ISSN: 2582-6433

INTERNATIONAL JOURNAL FOR LEGAL RESEARCH AND ANALYSIS

Open Access, Refereed JournalMulti Disciplinary
Peer Reviewed6th Edition

VOLUME 2 ISSUE 7

 ISSN: 2582-6433

DISCLAIMER

ISSN: 2582-6433

EDITORIAL TEAM

EDITORS

Megha Middha

Megha Middha, Assistant Professor of Law in Mody University of Science and Technology, Lakshmangarh, Sikar

Megha Middha, is working as an Assistant Professor of Law in Mody University of Science and Technology, Lakshmangarh, Sikar (Rajasthan). She has an experience in the teaching of almost 3 years. She has completed her graduation in BBA LL.B (H) from Amity University, Rajasthan (Gold Medalist) and did her post-graduation (LL.M in Business Laws) from NLSIU, Bengaluru. Currently, she is enrolled in a Ph.D. course in the Department of Law at Mohanlal Sukhadia University, Udaipur (Rajasthan). She wishes to excel in academics and research and contribute as much as she can to society. Through her interactions with the students, she tries to inculcate a sense of deep thinking power in her students and enlighten and guide them to the fact how they can bring a change to the society

Dr. Samrat Datta

Dr. Samrat Datta Seedling School of Law and Governance, Jaipur National University, Jaipur. Dr. Samrat Datta is currently associated with Seedling School of Law and Governance, Jaipur National University, Jaipur. Dr. Datta has completed his graduation i.e., B.A.LL.B. from Law College Dehradun, Hemvati Nandan Bahuguna Garhwal University, Srinagar, Uttarakhand. He is an alumnus of KIIT University, Bhubaneswar where he pursued his post-graduation (LL.M.) in Criminal Law and subsequently completed his Ph.D. in Police Law and Information Technology from the Pacific Academy of Higher Education and Research University, Udaipur in 2020. His area of interest and research is Criminal and Police Law. Dr. Datta has a teaching experience of 7 years in various law schools across North India and has held administrative positions like Academic Coordinator, Centre Superintendent for Examinations, Deputy Controller of Examinations, Member of the Proctorial Board

ISSN: 2582-6433

Dr. Namita Jain

Head & Associate Professor

School of Law, JECRC University, Jaipur Ph.D. (Commercial Law) LL.M., UGC - NET Post Graduation Diploma in Taxation law and Practice, Bachelor of Commerce.

Teaching Experience: 12 years, AWARDS AND RECOGNITION of Dr. Namita Jain are - ICF Global Excellence Award 2020 in the category of educationalist by I Can Foundation, India.India Women Empowerment Award in the category of "Emerging Excellence in Academics by Prime Time & Utkrisht Bharat Foundation, New Delhi.(2020). Conferred in FL Book of Top 21 Record Holders in the category of education by Fashion Lifestyle Magazine, New Delhi. (2020).Certificate of Appreciation for organizing and managing the Professional Development Training Program on IPR in Collaboration with Trade Innovations Services, Jaipur on March 14th, 2019

Mrs.S.Kalpana

Assistant professor of Law

Mrs.S.Kalpana, presently Assistant professor of Law, VelTech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology, Avadi.Formerly Assistant professor of Law,Vels University in the year 2019 to 2020, Worked as Guest Faculty, Chennai Dr.Ambedkar Law College, Pudupakkam. Published one book. Published 8Articles in various reputed Law Journals. Conducted 1Moot court competition and participated in nearly 80 National and International seminars and webinars conducted on various subjects of Law. Did ML in Criminal Law and Criminal Justice Administration.10 paper presentations in various National and International seminars. Attended more than 10 FDP programs. Ph.D. in Law pursuing.

Avinash Kumar

Avinash Kumar has completed his Ph.D. in International Investment Law from the Dept. of Law & Governance, Central University of South Bihar. His research work is on "International Investment Agreement and State's right to regulate Foreign Investment." He qualified UGC-NET and has been selected for the prestigious ICSSR Doctoral Fellowship.He is an alumnus of the Faculty of Law, University of Delhi. Formerly he has been elected as Students Union President of Law Centre-1, University of Delhi.Moreover, he completed his LL.M. from the University of Delhi (2014-16), dissertation on "Cross-border Merger & Acquisition"; LL.B. from the University of Delhi (2011-14), and B.A. (Hons.) from Maharaja Agrasen College, University of Delhi. He has also obtained P.G. Diploma in IPR from the Indian Society of International Law, New Delhi.He has qualified UGC – NET examination and has been awarded ICSSR – Doctoral Fellowship. He has published six-plus articles and presented 9 plus papers in national and international seminars/conferences. He participated in several workshops on research methodology and teaching and learning.

ISSN: 2582-6433

ABOUT US

INTERNATIONAL JOURNAL FOR LEGAL RESEARCH & ANLAYSIS ISSN

2582-6433 is an Online Journal is Monthly, Peer Review, Academic Journal, Published online, that seeks to provide an interactive platform for the publication of Short Articles, Long Articles, Book Review, Case Comments, Research Papers, Essay in the field of Law & Multidisciplinary issue. Our aim is to upgrade the level of interaction and discourse about contemporary issues of law. We are eager to become a highly cited academic publication, through quality contributions from students, academics, professionals from the industry, the bar and the bench. INTERNATIONAL JOURNAL FOR LEGAL RESEARCH & ANALYSIS ISSN 2582-6433 welcomes contributions from all legal branches, as long as the work is original, unpublished and is in consonance with the submission guidelines.

ISSN: 2582-6433

TACKLING IUU TO ACHIEVE SUSTAINABLE FISHERIES

Authored By - S. Yeseswini

ABSTRACT

The term 'sustainable fisheries' refers to fishing activities that can be continued on a sustained or indefinite basis without any threat or fear of any harm to be caused to the ecosystem. Achievement of sustainable fisheries is a challenge encapsulated in Target 14 of the Sustainable Development Goals of the United Nations. Illegal, unreported, and unregulated (IUU) fishing is regarded as one of the major deterrents to various countries in attaining the goal of sustainable fisheries management.

Indian Ocean fisheries are some of the most important, accounting for 14.55% of the global marine capture harvest, albeit 30% of the Indian Ocean's assessed stocks are not fished within biologically sustainable levels. Since the Coastal states of the Indian Ocean lack effective Monitoring, Control, and Surveillance (MCS) capability, IUU fishing has become a low-risk and high-gain activity. IUU has affected the traceability and transparency in fishing and the regulation of the trade of fish products has been brought to the forefront of the international fisheries policy agenda. The impact of IUU is three-dimensional - economic, social, and ecological, depleting the marine ecosystem and causing destruction to the sustainable livelihoods of fishermen. These imminent threats have awakened governments around the world for regional and international collaborations to combat this global issue. Thus, there needs to be an effective implementation of strategic measures with global co-operation to achieve sustainability.

This paper will focus on three major aspects, the first is the colossal impact on the environment, the second is the threat to the Indian Ocean due to persistent IUU activities, and the third is the measures to combat these illegal activities and discover the path towards sustainable fisheries management.

Key Words: IUU, ecosystem, sustainable fisheries, international regulations, measures

ISSN: 2582-6433

1. INTRODUCTION

In the UN Sustainable Development Summit 2015, which happened between 25 and 27 September in New York, the 2030 Agenda for Sustainable Development was adopted. The 2030 agenda includes 17 Sustainable Development Goals (SDGs), one of which (Goal 14) addresses oceans, seas and marine resources as a priority. ***Goal 14*** – to 'conserve and sustainably use the oceans, seas and marine resources for sustainable development' – underlines the importance of sustainably managing and using maritime resources and related ecosystems. This goal of achieving sustainable fisheries is co-extensive with the goal of ending IUU activities.

IUU fishing is a serious threat to the sustainable management of fisheries worldwide – depleting fish stocks, undermining responsible management, destroying marine ecosystems, and threatening the livelihoods of coastal fishermen and communities. The FAO International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing defined the terms for each element[1]:

Illegal fishing is that which is conducted by vessels of countries that are parties to a regional fisheries management organisation (RFMO) but operate in violation of its rules, or operate in a country's waters without permission.
Unreported fishing is a catch or a number of catches not reported or misreported to national relevant authorities or RFMO.
Unregulated fishing is conducted by vessels without nationality or flying the flag of States not parties of relevant fisheries organisations and who therefore consider themselves not bound by their rules.

IUU fishing, estimated at 11 to 26 million tonnes a year, leads to losses of roughly $10-23.5 billion in value. Illegal fishing is carried by catching overfished stocks and endangered species in Marine Protected areas (MPA) by using prohibited fishing methods and practices. It is not confined to any particular place and is found in all types and dimensions of fisheries, occurs both on the high seas and in areas under national jurisdiction, and concerns all aspects and stages of the exploitation and utilization of fish. It is high time states start to act on the illegal

[1] FAO, *International Plan of Action to prevent, deter and eliminate illegal, unreported and unregulated fishing*, Rome, (2001).

ISSN: 2582-6433

activities taking place in the high seas to achieve the goals of sustainability.

2. UNFOLDING THE PATH OF IUU FISHING AND ITS HARMFUL EFFECTS

2.1. FACTORS CONTRIBUTING TO IUU

The factors contributing to risk of IUU fishing are generally not species-specific, but rather are related to the economic situations and lack of efficient enforcement mechanisms. Since, the gains from illegal fishing are higher and advantageous to the fishers, even the law-abiding fishers consider it to be a better opportunity.[2] The main reason for Illegal fishing is often attributed to the inadequate or ineffective monitoring, control, and surveillance (MCS) of fishing activities, coupled with low operation costs than those of legitimate fishermen, resulting in higher profits for both lower value species and the most valuable species.[3]

Government's failure to enforce stringent penalties or sanctions due to legal incapacity and resource constraints or corruption paves the way for illegal fishing activities. The most valuable species are higher in cost as it requires due care and protection in fishing, which increases the operating cost and reduces the profit.[4] Thus, to make more profit they find it viable to indulge in illegal fishing. Moreover, even though the operating cost is lower through legitimate routes for lower value fishes, to make more incentive illegitimate routes are preferred as there is no cost of licences, no rules and regulations or fishing quotas. Its prevention depends on governments doing their jobs as flag states, coastal states, port states, processing states, and market states.[5] It also depends on private sector actors obtaining information and tracing products through complex supply chains.

Global overcapacity, with more vessels operating to catch fewer and fewer fish, also serves as a potential driver of IUU fishing. Risk of IUU fishing may also be related to the change in

[2] Baird, R.J., *Aspects of illegal, unreported and unregulated fishing in the Southern Ocean*, 23(1) The International Journal of Marine and Coastal Law, 95-124 (2006).
[3] Flothmann, S., von Kistowski, K., and Album, G., *Closing loopholes: getting illegal fishing under control*, Marine Science Journal, 1235-1236 (2018).
[4] Jennings, S. and Kaiser, M.J, *The effects of fishing on marine ecosystems*, 34 Academic Press, 201-352 (1998).
[5] Young, MA, *International trade law compatibility of market-related measures to combat illegal, unreported and unregulated (IUU) fishing*, 69 Marine Policy, 209–219 (2016).

ISSN: 2582-6433

climatic conditions due to which the fishes change their habitat.[6] Some tuna stocks, due to climate change, follow migratory routes that take them through the waters of several countries and out into the high seas.[7] High seas are zones prone to high rates of illegal fishing, thus this route may lead to a higher rate of underreporting compared to fisheries located within the territorial waters of States with strong and well implemented regulations.

2.2 FORCED LABOUR AND ILLEGAL ACTIVITIES IN FISHERIES

IUU fisheries is also linked with forced labour and slavery, further destabilizing vulnerable people and communities as well as the ocean environment, hence criminal activities in fishing and labour exploitation tie together closely.[8] The IUU fishing often involves forced labour, a form of human trafficking, and other crimes and human rights abuses, thus forced labour in fisheries is co-extensive with the rise in IUU activities.

Analysing the main reasons for the increase in forced labour*; Firstly*, most fish stocks are found in coastal regions above the continental shelf. The gradual depletion of these fish stocks has meant that fishing operators, both small-scale and industrial, must go further out to sea to locate abundant fishing grounds.[9] This can be done only through long-distance fishing which requires more sophisticated infrastructures and more crew who are willing to stay at sea for prolonged periods, leaving them under a different jurisdiction of flag states, rather than coastal states. In coastal regions with declining fish stocks, fishers who were previously self-employed in small-scale fisheries are now being recruited as employed crew.[10]

Secondly, increased crew costs are cut by hiring low-cost labour, often migrant labourers from less developed countries.[11] Long-distance fishing operations are labour intensive and crews' wages can account for between 30 and 50 percent of operating costs. The use of low wage

[6] Tsamenyi, M., Palma, and Mfodwo, K., *The European Council regulation on illegal, unreported and unregulated fishing: an international fisheries law perspective*, 25(1) The International Journal of Marine and Coastal Law 5-31 (2010).
[7] THE EFFECTS OF ILLEGAL FISHING ON OUR ENVIRONMENT AND ECONOMY, The Brillopedia https://www.entitymag.com/effects-illegal-fishing-environment-economy (last visited Nov 30 2022).
[8] Environmental Justice Foundation Report, *Seafood Slaves: Human Trafficking, Slavery and Murder in Fishing Industry*, https://ejfoundation.org/resources/downloads/EJF-Thailand-Seafood-Slaves-low-res.pdf (2015).
[9] Id.
[10] REVEALED: TRAFFICKED MIGRANT WORKERS ABUSED IN IRISH FISHING INDUSTRY, The Guardian, https://www.theguardian.com/global-development/2015/nov/02/revealed-trafficked-migrant-workers-abused-in-irish-fishing-industry (last visited Nov 26, 2022).
[11] Couper, A., Smith, H.D., Ciceri, B, *Fishers and Plunderers: Theft, Slavery and Violence at Sea*, Pluto Press. London, 131 (2015).

ISSN: 2582-6433

migrant labour has meant that these costs can be cut considerably[12] which may increase the fishing operators' profit margins and give them a competitive advantage.

Thirdly, the limited transparency and traceability of catch in the seafood supply chain is a risk factor for continuation of labour exploitation in the vessels. The current legal and regulatory framework in which fishing takes place lacks coherence to deal with these crimes, thus affording both space and opportunity for dangerous and exploitative practices including human trafficking.[13] While buyers are increasingly applying standards, codes of conduct etc. to their operations, the enforcement has not been effective across the entire supply chain, including on board the fishing vessels and into the labour recruitment processes.

2.3. IMPACT ON THE ECOSYSTEM AND FOOD-SECURITY

Illegal, unreported, and unregulated fishing remains one of the greatest threats to marine ecosystems due to its potent ability to undermine national and regional efforts to conserve and manage fish stocks and, as a consequence, inhibits progress towards achieving the goals of long-term sustainability and augment food security. IUU fishing contributes to a dangerous reduction in ecologically vital fisheries that support over 4 billion people worldwide.

Fish caught by IUU vessels are not included within scientific stock assessments, and thereby IUU fishing undermines efforts to gather the data necessary to sustainably manage affected fisheries, according to the National Oceanic and Atmospheric Administration (NOAA).[14] Fish stocks generally recover slowly from overfishing, according to a body of scientific research. Nearly half of Mexico's total marine fisheries catches since at least 1950 have been unreported, according to recent scientific research, undermining the accuracy of stock assessments in Mexican fisheries.[15] The conditions that enable IUU fishing activities in Mexico, such as weaknesses in enforcement and maritime domain awareness—as well as limitations in reporting, monitoring, and recording processes—are common to most fisheries worldwide.[16]

[12] Agnew, D.J., Barnes, C.T, *Economic Aspects and Drivers of IUU Fishing: Building a Framework*, OECD, Paris, France, 169–200 (2004).
[13] Surtees, *Trapped at Sea. Using the Legal and Regulatory Framework to Prevent and Combat the Trafficking of Seafarers and Fishers*. 2 Groningen Journal of International Law, 91-153 (2013).
[14] Le Gallic, B, *The use of trade measures against illicit fishing: Economic and legal considerations*'64(4) Ecological Economics, 858–866 (2008).
[15].Kroodsma, D. A. et al, *Tracking the global footprint of fisheries*, Marine Life Journal, 904–908 (2018).
[16] Kiruba-Sankar, R. et al, *Poaching in Andaman and Nicobar coasts: insights*, Journal of Coastal Conservation, 95–109 (2018).

ISSN: 2582-6433

Unreported catches of Atlantic Bluefin tuna from the Mediterranean have significantly contributed to the rapid decline in the stock, according to a scientific report. The species has been listed as endangered on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species since 2011, although it remains a popular food item in several parts of the world.[17] Failure to control unreported catches prevented recovery in North Sea cod—a dietary staple in North America and northern Europe—until only recently, according to an academic report.[18]

IUU fishing activities also result in significant bycatch—the incidental capture of non-targeted species that undermines the food supply of larger predators and, when discarded in the ocean, decompose and contribute to oxygen-deprived "dead zones." Bycatch threatens a number of critically endangered species—such as New Zealand's Maui dolphin and the Gulf of California's vaquita porpoise—and indirectly reduces other populations, such as some sea turtle and albatross species, according to UN and academic reports.[19]

According to the National Oceanic and Atmospheric Administration (NOAA);[20]

- Some IUU fisheries engage in high grading, in which the value of a catch is increased by keeping only the best specimens and discarding the rest. This environmentally destructive practice removes far more fish than the fishers' quotas allow, resulting in underreported catches with substantial bycatch losses.
- On the high seas, some fishers employ illegal driftnets, which are large-scale passive fishing nets that indiscriminately capture any animal or marine organism that cannot fit through the openings. The nets are left to drift passively with transponders or marker buoys until the fishing vessel is ready to recover its catch; some nets are not recovered and continue to capture and kill marine animals indefinitely.

Illegal fishing vessel operators frequently use destructive fishing methods that harm crucial components of marine ecosystems while generally killing more fish than are captured,

[17] Juan-Jordá, M. J. et al, *Report card on ecosystem-based fisheries management in tuna regional fisheries management organizations*, 19(2) Fish and Fisheries, 321–339 (2018).
[18] O'Leary, B. C. et al, *Addressing Criticisms of Large-Scale Marine Protected Areas*, 20(10) Journal of Bio Science, 1–12 (2018).
[19] Sumaila, U. R. & Vasconcellos. M, *Simulation of ecological and economic impacts of distant water fleets on Namibian fisheries*, 32(3) Ecological Economics, 457–464 (2000).
[20] Warner. R, *Oceans beyond Boundaries: Environmental Assessment Frameworks*, 27(2) The International Journal of Marine and Coastal Law, 481–499 (2012).

ISSN: 2582-6433

decreasing fish stocks critical to food security and livelihoods.[21] Some of the harmful methods are:

- ***Blast or dynamite fishing*** that has led to the loss of over 50 percent of the coral reef system in Southeast Asia's Coral Triangle, from which 130 million people derive their primary food or income from fishing, according to scientific research.
- ***Cyanide fishing***—an illegal practice that is widespread in the Asia-Pacific where fishers spray poisonous cyanide directly onto reefs in an attempt to stun and harvest fish—accounts for an estimated 90 percent of tropical aquarium fish imported into the United States, according to the National Oceanic and Atmospheric Administration. Most fish do not survive the experience and upwards of 90 percent of cyanide-exposed fish die within weeks of exposure, according to the United Nations Environment Program.[22]

Continued decreases in fish stocks, due in large part to overfishing, threaten global food security. Of the over 4 billion people that consume fish, crustaceans, and molluscs, about a billion people depend on these sources as their primary source of animal protein, according to the World Health Organization (WHO).[23] As fish stocks continue to decrease due to illegal fishing activities, new methods are on lookout to satisfy the global demands of fish consumption. Aquaculture, a method of controlled cultivation of aquatic species, has been very successful in overcoming the destruction caused to marine ecosystems.

2.4 IMPACT ON ECONOMY

IUU fishing disrupts both small- and large-scale fishing operations and adversely affects populations who depend on threatened fisheries. IUU fishers typically operate at lower costs than legal fishers and reduce expected government revenues by fees and taxes.[24] Many poor coastal communities rely heavily on fishing for their survival. Unreported fishing from illegal or subsistence activities has caused authorities to underestimate fish stocks and permit unsustainable levels of large-scale commercial fishing, which results in depletion of marine

[21] Stephen Chin, *A Hard Tackle against Illegal Fishing*, Asean Post, https://theaseanpost.com/article/hard-tackle-against-illegal-fishing.
[22] Global Implications of Illegal, Unreported, and Unregulated (IUU) Fishing, NIC WP 2016-02 (2016).
[23] Okafor-Yarwood, I, *Illegal, unreported and unregulated fishing, and the complexities of the sustainable development goals (SDGs)*, 9 Marine Policy, 414–422 (2019).
[24] Agnew, D.J., Pearce, J., and Pitcher, T.J., *Estimating the worldwide extent of illegal fishing*, 4(2) PloSone 45-47 (2009).

ISSN: 2582-6433

species.[25]

IUU fishing further threatens coastal and developing countries' economies through lost or stolen revenue. Illicit vessels do not typically pay the associated fishing fees to the government or RFMO, whose resources are exploited.[26] These losses extend beyond the direct payment from fish catch to income from post-harvest processing activities, which decrease with illegal transhipping. These losses are felt disproportionately by developing countries that rely more heavily on fish for GDP and subsistence livelihood. Furthermore, these countries do not have the necessary funding or the enforcement mechanisms to efficiently control and monitor illicit fishing activities, thus facilitating illegal activities.[27]

3. THE THREAT TO INDIAN OCEAN

3.1. THE INCREASE IN UNREGULATED FISHING

The Indian Ocean is the third largest ocean in the world. Consisting of 29 littoral states and six Island nations, this ocean is home to one-third of the world's population.[28] It hosts some of the essential fisheries globally, accounting for over 14 percent of the global wild-caught fish. While international attention focuses heavily on illegal and unreported fishing in the Indian Ocean, the unregulated aspect of IUU fishing is often overlooked. Unregulated fishing is not reported and not bound by any regional monitoring and surveillance system, making it difficult for coastal State authorities to identify vessels operating in or near their waters.[29] The two main reasons[30] that contribute to unregulated fishing on the high seas of the Indian Ocean within the current institutional landscape of fisheries management are:

[25] Aghilinejhad, S.M., Gorgin, S., and Jalali, A., *What are the drivers of the occurrence of illegal fishing and conservation barriers of sturgeons in the Caspian Sea?* 28(3) Marine and Freshwater Ecosystems Journal, 690-701 (2018).
[26] Akinbulire, T., Schwartz, H., and Abielmona, R., *A reinforcement learning approach to tackle illegal, unreported and unregulated fishing. In Computational Intelligence* (SSCI), IEEE Symposium Series 1-8 (2017).
[27] Alzugaray, R., Puga, R., and Morales, O., *Fishery in Cuba: current status, illegal fishing, and environmental variability*, 94(2) Bulletin of Marine Science, 393-408 (2018).
[28] Jayanath Colombage, *Sustainable Fisheries Management in the Indian Ocean: The Way Forward*, 3 Polaris Journal of Maritime Research (P-JMR), ISSN: 2519-1772 (2021).
[29] . WWF (World Wild Fund for Nature) and Trygg Mat Tracking, *Unregulated fishing on the High seas of the Indian ocean: The Impacts on, risks to, and challenges for sustainable fishing and ocean health*, (2020), https://wwfeu.awsassets.panda.org/downloads/wwftmt_unregulated_fishing_on_the_high_seas_of_the_indian_ocean_2020.pdf.
[30] Ibid, Taconet, M., Kroodsma, D., & Fernandes, *J.A, Global Atlas of AIS-based fishing activity – Challenges and opportunities, Rome*, FAO, (2019), www.fao.org/3/ca7012en/ca7012en.pdf.

ISSN: 2582-6433

- The gaps in spatial areas of competence (Spatial regulatory coverage for species covered by tuna-specific RFMOs is comprehensive across the Indian Ocean. However, for non-tuna RFMOs, there are significant gaps)
- The gaps between the groups of species covered by RFMO (In some areas of the high seas, there are no international arrangements other than those for tuna fisheries covered by the Indian Ocean Tuna Commission (IOTC). Therefore, other than for tuna and tuna-like species, other fisheries remain at risk of unregulated fishing if flag States fail to adopt national conservation and management measures).

For all RFMOs, the weaknesses and gaps in species coverage leave a large number of species without any conservation and management measures (CMMs) and outside of the management scope of regional bodies. These include species with current commercial value, as well as those which could become commercially important in the future as ocean temperatures increase and species distribution patterns shift.[31] This results in a lack of regulation on destructive activities such as bycatch and, in some cases, blind spots on impacts to endangered species.

3.2. LACUNAS IN EFFECTIVE MANAGEMENT

High seas are the areas where IUU takes place and are defined as the ocean areas that lie beyond national jurisdictions, such as exclusive economic zones (EEZs). Globally, the high seas cover almost half of the planet's surface, posing particular management challenges for the international community to sustainably exploit and conserve their marine resources. The high seas of the Indian Ocean are not fully covered by regional regulatory frameworks for any species other than tuna and tuna-like species.[32] This undermines the efforts being made towards ecosystem-based fisheries management, threatens the marine food web and, as a consequence, puts commercially managed and high-value species at risk.

Over two billion people live along the coasts of the Indian Ocean and are experiencing rapid economic and population growth. The Indian Ocean is home to rich fisheries, accounting for 14.55%[33] of the global marine capture harvest, providing an important source of food and livelihood security for millions of people in coastal communities across the region. If

[31] Vianna, G.M.S., Zeller, D. & Pauly, D, *Fisheries and Policy Implications for Human Nutrition*, Curr Environment Health Report, (2020).
[32] Monnier, L., Gascuel, D, *Small-scale fisheries in a warming ocean: exploring adaptation to climate change*. Scientific report, WWF Germany, (2020).
[33] FAO, *State of World Fisheries and Aquacultures*, Rome, (2020).

ISSN: 2582-6433

overfishing and IUU fishing are not addressed, the resulting loss of fish biomass will translate into a shortage of fatty acids and essential micronutrients for millions of people in the region, with a disproportionate risk of malnutrition in low- and middle-income countries. As demand for commercially important species such as tuna and tuna-like species (including swordfish) has skyrocketed, so has the fishing effort to capture them.[34] This increasing competition for fish stocks threatens the economic stability of some coastal communities, due to arising risks of conflict over diminishing resources.[35]

3.3. EXISTING REGULATORY MEASURES TO TACKLE IUU

There are three RFMOs that work on conserving fishery resources occurring on the high seas of the Indian Ocean. Two of these, the IOTC and the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), cover tuna and tuna-like species, while the Southern Indian Ocean Fisheries Agreement (SIOFA) covers fishery resources other than highly migratory species:

a) The Indian Ocean Tuna Commission

IOTC is one of five tuna-RFMOs, globally.[36] The Agreement establishing the IOTC entered into force in 1996. IOTC is mandated to manage and conserve tuna and tuna-like resources in the Indian Ocean and adjacent seas. Species-specific management measures cover the four major commercial tuna species, rebuilding plan for the currently overfished yellowfin tuna is in place but has not been implemented due to the lack of compliance of contracting Parties and to fishing efforts being maintained at high level.

b) The Commission for the Conservation of Southern Bluefin Tuna

CCSBT, another of the five tuna-RFMOs, also has competence in the Indian Ocean. The Convention establishing CCSBT entered into force in 1994. The CCSBT is mandated to manage a single species of tuna throughout its area of distribution: the southern bluefin tuna (SBT). It has no defined Area of Competence (AoC), putting the CCSBT in the remarkable position of being endowed with a species of competence instead.

---

[34] WWF, *Seafood sustainability, stability and security*, (2020).

[35] Isigi Kadagi, Zachary Lien & Cullen Hendrix, *Fisheries Management: A Possible Venue for Navigating Fisheries Conflicts in the Indian Ocean*, New security beat Environmental Change Blog, (Dec 19, 2022), https://www.newsecuritybeat.org/2020/02/fisheries-management-venue-navigating-fisheries-conflicts-indian-ocean.

[36] Ásmundsson,S, Regional Fisheries Management Organisations (RFMOs), https://www.cbd.int/doc/meetings/mar/soiom-2016-01/other/soiom-2016-01-fao-19-en.pdf.

ISSN: 2582-6433

c) The Southern Indian Ocean Fisheries Agreement

The Agreement establishing SIOFA – one of the most recent RFMOs to come into existence – only entered into force in 2012, with the first CMMs adopted in 2016. SIOFA's mandate is to ensure the long-term conservation and sustainable use of fishery resources including fish, molluscs, crustaceans and other sedentary species within the area, and excludes highly migratory species[37] (part of which are covered by IOTC and CCSBT) and sedentary species subject to the fishery jurisdiction of coastal States.[38]

3.4. CHINA IN THE INDIAN WATERS

IUU fishing is to be viewed as a national security threat and not only as a food, economic, and human security issue because it undermines the national security of a country by adversely impacting its maritime security and governance structures. States such as China have been operating distant water fishing fleets that often fish in the exclusive economic zones (EEZ) of other States. This practice has led to States expanding their domestic maritime law enforcement capabilities to aggressively address IUU fishing. Asian States have regularly witnessed illegal fishers and trawlers, largely from China, in their waters.

The Chinese distant water fleet systematically and continuously violates the EEZs of several countries around the world, jeopardizing those countries' national security.[39] The Chinese fishing fleet has been accused of plundering sea resources as far away as Africa[40] and South America,[41] These fishing vessels reportedly do not adhere to the requirement mandated by international regulations to keep their automatic identification systems transmitters continuously activated. At the same time, crews comprised of maritime militia disguised as civilian fishers operate Chinese fishing vessels in waters near the South China Sea.[42]

[37] Annex I, United Nations Convention on the Law of the Sea, 1982.
[38] Article 77(4), United Nations Convention on the Law of the Sea, 1982.
[39] David Tickler et al., *Far from Home: Distance Patterns of Global Fishing Fleets*, Science Advances, Aug. 1, 2018, https://advances.sciencemag.org/content/4/8/eaar 3279.
[40] MOZAMBIQUE FISHERMEN POINT TO CHINA AS FISH STOCKS DWINDLE, Fisheries Committee for the west central Gulf of Guinea, https://fcwc-fish.org/othernews/mozambiques-fishermen-point-to-china-as-fish-stocks-dwindle (last visited Dec. 20, 2022).
[41] 260 CHINESE BOATS FISH NEAR GALAPAGOS, ECUADOR ON ALERT, Times of India, https://timesofindia.indiatimes.com/world/rest-of-world/260-chinese-boats-fish-near-galapagos-ecuador-on-alert/articleshow/77276746.cms; Marco Aquino, *Chinese Fishing Fleet off Peru Stirs Up Diplomatic Waters*, Sydney Morning Herald, https://www. smh.com.au/world/south-america/chinese-fishing-fleet-off-peru-stirs-up-diplomatic-waters-20200926-p55zi5.html.
[42] Gregory Poling, *China's Hidden Navy*, Foreign Policy, https://foreignpolicy.com/2019/06/25/chinas-secret-navy-spratlys-southchinasea-chinesenavy-maritimemilitia/.

ISSN: 2582-6433

Though there are no established cases of China's maritime militia in the Indian Ocean, a Chinese fishing fleet was present in the Indian EEZ in 2019.[43] On June 7, 2019, ten Chinese fishing vessels belonging to the Fu Yuan Yu fleet, owned by Dongxinglong Ocean Fishing Company based in Fujian province, entered Indian waters near the state of Maharashtra on the Arabian Sea.[44]These vessels had received permission to enter Indian waters in accordance with customary international law concerning vessels in distress[45] from the Indian Coast Guard to shelter in the port of Ratnagiri during cyclone Vayu.[46]

A later investigation determined these vessels had engaged in illegal fishing activities in the Indian EEZ and may have harvested up to 80,000 tons of marine life a month. The fleet also carried illegal gear, such as drifting gill nets, bottom trawl nets, and dolphin attracting devices. Such devices are banned by many national fisheries commissions and are under investigation by international maritime agencies. Further, according to an IUU Risk Intelligence report, the Fu Yuan Yu fleet had already engaged in IUU fishing activities in the southern Indian Ocean and South African waters.[47] Thus, China has once again proved its inherent recurring illegal behaviours from territorial disputes to maritime disputes, causing national threat to India in all the ways it can.[48]

3.5. INDIA ADDRESSING IUU WITHIN ITS NATIONAL JURISDICTION

The coastline of India measures 7,517 kilometres, distributed among nine coastal states and four union territories; the coastal states are Gujarat, Maharashtra, Goa, Karnataka, Kerala,

[43] CHINESE TRAWLERS SIGHTED IN THE INDIAN OCEAN: OFFICIAL, Hindustan Times, https://www.hindustantimes.com/india-news/chinese-trawlers-sighted-in-indian-oceanofficial/story.
[44] Badri Chatterjee, *In Troubled Waters: 10 Chinese Vessels Found Fishing Illegally in Maharashtra*, Hindustan Times,mumbai-news/in-troubled-waters-10-chinese-vessels-found-fishing-illegally-in-maharashtra/story; Manoj Viswanathan, *Fishermen Cry Foul as Chinese Trawlers "Milk" Indian Seas*, New Indian Express, https://www.newindianexpress.com/states/kerala/2019/jun/27/fishermen-cry-foul-as-chinese-trawlers-milk.
[45] R. R. CHURCHILL & A. V. LOWE, THE LAW OF THE SEA 63 (3d ed. 1999).
[46] Jagyaseni Biswas, *Chinese Vessels Caught Fishing in Indian EEZ Points at Larger Issue of Illegal Resource Exploitation*, Money Control, https://www.moneycontrol.com/news/india/chinese-vessels-caught-fishing-in-indian-eez-points-at-larger-issueof-illegal-resource-exploitation-4129181.html.
[47] Pramond Ganapathiraju, *3 Chinese Squid Jiggers in South African Waters – Illegal Fishing or Innocent Passage*, IUU Risk Intelligence, https://iuuriskintelligence.com/chinese-squid-jiggers-south-african-waters-illegal-fishing-innocent-passage/.
[48] INDIAN STATES WITH LONGEST COASTLINE OF SEA, Walk Through India, http://www.walkthroughindia.com/ offbeat/ 9-indian-states-with-longest-coastline-of-sea/ (last visited Nov. 18, 2022).

ISSN: 2582-6433

Tamil Nadu, Andhra Pradesh, Odisha, and West Bengal.[49] India's EEZ, which is governed by the national government, encompasses an area of 2,305,143 square kilometers.[50]

- Taking cognizance of increasing incidents of IUU fishing, the Indian government introduced the Marine Fisheries (Regulation and Management) Bill, 2019.[51] To curb illegal deep trawler fishing, the bill provides for the impoundment of foreign fishing vessels fishing in the EEZ and a fine for the owner or master.[52] It also issues regulations for foreign fishing vessels transiting the EEZ[53] and criminal penalties for violating those regulations.[54]
- In addition to the bill, the government has recently introduced draft National Fisheries Policy 2020 has placed a focus on IUU fishing and national security.[55] National Fisheries Policy 2020 is largely an attempt to invigorate fisheries and to promote inter-state cooperation in coastal area development and ecotourism.[56] It provides provision to make the Indian Coast Guard, Coastal Police, and the regulatory and enforcement agencies to be adequately trained and equipped to strengthen and implement the MCS system.
- The Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976,[57] defines India's maritime zones, which comply with the 1982 U.N. Convention on the Law of the Sea[58] (UNCLOS) to which India is a party. Thus, India enjoys its sovereign rights, including fishing rights, in the delimited waters under both domestic and international maritime laws.
- The Maritime Zones of India (Regulation of Foreign Vessels) Act, 1981, provides for the regulation of foreign fishing vessels in India's maritime zones and related matters.[59]

[49] INDIA ACCOUNTS FOR 6.3% OF GLOBAL FISH PRODUCTION: FISHERIES DEPT, Business Standard,https://www.business-standard.com/article/pti-stories/india-accounts-for6-3-of-global-fish-production-fisheries-dept-119061800013_1.html.
[50] Geoffrey Migiro, *Countries with the Largest Exclusive Economic Zone*, World Atlas, https://www.worldatlas.com/articles/countries-with-the-largest-exclusive-economic-zones.html.
[51] Marine Fisheries Regulation and Management (MFRM) Bill 2019.
[52] Id. ch. VIII, § 16(2).
[53] Id. ch. IX, § 22(2)(g).
[54] Id. ch. VIII, § 16(4).
[55] Government of India, National Fisheries Policy, 2020, http://nfdb.gov.in/PDF/National_Fisheries_Policy_2020.pdf (last visited Dec. 8, 2022).
[56] Id
[57] The Territorial Waters, Continental Shelf, Exclusive Economic Zone and Other Maritime Zones Act, 1976, No. 80, Acts of Parliament, 1976.
[58] . U.N. Convention on the Law of the Sea, opened for signature Dec. 10, 1982, 1833 U.N.T.S. 397.
[59] The Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1981, No. 42, Acts of Parliament, 1981.

ISSN: 2582-6433

It authorizes the Indian Coast Guard, when appropriate, to stop and board a fishing vessel, seize and detain the vessel, including any fishing gear, fishing equipment, stores, or cargo found onboard the vessel or belonging to the vessel, and to seize any fishing gear abandoned by the vessel. In 2019 the government provided the Coast Guard additional authority under the Coast Guard Act of 1978.[60] The Coast Guard now has the authority to visit, board, and seize vessels and objects suspected of being used to commit a crime.

4. OTHER MEASURES TO COMBAT IUU

4.1. BORDER CONTROLS

Increasingly, many major market countries are considering, or have implemented, measures that block IUU fish products through effective border control measures and that require third countries to certify legal products through effective MCS. Since entering into force on 1 January, 2010, the EU IUU Regulation[61] is the most robust example of a border measure to prevent, deter, and eliminate IUU fishing. The US and Japan are considering similar measures and China has already implemented some border controls.

4.2. MONITOR, CONTROL AND SURVEILLANCE (MCS)

Ineffective fisheries monitoring, control and surveillance (MCS) is considered one of the major causes of IUU fishing. From December 2004, the International Maritime Organization (IMO) has required all vessels over 299 GRT to carry an AIS transponder on board.[62] The AIS transponders on board vessels, should include a GPS (Global Positioning System) receiver, specifically to transmit the vessel's position, speed and course, along with some other static information, such as vessel's name, dimensions and voyage details. In India, very few numbers of boats are installed with MCS equipment on board. The probable reason could be economic constraints since poor fishermen cannot install such equipment on their boat.

4.3. PORT SECURITY

[60] The Coast Guard Act, 1978, No. 30, Acts of Parliament, 1978 (India).
[61] Council Regulation [EC] No 1005/2008 and Commission Regulation [EC] No 1010/2009.
[62] Regulation 19 of International Convention for the Safety of Life at Sea (SOLAS), 1974.

ISSN: 2582-6433

Drafted under the auspices of the FAO, the Agreement on Port State Measures to Prevent, Deter, and Eliminate Illegal, Unreported, and Unregulated (IUU) Fishing (PSMA)[63] is the first binding international treaty designed specifically to combat IUU fishing. It recognizes that "measures to combat IUU fishing should build on the primary responsibility of flag States and use all available jurisdiction in accordance with international law, including port State measures, coastal State measures, market-related measures, and measures to ensure that nationals do not support or engage in IUU fishing."[64] India has neither signed nor ratified the PSMA by way of writing, nor publicly provided a reason for not joining the treaty.

4.4. CAPACITY ENHANCEMENT OF DEVELOPING COUNTRIES

Challenges in fighting IUU fishing in the waters of developing countries consist of lack of patrol vessels, under funding, under staffing, inexperience and an inadequate legal and operational framework. This could be some of the reasons for not ratifying the PSMA by most of the developing countries. In this regard, it is suggested that FAO should pass a resolution to initiate a global fund scheme and with the support of member states of developed nations the funding of underdeveloped regional countries may be undertaken. Such support may be provided through the RFMOs with an aim to strengthen RFMOs for the achievement of desired outputs.

4.5. REGISTRATION OF FISHING BOATS AND BAN ON COUNTRIES

Registration of all fishing boats by the fisheries management organization of regional countries is very important. With regards to Pakistan perspectives most of the boats are not registered and some of the boats are double registered. Unless all the boats are not registered the exact data of the amount of catch and so as of IUU catch cannot be ascertained. At regional level, Coastal nations could contribute to transparency by advertising the complete list of registered boats. This will help market States to identify and reject fish from vessels that are fishing illegally.[65]

Further, various bans (import/export) are imposed on many countries' products due to quality control reasons. For example, a prolonged ban of several years was imposed on Pakistan fishery

[63] Agreement on Port State Measures to Prevent, Deter, and Eliminate Illegal, Unreported and Unregulated Fishing, opened for signature Nov. 22, 2009, 55 INTERNATIONAL LEGAL MATERIALS 1159 (2016) (entered into force June 5, 2016).
[64] Id. preamble para. 3.
[65] INDIAN OCEAN RIM ASSOCIATION ACTION PLAN 2017–2021, https:// www.iora.int/media/1031/iora-action-plan-7-march-2017.pdf (last visited Dec. 8, 2022).

ISSN: 2582-6433

products by the European Union due to poor handling of fishery resources due to which it incurred huge loss to the economy of the country. In a similar manner, there should be a market ban imposed on IUU suspect nations, as a stringent measure to deter such activities.

5. CONCLUSION

Sustainable fisheries can be achieved only by having a regulated fisheries management. Transition from unregulated to regulated fisheries cannot only occur on paper – to achieve this, flag States must have the means to enforce Conservation and Management Measures. Although India has a robust maritime legal and institutional infrastructure to address IUU fishing, this infrastructure needs to be strengthened further by involving international organisations in the existing regimes. By doing so, it will avoid duplicating the efforts taken by other countries against common threats, and can enhance its role in areas uncovered by the international regime to create a robust compliance mechanism.

India should become a party to the Agreement on Port State Measures (PSMA). Becoming a State party to the PSMA would provide several benefits, including implementing measures to ensure better detection and investigation of IUU fishing activities and capacity building of developing States to enhance cooperation in addressing this common threat. Membership would support and complement efforts to address IUU fishing, both globally and in the Indian Ocean region, including within the Indian EEZ.

The Indian government should highlight incidents of IUU fishing more often in open sources, such as government websites and media reports, to increase public awareness and also disseminate information on foreign vessels present in the EEZ to provide a list of suspected IUU vessels denied port access or privileges. Thus, imposing such measures and effective compliance standards by the Indian government in the Indian Ocean will prevent further depletion of marine life and curb the growing threats caused due to illegal and harmful fishing.