenstein, ‘Article 211’, in Proelss, *ibid.*, pp. 1419–43, para. 14; Stöfen-O’Brien, n. 34 above, p. 109; Churchill, n. 19 above, p. 189.

³⁹ See also *ibid.*

⁴⁰ On these rules of reference see generally L.N. Nguyen, ‘Expanding the Environmental Regulatory Scope of UNCLOS through the Rule of Reference: Potentials and Limits’ (2021) 52(4) *Ocean Development & International Law*, pp. 419–44, at 422.

prevent, reduce and where practicable eliminate pollution caused by dumping ... of wastes or other matter'.⁴¹ Although the LC has more contracting parties (87 – representing 55.2% of world tonnage) than the LP (54 – representing 39.74% of world tonnage),⁴² the present analysis focuses on the Protocol.⁴³ The first reason for this focus is that the LP has modernized and superseded the LC as between the LP's contracting parties,⁴⁴ and the number of contracting parties continues to grow. Secondly, the flag states whose tuna fishing fleets are the main users of dFADs (for example, Spain in the Atlantic and Indian Ocean) are contracting parties to the LP.⁴⁵ Thirdly, the question arises whether the LP (to the extent that it contains rules different from those of the LC) constitutes 'global rules and standards' within the meaning of Article 210(6) UNCLOS, thus transforming the LP into a binding global minimum standard for all states parties of UNCLOS. This has long been widely accepted for the LC.⁴⁶ While the literature remains divided over whether the LP has reached this status, there is a clear trend towards recognition of the LP as 'global rules and standards'.⁴⁷ Finally, the result of this analysis is generally transferable to the LC regime as the relevant provisions of the LP are similar to those of the LC.⁴⁸

This article will first examine whether dFADs may be classified as 'wastes or other matter' under the LP. Thereafter, it will turn to the question whether the loss, discarding, and abandonment of dFADs or other fishing gear constitutes 'dumping' within the meaning of the LP as a matter of the substantive requirements of the Protocol. Even if this is the

⁴¹ London Protocol, n. 31 above, Art. 2.

⁴² IMO, 'Status of Conventions' (2023), available at: <https://www.imo.org/en/About/Conventions/Pages/StatusOfConventions.aspx>.

⁴³ For a detailed discussion of the functioning of the LC see Harrison, n. 18 above, pp. 96–107.

⁴⁴ London Protocol, n. 31 above, Art. 23; Harrison, n. 18 above, p. 107.

⁴⁵ That said, there has been a trend in these fleets to reflag vessels to developing coastal states that are not contracting parties to the LP (e.g., Mauritius, Seychelles, and Tanzania).

⁴⁶ R.R. Churchill, A.V. Lowe & A. Sander, *The Law of the Sea* (Manchester University Press, 4th edn, 2022), p. 669.

⁴⁷ Pro: L. de La Fayette, 'The London Convention 1972: Preparing for the Future' (1998) 13(4) *International Journal of Marine and Coastal Law*, pp. 515–36, at 516; G.H. Hong & Y.J. Lee, 'Transitional Measures to Combine Two Global Ocean Dumping Treaties into a Single Treaty' (2015) 55 *Marine Policy*, pp. 47–56, at 50; E. Kirk, 'Science and the International Regulation of Marine Pollution', in D. Rothwell et al. (eds), *The Oxford Handbook of the Law of the Sea* (Oxford University Press, 2015), pp. 516–35, at 528; Wacht, n. 38 above, para. 20; Churchill, n. 19 above, p. 173; Churchill, Lowe & Sander, n. 46 above, p. 669; probably also H. Esmaceli & B. Grigg, 'Pollution from Dumping', in D.J. Attard et al. (eds), *The IMLI Manual on International Maritime Law: Volume III: Marine Environmental Law and International Maritime Security Law* (Oxford University Press, 2016), pp. 78–94, at 79; A. Proelss, 'Fragmentation and Coherence in the Legal Framework for the Protection of the Marine Environment', in R. Rayfuse, A. Jaeckel & N. Klein (eds), *Research Handbook on International Marine Environmental Law* (Edward Elgar, 2nd edn, 2023), pp. 57–79, at 63–4. Contra: Harrison, n. 18 above, p. 110; K.N. Scott, 'Exploiting the Oceans for Climate Change Mitigation: Case Study on Ocean Fertilisation', in C. Schofield, S. Lee & M.-S. Kwon (eds), *The Limits of Maritime Jurisdiction* (Martinus Nijhoff, 2014), pp. 653–77, at 663–4. Sceptical: also Nguyen, n. 40 above, pp. 432–7 (with a focus on climate change mitigation measures); M. Wong & N. Lanzoni, 'Land-Based Sources of Marine Pollution and Dumping at Sea', in S. Borg, F. Attard & P.M. Vella de Fremaux (eds), *Research Handbook on Ocean Governance Law* (Edward Elgar, 2023), pp. 109–27, at 124.

⁴⁸ Cf. Churchill, n. 19 above, pp. 172–84.

case, the question whether dFAD abandonment truly falls within the scope of the LP is an issue that can be answered only in connection with the analysis of the relationship of the LP with MARPOL Annex V (see Section 5 below).

3.1. dFADs as ‘Wastes or Other Matter’

Under the LP, contracting parties must prohibit, in their domestic law, the ‘dumping’ of ‘any wastes or other matter’ by vessels or aircraft ‘at sea’ (meaning the territorial sea, archipelagic waters, exclusive economic zone, and high seas⁴⁹), with certain exceptions listed in Annex 1 to the LP, which can be dumped subject to a permit requirement to be imposed by the contracting party relying on the exception (so-called ‘reverse-list’).⁵⁰ The LP defines ‘wastes or other matter’ as ‘material and substance of any kind, form or description’.⁵¹ This broad definition covers fishing gear such as dFADs, in particular when containing plastics.⁵² Moreover, fishing gear is not among the wastes and other matter listed in LP Annex 1, the dumping of which is exceptionally permissible. Therefore, fishing gear such as dFADs must be classified as ‘wastes or other matter’.

3.2. Loss, Discarding, and Abandonment of dFADs as ‘Dumping’

The next question is whether the loss, discarding, and abandonment of dFADs or other fishing gear constitutes ‘dumping’ within the meaning of the LP. The Protocol’s definition of ‘dumping’ is divided into four sub-categories, of which the first (‘any deliberate disposal into the sea of wastes or other matter’) is the most important in the present context.⁵³ The LP does not define the term ‘disposal’, although it has been interpreted to mean ‘the act of getting rid of’.⁵⁴ This interpretation is in line with the jurisprudence of national courts of contracting parties concerning legislation implementing the LP, such as the German Federal Administrative Court.⁵⁵ Additionally, the disposal must be ‘deliberate’ (i.e., intentional) to constitute dumping.⁵⁶ Thus, neither the merely accidental loss of a dFAD⁵⁷ nor the initial

⁴⁹ London Protocol, n. 31 above, Art. 1(7); see also London Convention, n. 30 above, Art. III(3).

⁵⁰ London Protocol, n. 31 above, Art. 4(1); IMO, ‘The London Convention and Protocol’ (2023), available at: <https://www.imo.org/en/KnowledgeCentre/ConferencesMeetings/Pages/London-Convention-Protocol.aspx>; Stöfen-O’Brien, n. 34 above, pp. 143–4; Harrison, n. 18 above, pp. 108–9.

⁵¹ London Protocol, n. 31 above, Art. 1(8).

⁵² Churchill, n. 19 above, p. 174.

⁵³ London Protocol, n. 31 above, Art. 1(4)(1)(1).

⁵⁴ Churchill, n. 19 above, pp. 174–5.

⁵⁵ V. Schatz, *Kommentar: Gesetz über das Verbot der Einbringung von Abfällen und anderen Stoffen und Gegenständen in die Hohe See (Hohe-See-Einbringungsgesetz – HSEG)* (Nomos, 2021), p. 18, with reference to Bundesverwaltungsgericht (BVerwG), Judgment of 28 July 2011 – 7 C 7/10, BeckRS 2011, 53366, para. 20 (‘wenn das Handeln des Besitzers des betreffenden Stoffes darauf gerichtet ist, sich dessen endgültig und auf Dauer zu entledigen, diesen also unter Aufgabe der Sachherrschaft „loszuwerden“’).

⁵⁶ Churchill, n. 19 above, p. 175. Also compare Schatz, n. 55 above, p. 18, with reference to BVerwG, Judgment of 28 July 2011, n. 55 above, para. 23.

⁵⁷ Churchill, n. 19 above, p. 175.

deployment of a dFAD with the intention of retrieval constitutes dumping.⁵⁸ Conversely, the intentional discarding of a dFAD into the sea when it is still on board the vessel constitutes a deliberate disposal, which must be classified as dumping.⁵⁹

In terms of interpretation by states and international organizations, a CMM adopted by the Indian Ocean Tuna Commission (IOTC), namely Resolution 23/02, noted in its Preamble that ‘releasing fishing devices into the water, such as FADs, does not contravene ... the [LC] and [LP] as long as such device is deployed with the intention of later retrieval’.⁶⁰ While not all members of the IOTC voted in favour of this CMM, this particular statement in the Preamble was not contested among the members at the time (that is, 29 states and the European Union), and indeed was contained in proposals of both the proponents and opponents of the CMM. It thus may be said to reflect significant *opinio juris* of IOTC members in respect of the interpretation of the LC/LP. However, it must be noted that IOTC Resolution 23/02 never entered into force because of the large numbers of objections to this measure that were lodged by IOTC members.⁶¹ Moreover, this evidence of *opinio juris* will not, in itself, meet the high threshold of Article 31(3)(b) of the Vienna Convention on the Law of Treaties (VCLT),⁶² pursuant to which – under a common view – only the subsequent practice of all parties (active or passive)⁶³ may influence the interpretation of treaty norms.⁶⁴ However, the conviction expressed by IOTC members in Resolution 23/02 would certainly contribute to a comprehensive assessment of subsequent practice in the context of the LC/LP. Additionally, Article 32 VCLT may also be used to interpret treaty norms in accordance with subsequent practice of parties to the treaty that falls below the threshold of Article 31(3)(b) VCLT.⁶⁵ Accordingly, this article will refer to instances of practice and *opinio juris*, such as IOTC Resolution 23/02, where appropriate.

Difficulties exist primarily with regard to the abandonment of dFADs already present in the water. This is generally the case when their owner deliberately relinquishes control by letting them drift away and/or switching off the satellite buoy. It was argued by the independent adjudicator in the MSC AGAC Adjudication that abandonment is

⁵⁸ London Protocol, n. 31 above, Art. 1(4)(2)(2). See also MSC AGAC Adjudication, n. 21 above, paras 137, 143; Churchill, n. 19 above, p. 176.

⁵⁹ Cf. Churchill, n. 19 above, p. 175; Davies et al., n. 16 above, p. 8.

⁶⁰ Indian Ocean Tuna Commission (IOTC), Resolution 23/02, ‘Management of Drifting Fish Aggregating Devices (DFADs) in the IOTC Area of Competence’ (2023, not in force), Preamble, available at: https://iotc.org/sites/default/files/documents/2023/02/Resolution_23-02E_-_On_Management_of_Drifting_Fish_Aggregating_Devices_DFADs_in_the_IOTC_area_of_competence.pdf.

⁶¹ IOTC Secretariat, ‘Status of Resolution 2023-02 adopted by the IOTC at its 6th Special Session’, 8 Aug. 2023, IOTC Circular 2023-51, available at: <https://iotc.org/documents/status-resolution-2023-02-adopted-iotc-its-6th-special-session>.

⁶² Vienna (Austria), 23 May 1969, in force 27 Jan. 1980, available at: <https://treaties.un.org/Pages/showDetails.aspx?objid=080000028003902f>.

⁶³ I. Buga, ‘Between Stability and Change in the Law of the Sea Convention: Subsequent Practice, Treaty Modification, and Regime Interaction’, in Rothwell et al., n. 47 above, pp. 46–68, at 49.

⁶⁴ On the role of subsequent practice in treaty interpretation, see generally International Law Commission, ‘Subsequent Agreements and Subsequent Practice in relation to the Interpretation of Treaties’ (2018) 2 *Yearbook of the International Law Commission*, pp. 23–88.

⁶⁵ *Ibid.*, p. 28.

exclusively covered by the fourth sub-category of dumping,⁶⁶ which concerns only the abandonment of platforms or other man-made structures at sea (i.e., not dFADs).⁶⁷ Additionally, the independent adjudicator argued that Article 1(4)(2)(3) LP excluded the abandonment of dFADs from the scope of ‘dumping’ because dFADs are initially ‘placed for a purpose other than the mere disposal thereof.’⁶⁸ He considered that, exclusively, the intention at the time of the initial deployment was decisive; for the independent adjudicator, if a device was placed in the sea for a lawful purpose and with the intention of retrieval, the subsequent decision to abandon the device for purposes of disposal would not constitute a deliberate disposal.⁶⁹

One could pose the question whether a business model based on the assumption that a number of deployed dFADs will be deliberately abandoned for commercial reasons⁷⁰ provides sufficient confidence to conclude that there is truly an intention to retrieval all dFADs. Leaving this question aside, the adjudicator’s view is erroneous for several reasons. It overlooks that the first category of dumping under Article 1(4)(1)(1) LP (‘disposal’ – defined as ‘the act of getting rid’ of) is broad enough to cover relinquishing control of fishing gear that was initially deployed with the intention of retrieval.⁷¹ To consider that the term ‘disposal’ refers only to the initial placement of matter into the sea is, indeed, a narrow interpretation of the term. Such a narrow interpretation would result in a loophole in the LP that would allow the deliberate abandonment of any kind of matter not already covered by Article 1(4)(1)(4) LP if the initial deployment did not constitute dumping – regardless of how large and/or harmful it is to the marine environment. While the potential problem of the large-scale abandonment of dFADs might not have been known at the time of the drafting of the LC/LP, it is inconceivable that the drafters intended that these instruments allow for an interpretation that severely undermines their effectiveness.⁷² From the perspective of a systematic interpretation, a (too) narrow reading of the term ‘disposal’ would also render the exception in Article 1(4)(2)(3) LP meaningless to the extent that it covers ‘matter’ other than platforms or other man-made structures. Overall, it is difficult to reconcile such an interpretation with the object and purpose, as well as the regulatory structure, of the LP. For the same reason, the exception from ‘dumping’ in Article 1(4)(2)(3) LP does not apply to the deliberate abandonment for the purpose of the disposal of devices initially placed in the water with the intention of retrieval – as indicated by the examples given (‘cables, pipelines and marine research devices’).

In terms of state practice, the view submitted here is supported by IOTC Resolution 23/02, which states in its preamble that ‘in accordance with ... the London Convention and Protocol, FADs under the competence of the IOTC must be managed to ensure that they are exclusively deployed with the intention of later retrieval and that they are not abandoned at sea except in situations of force majeure’.⁷³

⁶⁶ London Protocol, n. 31 above, Art. 1(4)(1)(4).

⁶⁷ MSC AGAC Adjudication, n. 21 above, para. 143.

⁶⁸ *Ibid.*

⁶⁹ *Ibid.*, paras 139–40.

⁷⁰ Pons et al., n. 8 above, p. 986.

⁷¹ Schatz, n. 55 above, p. 18, with reference to BVerwG, Judgment of 28 July 2011, n. 55 above, para. 23.

⁷² Cf. Churchill, n. 19 above, p. 176.

⁷³ IOTC Resolution 23/02, n. 60 above, Preamble.

4. Prohibition of Intentional Abandonment and Negligent Loss of dFADs under MARPOL Annex V

The object and purpose of MARPOL Annex V is to prevent pollution by garbage from ships, including fishing vessels.⁷⁴ It is of key importance, therefore, in preventing marine litter from operational vessel discharges.⁷⁵ Currently, MARPOL Annex V has 155 contracting parties (98.38% of world tonnage), which include all major flag states of tuna fishing fleets using dFADs.⁷⁶ It is beyond serious doubt that the rules contained in MARPOL Annex V must be classified as ‘generally accepted international rules and standards’ within the meaning of Article 211(2) UNCLOS.⁷⁷ Accordingly, all state parties to UNCLOS are obliged to adopt laws and regulations in relation to garbage from ships that have ‘at least have the same effect’ as MARPOL Annex V.⁷⁸

This section focuses on whether MARPOL Annex V obliges its contracting parties to prohibit discards or abandonment of dFADs by vessels under their flag as an example of fishing gear. In relevant part, MARPOL Annex V contains two prohibitions of discharges, one of which is absolute, and the other relative. Firstly, MARPOL Annex V prohibits the ‘discharge of all garbage into the sea’ more generally.⁷⁹ Secondly, there is a prohibition of the discharge of ‘all plastics’, including ‘synthetic ropes’ and ‘synthetic fishing nets’.⁸⁰

4.1. dFADs and Other Fishing Gear as ‘Garbage’

In relevant part, ‘garbage’ for the purposes of MARPOL Annex V includes ‘all kinds of ... operational wastes, all plastics [and] *fishing gear* ... generated during the normal operation of the ship and liable to be disposed of continuously or periodically’ that are not covered by one of the other Annexes to MARPOL (none of which are relevant in the present context).⁸¹ The term ‘fishing gear’ is defined as ‘any physical device or part thereof or combination of items that may be placed on or in the water or on the seabed with the intended purpose of capturing, or controlling for subsequent capture or harvesting, marine or freshwater organisms’.⁸² DFADs are physical devices placed in the water with the intended purpose of controlling marine organisms for subsequent capture and, therefore, constitute fishing gear for the purposes of MARPOL Annex V. This interpretation is confirmed by the non-binding IMO Guidelines for the Implementation of MARPOL Annex V, which mention ‘[f]ishing gear ... *such as fish*

⁷⁴ MARPOL, n. 32 above, Annex V, Reg. 2(4); IMO, ‘Report of the Correspondence Group for the Review of MARPOL Annex V: Submitted by Canada’, 2 Apr. 2009; IMO, MEPC 59/6/3, p. 7, available at: <https://docs.imo.org>; Churchill, n. 19 above, p. 185.

⁷⁵ Stöfen-O’Brien, n. 34, pp. 124–41.

⁷⁶ IMO, n. 42 above.

⁷⁷ Harrison, n. 18 above, p. 139; Churchill, n. 19 above, p. 185; Churchill, Lowe & Sander, n. 46 above, p. 648; but see M. Fitzmaurice, ‘The International Convention for the Prevention of Pollution from Ships (MARPOL)’, in Borg, Attard & Vella de Fremeaux, n. 47 above, pp. 91–108, at 94.

⁷⁸ See further Bartenstein, n. 38 above, paras 16–9.

⁷⁹ MARPOL, n. 32 above, Annex V, Reg. 3(1).

⁸⁰ *Ibid.*, Reg. 3(2).

⁸¹ *Ibid.*, Reg. 1(9) (emphasis added).

⁸² *Ibid.*, Reg. 1(6).

aggregating devices (FADs), traps and static nets'.⁸³ It is also consistent with the characterization of dFADs as fishing gear by the FAO⁸⁴ and under many domestic law definitions.⁸⁵ Accordingly, some IMO members have called for the inclusion of an explicit clarification to that extent in MARPOL Annex V.⁸⁶ To the extent that a dFAD is partly made of plastics,⁸⁷ including synthetic ropes or fishing nets, its discharge into the sea is also covered by the additional prohibition under Regulation 3(2) MARPOL Annex V.⁸⁸

It follows that dFADs, like other fishing gear, can be classified as garbage if they are 'generated during the normal operation of the ship and liable to be disposed of continuously or periodically'.⁸⁹ What this requirement refers to is that the waste in question is a by-product of the normal operation of the ship, and that it is either continuously or periodically liable to be 'disposed' of as such. In this context, the term 'liable to be disposed' refers not to a discharge from a vessel into the sea, but to the need to get rid of the waste more generally (i.e., delivery to port reception facilities, incineration on board or disposal at sea). As described in the introduction to this article, dFADs are used (and thus 'generated') in the normal operation of many purse seine vessels fishing for tuna. Moreover, like other categories of fishing gear, dFADs have a limited lifespan and must eventually be disposed of. As such, they clearly constitute 'garbage' within the meaning of MARPOL Annex V.⁹⁰ This interpretation is confirmed by the IMO's ongoing work regarding ALDFG in the framework of MARPOL Annex V.⁹¹ What this means for the delimitation of the scope of MARPOL Annex V and the LC/LP regime is discussed in Section 5 below.

4.2. Loss, Discarding, and Abandonment of dFADs as 'Discharge'

If it is assumed, *arguendo*, that MARPOL Annex V is applicable, the decisive question is what constitutes a 'discharge'. For the purposes of all MARPOL Annexes, the term 'discharge' refers to 'any release howsoever caused from a ship and includes any escape, disposal, spilling, leaking, pumping, emitting or emptying'.⁹² The terms 'disposal' and 'escape' best describe the loss, discarding, and abandonment of dFADs. At least three questions must be answered in this context. Firstly, does a 'discharge' require

⁸³ Guidelines for the Implementation of MARPOL Annex V, 7 July 2017, MEPC 71/17/Add.1, Annex 21, para. 1.7.8 (emphasis added), available at: [https://www.wcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/MEPCDocuments/MEPC.295\(71\).pdf](https://www.wcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/MEPCDocuments/MEPC.295(71).pdf); Churchill, n. 19 above, p. 187.

⁸⁴ FAO/IMO, *Report of the Third Session of the Joint FAO/IMO Ad Hoc Working Group on Illegal, Unreported and Unregulated (IUU) Fishing and Related Matters*, FIAO/R1152 (En) JWG 3/15 (FAO & IMO, 2016), p. 7, available at: <https://www.fao.org/3/i5736e/i5736e.pdf>.

⁸⁵ Hodgson, n. 33 above, p. 4.

⁸⁶ IMO, 'Report of the Correspondence Group on Marine Plastic Litter from Ships: Submitted by France', 18 Dec. 2020, PPR 8/8, p. 11, available at: <https://docs.imo.org>.

⁸⁷ For a definition of 'plastic' see MARPOL, n. 32 above, Annex V, Reg. 1(13).

⁸⁸ Churchill, n. 19 above, p. 186.

⁸⁹ MARPOL, n. 32 above, Annex V, Reg. 1(9).

⁹⁰ See also, albeit with a different approach, Churchill, n. 19 above, p. 187.

⁹¹ See, e.g., IMO, 'Report of the Correspondence Group on Marine Plastic Litter from Ships: Submitted by Norway and Spain', 20 Jan. 2023, PPR 10/13, available at: <https://docs.imo.org>.

⁹² MARPOL, n. 32 above, Art. 2(3)(a).

intentional conduct? Secondly, does the loss or abandonment of dFADs constitute a ‘discharge’ if the dFAD was initially deployed with the intention of retrieval? Thirdly, what is the relationship between MARPOL Annex V and the LC/LP in this respect (Section 5)?

Sufficiency of negligence and intent

Starting with the first question, it would appear from the wording of the very broad definition of ‘discharge’ that it does *not* require an intentional act or omission but might equally arise from negligent conduct (such as an ‘escape’).⁹³ This interpretation is supported by the preamble to MARPOL (‘deliberate, negligent or accidental’) and Regulation 7(1)(3) MARPOL Annex V, which contains an exception from the prohibition of discharges of fishing gear in cases of ‘accidental loss’ if ‘all reasonable precautions have been taken to prevent such loss’.⁹⁴ Conversely, an accidental loss of fishing gear constitutes a prohibited discharge if all reasonable precautions have *not* been taken to prevent such a loss.⁹⁵ Vessels must record – in the Garbage Record Book or, in case of vessels of less than 400 gross tonnage, in the ship’s official logbook – any accidental loss, including ‘the location, circumstances of, and the reasons for the discharge or loss/details of the items discharged or lost, and the reasonable precautions taken to prevent or minimize such discharge or accidental loss’.⁹⁶ The standard of ‘all reasonable precautions’ is equivalent to the standard of due diligence applicable in a defence against a claim of negligence.⁹⁷ This interpretation is consistent with the practice of contracting parties to MARPOL Annex V, whose national implementing legislation usually provides for sanctions in the case of both intentional and negligent violations of the prohibition of discharges of garbage.⁹⁸ Exceptionally, an intentional discharge of fishing gear is not prohibited ‘for the protection of the marine environment

⁹³ Churchill, n. 19 above, p. 185; but see Davies et al., n. 16 above, p. 8.

⁹⁴ Another exception concerns ‘the discharge of fishing gear from a ship for the protection of the marine environment or for the safety of that ship or its crew’; see MARPOL, n. 32 above, Annex V, Reg. 7(1)(4). This exception, however, is not applicable to the conduct at issue here.

⁹⁵ Churchill, n. 19 above, p. 186. Note, however, that the *initial* deployment does not normally constitute ‘accidental loss’ (‘[f]ishing gear that is released into the water with the intention of later retrieval, such as [FADs], ... should not be considered garbage or accidental loss in the context of MARPOL Annex V’): Guidelines for the Implementation of MARPOL Annex V, n. 83 above, para. 1.7.8.

⁹⁶ MARPOL, n. 32 above, Annex V, Reg. 10(3)(4); Guidelines for the Implementation of MARPOL Annex V, n. 83 above, para. 2.2.

⁹⁷ Compare, e.g., M. Lee, ‘Waste and Liability in Environmental Law’ (2002) 14(1) *Journal of Environmental Law*, pp. 75–84, at 82.

⁹⁸ See, e.g., Merchant Shipping (Prevention of Pollution by Garbage from Ships) Regulations (UK) (2020), s. 21(1)(c) in conjunction with s. 22(1) (‘it is a defence for the person charged to prove that they took all reasonable steps and exercised all due diligence to ensure that the regulation in question was complied with’); *Verordnung über das umweltgerechte Verhalten in der Seeschifffahrt (See-Umweltverhaltensverordnung – SeeUmwVerhV)* (Germany), 13 Aug. 2014, last amended 13 Dec. 2019, s. 28(2) Nr. 19 (‘vorsätzlich oder fahrlässig’); Protection of the Sea (Prevention of Pollution from Ships) Act 1983 (Australia) (2020), s. 26F(1)(b) (‘reckless or negligent’); Code de l’environnement (France), 1 Oct. 2022, Art. L218-15(I) in conjunction with Article L218-19(I) (‘imprudence, négligence ou inobservation’); Real Decreto Legislativo 2/2011, de 5 de septiembre, por el que se aprueba el Texto Refundido de la Ley de Puertos del Estado y de la Marina Mercante (Spain), Art. 307(4)(a) (‘negligente’).

or for the safety of that ship or its crew’.⁹⁹ This exception prevents a conflict between MARPOL Annex V and other rules concerning marine environmental protection and, more importantly, the safety of ship and crew – for example, in situations of *force majeure*.¹⁰⁰

Relinquishment of control over dFADs after initially lawful deployment

Regarding the second question, the IMO Guidelines for the Implementation of MARPOL Annex V clarify with respect to the initial deployment that ‘[f]ishing gear that is released into the water with the intention of later retrieval, such as [FADs], *should not be considered garbage ... in the context of MARPOL Annex V*’.¹⁰¹ This applies both to ‘garbage’ under Regulation 3(1) and ‘plastics’ as a sub-category of garbage under Regulation 3(2) MARPOL Annex V.¹⁰² While the non-binding Guidelines refer to the requirement of ‘garbage’ rather than ‘discharge’, the issue that they address is arguably more appropriately placed in the context of the discharge requirement (in any event, the result would be the same).

Thus, the deployment of fishing gear with the intention of subsequent retrieval does not constitute a discharge of garbage. Conversely, fishing gear that is released into the water without the intention of later retrieval constitutes a discharge of garbage.¹⁰³ This is also recognized in IOTC Resolution 23/02, which states in its preamble that MARPOL Annex V (only) prohibits the deployment of FADs without the intention of later retrieval.¹⁰⁴ Of course, as with the prohibition of dumping in the London Protocol, proving a lack of intention of later retrieval requires evidence that might be difficult to obtain. That said, it has been suggested that ‘[t]he sheer numbers of drifting FADs that are not retrieved raises obvious questions regarding intent’ and that ‘it is reasonable to question whether the deployment of drifting FADs breaches MARPOL’.¹⁰⁵ Indeed, as already done in the context of the London Protocol, the question may be asked whether the initial deployment of dFADs is truly conducted with the full and absolute intention of later retrieval of *all* dFADs if it is already clear, and factored into the business model of the fishery, that a considerable number of dFADs will later be deliberately abandoned for commercial reasons.¹⁰⁶

Finally, leaving aside the question of the initial deployment, nothing in the wording of the clarification in the IMO Guidelines for the Implementation of MARPOL Annex V suggests that the negligent loss or deliberate abandonment of fishing gear after its initial

⁹⁹ MARPOL, n. 32 above, Annex V, Reg. 7(1)(4).

¹⁰⁰ On the concept of *force majeure* in international law see generally S. Hentrei & X. Soley, ‘Force Majeure’ (2011), in Peters, n. 36 above.

¹⁰¹ Guidelines for the Implementation of MARPOL Annex V, n. 83 above, para. 1.7.8 (emphasis added); Churchill, n. 19 above, p. 185.

¹⁰² MSC AGAC Adjudication, n. 21 above, para. 146.

¹⁰³ FAO/IMO, n. 84 above, p. 7; Churchill, n. 19 above, p. 187. In this direction see also Davies et al., n. 16 above, p. 8.

¹⁰⁴ IOTC Resolution 23/02, n. 60 above, Preamble.

¹⁰⁵ Q. Hanich et al., ‘Drifting Fish Aggregating Devices (FADs): Deploying, Soaking and Setting: When Is a FAD “Fishing”?’ (2019) 34(4) *International Journal of Marine and Coastal Law*, pp. 731–54, at 753 (who also highlight the difficulty in establishing ‘intention’ or lack thereof in the absence of a clear mechanism).

¹⁰⁶ Compare the practices described by Pons et al., n. 8 above, p. 986.

deployment does not constitute a discharge.¹⁰⁷ To the contrary, based on the wording of the applicable rules of MARPOL and the existing guidelines, the negligent loss and deliberate abandonment of dFADs constitute discharges of garbage and/or plastic.¹⁰⁸ Once again, this position is also taken in the preamble to IOTC Resolution 23/02, which states that MARPOL Annex V obliges states ‘to ensure that [dFADs] are not abandoned at sea except in situations of force majeure’.¹⁰⁹

5. Relationship between the LC/LP and MARPOL Annex V

As already indicated, perhaps the most intricate issue of the present analysis concerns the relationship between the LC/LP and the MARPOL regime. The delimitation of these two regimes involves challenging questions of interpretation.

5.1. Mutual Exclusivity of Scope

As a starting point, the disposal into the sea of wastes or other matter does not constitute ‘dumping’ under the LP if it is ‘incidental to, or derived from the normal operations of vessels ... and their equipment’.¹¹⁰ The purpose of this exception is to prevent overlap and, even more so, conflicts between the LC/LP and rules in MARPOL.¹¹¹ For example, MARPOL Annex V explicitly permits the discharge of certain categories of garbage (other than fishing gear) when the ship is *en route*.¹¹² It is clear that this permitted conduct then should not be simultaneously prohibited by the LP. Conversely, a ‘discharge’ under MARPOL explicitly does not include ‘dumping’ within the meaning of the LC/LP.¹¹³ Accordingly, the two regimes were initially conceived as mutually exclusive in scope in so far as their respective prohibitions of dumping and discharges are concerned.¹¹⁴ However, the exception in the LP is generally difficult to interpret.¹¹⁵ As Harrison has suggested, ‘there may be potential “grey areas” between these different regimes that arise because of the ambiguity’ of the relevant provisions.¹¹⁶

On a separate note, it is important to understand the scope of the exception in the LP concerning the activity of disposing of ‘wastes or other matter’ in the sea if it is ‘incidental to, or derived from the normal operations of vessels ... and their equipment’.¹¹⁷ This exception should *not* be equated with the requirement in MARPOL Annex V that an

¹⁰⁷ Contra: MSC AGAC Adjudication, n. 21 above, para. 146 (who appears to have overlooked this key issue in its entirety).

¹⁰⁸ But see Churchill, n. 19 above, p. 185 (who uses the narrower term ‘nonaccidental loss’ instead of ‘negligent loss’).

¹⁰⁹ IOTC Resolution 23/02, n. 60 above, Preamble.

¹¹⁰ London Protocol, n. 31 above, Art. 1(4)(2)(1).

¹¹¹ Stöfen-O’Brien, n. 34 above, p. 149; Harrison, n. 18 above, p. 94; Churchill, n. 19 above, pp. 175–6.

¹¹² See, e.g., MARPOL, n. 32 above, Annex V, Reg. 6(1)(2) (on permissible discharges of cargo residues).

¹¹³ MARPOL, n. 32 above, Art. 2(3)(b).

¹¹⁴ Harrison, n. 18 above, p. 94.

¹¹⁵ Stöfen-O’Brien, n. 34 above, p. 149.

¹¹⁶ Harrison, n. 18 above, p. 94.

¹¹⁷ London Protocol, n. 31 above, Art. 1(4)(2)(1).

operational waste such as fishing gear can be classified as ‘garbage’ only if is ‘generated during the normal operation of the ship and liable to be disposed of continuously or periodically’.¹¹⁸ These two concepts need to be distinguished because, unlike the exception in the LP, the requirement in MARPOL Annex V concerns only the question whether waste is indeed operational waste as such, not whether this operational waste is typically disposed of at sea (see Section 4.1 above). The position that the two requirements do not necessarily overlap appears also to have been taken, albeit implicitly, by Churchill.¹¹⁹

Turning to the interpretation of the exception in the LP, it seems difficult to argue that the deliberate abandonment of dFADs in the ocean can be considered as ‘incidental to, or derived from the normal operations’ of fishing vessels.¹²⁰ Therefore, given the origin of the exception and its object and purpose, it arguably does not apply to the abandonment of fishing gear, including dFADs.¹²¹ Consequently, the deliberate discarding and abandonment of dFADs can be classified as dumping within the meaning of the LC/LP.¹²² Indeed, the IMO website suggests that dFAD abandonment falls within the scope of the LC/LP:

Under the London Convention and Protocol, the issue of abandoned or drifting fish aggregating devices (FADs) ... as sources of marine litter, [has] also been discussed, noting that source control and best practices are important elements to reduce these problems. To that purpose, Parties to the treaties have been invited to provide information on their possible source control options to reduce discarded FADs.¹²³

However, in practice, it may be difficult to prove that intention was present.¹²⁴ A lack of evidence to this end was also observed by the independent adjudicator in the MSC AGAC Adjudication.¹²⁵

Based on the above considerations, it is submitted that the relationship of the two regimes may be approached as follows. If deliberate discards (from the ship) and abandonment (in the water) of dFADs are considered ‘dumping’ under the LC/LP in line with what has been argued in this article, these acts do not simultaneously constitute ‘discharges’ under MARPOL Annex V.¹²⁶ However, if the deliberate discarding and abandonment of dFADs is not considered dumping within the meaning of the LC/LP (contrary to what has been argued in this article), they constitute ‘discharges’ under MARPOL Annex V. In both scenarios, the negligent loss of

¹¹⁸ MARPOL, n. 32 above, Annex V, Reg. 1(9).

¹¹⁹ Churchill, n. 19 above, pp. 175–6, 187.

¹²⁰ *Ibid.*, pp. 175–6.

¹²¹ *Ibid.*; see also L. Finska et al., ‘Waste Management on Fishing Vessels and in Fishing Harbors in the Barents Sea: Gaps in Law, Implementation and Practice’ (2022) 53(4) *Ocean Development & International Law*, pp. 289–317, at 296 (at n. 39).

¹²² Churchill, n. 19 above, p. 175.

¹²³ IMO, ‘IMO Legal Framework in the Fishing Sector’ (2023), available at: <https://www.imo.org/en/OurWork/IIS/Pages/IMO%20Legal%20Framework%20in%20the%20Fishing%20Sector.aspx>.

¹²⁴ Davies et al., n. 16 above, p. 8.

¹²⁵ MSC AGAC Adjudication, n. 21 above, para. 133.

¹²⁶ MARPOL, n. 32 above, Art. 2(3)(b).

dFADs, which was held not to constitute ‘dumping’ because of the requirement of intent in the LC/LP, would be classified as a prohibited ‘discharge’ under MARPOL Annex V.

5.2. Towards Parallel Applicability of the LC/LP and MARPOL Annex V?

Despite the conclusions reached in the previous section, as a matter of general principle, there may be a trend towards the position that there can be parallel applicability of the LC/LP and MARPOL Annex V even for deliberate abandonment. Perhaps most importantly, the IMO Marine Environment Protection Committee (MEPC) has noted that ‘the discarding of fishing gear at sea [is] in contravention of the relevant requirements of MARPOL Annex V and the London Convention and its Protocol’.¹²⁷ Moreover, this position is also taken in the preamble to IOTC Resolution 23/02, which states that ‘in accordance with MARPOL Annex V and the London Convention and Protocol, FADs under the competence of the IOTC must be managed to ensure that they are exclusively deployed with the intention of later retrieval and that they are not abandoned at sea except in situations of force majeure’.¹²⁸ While the reasons behind this preambular statement are not known, the statement could be evidence of growing state practice and *opinio juris*. The statement could also suggest the applicability of both regimes despite the original intention to develop two complementary but mutually exclusive legal frameworks.

6. Conclusion: Implications for Implementation and Enforcement

In order to understand the practical legal consequences of the prohibitions of dumping and discharges under the dumping regime and MARPOL, it is necessary to provide a brief overview of some of the most important aspects of their enforcement – specifically, enforcement vis-à-vis private actors, rather than states, that contravene their obligations under the LC/LP or MARPOL Annex V.¹²⁹

Given that the LC/LP and MARPOL Annex V are multilateral treaties, the addressees of the obligations discussed in this article are their contracting parties (i.e., states).¹³⁰ Neither the LC/LP nor MARPOL Annex V directly bind private actors (such as owners, operators or masters of fishing or supply vessels) under international law.¹³¹ Rather, these treaties contain international obligations requiring states to take the necessary measures of prescription and enforcement to ensure that vessels under

¹²⁷ IMO, ‘Outcome of the Detailed Review of the Recommendations of the Third Session of the Joint FAO/IMO Ad Hoc Working Group on Illegal, Unreported and Unregulated Fishing and Related Matters (JWG 3) by MEPC 72 and MSC 99: Note by the Secretariat’, 4 July 2018, III 5/14, pp. 4–5, available at: <https://docs.imo.org>.

¹²⁸ IOTC Resolution 23/02, n. 60 above, Preamble.

¹²⁹ For discussion of enforcement against states that violate their international obligations under the LC/LP and MARPOL Annex V see Churchill, n. 19 above, pp. 182–3, 188–90.

¹³⁰ MARPOL, n. 32 above, Arts 1, 4; London Convention, n. 30 above, Arts II–IV, VII; London Protocol, n. 31 above, Arts 2–4, 10.

¹³¹ Churchill, n. 19 above, p. 180.

their jurisdiction comply with the standards and prohibitions in the LC/LP and MARPOL Annex V. Such obligations, which require diligent state conduct rather than a certain result in each case, are referred to as ‘due diligence obligations’.¹³² The general logic and content of such obligations has been described in the jurisprudence of UNCLOS tribunals.¹³³

Specifically, the London Protocol, which has been the focus of this article,¹³⁴ obliges contracting parties (i.e., flag states, coastal states, and states of loading¹³⁵) to ‘take appropriate measures in accordance with international law to prevent and if necessary punish acts contrary to the provisions of this Protocol’.¹³⁶ Similarly, under MARPOL ‘[a]ny violation of the requirements of MARPOL shall be prohibited and sanctions shall be established therefor under the law of the [flag state] of the ship concerned wherever the violation occurs’.¹³⁷ Coastal states have a similar obligation in respect of violations of MARPOL that occur in their waters, with the caveat that they can choose between instituting criminal or administrative proceedings under their own domestic law or leave enforcement to the flag state.¹³⁸ If the flag state is informed of a suspected violation and supplied with sufficient evidence (by a coastal state, for example, or by a port state following an inspection¹³⁹), it is obliged to investigate and institute proceedings in accordance with its domestic law.¹⁴⁰ Thereafter, the flag state must inform the IMO and the contracting party that furnished the initial information concerning the violation of the action that the flag state has taken.¹⁴¹ Notably, MARPOL prescribes that any penalties provided under the domestic law of the contracting parties must be ‘adequate in severity to discourage violations’ and ‘equally severe irrespective of where the violations occur’.¹⁴² Contracting parties to MARPOL and the LC/LP typically implement the prescriptive element of these obligations through domestic legislation that incorporates the relevant standards and

¹³² Ibid., p. 180.

¹³³ ITLOS, *Responsibilities and Obligations of States Sponsoring Persons and Entities with respect to Activities in the Area (Request for Advisory Opinion submitted to the Seabed Disputes Chamber)*, Advisory Opinion, 1 Feb. 2011, *ITLOS Reports* 2011, p. 10, paras 110–20; ITLOS, *Request for an Advisory Opinion submitted by the Sub-Regional Fisheries Commission (SRFC) (Request for Advisory Opinion submitted to the Tribunal)*, Advisory Opinion, 2 Apr. 2015, *ITLOS Reports* 2015, p. 4, paras 125–32; Permanent Court of Arbitration, *The South China Sea Arbitration (The Republic of Philippines v. The People’s Republic of China)*, PCA Case No. 2013-19, Award, 12 July 2016, para. 944, available at: <https://pcacases.com/web/sendAttach/2086>. For discussion, see generally I. Papanicolopulu, ‘Due Diligence in the Law of the Sea’, in H. Krieger, A. Peters & L. Kreuzer (eds), *Due Diligence in the International Legal Order* (Oxford University Press, 2021), pp. 147–62.

¹³⁴ For in-depth discussion of the London Convention, including the dumping permit system, see Churchill, n. 19 above, pp. 178–80.

¹³⁵ Pursuant to Art. 10(1)(2) LP, contracting parties are obliged to implement the LP also with regard to vessels that load matter (e.g., fishing gear) in their territory (i.e., their ports).

¹³⁶ London Protocol, n. 31 above, Art. 10.

¹³⁷ MARPOL, n. 32 above, Art. 4(1).

¹³⁸ Ibid., Art. 4(2).

¹³⁹ Ibid., Art. 6.

¹⁴⁰ Ibid., Arts 4(1), 6(4).

¹⁴¹ Ibid., Arts 4(3), 6(4).

¹⁴² Ibid., Art. 4(4).

prohibitions, and that provides for administrative or criminal penalties in cases of violation.¹⁴³

This article has shown that the illegality of the deliberate abandonment of dFADs for commercial purposes (as practised in various purse seine fisheries for tropical tuna¹⁴⁴) under international marine pollution law is beyond reasonable doubt. Contracting parties – including both flag and coastal states – are obliged to prescribe and enforce domestic laws and regulations to ensure compliance with these international prohibitions by private actors under their jurisdiction. However, it remains somewhat unclear whether dFAD abandonment contravenes the LC/LP, MARPOL Annex V, or both regimes simultaneously. The reason for this uncertainty is that the dumping regime (LC/LP) and the regime concerning pollution from vessels (MARPOL) were originally designed as complementary, but mutually exclusive, legal frameworks. As a result, the delimitation of the two regimes hinges upon the interpretation of the ambiguously worded provision ‘incidental to, or derived from the normal operations of vessels ... and their equipment’ in the LC/LP (see Section 5.1). If one accepts, as argued in this article, that this wording does not cover the deliberate abandonment of dFADs, such abandonment contravenes the LC/LP rather than MARPOL Annex V. Conversely, if dFAD abandonment is considered ‘incidental to, or derived from the normal operations of vessels ... and their equipment’, the dumping regime of the LC/LP does not apply, and such abandonment does instead contravene MARPOL Annex V. Moreover, in both scenarios the negligent loss of dFADs must be classified as illegal under MARPOL Annex V. Either way, there is no lacuna in international marine pollution law regarding the deliberate abandonment and negligent loss of dFADs.¹⁴⁵ Given its ability to cover both intentional and negligent conduct in the same regulatory regime, MARPOL Annex V may be said to be ‘uniquely placed to help address the international problem of ALDFG’.¹⁴⁶ An additional advantage – from a policy perspective – of applying MARPOL Annex V is that its rules undoubtedly qualify as ‘generally accepted international rules and standards’ under Article 211(2) UNCLOS, which renders them binding as a minimum standard for all 169 states party to UNCLOS through this rule of reference. The same can be said of the London Convention under Article 210(6) UNCLOS – but not with absolute certainty of the more stringent London Protocol.

Interestingly, this article also showed that an increasing number of relevant actors appear to take the view that deliberate abandonment violates both the LC/LP and MARPOL Annex V. It remains to be seen whether this is evidence of a pragmatic approach to such ambiguity and/or of emergent state practice and *opinio juris* contradicting the mutual exclusivity of the two regimes. Either way, more clarity could be achieved through an amendment to MARPOL Annex V and/or the LP, or

¹⁴³ See, e.g., the legislation referenced in n. 98 above concerning the implementation of MARPOL.

¹⁴⁴ Pons et al., n. 8 above, p. 986.

¹⁴⁵ IMO, n. 127 above, pp. 4–5.

¹⁴⁶ IMO, ‘Comments on the Report of the Correspondence Group for the Review of MARPOL Annex V: Submitted by Friends of the Earth International (FOEI)’, 22 May 2009, MEPC 59/6/14, p. 2, available at: <https://docs.imo.org>.

an interpretive declaration. However, no clear developments in this direction can be discerned so far despite a window of opportunity. The IMO Sub-Committee on Pollution Prevention and Response has created a Correspondence Group, which discusses ALDFG and considers draft amendments to MARPOL Annex V in this respect.¹⁴⁷

The only explicit mention of dFADs in the 2020 Correspondence Group report relates to the initiative of some participants to incorporate an explicit reference to dFADs into the amendment concerning the scope of MARPOL Annex V.¹⁴⁸ So far, the proposed amendments do not include clarification of the scope of application of MARPOL Annex V vis-à-vis the LC/LP with regard to the abandonment of dFADs.¹⁴⁹ However, such a clarification would arguably constitute an important step in reducing ambiguity and in improving implementation and enforcement of MARPOL Annex V with regard to the prohibition of intentional dFAD abandonment and, perhaps even more importantly in the light of the difficulty of proving intention, negligent dFAD loss.

Given the described limitations of MARPOL and the LC/LP *de lege lata*, the regulatory role of RFMOs in implementing the existing prohibition of dFAD abandonment, as well as more generally minimizing marine pollution resulting from fisheries within the scope of their management mandate, is increasingly gaining recognition.¹⁵⁰ A detailed and comprehensive discussion of the specific regulatory tools available to RFMOs to tackle dFAD abandonment is a matter for future study. However, it may be pointed out, by way of example, that IOTC Resolution 23-02 contained manifold measures: quantitative limits on the deployment of dFADs (prevention at source);¹⁵¹ dFAD marking requirements;¹⁵² a dFAD register;¹⁵³ a real-time dFAD monitoring system¹⁵⁴ (each to improve monitoring and enforcement – and, more broadly, transparency and accountability); retrieval, recovery and reporting obligations,¹⁵⁵ as well as non-entangling, natural and biodegradable dFAD design standards¹⁵⁶ (mitigation of ALDFG impacts from dFAD loss and abandonment). Thus, CMMs such as IOTC Resolution 23-02 – if successfully adopted and entered into force – have much potential in reinforcing and complementing, through international fisheries law, the marine pollution law framework under the LC/LP and MARPOL Annex V with regard to combating ALDFG – and particularly lost and abandoned dFADs.

Acknowledgements: The author is indebted to Aleke Stöfen-O'Brien and two anonymous *TEL* peer-reviewers for their insightful comments on earlier drafts of this article.

Funding statement: See comment in 'Competing interests' below.

¹⁴⁷ IMO, n. 86 above.

¹⁴⁸ *Ibid.*, p. 67.

¹⁴⁹ Also compare IMO, n. 91 above.

¹⁵⁰ See, e.g., Song & Shen, n. 28 above, pp. 61–6.

¹⁵¹ IOTC Resolution 23/02, n. 60 above, paras 5–6.

¹⁵² *Ibid.*, paras 45–9.

¹⁵³ *Ibid.*, paras 3–4, 7–9.

¹⁵⁴ *Ibid.*, paras 35–6.

¹⁵⁵ *Ibid.*, paras 37–40.

¹⁵⁶ *Ibid.*, paras 41–4.

Competing interests: This article is based partly on a legal opinion prepared for the Sustainable Fisheries and Communities Trust (SFACT) in 2022, which has been expanded and revised for publication. Funding by SFACT for this purpose is gratefully acknowledged. The author has also given expert statements on behalf of the Coalition for Transparent Tuna Fisheries (CTTF) in two independent adjudication hearings concerning objections to the MSC certification of purse seine fisheries on dFADs in 2022 and 2024, respectively. The views expressed in the article are those of the author and are not necessarily shared by SFACT or CTTF.

Cite this article: V. Schatz, 'Assessing Drifting Fish Aggregating Device (dFAD) Abandonment under International Marine Pollution Law' (2024) 13(2) *Transnational Environmental Law*, pp. 243–263. <https://doi.org/10.1017/S2047102524000098>