IKMAS WORKING PAPER 1/2024

TOWARDS SUSTAINABLE FISHERIES IN THE SOUTH CHINA SEA: ASEAN-LED INSTITUTIONS AND THEIR INITIATIVES

MOHAMMAD ZAKI AHMAD

eISSN 2600-9064

IKMAS Working Paper Series
http://www.ukm.my/ikmas/publication-category/ikmas-working-paper-series/

May 2024

Towards Sustainable Fisheries in the South China Sea: ASEAN-Led Institutions and Their Initiatives

Mohammad Zaki Ahmad is Associate Professor and Director of the Asian Institute of International Affairs and Diplomacy (AIIAD), Universiti Utara Malaysia.

INSTITUTE OF MALAYSIAN AND INTERNATIONAL STUDIES (IKMAS)

Established on 1 April 1995, the Institute of Malaysian and International Studies (IKMAS) is a Universiti Kebangsaan (National University of) Malaysia (UKM) research centre devoted to multidisciplinary research, post-graduate teaching and other academic activities with a focus on connectivity, inclusive development, identity, nation-building, human security, governance, and international relations. The IKMAS Working Paper Series showcases papers that have been presented at seminars or conferences to solicit comments and stimulate discussion. The views expressed in this publication series are those of the author(s) and do not represent the official positions of IKMAS or UKM.

Universiti Kebangsaan Malaysia
43600 UKM Bangi Selangor Darul Ehsan
Tel: +603-8921 3949/3782
E-mail: pghikmas@ukm.edu.my
website: www.ukm.my/ikmas/


ukm.my/ikmas

ABSTRACT

The marine resources and ecosystems in the South China Sea (SCS) face significant threats from human activity and climate change. Most commercially important fish stocks are already fully or over exploited. Pollution, ocean warming and destructive fishing have decimated critical fish breeding and nursery grounds. Despite evidence of biodiversity loss, the region's fisheries management regime is arguably ineffective and inadequate. Poor coordination, insufficient enforcement, disparities in technical capacity, limited funding, lack of facilities, and unreliable scientific data have hindered effective management efforts. While ASEAN and its relevant institutional mechanisms have made commendable progress in improving regional cooperation through capacity-building and knowledge-sharing initiatives, a legally-binding multilateral fisheries agreement applicable to the SCS has not been developed. This qualitative study examines ASEAN-led institutions and their roles in enhancing regional fisheries management. The study also explores the drivers for cooperation and common traits of ASEAN-driven fisheries management regimes. The rationale behind ASEAN member states' preference for voluntary capacity-building programs over multilateral regional fisheries agreements is also investigated. The paper argues that the ASEAN member states' hesitation to endorse legally-binding regional agreements stems from concerns about compromising sovereignty and national interests in disputed areas of overlapping claims and their ability to meet legally imposed management measures.

Keywords: ASEAN, legally-binding regime, South China Sea, fisheries, technical capacity, institutional mechanism.

Introduction

Considering the socio-economic significance and strategic importance of the South China Sea (SCS), the nationalistic preoccupations of ASEAN member states in asserting claims and defending national interests in the SCS are warranted. Nevertheless, these sentiments should not overshadow the urgent need to address an even more pressing issue: the ongoing deterioration and decimation of numerous fish species and their habitats. Both anthropogenic activities and climatic changes continue to exert immense pressures on the diversity, integrity and resiliency of marine resources and their environments (Li et al., 2020). The last three decades have seen a

marked decline of certain fish stocks in coastal and inshore fishing grounds in the SCS, as well as in adjacent regional seas, including the Gulf of Tonkin and Gulf of Thailand (Noranarttragoon et al, 2023; Nguyen, 2005, Coulter, 1996; Flaherty & Karnjanakesorn, 1993).[1] Even more troubling, the degradation of extensive areas of critical and vulnerable marine habitats, including seagrass meadows and coral reefs, has been well documented since the 1990s,[2] highlighting the urgency for their conservation and restoration efforts (Fortes, 2018; McManus, 2017; Morton & Blackmore, 2001; Oakley & Pilcher, 1996).

Despite overwhelming empirical evidence and scientific reports confirming the depletion of certain species of fish stocks and the loss of vulnerable marine biodiversity, many states around the SCS still prefer to work independently, particularly in areas where disputes over jurisdiction with other claimant states exist. They erroneously cling to the belief that they can single-handedly manage fisheries resources within their vast national jurisdictional waters, despite being fully aware of their limited law enforcement and surveillance capacity due to a shortage of funds, assets, and manpower. The alarming depletion of these fisheries resources, exacerbated by overfishing, and irresponsible and unlawful practices such as illegal, unreported, and unregulated (IUU) fishing, highlights a critical failure on their part, revealing a lack of both capacity and political will to adequately protect these resources. Abandoning this business-as-usual approach is a must if fisheries resources are to be developed and managed responsibly and sustainably. This means that the region's littoral states in the SCS, both claimant and non-claimant, must engage in concerted efforts not only to strengthen their respective national capacities but also to expedite regional fisheries cooperation. .

While claimant states in the SCS generally prefer to independently manage and protect fisheries resources within disputed maritime areas, it is crucial to acknowledge the presence of existing bilateral and multilateral arrangements, mechanisms, and programs for fisheries governance and marine environmental management in this semi-enclosed sea. It seems that cooperative arrangements of this nature are greatly welcomed and highly appreciated, provided they do not involve the disputed areas. The first regional institutional framework for fisheries governance dates back to the post-Second World War period with the establishment of the Asia-Pacific Fishery Commission (APFIC) in 1948.[3] APFIC, a regional fisheries advisory body under the Food and Agriculture Organization of the United Nations (FAO), promotes and expedites the adoption of fisheries policies and strategies.[4] In addition to APFIC, several regional bodies within and outside of the FAO's framework have also played active roles in promoting sustainable fisheries by providing technical assistance, advisory services, technological transfer, and sharing data. Intergovernmental bodies, including the Southeast Asian Fisheries Development Center (SEAFDEC), Marketing Information and Advisory Services for Fish Products in the Asia-Pacific Region (INFOFISH) and United Nations Environmental Programme (UNEP) Regional Seas Programme, collaborate closely with the Association of Southeast Asian Nations (ASEAN). The WorldFish Center, an independent non-profit global research organization,[5] has also successfully engaged with such stakeholders in the region as government agencies, national fisheries associations, non-governmental organizations (NGOs), and business communities.[6]

Beyond regional cooperative arrangements, the littoral states have also forged bilateral fisheries agreements in such key areas as research collaboration,[7] information and data exchange,[8] fisheries law enforcement,[9] and crisis-prevention communication channel.[10] A notable example of fisheries agreement between two claimant states is the 2000 Vietnam-China Gulf of Tonkin Fisheries Agreement.[11] Although this agreement only covers part of the SCS, it obligates both parties to work together on fisheries management and conservation in their demarcated common fishing areas.

In the past two decades, ASEAN has addressed key challenges in fisheries governance by adopting policies and establishing mechanisms with external institutions. International and regional inter-governmental bodies, NGOs, and various stakeholders have provided substantial support such as joint research funding, management guidelines and expert advice, specialized technical training and

education programs, and scientific data sharing. Examples of SEAFDEC's research projects funded by the Japanese Trust Funds (JTF) program, include the "Tagging Program for Economically Important Pelagic Species in the South China Sea and Andaman Sea,"[12] as well as "Research for Stock Enhancement of Sea Turtles in the Southeast Asian Region."[13]

The accomplishments of ASEAN and its strategic partners to elevate the technical proficiency of its members in the areas of capacity-building and knowledge-sharing in fisheries are commendable. Nonetheless, the fisheries management regime in the SCS is still widely deemed inadequate and fragmented (Chang et al., 2020; Teh et al., 2016), with poorly coordinated fisheries conservation measures, lack of political will, and insufficient enforcement exacerbating the issue (Suuronen et al., 2020; Hsiao, 2020). Adding to the complexity of this challenge is the disproportional level and depth of technical capacity among the region's littoral States. Inadequate expertise, funding, facilities, and reliable scientific data have impeded effective fisheries management and conservation efforts (UNEP, 2008). Further complicating fisheries management efforts in the SCS is the jurisdictional uncertainty surrounding the governance of marine living resources. This scenario is due to ongoing overlapping claims to sovereignty and sovereign rights in the disputed areas, particularly within China's claimed nine-dash line – a vast maritime region contested by multiple claimant states, including four ASEAN members – Brunei, Malaysia, Vietnam, and the Philippines.[14] In addition, a substantial challenge remains in securing consensus among ASEAN members to be legally bound by a regional fisheries agreement in the SCS.[15] This contrasts with the East China Sea and Yellow Sea, where both bilateral and multilateral fishing agreements exist (Greer, 2016).

This raises several pertinent questions: What roles can institutional mechanisms under the ASEAN framework play in promoting sustainable fisheries in the SCS? What common traits do these mechanisms share in terms of operational approaches and types of cooperation? What motivates ASEAN members to participate in voluntary capacity-building programs over committing to legally-binding multilateral fisheries agreements? To date, there has been no systematic analysis of the ASEAN-led institutional cooperation regime in fisheries governance and conservation in the SCS. Additionally, the functions of ASEAN and the obstacles it faces in formulating a robust and enforceable regional agreement for fisheries governance in the SCS have yet to be comprehensively scrutinized in the existing literature.

This study evaluates the ASEAN-initiated institutional regime for sustainable fisheries management and conservation. It discusses the state of marine fisheries in SCS, including the ecological and biological characteristics of fisheries resources and the socio-economic contributions of the fisheries industry. It further explores the common characteristics of ASEAN-initiated institutional mechanisms and investigates the rationale behind member states' preference for participating in voluntary capacity-building programs over committing to legally-binding multilateral fisheries agreements. Finally, the study proposes a set of measures to strengthen the role of ASEAN's fisheries-related mechanisms and augment its member's capacity-building in fisheries management and governance.

Research Methodology

This study conducts an in-depth review of primary and secondary data from published and non-published sources, including grey literature, to identify and ascertain the status of the ASEAN-driven fisheries cooperation regime, pinpointing trends and patterns within its institutional, policy, and administrative framework. These insights are essential for assisting relevant policymakers and practitioners, like fisheries managers, marine scientists, and government officers, to understand the functional scope of fisheries management institutions within ASEAN. They also highlight how these institutions can enhance national capacities and foster interstate cooperation in fisheries governance.

The primary data for this study encompassed a wide range of materials, including international, regional, and bilateral fisheries-related policy and legal documents, records, declarations, and technical publications from relevant subsidiary organizations and administrative divisions of the United Nations, such as the Food and Agriculture Organization (FAO) and its Committee on Fisheries (COFI). In addition, data were extracted from reports, directives, and resolutions from ASEAN and SEAFDEC sub-committees and technical departments, then analysed and incorporated into this study.

This study also draws upon diverse secondary resources, including books, edited books, magazines, unpublished dissertations, scholarly journals, newspaper articles, and proceedings from workshops and seminars. Additionally, it makes use of both unpublished and published reports pertaining to multiple facets of fisheries management, issued by relevant government ministries and bodies, as

well as intergovernmental and non-governmental bodies. The comprehensive data analysis undertaken in this study serves as a solid foundation for evaluating the institutional progress made by ASEAN in enhancing the national capacity of its members and underscores the importance of ongoing research and analysis in this field.

State of Affairs of SCS Fisheries

There is already a voluminous body of literature, which provides comprehensive insights into various dimensions of fisheries in the SCS. This paper will not replicate exhaustive discussions from the existing literature but instead offers a concise overview of the state of affairs of regional marine fisheries and habitats in the SCS. It focuses on the biological and ecological status of fisheries resources, their decline, and the socioeconomic benefits they provide, emphasizing the need for littoral states to cooperate in fisheries management.

Biological and Ecological Status of Fisheries

Encompassing an extensive area of 3.8 million square kilometres and bordered by 12 countries/territories (Sumaila & Cheung, 2015), the SCS is highly significant to global marine biodiversity. This semi-enclosed sea constitutes an integral part of Southeast Asian maritime domains and is renowned as one of the world's most diverse and, at one time, most abundant marine biodiversity and ecosystems (Huang et al., 2015; Song, 2011; Wilkinson et al., 2006). Species assemblage and composition of marine aquatic resources in this marginal sea are complex and highly diverse. It has been estimated there are 3,365 species of marine fish, including nearly 1,120 species of reef fish (Randall and Lim, 2000).

Marine resources and ecosystems in the SCS are under severe threat from human activities and climate change, leading to declines in biological abundance and diversity.[16] Since the 1950s, fish stocks in the SCS have experienced a dramatic decline, ranging between 70% and 95%, with catch rates dropping significantly from 66% to 75% over the past two decades (CSIS Expert Working Group on the South China Sea, 2018: 6). With the exception of a few fish stocks in the western corridor of the SCS, which remain under-fished (FAO, 2018: 45; FAO, 2022: 55), most of the fisheries resources in the SCS have been either over or fully-exploited, leading to widespread depletion of both demersal and pelagic resources (FAO, 2010).

This ongoing grim reality affecting fisheries resources is partly driven by long-standing overfishing practices within both small-scale inshore/coastal and commercial fishing sectors (Harrington, 2022; McManus, 2017; Teh et al., 2017). Overfishing has significantly impacted demersal fish stocks in the coastal waters off the east coast of Peninsular Malaysia (Nurulhuda et al., 2014) and in the offshore areas within Malaysia's claimed exclusive economic zone (EEZ) in the SCS, off the coast of Sarawak (Hadil et al., 2008: 7). The problem is further fuelled by harmful fisheries subsidies and compounded by a lack of political will among local fisheries authorities to regulate and eliminate these subsidies (Paterson & Yingyuad, 2017; Sumaila et al., 2013). Studies by Lee and Kuperan (2019) affirm that government-provided fisheries subsidies, such as catch landings incentives, fuel subsidies, and monthly income support, have been blamed for exacerbating the depletion of fisheries resources. They argued that these subsidies incentivize increased fishing effort, leading to diminished catches, incomes, and overall welfare levels within fishing communities.

Likewise, such economically important pelagic species such as scads, tunas, Indian mackerels, and anchovies have been over-exploited for the last three decades (Xu et al., 2023; Teh et al., 2017; Siriraksophon and Sayan, 2016; Yamagawa, 1998). Round scads have been overfished beyond the point of recovery, exceeding their estimated Maximum Sustainable Yield (MSY) (Saikliang, 1997:129). In the Gulf of Thailand, the over-fishing crisis has gravely impacted most small pelagic stocks, specifically, small tunas, anchovies, Indo-Pacific mackerel, Indian mackerel, and sardines, pushing them to alarming levels of depletion (Chantawong, 2000). Commercial fish stocks are not the only marine species with visible signs of overexploitation. The populations of such endangered species as sea turtles, sharks, and dolphins are increasingly at high risk of extinction due to rampant harvesting, both intentional and accidental (by-catch) (Xu et al., 2022; Liu et al., 2017; Arai and Azri, 2019). The deteriorating condition of marine resources and ecosystem in the SCS necessitates urgent action from the littoral states to reverse the condition.

It is worth noting that in the context of biological and spatial distribution, both demersal and pelagic species are the two species of shared stocks dominating the multispecies fisheries resources inhabiting the SCS.[17] The term "shared stocks" refers to transboundary fish stocks with a distribution range extending beyond the jurisdictional waters of two or more countries, and these stocks are often exploited by these countries.[18]

Demersal fish, though less mobile than their pelagic counterparts, are often found in shallow waters near the seabed. As asserted by Martosubroto (1998), demersal fish can also be considered "shared stocks" if their geographical range spans the jurisdictional waters of different states, e.g., if their spatial movement extends across the EEZs of different littoral states (FAO/SEAFDEC, 1985: 2). A cursory analysis of the catch landing data indicates that the most commonly caught demersal species in the SCS consist of croakers, snappers, threadfin breams, groupers, marine shrimps, and cephalopods, including squid and cuttlefish. Isa (2000: 154) classifies all these species as "transboundary shared stocks" (cited from Gulland (1980) and Caddy, 1982).

Significant numbers of pelagic species in the SCS also fall under the category of shared stock, specifically, "migratory shared stocks" (Caddy, 1982). Statistical catch data shared by littoral states reveal that small pelagic species constitute a substantial portion of national catches. These species include members of the scad family (e.g., round scad, hardtail scad, bigeye scad), Indian mackerel, Spanish mackerel, and sardines (Gambang, 1998: 70; Isa, 2000: 154). Tuna and tuna-like species are also classified under the "migratory shared fish stocks" category. The neritic tuna family, including longtail tuna, kawakawa, bullet tuna and frigate tuna, are commercially significant in this region. Additionally, oceanic tuna species, e.g., skipjack, bigeye, and yellowfin, are present in the deeper waters around islands and coral reefs in the SCS.[19]

As many fish species cross the jurisdictional zones of different states in the SCS, a cross-border management approach is critical for the sustainable conservation of shared fisheries resources. Unregulated and excessive fishing, even within a country's own EEZ, has negative ramifications on the sustainability of these resources (Isa, 2000). Excessive removal of stock populations can disrupt the ecological balance in neighbouring EEZs, leading to a decline in biological abundance and catch rates. Recognizing that littoral states in the SCS, including ASEAN claimants, share the same fish stocks, there is a need for a paradigm shift in fisheries governance and conservation.

Claimants involved in SCS disputes must engage in fisheries cooperation, even if the distribution corridors of shared fish stocks intersect areas with overlapping claims. (Tran, 2017). Otherwise, the unilateral efforts of an ASEAN member state to conserve shared resources within its own maritime jurisdictions may be rendered futile without cooperation from other states sharing the same resources. The most effective strategy for the sustainable management of fish stocks that

spans several jurisdictional zones is a coordinated effort, either directly with the states concerned or through regional fisheries organizations (Ahmad and Abdullah, 2014: 13). Hence, it is highly desirable for the states in the Southeast Asia region to collaborate closely within ASEAN's fisheries-related policies and institutional frameworks.

Socio-Economic Significance

The marine capture fisheries sector in the SCS is not merely a vital blue economy industry; it stands as a critical pillar for regional socio-economic growth and food security. This sector serves as a lifeline for numerous coastal communities across the region, providing essential food and nutrition, while also generating significant revenue and employment opportunities for millions. The biological diversity and abundance of marine life in the SCS have positioned it as one of the world's top five most productive fishing grounds (Gnanasagaran, 2018; Trajano, 2019). For decades, it has served as a fertile offshore fishing ground for the surrounding regional states (Apridar, 2014).

Despite the majority of fish stocks in the inshore and coastal areas in the region having been overfished to unsustainable levels, the SCS remains a major site for global marine fisheries production. It is estimated that over half of the world's fishing vessels operate in this area (Poling, 2019). In 2012, US$22 billion worth of fish were caught from the SCS (Moss, 2016). In 2016, the roughly 10 million tonnes of fish landed from the SCS accounted for 12% of the fish caught globally (Zhang, 2018; Salleh, 2020). Over the last decade, ASEAN countries, notably Malaysia, Thailand, Vietnam, the Philippines, and Indonesia have consistently ranked among the top twenty countries in the world for marine fisheries production (FAO, 2010; FAO, 2020).

In terms of productivity and economic significance, the SCS and the East China Sea are the primary fishing regions in the Western Pacific, with an estimated combined trade value of around $100 billion (Sumaila et al., 2021). The export of fishery products from the countries bordering the SCS reached an impressive USD 38.7 billion in 2011, with China leading the way, contributing a substantial 44% (USD 16.9 billion) to the total export value (Sumaila and Cheung, 2015: 14).

Millions of coastal communities throughout Southeast Asia and neighbouring regions rely on fishing operations and downstream fishery-related. sectors, such as processing, storing,

transporting, and marketing fish activities, for income and employment opportunities. Approximately 3.7 million individuals are employed in the region's fisheries (Funge-Smith, et al., 2012). In Guangdong Province, China, for example, approximately 943,000 registered fishermen and fisheries employees depend on the marine fisheries sectors for their livelihoods (Yuan et al., 2022),[20] which underscore the immense socio-economic worth of SCS fisheries, as well as the industries and communities they support. However, it is worth noting that the actual number of fishermen operating in this semi-enclosed sea is significantly higher, if the presence of illegal fishermen is taken into account.[21]

Both fish and marine products are vital and accessible dietary sources of animal protein for many impoverished coastal communities in the region (SEAFDEC, 2012: 89). The countries bordering the SCS consistently lead the world in the consumption of fish and other marine products (Stimson Center, 2013), with an average consumption of 39.4 kg/person/year in 2017 - a figure that significantly surpasses the global average of 20.3 kg/person/year (FAO, 2023b: 59).[22] Hence, ensuring the sustainability of fisheries production is essential, as it is a critical source of sustenance and food security in this region.

ASEAN-Initiated Regional Fisheries Cooperation Regime

In the past twenty years, ASEAN has played an increasingly active role in facilitating and promoting regional cooperation for managing marine resources and the environment in the regional seas of Southeast Asia, including the SCS. Institutional mechanisms have been established within the framework of the ASEAN fisheries cooperation regime. Their aim is to promote the conservation, management, and sustainable and responsible utilization of fisheries resources and ecosystems. These mechanisms have initiated and launched various cooperative measures with multiple stakeholders, offering recovery plans and management strategies to replenish the already depleted shared fish stocks.

These regional institutions have expanded their involvement beyond the harvesting stage, incorporating both trade and market access as management tools to ensure that fish and fisheries products are sourced from sustainable, and authorized fishing practices. Among the measures being adopted, include standardizing fisheries specifications and regulations, promoting eco-labelling, and providing assistance in trade negotiations. One notable instance of a policy

framework relating to trade measures is the ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain, which was endorsed at different ASEAN ministry and sub-committee levels.[23] This voluntary guideline aims to ensure that fish and fishery-related products from illegal and unsustainable fishing practices are prevented from entering and being distributed within the ASEAN supply chain (SEAFDEC-MFRDMD, 2015).

The most prominent of regional institutional mechanisms is the ASEAN Sectoral Working Group on Fisheries (ASWGFi). It serves as a governing and coordinating body within the ASEAN framework to oversee the implementation of fisheries cooperation among its member States. In the context of marine capture fisheries management, ASWGFi is supported by several sub-working groups, including the ASEAN Fisheries Consultative Forum (AFCF), the ASEAN Network for Combating IUU Fishing (AN-IUU), and the Southeast Asian Fisheries Development Center (SEAFDEC) through the Fisheries Consultative Group (FCG/ASSP) (see **Table 1**).

Table 1

Fisheries-related Institutional Mechanisms under the ASEAN Framework

Name	Functions	Achievements
ASEAN Sectoral Working Group on Fisheries (ASWGFi)	• Develops regional fisheries management plans (RPOAs). • Implements ASEAN-based strategic plans. • Supports and coordinates research in fisheries science, technology, and management. • Builds the capacities of member countries through training, technical assistance, and knowledge-sharing initiatives. • Facilitates the exchange of data, information, and best practices in fisheries management.	• Regional Plan of Action for the Management of Fishing Capacity (RPOA-Capacity); • Regional Plan of Action to Combat Illegal, Unreported and Unregulated (IUU) Fishing (RPOA-IUU); • Strategic Plan of Action on ASEAN

	• Fosters collaboration and partnerships among ASEAN member states and with external organizations or countries Monitors and evaluates the implementation of regional fisheries agreements, programs, and initiatives. **Source:** The ASEAN Secretariat (2024); SEAFDEC (2009); FAO (2002).	Cooperation on Fisheries 2016-2020; • Strategic Plan of Action for ASEAN Cooperation on Fisheries 2021-2025.
ASEAN Fisheries Consultative Forum (AFCF)	• Develops guidelines and standards for responsible fishing practices. • Provides a platform for ASEAN member states to engage in dialogue, exchanging ideas, experiences, and best practices in fisheries management and conservation. • Coordinates fisheries policies among member states. • Promotes sustainable fisheries practices and advocates for the sustainable management of fisheries resources, raising awareness. • Facilitates trade in fish and fishery products among ASEAN member states, harmonizing standards, regulations, and promoting eco-labelling and certification. • Serves as a hub for information sharing and communication. • Provides a platform for member states to discuss and address disputes and conflicts. **Source:** The ASEAN Secretariat (2024b); SEAFDEC (2010).	• ASEAN Guidelines for the Responsible Conduct of Fishing Operations; • ASEAN Guidelines for the Use of Destructive Fishing Gear

ASEAN Network for Combating IUU Fishing (AN-IUU)	• Serves as a platform for ASEAN member states to share information on IUU fishing activities. • Develops regional policies and guidelines to harmonize national efforts against IUU fishing and promote sustainable fisheries management. • Establishes regional measures to combat IUU fishing. • Provides training and capacity-building programs to enhance the ability of ASEAN member states in detecting, monitoring, and combating IUU fishing. • Facilitates coordination and collaboration among ASEAN member states and with other regional/international organizations. • Raises awareness and advocates for the importance of combating IUU fishing. • Conducts research and analysis on IUU fishing trends, patterns, and impacts in the ASEAN region to inform policy and decision-making. • Supports ASEAN member states in strengthening their legal frameworks and enforcement capabilities to address IUU fishing. **Source:** Rodchevid (2024); ASEAN (2023); Marriot (2022); SEAFDEC (2022a).	• ASEAN Declaration on Combating IUU Fishing; • ASEAN Regional Plan of Action to Combat IUU Fishing.

Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (*FCG*/ASSP)	• Serves as a platform for collaboration between SEAFDEC and ASEAN on fisheries matters. • Provides technical support to help ASEAN member states formulate and implement regional fisheries policies, strategies, and action plans. • Organizes training programs, workshops, and seminars to enhance the capacity of fisheries managers, researchers, and practitioners in ASEAN member states. • Conducts research and development activities to generate scientific knowledge and innovative technologies for sustainable fisheries management. • Facilitates the exchange of information, data, and best practices among ASEAN member states. • Assists ASEAN member states in assessing and monitoring fish stocks and aquatic resources. • Fosters collaboration and partnerships with national, regional, and international organizations. **Sources:** SEAFDEC (2024); SEAFDEC (2023a); SEAFDEC (2014); ASEAN (n.d).	• ASEAN Roadmap for the Integration of Fisheries Sector; • ASEAN-SEAFDEC Training Course on Fisheries Management and Governance; • ASEAN-SEAFDEC Workshop on Regional Cooperation and Collaboration in Marine Fisheries Research; • Regional Fishing Vessels Record (RFVR); • ASEAN-SEAFDEC Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region towards 2020; • Joint ASEAN-SEAFDEC Declaration on Regional Cooperation for Combating Illegal, Unreported and Unregulated (IUU) Fishing and Enhancing the Competitiveness of

		ASEAN Fish and Fishery Products;

ASEAN Sectoral Working Group on Fisheries (ASWGFi)

The ASEAN Sectoral Working Group on Fisheries (ASWGFi) has been the leading institution within the ASEAN framework for fisheries governance in Southeast Asia, including the SCS. It operates as one of the subsidiary bodies providing technical support to Senior Officials Meeting of the AMAF (SOM-AMAF) (ASEAN Secretariat, 2024b). Its primary responsibility is to promote sustainable fisheries and aquaculture sectors through cooperative arrangements. To achieve this goal, the ASWGFi takes the lead in identifying and proposing a wide range of areas where ASEAN member states and dialogue partners can cooperate on all matters related to attaining sustainable and responsible fisheries.

The ASWGFi meeting, which is held annually, serves as a major platform for ASEAN member states and expert stakeholders to participate in the process of formulating and implementing strategic plans and conservation measures for fisheries conservation and marine habitat protection. Notable agenda items at these meetings include assessing the progress of implementing strategic thrusts and action programs outlined in the Strategic Plan of Action for ASEAN Cooperation on Fisheries (ASEAN Sectoral Working Group on Fisheries, 2021). This annual gathering provides a platform for constructive discussions, idea exchange, and effective strategies identification to tackle recurring and emerging challenges in fisheries governance. Additionally, the meeting serves as an opportunity for ASEAN member states to share experiences and best practices, including successful measures against IUU fishing. One of ASWGFi's initiatives is the endorsement of a dedicated cooperative network to combat Illegal, Unreported, and Unregulated (IUU) fishing, known as the AN-IUU Cooperation Framework (Marriot, 2022). Furthermore, the policy recommendations and roadmaps generated from the ASWGFi meetings play a crucial role in guiding the decision-making and direction of other regional fisheries-related mechanisms such as AFCF, AN-IUU, and FCG/ASSP. These recommendations guide future efforts not only in

combating IUU fishing but also in ensuring the sustainability and resilience of the region's fisheries sectors.

ASWGFi is also entrusted with implementing, tracking and evaluating the progress of collaborative projects and activities on fisheries conservation and management undertaken with other sub-working groups. ASWGFi, in collaboration with AFCF, has made creditable progress in implementing initiatives such as the Strategic Plan of Action for ASEAN Cooperation on Fisheries 2021-2025. By fulfilling this mandate, the ASWGFi ensures that all initiatives are carefully monitored and evaluated for their effectiveness in advancing the region's sustainable fisheries development agenda (ASEAN Sectoral Working Group on Fisheries, 2021). Such exercises are warranted, given that all these measures are supposed to be aligned with the sustainable development principles articulated in the United Nations' Sustainable Development Goal (SDG) 14.

ASEAN Fisheries Consultative Forum (AFCF)

The ASEAN Fisheries Consultative Forum (AFCF) is a sub-working groups under ASWGFi. AFCF is tasked with facilitating the exchange of information among ASEAN member States and partners on fisheries management and development, including those applicable in the SCS (The ASEAN Secretariat, 2024b). Its annual meeting is held consecutively with the ASWGFi meeting, offering an opportunity for ASEAN members to update each other on national and regional initiatives in various fields, ranging from fishing capacity and zoning, securing sustainable small-scale fisheries, resource enhancement and rehabilitation, climate change, combating IUU, to traceability systems for fisheries and aquaculture (SEAFDEC, 2022a). It also provides an avenue for member states to share their experiences and knowledge on fisheries management and development. The sharing of this information enables professionals and stakeholders in the fishing industry to stay informed and engaged with the latest trends and best practices in fisheries management.

The AFCF has been instrumental in helping ASEAN member states in developing common guidelines and best practices for sustainable fisheries management and development (see **Table 1** above). These guidelines promote the use of sustainable and environmental-friendly fishing

methods, the protection of marine ecosystems, and the promotion of responsible fishing practices which have resulted in significant improvements in the sustainable exploitation and management of fisheries resources in the ASEAN region. For instance, a collaborative effort involving AFCF, Malaysia, and SEAFDEC led to the development of the ASEAN Regional Plan of Action for the Management of Fishing Capacity (RPOA-Capacity). This non-binding instrument was officially adopted during the 38th Meeting of the ASEAN Ministers on Agriculture and Forestry (AMAF) in October 2016 (SEAFDEC, 2017). Moreover, the AFCF has also played a vital role in building trust and cooperation among member states, which is essential for the effective management of fishery resources.

ASEAN Network for Combating IUU Fishing (AN-IUU)

The second sub-working group under ASWGFi is the ASEAN Network for Combating IUU Fishing (AN-IUU). Endorsed during the 42nd Meeting of AMAF in October 2020, AN-IUU is a regional platform for enhancing cooperation, sharing information, and building capacity among ASEAN member states to combat IUU fishing and promote sustainable fisheries management practices. Similar to the ASWGFi and AFCF, the AN-IUU meeting is held annually, but its primary focus is on the operationalization of the AN-IUU Online interactive platform. Established in Thailand, this digital platform facilitates the exchange of IUU-related information and intelligence among the ASEAN member states, enabling them to collaborate to tackle this issue (Rodchevid, 2022). The AN-IUU meeting is also essential for assessing the effective implementation of the ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain and RPOA-IUU.

The AN-IUU also enhances regional cooperation on the use of monitoring, control, and surveillance (MCS) systems to suppress and investigate IUU fishing. The AN-IUU facilitates the exchange of information and expertise among ASEAN members to combat IUU fishing activities (Marriot, 2022). Furthermore, the AN-IUU is responsible for strengthening the capacity of ASEAN members in combating IUU fishing and promoting sustainable fisheries management practices. The network offers technical assistance, training, and support to member states, empowering them to strengthen their capacity in MCS, especially focusing on best practices in investigating and prosecuting the violators involved in IUU fishing activities. (SEAFDEC, 2022b:

142). By doing so, the AN-IUU has contributed to improving the management and sustainability of the region's fisheries resources.

While suppressing IUU fishing is of concern, the AN-IUU has also played a vital role in building trust and cooperation among the ASEAN members and non-member states in the region. With support from SEAFDEC and other regional and sub-regional MCS networks, AN-IUU has fostered dialogue and cooperation among them, leading to joint initiatives and projects aimed at mitigating IUU fishing (SEAFDEC, 2022b). The AN-IUU has been successful in promoting regional and international cooperation on IUU fishing, including engaging with non-ASEAN states and international organizations. For example, the European Union, under the Enhanced Regional EU-ASEAN Dialogue Instrument (E-READI) program, has developed guidelines on sharing, access, and use of IUU fishing-related information (Marriot, 2022). This initiative aims to increase cooperation between ASEAN countries and the EU in the fight against IUU fishing.

Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (FCG/ASSP)

The strategic partnership between ASEAN and SEAFDEC through the Fisheries Consultative Group (FCG/ASSP) has resulted in a robust mechanism for the development, implementation, monitoring, and evaluation of fisheries management programs. The FCG/ASSP acts as a critical liaison connector that streamlines joint programs and projects between ASEAN and SEAFDEC as well as with other regional and international organizations, ensuring that the partnership bears fruit in the form of sustainable fisheries management and thriving fishery communities (SEAFDEC, 2022a; ASEAN. n.d.). SEAFDEC's activities and programs are myriad, encompassing consultation, research, technical training, and the dissemination and exchange of information and data (SEAFDEC, 2015). With the input and data obtained from SEAFDEC's extensive technical expertise and database, ASEAN members can gain access to a wealth of knowledge, data and technical information, including fish stocks assessment, fishery biological profiles, catch and effort, fishing technology, and ecological data (SEAFDEC, 2023b). SEAFDEC disseminates this knowledge and information through the publication of scientific research, policy briefs, and technical reports, as well as the organization of workshops and seminars.

Similar to the above-mentioned sub-working groups, the FCG/ASSP meeting is held annually, with agendas mainly focused on the programs and projects implemented by SEAFDEC. Examples of such programs include the ASEAN Catch Documentation Scheme (CDS), fishing capacity management, capacity building on port state measures, fishing gears technology, and fishing vessel registration systems. The ASEAN Catch Documentation Scheme (or ACDS) is one of SEAFDEC's initiatives involving the development of an electronic catch monitoring system that helps ASEAN member states ensure that fish and fish products are not sourced from IUU fishing activities (SEAFDEC-TD, 2018). SEAFDEC has also established an online database and record system for fishing vessels (also known as Regional Fishing Vessels Record or RFVR). The database is linked with the FAO global fishing vessel registration - FAO International Standard Statistical Classification of Fishery Vessels (Imsamrarn, 2022). This system helps to monitor and manage fishing activities in the region and ensure the sustainable use of marine resources.

In sum, all the above institutional mechanisms play crucial roles in promoting sustainable marine fisheries management practices and enhancing regional fisheries management cooperation in the ASEAN region in general and the SCS in particular. By sharing information and best practices, the region can work towards ensuring the long-term health and productivity of its fisheries resources.

Common Traits of Regional Cooperation Measures

Although each of the institutional mechanisms under the auspices of ASEAN has its own specific mandates and functions, collectively the mechanisms share a common goal: the sustainable management of marine resources in the ASEAN region through collaborative endeavours. To achieve this goal, these mechanisms have assumed leadership and coordinating roles in formulating and adopting regional management plans and strategies for fisheries conservation and responsible fishing practices, including post-harvesting considerations. It can be observed that existing regional fisheries cooperation in the SCS, initiated under the framework of ASEAN institutional mechanisms, share common characteristics, particularly in terms of operational approach and types of cooperation.

First, a discernible pattern in ASEAN-initiated policies, mechanisms, and technical training programs in fisheries management is their collaborative and inclusive nature, with numerous stakeholders actively participating. These initiatives benefit from the funding, endorsement and

insights of international and regional inter-governmental entities, as well as valuable contributions from non-governmental organizations and diverse stakeholders. Through a strong collaborative alliance among these institutions, a series of policy instruments has been developed to actively promote the sustainability of fisheries in the region. This collaboration is exemplified by the joint efforts of ASWGFi and the AFCF in developing comprehensive regional fisheries management plans, including the RPOA-Capacity and RPOA-IUU.[24]

Intergovernmental advisory and research bodies outside the ASEAN framework, notably SEAFDEC, play prominent roles in facilitating and promoting fishery cooperation in the region. SEAFDEC acts as technical advisors, program coordinators, or research partners. Some of the most successful and concrete regional research initiatives for the conservation of transboundary shared stocks have been initiated by SEAFDEC, which has existed since 1967.[25] Through its technical departments, notably the Marine Fisheries Research Department (MFRD) and Marine Fishery Resources Development and Management Department (MFRDMD), SEAFDEC provides a platform for its members to access technical assistance, expertise, knowledge, and advisory opinions for the sustainable development and management of fishery resources.

The cornerstone of enhancing capacity-building in fisheries management and conservation lies in the collaboration between SEAFDEC and institutional bodies under ASEAN. Technical departments under SEAFDEC have cooperated with ASEAN sub-working groups to organize various joint technical training programs in areas such as management, stock assessment, environmentally-friendly fishing gear, law enforcement, and post-harvest procedures. These comprehensive training initiatives have been made possible by assistance and coordination provided by regional and international organizations, as well as the backing of foreign funders. For example, the AFCF has collaborated with foreign organizations and regional donors such as the German Organisation for Technical Cooperation (GTZ) and the Japanese Trust Fund (JTF) to align regional fisheries management strategies and implementation with best practices and standards in fisheries management (SEAFDEC, 2010).

Regional cooperation is paramount in achieving sustainable fisheries governance and development in the SCS. However, significant challenges arise from the disparate technical capacities among the littoral states of the region. Many of these states lack access to the assets, facilities, and technical

knowledge necessary for managing fisheries resources sustainably and responsibly. While major ASEAN fishing nations like Thailand and Vietnam have heavily invested in fisheries research and development, others such as Cambodia and Brunei have limited expertise and/or funding for such activities. These differences hinder the establishment of cohesive management strategies and impede effective enforcement of regulations. In addressing these challenges, it is imperative for ASEAN members to engage in collaborative efforts aimed at bridging the gap in technical expertise and resources. By doing so, ASEAN can adopt a more equitable and robust approach to fisheries management in SCS.

Information sharing and communication enhancement play a pivotal role in capacity-building among ASEAN member states. Nonetheless, coastal states in the SCS face a longstanding issue of lacking comprehensive, reliable and up-to-date scientific data on fish stocks and aquatic resources, which hinders evidence-based decision-making and effective management strategies. The absence of scientific knowledge about species composition, distribution, and interaction further complicates fisheries assessments and management efforts. Given the challenges in data collection and research, it is essential for ASEAN members to, with the support of regional organizations, significantly enhance their research efforts and data quality.

To enhance information sharing and communication, ASEAN-led fisheries institutions have employed various means, including newsletters, reports, workshops, conferences, and databases, to share and disseminate knowledge. Through annual meetings and diverse communication initiatives, these institutional mechanisms promote dialogue and knowledge exchange among ASEAN member states and stakeholders, thus laying the groundwork for the formulation and execution of best practices and collaborative projects.

In recent years, multilateral partnerships in the conservation and protection of marine aquatic resources and environments have become increasingly evident under the framework of regional organizations. ASEAN members and other non-member states such as Timor Leste, Papua New Guinea, Japan, the United States, and Australia are involved in these multilateral partnerships.[26] Japan has initiated a program to manage fishing capacity and combat IUU fishing in the region. The Japan International Cooperation Agency (JICA) has also provided training on responsible fishing technologies and practices and organized regional capacity-building workshops on

enhancing policies and measures against IUU fishing in Southeast Asia. JICA has also provided training for fisheries inspectors to implement Port State Measures to combat IUU fishing (SEAFDEC-TD, 2024). Meanwhile, the United States Agency for International Development for Oceans and Fisheries Partnership (USAID Oceans) has played a proactive role in bolstering the capacity of ASEAN member states to achieve sustainable and responsible fisheries. Strategic and targeted intervention programs designed to facilitate knowledge exchange and dissemination, technical training, and the implementation of best practices were adopted by the USAID Oceans to enhance transparency in the seafood supply chain, eliminate IUU fishing, and improve human welfare (USAID. 2012).

Next, the prevailing trend of illegal, unregulated and unreported (IUU) fishing in the regional seas of Southeast Asia has catalysed ASEAN members to play a more active role in tackling this practice. This commitment materialized in the form of non-binding regional instruments as the "Joint ASEAN-SEAFDEC Declaration on Regional Cooperation for Combating Illegal, Unreported and Unregulated (IUU) Fishing and Enhancing the Competitiveness of ASEAN Fish and Fishery Products Regional Plan of Action to Combat IUU Fishing". Adopted on August 3, 2016, this soft law instrument reaffirms one of ASEAN's fundamental goals: ensuring sustainable development for the benefit of present and future generations, and placing the well-being, livelihood, and welfare of the people at the core of the ASEAN community-building process. The Declaration aims to achieve its goal of eliminating IUU fishing by: (i) intensifying capacity building and awareness-raising programs, (ii) enhancing traceability of fish and fishery products from capture fisheries, and (iii) strengthening MCS programs in fisheries.

The display of willingness among ASEAN members to cooperate in combating IUU fishing, as reflected in the preamble and introduction sections of various regional policy instruments, is imperative in addressing the intricate and cross-border nature of this illicit practice. IUU fishing manifests in various forms and locations, with repercussions across the SCS. Reports of illegal foreign fishing encroachment, predominantly by Vietnamese fishing boats have increased in Malaysia and Indonesia's EEZs over the years (Lee and Viswanathan, 2022; Tienh et al., 2021; Vethiah & Zul Kepli, 2021). As fish stocks in the Gulf of Tonkin decline, Vietnamese fishermen are compelled to seek alternative fishing grounds in neighbouring EEZ waters in the SCS (Nguyen, 2005). To eradicate this multi-dimensional and cross-border illicit practice, cooperation among

coastal states and their neighbours is necessary. IUU fishing in the SCS is part of a larger transnational crime issue, involving well-coordinated regional criminal networks orchestrating IUU fishing operations across national waters and borders. This complexity hinders the effectiveness of a single country's isolated efforts to combat IUU fishing.

The threat posed by IUU to the long-term sustainability of the region's fisheries industry is a matter of grave concern to ASEAN members. IUU fishing exacerbates the serious depletion of fishery populations and marine biodiversity, resulting in high juvenile fish mortality rates (Huang & Vuong, 2016; FAO, 2007). The alarming increase in by-catch and discard of endangered marine species, including dolphins, whale sharks, dugongs, and sea turtles, threatens some species with extinction (Riskas et al., 2018). Anthropogenic impacts, such as unintentional entanglement in gillnets, diminished prey availability due to overfishing, and mortality from explosives, have been suggested as potential reasons for historically low cetacean populations in the Gulf of Tonkin (Smith et al., 2003). To compound the issue, illegal destructive fishing methods, including dynamite fishing, cyanide fishing, and mechanized push nets have wreaked havoc on sensitive benthic habitats, including coral reefs and seagrass beds, in the SCS, leading to irreversible marine biodiversity loss (McManus, 2017). These practices are perceived as efficient ways to recoup costs and shorten journey times to offshore reef fishing grounds (McManus, 1997, as cited in Ahmad, 2011).

IUU fishing not only creates unfair competition for legitimate local fishermen, who rely on fishing for their livelihood and food (Saadon et al., 2020), but also causes significant revenue losses for the government. IUU fishing operators gain an economic advantage over law-abiding fishermen by violating fishing laws and regulations and exploiting fishery resources at a lower cost (Congressional Research Service, 2022). IUU fishing has led to considerable revenue losses for regional states, with estimated financial losses of 4.2 billion to 6 billion Malaysian ringgit annually for Malaysia (Ramli, 2022; Bernama, 2019), and nearly USD 20 billion for Indonesia (Pandaya, 2016).[27]

Another approach undertaken by ASEAN-led institutions to combat IUU fishing is the formalization of collaborative actions via bilateral agreements regulating the landing and trans-shipment of fishes between bordering countries. These agreements enable the signatory states to

effectively monitor and ascertain that fish being landed or trans-shipped at their ports or other fisheries landing areas are not caught by IUU fishing activities (SEAFDEC-MFDMD, 2016). An example of such a bilateral agreement is the Memorandum of Agreement between Vietnam and Cambodia to prevent fish and fishery products sourced from IUU fishing from entering the seafood supply chain (SEAFDEC-MFDMD, 2015).[28]

Finally, a notable trait characterizing all these fisheries-related bodies under the ASEAN framework is the absence of regulatory powers. These bodies lack the authority to compel their respective member states to adopt agreed fisheries conservation and management measures within their areas of competency. The ASEAN claimants and other littoral states bordering the SCS retain the prerogative to determine and adopt the type of fisheries conservation measures within their respective national jurisdictional waters, including their contested EEZ waters. Notwithstanding that regional fisheries cooperation in the SCS already exists in various forms, the same cannot be said about legally binding fishery cooperation directly under the organizational framework of ASEAN, which seems to have gained little traction over the years. As of now, there is no legally-binding regional agreement covering the management and protection of shared fish stocks throughout their entire distribution range in the SCS.

The political impetus to sign such an agreement appears elusive among the claimants. Their reluctance to agree to the proposed fisheries cooperation agreement stems largely from concerns that such an agreement might compromise their sovereignty and national interests in areas of overlapping claims. It could be argued that this legal lacuna is the reason for the absence of coordinated and sustained conservation and development activities for shared marine fishery resources and their habitats in the SCS. It is worth noting that none of the previously mentioned fisheries cooperation programs has the power to prescribe and force their respective member states to accept and implement the agreed fishery management measures, regulate fishing activities, or conduct marine scientific research and resource surveys in their maritime waters of the SCS without their prior authorization.

Recommendations

ASEAN should consider implementing the following measures to encourage its members to manage and harvest fisheries resources in the SCS sustainably and responsibly.

- Littoral states are obligated under international law to comply with the fisheries management measures prescribed in treaty instruments to which they are party. Therefore, ASEAN should encourage its member states to expeditiously become contracting parties to the existing legally-binding international agreements on fisheries management and conservation. To date, a significant number of ASEAN members have yet to sign or ratify such international treaty instruments as the 2009 Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, and the 1995 Fish Stocks Agreements. These agreements provide a framework of principles and management measures which party states must comply with to achieve sustainable fisheries and promote responsible fishing practices. To ensure that ASEAN members have the capacity to meet the legally-binding measures in the agreements they are party to, technical training should be provided.

- ASEAN members should conclude agreements on hot pursuit into neighbouring jurisdictions on the SCS. Such agreements would allow member states to pursue and apprehend a vessel that has infringed fisheries law in their waters, even when the vessel has fled into the waters of a neighbouring country. As the issues of maritime sovereignty and jurisdiction are politically sensitive, a hot pursuit agreement is an important legal tool for combating IUU fishing as it allows the pursuing state to apprehend the vessel, even when said vessel has left its own jurisdiction. This measure would help eliminate safe havens for IUU fishing operators.

- ASEAN member states should cooperate better to improve enforcement of fisheries laws and regulations, particularly in their EEZs on the SCS. This cooperation should be formalized in an agreement that provides for sharing intelligence and coordinating joint surveillance and enforcement operations. Such an agreement would demonstrate the collective commitment among ASEAN members to meet the shared challenge of IUU fishing, serve as a strong deterrent against illegal fishing and protect marine resources. An established mechanism for joint fisheries law enforcement and surveillance among ASEAN members in the SCS is lacking. ASEAN countries bordering the SCS, such as Indonesia, the Philippines, Thailand, Vietnam, and Malaysia, have claimed substantial EEZs,[29] but their management effectiveness is hindered by a lack of operational capacity and sufficient vessel fleets for patrolling and surveillance.[30] The current fleet of patrol vessels and aircraft, especially those operated by such

civilian agencies as the coastguard, faces challenges in operating effectively and safely in treacherous and remote waters.[31] Furthermore, maritime law enforcement capabilities are hampered by chronic underfunding, personnel shortages, outdated equipment, and an underdeveloped information database. By mobilizing available fleets, equipment, and manpower through coordinated patrolling operations, ASEAN can ensure an active and constant presence on the SCS to deter IUU fishing activities.

- ASEAN member states should upgrade existing databases or platforms to share data and information. This measure would facilitate informed decision-making and sustainable fisheries management.

- Collaborating in joint assessments and monitoring of fish stocks and marine resources is imperative. Large tracts of offshore fishing grounds in the SCS, particularly in areas with overlapping claims around the Spratly and Paracel Islands, have yet to undergo a stock assessment survey. As the population and diversity status of fish stocks are uncertain, it is difficult for littoral states to make evidence-based decisions regarding fisheries management.

- ASEAN, in partnership with SEAFDEC and foreign donors, should invest in and expand such research and development (R&D) activities. Physical assets, such as science labs, facilities and equipment, and human resources capacity should be upgraded. These collaborative initiatives can generate the much-needed scientific knowledge and innovative technologies crucial for the sustainable management of fisheries.

- Finally, there should be an increase in the number of training programs, workshops, and seminars for fisheries managers, researchers, and practitioners in ASEAN member states. With this commitment to capacity building, professionals in the fisheries management field can be empowered with the skills and knowledge required to effectively plan, manage and conserve fish stocks.

Conclusion

The political fallout from the South China Sea disputes should not hinder ASEAN claimant states from collaborating with other regional states for fisheries management. Balancing national interests with the long-term sustainability of regional marine fisheries resources is crucial, as these resources and livelihoods are at stake. Unless ASEAN assumes a more proactive interventionist role to promote and facilitate regional cooperation in fisheries, the marine ecosystem and fish stocks in the SCS will decline drastically.

Over the years, ASEAN has progressively established a fisheries-related institutional framework, comprising ASWGFi, AFCF, AN-IUU, and SEAFDEC through FCG/ASSP. The framework highlights the region's commitment to sustainable fisheries management and regional cooperation. Each mechanism in the framework has its specific focus and mandate and addresses various conservation and anthropogenic threats to the marine fisheries sector in Southeast Asia, including the SCS.

ASEAN-led regional fisheries cooperation measures in the SCS showcase a proactive and inclusive approach to sustainable fisheries management which engages international entities, NGOs, and stakeholders. Although these institutions lack regulatory powers, they have successfully formulated and adopted management plans, conservation strategies, and responsible fishing practices. External collaborations and partnerships, some of which are with advisory bodies and non-member states, have bolstered these efforts. Capacity building among ASEAN member states has been enhanced through regional training programs, communication strategies, and information sharing. Recent efforts to combat IUU fishing via non-binding instruments and agreements demonstrate the region's commitment to sustainable fisheries development.

While significant progress has been made in regional capacity-building initiatives in fisheries, the political commitment of ASEAN claimant states to adopt a legally binding fisheries management agreement remains elusive. Their reluctance to endorse such agreements stems from concerns over the possibility of compromising sovereignty and national interests, particularly in areas with overlapping claims, and the potential inability to meet legally binding requirements.

As the premier intergovernmental political organization in the region, ASEAN has a unique and pivotal role in driving change. It is essential that ASEAN leverage its influence to guide its member countries towards responsible and sustainable resource management, ensuring ecological balance for future generations. Furthermore, by extending ASEAN's intervention role, a culture of accountability and stewardship can be fostered among member countries, which will lead to the promotion of the long-term health and productivity of marine ecosystems in the regional seas, including SCS.

References

Ahmad, M. Z. 2011. *International legal and normative framework for responsible fisheries, with reference to Malaysia's offshore EEZ fisheries management*. PhD Dissertation. University of Wollongong, Australia.

Ahmad, M. Z., and M.K. Abdullah. 2014. Chasing the same fish: collaborative management initiative for shared fish stocks among the ASEAN countries. In I. Ali, L. H. Ann & D. R. Raplee (eds.). *Proceedings of the 1st International Maritime Conference (1st IMC2014) 21st October, 2014*, *Universiti Malaysia Sabah, Labuan International Campus* (pp. 6-19). Sabah: Universiti Malaysia Sabah.

Apridar. 2014. *Daya Saing Ekspor Ikan Tuna Indonesia*. Yogyakarta: Graha Ilmu.

Arai, T., & A. Azri. 2019. Diversity, occurrence and conservation of sharks in the southern South China Sea. *PLoS One. 14*(3): e0213864

ASEAN Secretariat. 2024a. *Food, Agriculture, and Forestry*. ASEAN. https://asean.org/our-communities/economic-community/agriculture-and-food-cooperation/

ASEAN Secretariat. 2024b. *Fisheries Cooperation*. https://asean.org/our-communities/ economic-community/enhanced-connectivity-and-sectoral-development/asean-food-agriculture-and-forestry/fisheries-cooperation/

ASEAN Sectoral Working Group on Fisheries. 2021. *Strategic Plan of Action on ASEAN Cooperation on Fisheries 2021-2025 Final*. https://asean.org/wp-content/uploads/ 2021/12/FAFD-16.-SPA-Fisheries-202528ASWGFi.pdf

ASEAN. 2023. *ASEAN Maritime Outlook* (1st ed.). https://asean.org/wp-content/uploads/ 2023/08/20231011_AMO-Report-COMPLETE.pdf

ASEAN. n.d. *Letter of Understanding on ASEAN-SEAFDEC Strategic Partnership (ASSP)*. https://asean.org/wp-content/uploads/images/Letter%20of%20Understanding%20on%20ASEAN%20seafdec%20strategic%20partnership.pdf

Bernama. 2019. RM6 billion lost each year to illegal fishing. *Malaysiakini*. 4 September. https://www.malaysiakini.com/news/490566

Caddy, J. F. 1982. *Some considerations relevant to the definition of shared stocks and their allocation between adjacent economic zones*. Food and Agricultural Organization Fisheries Circular No. 749. Rome: FAO.

Chang, S. K., N. T. A. Hu, S. Basir, H. V. Duyen, P. Nootmorn, M. D. Santos and F. Satria 2020. A step forward to the joint management of the South China Sea fisheries resources: Joint works on catches, management measures and conservation issues. *Marine Policy*. *116*: 103716.

Chantawong, P. 2000. Annex 7. Status of small pelagic fish resources and fisheries in Thai waters. In MFRDMD-SEAFDEC. *Report of the Fourth Regional Workshop on Shared Stocks: Research and Management in the South China Sea 24th-26th January 2000*. Kuala Terengganu, Malaysia (pp. 74-87). Kuala Terengganu: MFRDMD-SEAFDEC.

Congressional Research Service. 2022. *China's Role in the Exploitation of Global Fisheries: Issues for Congress*. CRS Report. R47065. 12 April. https://crsreports.congress.gov/product/pdf/R/R47065/1

Coulter, D. Y. 1996. South China Sea Fisheries: Countdown to Calamity. *Contemporary Southeast Asia*. *17*(4): 371.

CSIS Expert Working Group on the South China Sea. 2018. *Defusing the South China Sea Disputes: A Regional Blueprint*. A Report of the CSIS Expert Working Group on the South China Sea. Center for Strategic and International Studies CSIS). https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/181011_DefusingTheSouth ChinaSea2.pdf

David, A. 2019. We lack assets to combat illegal fishing. *New Straits Times*. 19 May. https://www.nst.com.my/news/nation/2019/05/489740/we-lack-assets-combat-illegal-fishing

Derrick, B., P. Noranarttragoon, D. Zeller, L. C. L. Teh and D. Pauly. 2017. Thailand's missing marine fisheries catch (1950–2014). *Frontiers in Marine Science*. *4*: 402.

DoFM. 2006. *Action Plan for the Conservation & Sustainable Use of Fishery Resources: Biological Diversity of Malaysia*. Kuala Terengganu: Department of Marine Fisheries Research and Management.

Fadila I., 2015. Illegal fishing, 672,000 tons of fish disappeared. *Bisnis.com*. 11 March. https://ekonomi.bisnis.com/read/20150311/99/410834/illegal-fishing-672.000-ton-ikan-raib. (In Indonesian language)

FAO. 2002. *Report of the Second Ad Hoc Meeting of Intergovernmental Organizations on Work Programmes Related to Subsidies in Fisheries*. FAO Fisheries Report No. 688. Rome: FAO. https://www.fao.org/4/y7604e/y7604e07.htm#bm07.2

FAO. 2007. *APFIC Regional Consultative Workshop Managing fishing capacity and IUU fishing in the Asian region. Phuket, Thailand, 13–15 June 2007*. RAP Publication 2007/18. https://www.fao.org/3/ah999e/ah999e00.pdf

FAO. 2010. *Report of the second workshop on the assessment of fishery stock status in South and Southeast Asia, Bangkok, 5-9 October 2009*. FAO Fisheries and Aquaculture Report No. 940. Rome: FAO.

FAO. 2018. *The State of World Fisheries and Aquaculture 2018*. Meeting the sustainable development goals. Rome, FAO.

FAO. 2020. *The State of World Fisheries and Aquaculture 2020. Sustainability in action*. Rome: FAO.

FAO. 2022. *The State of World Fisheries and Aquaculture 2022. Towards Blue Transformation*. Rome: FAO.

FAO. 2023a. *APFIC Membership*. https://www.fao.org/apfic/background/about-asia-pacific-fishery-commission/membership/en/

FAO. 2023b. *Fishery and Aquaculture Statistics - Yearbook 2020*. FAO Yearbook of Fishery and Aquaculture Statistics. Rome: FAO. https://doi.org/10.4060/cc7493en

FAO/SEAFDEC. 1985. *Report of the FAO/SEAFDEC Workshop on Shared Stocks in Southeast Asia, Bangkok, 18-22 February 1985*. FAO Fisheries Report No. 337. Rome: FAO.

Flaherty, M., and C. Karnjanakesorn. 1993. Commercial and subsistence fisheries conflicts in the Gulf of Thailand: the case of squid trap fishers. *Applied Geography. 13*(3): 243-258.

Fortes, M. D. (2018). Seagrass ecosystem conservation in Southeast Asia needs to link science to policy and practice. *Ocean & Coastal Management. 159*: 51-56.

Funge-Smith, S., M. Briggs, and W. Miao. 2012. *Regional overview of fisheries and aquaculture in Asia and the Pacific 2012*. RAP Publication 2012/26. Bangkok: APFIC, FAO Regional Office for Asia and the Pacific.

Gambang, A. C. 1998. Status report: Pelagic fish stock in Sarawak, Malaysia. In MFRDMD-SEAFDEC. *Report of Third Regional Workshop on Shared Stocks in the South China Sea Area, Kuala Terengganu, Malaysia, 6-8 October, 1997*, (pp. 69-79). Kuala Terengganu, Malaysia: Marine Fishery Resources Development and Management Department, SEAFDEC.

Gnanasagaran, A. 2018. Fishy business in the South China Sea. *The ASEAN Post*. 22 July. https://theaseanpost.com/article/fishy-business-south-china-sea

Greer, A. 2016. The South China Sea Is Really a Fishery Dispute. *The Diplomat*. 20 July. https://thediplomat.com/2016/07/the-south-china-sea-is-really-a-fishery-dispute/

Gulland, J.A., 1980. *Some problems of the management of shared stocks*. FAO Fisheries Technical Paper 206. Rome: FAO.

Hadil, R., A.C. Gambang, R. Rumpet, A. H. Nurridan, A. Daud and M. Jamil. 2008. The Status of the Demersal Fish Resource beyond 30 Nautical Miles off Sarawak, *Malaysian Fisheries Journal. 7*:1-8

Haller-Trost, R. 1998. *The Contested Maritime and Territorial Boundaries of Malaysia: An International Law Perspective*, International Boundary Studies Series. Cambridge, MA: Kluwer Law International.

Harrinton, K. 2022. Commentary: South China Sea may run out of fish at this rate of overfishing. *Channel News Asia*. 5 February. https://www.channelnewsasia.com/ commentary/south-china-sea-china-environmental-ecological-damage-coral-reefs-overfishing-international-law-2469871

Hsiao, A. 2020. Opportunities for fisheries enforcement cooperation in the South China Sea. *Marine Policy*. *121*: 103569.

Hu, N.T.A. 2010. Semi-enclosed Troubled waters: a new thinking on the application of the 1982 UNCLOS article 123 to the South China Sea. *Ocean Development and International Law*. *41*(3): 281-314.

Huang, D., Licuanan, W. Y., Hoeksema, B. W., Chen, C. A., Ang, P. O., Huang, H., ... and Chou, L. M. 2015. Extraordinary diversity of reef corals in the South China Sea. *Marine Biodiversity*. *45*: 157-168.

Huang, Y., and P.T. Vuong. 2016. Fisheries cooperation and management mechanisms in the South China Sea: context, limitations, and prospects for the future. *The Chinese Journal of Comparative Law*. *4*(1): 128-148.

Imsamrarn N. 2022. *User's Manual Regional Fishing Vessels Record (RFVR) Database System*. Training Department, Southeast Asian Fisheries Development Center.

Isa, M.M. 2000. Implementation of past recommendations from the Shared Stocks Workshops: The SEAFDEC experience. In MFRDMD-SEAFDEC. *Report of the Fourth Regional Workshop on Shared Stocks: Research and Management in the South China Sea 24th- 26th January 2000. Kuala Terengganu, Malaysia.* (pp. 74-87). Kuala Terengganu: MFRDMD-SEAFDEC.

Jamil, H. 2009. *Cadastral Reform in Malaysia to Support Spatially Enabled Government.* Presented at the 3rd Land Administration Forum For The Asia And Pacific Region- Re-Engineering The Cadastre To Support e-Government, Tehran, Iran, from May 24 to 26, 2009.

Kadir, S.A.S.A., and K. K. K. Yaakob. (eds.) 2007. *SEAFDEC-MFRDMD/DPPSPM Highlights 2007*. Kuala Terengganu: MFRDMD.

Kasmin, H. S. B. H. 2009. "Malaysia's Maritime Law Enforcement Agencies and Auxiliary Security Agencies." In A. R. Baginda (ed.), *Malaysia's Defence & Security since 1957*. (pp. 143-186). Kuala Lumpur: Malaysian Strategic Research Centre.

Krishnan, T. 2020. Safeguarding the South China Sea: A Challenge for the Royal Malaysian Navy. In BA Hamzah, A. Leong and V. L. Forbes (eds). *Malaysia and South China Sea, Policy Strategy and Risks* (pp. 34-61). Kuala Lumpur: Ilham Pena.

Lee, W. C. & Viswanathan, K. K. 2019. Subsidies in the Fisheries Sector of Malaysia: Impact on Resource Sustainability. *Review of Politics and Public Policy in Emerging Economies*, *1*(2): 79-85.

Lee, W. C., and K. K. Viswanathan. 2020. Framework for Managing Illegal, Unreported and Unregulated Fishing in ASEAN. *Asian Fisheries Science. 33*(1): 65-73.

Li, S., Lin, M., Caruso, F., Dong, L., Lin, W., M. Rosso and A. Bocconcelli. 2020. Cetaceans under threat in South China Sea. *Science. 368*(6495): 1074-1075.

Liu, M., M. Lin, S. T. Turvey, and S. Li. 2017. Fishers' Knowledge as an Information Source to Investigate Bycatch of Marine Mammals in the South China Sea. *Animal Conservation. 20*(2): 182-192.

Marriot, S. P. 2022. *Guidelines on Sharing, Access To and Use of IUU Fishing Related Information*. ASEAN. https://asean.org/wp-content/uploads/2022/11/11.-Guidelines-for-Sharing-Access-to-and-Use-of-IUU-Fishing-Related-Information-Adopted.pdf

Mazalina, A., Mahyam, M.I., Katoh, M., Abdul Razak, L., Mohd Tamimi, A.A., Kawamura, H., & Siriraksophon, S. (Eds). 2015. *ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain*. Kuala Terengganu: SEAFDEC/MFRDMD.

Martosubroto, P. 1998. Toward Management of Shared Stocks in the South China Sea Region. MFRDMD-SEAFDEC. *In Report the Third Regional Workshop on Shared Stocks in the South China Sea Area. Kuala Terengganu, Malaysia, 6-8 October 1997*, 153-162. Kuala Terengganu: MFRDMD-SEAFDEC.

McManus, J. W. 1997. Tropical marine fisheries and the future of coral reefs: a brief review with emphasis on Southeast Asia. *Coral Reefs. 16*: S121-S127.

McManus, J. W. 2017. Offshore coral reef damage, overfishing, and paths to peace in the South China Sea. *The International Journal of Marine and Coastal Law. 32*(2): 199-237.

Morton, B., & Blackmore, G. 2001. South China Sea. *Marine Pollution Bulletin. 42*(12): 1236-1263.

Moss, T. 2016. 5 Things about Fishing in the South China Sea. *The Wall Street Journal.* 19 July. http://blogs.wsj.com/briefly/2016/07/19/5-things-about-fishing-in-the-south-china-sea/.

Munro, G. R., A. Van Houtte and R. Willmann. 2004. *The conservation and management of shared fish stocks: legal and economic aspects.* FAO Fisheries Technical Paper. No. 465. Rome: FAO.

Ng, T. 2022. Vietnam agrees on fishing hotline with China but pace of trade 'slow'. *South China Morning Post.* 14 July. https://www.scmp.com/news/china/diplomacy/article/3185236/vietnam-agrees-fishing-hotline-china-pace-trade-slow

Nguyen, T. B. 2005. *Fishery resources of the Gulf of Tonkin, Vietnam. The state of indicator species monitored by bottom trawl surveys.* Master's thesis. University of Tromsø Norway

Noranarttragoon, P., S. Koolkalaya, W. Thitipongtrakul, P. Avakul, R. Phoonsawat and T. Jutagate. 2023. Trawl Fisheries in the Gulf of Thailand: Vulnerability Assessment and Trend Analysis of the Fish Landings. *Fishes. 8*(4): 177. https://doi.org/10.3390/fishes8040177

Now, MMEA is left waiting for boats. 2022. *The Star.* 12 August. https://www.thestar.com.my/news/nation/2022/08/12/now-mmea-is-left-waiting-for-boats

Nurulhuda, A. F., A. Abu Talib, I. C. Stobutzki and L. R. Grces. 2014. The fisheries resources of the east coast of peninsular Malaysia: dramatic historical declines. *Malaysian Fisheries Journal. 13*: 50-70.

Oakley, S., and N. Pilcher.1996. Marine Protected Areas for sustainable fisheries management: Layang Layang reef as a source of larvae in the South China Sea. In A. S. Cabanban & M. Philipps (eds.). *Proceedings of the Workshop on Aquaculture of Coral Reef Fishes and Sustainable Reef Fisheries, Kota Kinabalu, Sabah, Malaysia. 6-10 December 1996*. (pp. 1-16). Kota Kinabalu, Sabah, Malaysia: Institute for Development Studies.

Pandaya. 2016. New Accord to Help Curb Illegal Fishing. *The Jakarta Post*, 13 July. http://www.thejakartapost.com/news/2016/07/13/new-accord-help-curb-illegal-fishing.html

Parker, H. A., R.T. Teubner and J.C. Sawicki. *Spill Response Planning in the Philippines: 3-Tier Interaction between Government and Industry.* https://www.interspill.org/wp-content/uploads/2021/11/1630_parker.pdf

Paterson, C. J., and W. Yingyuad. 2017. The South China Sea fisheries refugia initiative and the sustainable development goals. *Fish for the People. 15*(1): 22-32.

Paterson, C., and J. Pernetta. 2008. *Integrating Fisheries and Habitat Management: Fisheries Refugia in the South China Sea.* International Waters Experience Notes. https://www.iwlearn.net/resolveuid/ceb3d7286e1446eff1789382cc44a969

Poling, G. B. 2019. *Illuminating the South China Sea's Dark Fishing Fleets*. Center for Strategic and International Studies (CSIS). 9 January. https://ocean.csis.org/spotlights/ illuminating-the-south-china-seas-dark-fishing-fleets/

Ramli, M. A. 2022. Malaysia losses whopping RM4.25 billion yearly from illegal fishing. *Sinar Daily*. 6 August. https://www.sinardaily.my/article/177808/malaysia/national/ malaysia-losses-whopping-rm425-billion-yearly-from-illegal-fishing

Randall, J. E., and K.K.P. Lim. 2000. A checklist of the fishes of the South China Sea. *Raffles Bulletin Zoology. 8*: 569–667.

Riskas, K. A., R. C. Tobin, M. M.P.B. Fuentes and M. Hamann. 2018. Evaluating the threat of IUU fishing to sea turtles in the Indian Ocean and Southeast Asia using expert elicitation. *Biological Conservation. 217*: 232-239.

Rodchevid, T. 2024. *ASEAN Network for Combating IUU Fishing (AN-IUU).* The 7th Global Fisheries Enforcement Training Workshop (7th GFETW) 1st August 2023 Halifax, Canada. IMCS Network. https://imcsnet.org/resource/7th-gfetw-presentation-12-aniuu-regional-collaboration

Rodchevid, T. 2022. *AN-IUU Interactive Platform. The Regional Workshop on Monitoring Control and Surveillance for Combating IUU Fishing in Southeast Asia, 23 - 24 August 2022, Pattaya, Chonburi, Thailand.* http://www.seafdec.or.th/mcs/mcs-workshop-2022/ presentations/Agenda_3_AN_ IUU_Thailand_MCS.pdf

Saadon, M. S. I., S. Jahuria, M. R. Othman, D. A. M. Nor, F. S. Mokhtar, N. Nordin, T. O. Kowang, and L. Nording. 2020. An Analysis on the Effect of Illegal, Unreported & Unregulated (IUU) Fishing towards the Quality & Sustainability of Malaysia Marine Resources and Security. *Journal of Critical Reviews. 7*(8): 1128-1131.

Saikliang, P. 1997. Fishery resources and the state of exploitation of some economic fish species in the South China Sea area Case study: Malaysia and Thai waters. In TD- SEAFDEC. *Fishery Resources and State of Stocks Exploitation in the Waters of the Gulf of Thailand, East Coast of Peninsular*

Malaysia and Andaman Sea. (pp. 59-90). Thailand: Training Department, Southeast Asian Fisheries Development Center.

Salleh, A. 2020. The South China Sea: Preventing the Tyranny of the Commons. *The Diplomat.* 4 January. https://thediplomat.com/2020/01/the-south-china-sea-preventing-the-tyranny-of-the-commons/.

Saraphaivanich, K., Y. Suthipol and N. Imsamrarn. 2016. *Baseline survey on fishing efforts and landing in the Southwestern Gulf of Thailand.* https://repository.seafdec.or.th/bitstream/handle/20.500.12067/1395/5_Yanida_Baseline%20survey.pdf?sequence=1&isAllowed=y

SEAFDEC. 2009. *Report of the Forty-First Meeting of the Council of Southeast Asian Fisheries Development Center Fukuoka, Japan, 7-10 April 2009*. SEC/RM/103. Southeast Asian Fisheries Development Center. Bangkok, Thailand http://www.dof-myanmar-fic.org/multimedia/Proceedings/20.Report%20of%20the%20forty-first%20meeting%20of%20the%20council.pdf

SEAFDEC. 2010. *Report of the Twelfth Meeting of the ASEAN-SEAFDEC Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (FCG/ASSP). Kota Kinabalu, Sabah, Malaysia, 19-20 November 2009*. Southeast Asian Fisheries Development Center, Bangkok, Thailand.

SEAFDEC. 2012. *Proceedings of the ASEAN-SEAFDEC Conference on Sustainable Fisheries for Food Security towards 2020 "Fish for the People 2020: Adaptation to a Changing Environment"*, Volume II: Thematic Panel Sessions, 13-17 June 2011, Bangkok, Thailand.

SEAFDEC. 2014. *Report of the Sixteenth Meeting of the ASEAN-SEAFDEC Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (FCG/ASSP). Penang, Malaysia. 28-29 November 2013*. Southeast Asian Fisheries Development Center, Bangkok, Thailand.

SEAFDEC. 2015. *About SEAFDEC/MFRDMD*. SEAFDEC. https://www.seafdec.org.my/about-seafdec-mfrdmd/

SEAFDEC. 2020. *Report of the Regional Meeting on Way Forward of the Resolution and Plan of Action for the ASEAN Region towards 2020 (RES & POA-2020)*, 1-*2 May 2019, Bangkok, Thailand.*

SEAFDEC. 2022a. *Report of the Twenty-fourth Meeting of Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (FCG/ASSP). Online Meeting, 24-25 November 2021*. Southeast Asian Fisheries Development Center, Bangkok, Thailand.

SEAFDEC. 2022b. *The Southeast Asian State of Fisheries and Aquaculture 2022*. Southeast Asian Fisheries Development Center. http://repository.seafdec.org/handle/ 20.500.12066/6752

SEAFDEC. 2023a. *Report of the Twenty–fifth Meeting of the Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (FCG/ASSP). Iloilo City, Philippines 8–9 December 2022*. Southeast Asian Fisheries Development Center, Bangkok, Thailand

SEAFDEC. 2023b. *SEAFDEC Annual Report 2022*. Southeast Asian Fisheries Development

SEAFDEC. 2024. *Report of the Twenty–sixth Meeting of the Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (FCG/ASSP). Bali, Indonesia, 23-24 November 2023*. Southeast Asian Fisheries Development Center, Bangkok, Thailand

SEAFDEC-MFRDMD. 2015. *ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities*. SEAFDEC/MFRDMD/SP/29. https://asean.org/wp-content/uploads/2021/09/App-9-ASEAN-Guidelines-IUU-SSOM36th-AMAF-final.pdf

SEAFDEC-MFRDMD. 2016. *Preventing Entry of IUU Fishing Products to Supply Chain. The Stakeholders Consultation on Regional Cooperation in Sustainable Fisheries Development Towards the ASEAN Economic Community: 1-2 March 2016 Bangkok Hotel Lotus Sukhumvit, Thailand.* http://www.seafdec.org/documents/2016/02/sc16_wp02.pdf

SEAFDEC-TD. (2018). *Electronic System of ACDS (eACDS)* [Brochure]. SEAFDEC. https://repository.seafdec.or.th/bitstream/handle/20.500.12067/966/eACDS%20Brochure.pdf?sequence=1

SEAFDEC-TD. 2024. *ASEAN-JICA Capacity Building Project on IUU Fishing Countermeasures in Southeast Asia*. SEAFDEC-TD. http://www.seafdec.or.th/asean-jica-iuu-fishing/

Siriraksophon, S., and S. Sayan. 2016. *Overview of current status and trends of fisheries and issues on resources enhancement in Southeast Asia. Consolidating the Strategies for Fishery Resources Enhancement in Southeast Asia*. Proceedings of the Symposium on Strategy for Fisheries Resources Enhancement in the Southeast Asian Region, Pattaya, Thailand, 27-30 July 2015. 26-34. Bangkok: Training Department, SEAFDEC.

Skuad Khas Harian Metro. 2019. Kekangan aset saiz besar. *Harian Metro*. 12 July. https://www.hmetro.com.my/utama/2019/07/474659/kekangan-aset-saiz-besar-metrotv

Smith, B. D., G. Braulik, T. A. Jefferson, D. C. Bui, T.V. Chu, V. D. Doan, ... & V. V. Quang. 2003. Notes on two cetacean surveys in the Gulf of Tonkin, Vietnam. *The Raffles Bulletin of Zoology*. *51*(1): 165-171.

Song, Y. H. 2011. A marine biodiversity project in the South China Sea: Joint efforts made in the SCS workshop process. *The International Journal of Marine and Coastal Law*. *26*(1): 119-149.

Stimson Center. 2013. *The Future of Indian Ocean and South China Sea Fisheries: Implications for the United States*. National Intelligence Council Report. NICR 2013-38. https://www.dni.gov/files/documents/nic/NICR%202013-38%20Fisheries%20Report%20FINAL.pdf

Stobutzki, I.C., G.T. Silvestre, A. Abu Talib, A. Krongprom, M. Supongpan, P. Khemakorn, N. Armada and L.R. Garces. 2006. Decline of demersal coastal fisheries resources in three developing Asian countries. *Fisheries Research. 78*: 130-142.

Sumaila, U.R. & Cheung, W.W.L. 2015. *Boom or Bust: The Future of Fishing in the South China Sea*. https://www.admcf.org/research-reports/boom-or-bust-the-future-of-fish-in-the-south-china-sea/

Sumaila, U.R., V. Lam, F. Le Manach, W. Swartz, and D. Pauly. 2013. *Global fisheries subsidies*. Report prepared for the European Parliament's Committee on Fisheries. Policy Department Structural and Cohesion Policies. http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513978/IPOLPECH_NT%282013%29513978_EN.pdf.

Sumaila, U.R., W.W. L. Cheung, L.S.L. Teh, A.H.Y. Bang, T. Cashion, and Z. Zeng et al. 2021. *Sink or Swim: The future of fisheries in the East and South China Seas*. ADM Capital Foundation, Hong Kong.

Suuronen, P., Pitcher, C. R., McConnaughey, R. A., Kaiser, M. J., Hiddink, J. G., & Hilborn, R. 2020. A path to a sustainable trawl fishery in Southeast Asia. *Reviews in Fisheries Science & Aquaculture. 28*(4): 499-517.

Teh, L. S., A. Witter, W. W. Cheung, U. R. Sumaila and X. Yin. 2017. What is at stake? Status and threats to South China Sea marine fisheries. *Ambio. 46*: 57-72.

Tienh, A. L., B. Setiyono, A. Soemarmi, N. Trihastuti and L. T. Setyawanta. 2021. Efforts in maintaining fisheries potential in the North Natuna Sea: Indonesian government policy against illegal, unregulated, and unreported fishing seen from the global maritime fulcrum perspective. *Aquaculture, Aquarium, Conservation & Legislation. 14*(3): 1118-1125.

Trajano, J. C. 2019. *Resource Sharing and Joint Development in the South China Sea: Exploring Avenues of Cooperation*. NTS Insight No. IN19-01, March. Singapore: Nanyang Technological University, S. Rajaratnam School of International Studies, Singapore.

Tran, Y. H. 2017. The South China Sea Arbitral Award: legal implications for fisheries management and cooperation in the South China Sea. *Cambridge International Law Journal. 6*(1): 87-94.

UNEP. 2008. *Strategic Action Programme for the South China Sea*. UNEP/GEF/SCS Technical Publication No. 16. https://iwlearn.net/resolveuid/94ffdecfe5585f3a7 b4317f48c4ece19

USAID. 2012. *USAID Oceans and Fisheries Partnership*. https://2012-2017.usaid.gov/asia-regional/fact-sheets/usaid-oceans-and-fisheries-partnership

Van Phuong, T. O., and R. S. Pomeroy. 2022. Combating Illegal, Unreported and Unregulated (IUU) Fishing and Removing Yellow Card from European Commission (EC): Vietnam's Determined Actions. *Asian Fisheries Science. 35*(1): 13-25.

Vethiah, G. and M. Y. Zul Kepli. 2021. *Anti-money laundering law as an added measure to combat illegal, unreported and unregulated fishing in Malaysia. MIMA Bulletin. 29*(2): 1-9.

Wilkinson, C., A. Caillaud, L. DeVantier and R. South. 2006. Strategies to reverse the decline in valuable and diverse coral reefs, mangroves and fisheries: The bottom of the J-Curve in Southeast Asia?. *Ocean & Coastal Management. 49*(9-10): 764-778.

Xu, Y., Dai, X., Huang, Z., Sun, M., Chen, Z., & Zhang, K. 2022. Stock assessment of four dominant shark bycatch species in bottom trawl fisheries in the Northern South China Sea. *Sustainability. 14*(7): 3722.

Xu, Y., P. Zhang, S. K. Panhwar, J. Li, L. Yan, Z. Chen and K. Zhang 2023.The initial assessment of an important pelagic fish, Mackerel Scad, in the South China Sea using data-poor length-based methods. *Marine and Coastal Fisheries. 15*(5): e10258.

Yanagawa, H. 1998. Status of Fisheries and Stocks of Small Pelagic Fishes in the South China Sea Area. In *MFRDMD-SEAFDEC, Report the Third Regional Workshop on Shared Stocks in the South China Sea Area, Kuala Terengganu, Malaysia, 6-8 October 1997*, 165-202. Kuala Terengganu: MFRDMD-SEAFDEC.

Yuan, H., P. Chen, J. Yu, and X. Li. 2022. Assessment of Quality of Fishery Resources in the Northeastern South China Sea. *Journal of Marine Science and Engineering. 10*(7): 930.

Zhang, H. 2018. Fisheries cooperation in the South China Sea: Evaluating the options. *Marine Policy. 89*: 67-76.

Endnotes

[1] For instance, since the 1990s, the fisheries resources in the Gulf of Thailand have declined, as evidenced in studies relating to trawl catch per unit effort (CPUE). Department of Fisheries Thailand data shows that CPUE fell from 300 kg hour−1 in the early 1960s to approximately 20-30 kg hour−1 in the 1990s (Derrick et al., 2017).

[2] The percentage estimation in the UNEP report (2007) indicates the loss of critical marine habitats remains high: 30% for seagrass; 16% for mangroves; and reefs (Paterson & Pernetta, 2008).

[3] As of 2023, the members of APFIC are: Australia, Bangladesh, Cambodia, China, France, India, Indonesia, Japan, Malaysia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Republic of Korea, Sri Lanka, Timor Leste, Thailand, United Kingdom, United States of America, Viet Nam (FAO, 2023a).

[4] APFIC was established pursuant to Article XIV of the FAO's Constitution.

[5] The WorldFish Center was formerly called the International Center for Living Aquatic Resources Management (ICLARM) before its name was changed in 2013.

[6] These programs aim to reduce poverty and improve the livelihoods of fishermen and fish farmers by enhancing fishery productivity.

[7] An example of recent interstate collaboration on maritime scientific research is the Philippines-Vietnam Joint Oceanographic and Marine Scientific Research Expedition in the SCS (JOMSRE). Detailed findings from the expedition is available in Proceedings of the Conference on the Results of the Philippines-Vietnam JOMSRE-SCS I to IV, 26-27 March 2008, Ha Long City, Vietnam.

[8] For instance, Malaysia and Thailand agreed to cooperate in the field of fisheries data collection under the project, "Strengthening Malaysian and Thai Partnership in support of Joint Fisheries Planning and Management in the Western Gulf of Thailand" which was conducted from July 2014 to December 2015. See Saraphaivanich et al., (2016). Baseline survey on fishing efforts and landing in the Southwestern Gulf of Thailand. https://repository.seafdec.or.th/bitstream/handle/20.500.12067/1395/5_Yanida_Baseline%20survey.pdf?sequence=1&isAllowed=y

[9] See, for example, "Memorandum of Understanding between the Government of the Republic of Indonesia and the Government of Malaysia in Respect of the Common Guidelines concerning Treatment of Fishermen by Maritime Law Enforcement Agencies of Malaysia and the Republic of Indonesia" (hereafter known as MoU), which was signed in 2012 in Bali, Indonesia. The MoU contains general guidelines for maritime law enforcement officers of Malaysia and Indonesia in response to their fishermen who have strayed or are fishing in contested areas involving the two countries.

[10] During a high-level meeting in July 2022, both Chinese Foreign Minister Wang Yi and Vietnam's Standing Deputy Prime Minister Pham Binh Minh Ministry reached a consensus to expedite the establishment of a dedicated hotline, with the primary aim of efficiently addressing and resolving marine fisheries incidents (Ng, 2022).

[11] Agreement between the Socialist Republic of Vietnam and the People's Republic of China on Cooperation in Fisheries in the Gulf of Tonkin, December 25, 2000.

[12] This research project, launched in 2007 under the Japanese Trust Funds II (JTF II) program, collaborates with SEAFDEC-TD. Its main goal is to gather ecological data, i.e., migration routes and moving behaviour of four key pelagic fish species – Indian mackerel, short mackerel, Japanese scads, and short fin scad – in the SCS and Andaman Sea (Kadir & Yaacob, 2007).

[13] Part of the Japanese Trust Fund IV (JTF IV) Program, this six-year project (2004 to 2009), focused on three key areas: tagging and satellite tracking telemetry, DNA studies, and the relationship between fisheries and sea turtles.

[14] Despite Indonesia's public position as a non-claimant State in the SCS disputes, the country is actually in a dispute with China, as certain portions of its EEZ in the North Natuna Sea overlap the latter nine-dash line.

[15] There is one regional fisheries management body (RFMO), identified by Zhang (2018), whose jurisdiction extends to the SCS under specific circumstances. It is noted that the Western and Central

Pacific Fisheries Commission (WCPFC) is primarily responsible for the conservation and management of highly migratory fish stocks in the western and central Pacific region. Nevertheless, its area of responsibility extends to the SCS region only in cases where the stocks of fish subject to its regulation or management migrate to that area (cited from Hu, 2010).

16 The estimated biomass and catch rate of demersal stocks species in the various fishing grounds of three ASEAN countries (i.e., Malaysia, Thailand, and the Philippines), including the SCS, indicate alarming decline over the years (Stobutzki et al., 2006).

17 Several authors have proposed their own terms and classifications for the stocks. For instance, Martosubroto (1998) provided a straightforward description of "shared stocks" within the SCS context, characterizing them as "transboundary stocks that are jointly managed by countries on either a bilateral or multilateral basis" (p. 154). But Caddy (1997) provides a more detailed definition:

> "...a group of commercially exploitable organisms, distributed over, or migrating across, the maritime boundary between two or more national jurisdictions, or the maritime boundary of a national jurisdiction and the adjacent high seas, whose exploitation can only be managed effectively by cooperation between the States concerned..." (as cited in Munro, Van Houtte, & Willmann, 2004, p. 3).

18 Based on Gulland (1980) and Caddy's (1982) systematic classification, shared fish stocks in the SCS can be classified into two main groups: (i) migratory shared stocks, and (ii) trans-boundary shared stocks. While "migratory shared stocks" are defined as fish, crustaceans, or molluscs with migratory ranges extending beyond the boundary limits of the EEZ of more than one state, "trans-boundary shared stocks" are comprised of "non-migratory fish, whose area of distribution is crossed by a common boundary separating the EEZs of two adjacent countries" (Isa 2000: 155).

19 Gambang (1998: 72) noted that the distribution of large oceanic tuna, including yellowfin and bigeye, stretches from the contested waters around Malaysia's occupied Swallow Island to the Luconia Shoals.

20 This statistical data is extracted from the 2020 Guangdong Rural Statistical Yearbook. Beijing, China Statistical Publishing House.

21 This under-estimated figure, according to Sumaila and Cheung (2015), does not include those involved in IUU fishing, which could significantly increase the total.

22 Asia currently has the highest per capita consumption of marine foods of any region in the world. Projections suggest that, by 2030, Asian countries will consume approximately 72 percent of global fisheries and aquaculture production (FAO, 2020: 217).

23 The instrument was initially endorsed during the 17th meeting of the FCG/ASSP (4-5 December 2014, Thailand), the 47th meeting of the SEAFDEC Council (31 March-3 April 2015, Thailand), and the 23rd ASWGFi meeting (10-12 June 2015, Myanmar) (Ali et al., 2015: xi).

24 The AN-IUU and the SEAFDEC FCG/ASSP collaborate to combat illegal, unreported, and unregulated (IUU) fishing.

25 Its responsibilities often involve coordinating and implementing joint research projects and programs to conserve commercially important fish stocks and endangered marine ecosystems and their habitats in the SCS (FAO/SEAFDEC. 1985; Chantawong, 2000; SEAFDEC, 2020).

26 The Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF) is another program with multiple member state participants with interests in fisheries governance and habitat protection.

27 Based on the Indonesian Ministry of Marine Affairs and Fisheries's estimate, approximately 670,000 tons of fish valued between USD 672 million to 25 billion were lost in 2015 (Fadila, 2015).

28 Vietnam, for example, has been issued a 'yellow card' warning by the European Commission due to the failure of its government to make sufficient attempts to solve the problem of fishery traceability, particularly fish and fishery products stemming from IUU fishing activities (Van Phuong & Pomeroy, 2022).

29 The approximate size of the EEZs claimed by individual States are: 6,159,032 square kilometers (km2) (Indonesia); 2,235,295km2 (The Philippines); 502,556km (Thailand); 417,695 km2 (Vietnam);

334,671 km2 (Malaysia) and 200,000km2 (Brunei). This data is extracted from the Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), Version 11. Flanders Marine Institute (2019). http://www.marineregions.org/.

30 Parker et al. (n.d.: 2) illustrated this issue by pointing out that, despite having a coastline twice as long as the United States, the Philippines has significantly fewer assets and resources than the United States Coast Guard (USCG). In addition, the Malaysian coastguard's patrol vessels and boats have been deemed inadequate to operate in the country's vast EEZ areas, which are larger than its combined land mass (Krishnan, 2020). The total landmass of Malaysia is approximately 329,758 km² (Jamil, 2009).

31 Some patrol vessels inherited by the Malaysian Maritime Enforcement Agency (MMEA) from other federal agencies are outdated and lack the necessary size, maneuverability, and endurance for efficient operations in the outer limits of Malaysia's EEZ in the SCS ("Skuad Khas Harian Metro," 2019; "Now, MMEA is Left Waiting," 2023). Even the Royal Malaysian Navy (RMN) faces similar problems like the MMEA's ageing fleet. RMN Chief Admiral Datuk Mohd Reza Mohd Sany highlighted the pressing need for modernization, when he revealed that 60% of the RMN fleet comprises of vessels that have been in service for more than 35 years (David, 2019).

Guidelines for Submission of Manuscripts

The Institute of Malaysian and International Studies (IKMAS) welcomes academic contributions to its Working Paper Series. While researchers, associates and visiting academics in the Universiti Kebangsaan Malaysia (UKM) community are encouragedto publish in this Series, IKMAS also invites international contributors, especially affiliated researchers within the ASEAN countries as well as related agencies world- wide.

The purpose of the Working Paper Series is to highlight the current research being undertaken by scholars pertaining to Malaysia, Southeast Asia, inclusive development, identity, nation-building, human security, governance, and international relations. It promotes the sharing of current research and provides a forum for critical review.

A manuscript should not exceed 8,000 words. It should be double-spaced with one- inch margins on both sides and typed in 12-point Times New Roman. Please includean abstract of 200-300 words, 5-6 keywords for indexing, as well as author contact details and a short biography.

ZAKI

eISSN 2600-9064

IKMAS Working Paper Series

http://www.ukm.my/ikmas/publication-category/ikmas-working-paper-series/

UNIVERSITI KEBANGSAAN MALAYSIA
The National University of Malaysia