

# Pushing for the Elimination of IUU Fishing in the Southeast Asian Region

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The global Code of Conduct for Responsible Fisheries (CCRF) adopted in 1995 provides the framework for dovetailing national and international efforts with sustainable utilization of the living aquatic resources and ensuring that the objectives for conservation, management, and development of such resources are achieved. The Southeast Asian Fisheries Development Center (SEAFDEC) has been supporting the ASEAN Member States (AMSs) in the implementation of the global CCRF through its project “Regionalization of the CCRF (RCCRF),” which received financial assistance from the Government of Japan Trust Fund (JTF) and took into consideration the characteristics of the fisheries in Southeast Asia which is multi-species and small-scale in nature. Series of Regional Guidelines corresponding to the CCRF had then emanated from the RCCRF, one of which is the “Regional Guidelines for Responsible Fisheries in Southeast Asia: Responsible Fisheries Management” aimed at capacitating the AMSs to be able to formulate and implement their respective national codes of practice for responsible fisheries management.

SEAFDEC also promoted the adoption in the Southeast Asian region of the “International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing” or the IPOA-IUU, developed by FAO and adopted in 2001 as a voluntary instrument that provides the comprehensive, effective, and transparent measures by which the countries must act and establish their respective National Plans of Action on IUU Fishing (NPOAs-IUU). Subsequently, when the European Community (EC) issued the EC Regulation establishing a “Community System to Prevent, Deter and Eliminate IUU Fishing,” which took effect on 1 January 2010, SEAFDEC also commenced new activity to facilitate exchanging of information among the AMSs on the progress as well as on the obstacles encountered in the implementation of the EC Regulation, considering its

impact on the AMSs that export fish and fishery products to the EU. Parallel with the global and international initiatives, SEAFDEC also fostered stronger cooperation among the AMSs in combating IUU fishing, especially in compiling relevant information on the structure of the region’s fisheries as among the prerequisites in ensuring effective fisheries management and combating IUU fishing in the waters of Southeast Asia. Through the JTF-funded project “Promotion of Sustainable Fisheries and IUU Fishing-related Countermeasures in Southeast Asia” implemented by SEAFDEC from 2010 to 2013, the subsequent JTF-funded projects “Promotion of Countermeasures to Reduce IUU Fishing” implemented by the SEAFDEC Training Department (SEAFDEC/TD) and “Combating IUU Fishing in the Southeast Asian Region through Application of Catch Certification for Trading of Fish and Fishery Products” by the Marine Fishery Resources Development and Management Department (SEAFDEC/MFRDMD) during 2014-2019, as well as the activities carried out through the seven-year SEAFDEC-Sweden Project “Fisheries and Habitat Management, Climate Change and Social Well-being in Southeast Asia” implemented during 2013-2019, several measures have been developed by SEAFDEC together with the AMSs and in collaboration with regional and international organizations, to effectively address IUU fishing concerns in the region. In order to share the experiences of SEAFDEC in the development and adoption of the measures for combating IUU fishing, and explore new ideas and the ways forward to combat IUU fishing in the Southeast Asian region, SEAFDEC/TD virtually convened in Samut Prakan, Thailand, the “Teleseminar on the Way Forward for Combating IUU Fishing in Southeast Asia” on 24-26 August 2020 followed by the “Teleworkshop on Development and Improvement of Regional Tools (RFVR and PSM) for Combating IUU Fishing in Southeast Asia” on 27-28 August 2020.

While conforming to a provision stipulated in the 2001 Resolution on Sustainable Fisheries for Food Security for the ASEAN Region (SEAFDEC, 2001), viz: “formulate regional guidelines to implement the Code of Conduct for Responsible Fisheries, taking into account the specific social, economic, cultural, ecological, and institutional contexts and diversity of ASEAN fisheries;” SEAFDEC and the ASEAN Member States (AMSs) developed a series of Regional Guidelines based on the results of the Project “Regionalization of the CCRF (RCCRF),” which was financially supported by the Government of Japan Trust Fund (JTF). As one of the Project’s outputs, the Regional Guidelines for Responsible Fisheries in Southeast Asia: Responsible Fisheries Management (SEAFDEC, 2003) includes stipulations not only on responsible fisheries management towards sustainable development of fisheries, but also on the need to address international fisheries issues that

could impede such sustainability, e.g. combating IUU fishing through the development of respective countries’ National Plans of Action on IUU Fishing (NPOAs-IUU).

SEAFDEC has always worked closely with the AMSs in the implementation of programs and activities that support the sustainable development of fisheries in the Southeast Asian region. With continued assistance from the JTF, SEAFDEC has been able to attain significant achievements that are being used by the AMSs as basis for formulating their respective fisheries policies, especially on the promotion of sustainable fisheries. It should be noted that starting early 2000s, the Southeast Asian region emerged as a major contributor to the total fisheries production of the world (**Table 1**), and that some Southeast Asian countries (e.g. Indonesia, Thailand, Viet Nam) became major exporters of fish and fishery products to

Table 1. Contribution of Southeast Asia to world's total fisheries production (in million t) in early 2000s

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World's total fisheries production*	117.2	125.2	131.0	130.7	133.0	132.2	134.3	136.4	137.1	139.8
Fisheries production of Southeast Asia**	14.7	15.8	16.9	17.9	18.9	20.2	21.1	22.9	24.4	25.2
Total contribution of Southeast Asian countries to world's total fisheries production (%)	12.5	12.6	12.9	13.7	14.1	15.2	15.7	16.8	17.8	18.0

\* FAO (2002a; 2002b; 2004; 2010)

\*\* SEAFDEC (2005; 2006; 2010)

the world market (FAO, 2002a; 2002b; 2004; 2007). However, such development may have been threatened in mid-2000s when issues on illegal, unreported and unregulated (IUU) fishing activities in world fisheries became a major concern, especially in the context of the CCRF and its overall objective of attaining sustainability in fisheries.

Meanwhile, the persistent operations of IUU fishing continue to undermine all efforts to conserve and manage the fishery resources utilized by capture fisheries. As IUU fishing ensues, national and regional fisheries management organizations could fail to achieve their management goals. This situation leads to the loss of both short- and long-term social and economic opportunities, negatively impacting on food security and environmental well-being. IUU fishing also results in the possible collapse of a fishery or seriously impairing all efforts to rebuild stocks that might have already been depleted due to overfishing. To address such concerns, a number of international instruments that aim to address the issues on IUU fishing have been promoted but many countries are unable to effectively adopt such existing instruments in a timely manner due to many constraints that include lack of national policy and legal frameworks, and inadequate capacity and resources to ratify or accede to and implement such instruments.

## Efforts to Purge IUU Fishing: Southeast Asian Perspective

Confronted by the aforementioned predicaments, the AMSs have therefore considered combating IUU fishing as one of their top priority actions to make sure that the fishery resources are sustainably utilized and guarantee that trading of fish and fishery products from the Southeast Asian region complies with the requirements stipulated in relevant international instruments. When IUU fishing became a global crisis in early 2000s risking the sustainability of Southeast Asian fisheries, the AMSs agreed to strengthen regional and sub-regional efforts to combat IUU fishing, and supported the Work Plan developed by the ASEAN in early 2000s that included “key cluster areas” for each AMS, with Indonesia designated as the lead country for the Cluster on Combating IUU Fishing (Poernomo *et al.*, 2011). Under such Work Plan, the “Regional Plan of Action to Promote Responsible Fishing Practices including Combating Illegal, Unreported and Unregulated Fishing in the Region” or (RPOA-IUU) was established and

endorsed by the ASEAN Ministers responsible for fisheries in May 2007. Eleven countries, namely: Australia, Brunei Darussalam, Cambodia, Indonesia, Malaysia, Papua New Guinea, Philippines, Singapore, Thailand, Timor-Leste, and Viet Nam, and four regional fisheries organizations, *i.e.* FAO/Asia-Pacific Fishery Commission (APFIC), SEAFDEC, the Intergovernmental Organization for Marketing Information and Technical Advisory Services for Fishery Products in the Asian and Pacific Region (InfoFish), and Worldfish Center, agreed to collaborate with the RPOA-IUU by providing technical advice and assistance.

The RPOA-IUU is aimed at enhancing and strengthening the overall level of fisheries management in the region in order to sustain the fishery resources and the marine environment, and to optimize the benefit of adopting responsible fishing practices. The plan of action of RPOA-IUU includes conservation of fishery resources and their environment, management of fishing capacity, and combating IUU fishing, especially in the sub-regional areas of the southern and eastern South China Sea and Sulu-Sulawesi Seas, the sub-regional area of the Gulf of Thailand, and sub-regional area of the Arafura-Timor Seas (RPOA-IUU, 2020).

In June 2011, the ASEAN-SEAFDEC Conference “Fish for the People 2020: Adaptation to a Changing Environment” co-organized by the ASEAN and SEAFDEC in Bangkok, Thailand, paved the way for the adoption of the “Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2020” or RES&POA-2020. This instrument had been used as policy framework and guiding principles for the AMSs in strengthening their efforts towards the sustainable development of fisheries while adapting to the changes in climatic as well as trade environments (Pongsri *et al.*, 2011). Also set out in the RES&POA-2020 are provisions that direct the AMSs towards attaining sustainability in fisheries, especially in combating IUU fishing (SEAFDEC, 2011). Such relevant provisions are shown in **Box 1**.

Furthermore, on the occasion of the “High-level Consultation on Regional Cooperation in Sustainable Fisheries Development Towards the ASEAN Economic Community: Combating IUU Fishing and Enhancing the Competitiveness of ASEAN Fish and Fishery Products” convened on 3 August 2016, Senior

**Box 1. Relevant provisions in the Resolution (RES) and Plan of Action (POA) on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2020 that provide directives for confronting IUU fishing in the Southeast Asian region**

**RES 08:** Foster cooperation among ASEAN Member Countries and with international and regional organizations in combating IUU fishing;

**POA 09:** Take measures to prevent unauthorized fishing and eliminate the use of illegal fishing practices by building awareness of their adverse impacts, strengthening law enforcement, developing and promoting responsible and selective fishing gears and practices, enforcing regulations and encouraging alternative means of livelihoods;

**POA 20:** Adjust existing programs to take into consideration the effects of climate change, focusing on the programs for (i) managing fisheries and habitats; (ii) reducing fishing capacity and combating Illegal, Unreported and Unregulated (IUU) fishing; (iii) strengthening local organizations; and (iv) promoting safety at sea and other priority areas. Develop indicators and reporting measures to assess how actions of the programs build resilience to climate change;

**POA 21:** Strengthen regional and national policy and legislation to implement measures and activities to combat IUU fishing, including the development and implementation of national plans of action to combat IUU fishing, and promote the awareness and understanding of international and regional instruments and agreements through information dissemination campaigns;

**POA 22:** Establish and strengthen regional and sub-regional coordination on fisheries management and efforts to combat IUU fishing including the development of regional/sub-regional Monitoring, Control and Surveillance (MCS) networks;

**POA 23:** Facilitate consultative dialogue among fisheries legal officers to share, at the sub-regional/regional level, perspectives of the respective legal and regulatory framework in terms of developing MCS-networks and to implement efforts to combating IUU fishing;

Source: SEAFDEC (2011)

Officials of the ASEAN-SEAFDEC Member Countries signed 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.” The Senior Officials also declared their countries’ intent to: *combat IUU fishing in the Southeast Asian region and enhance the competitiveness of ASEAN fish and fishery products without prejudice to the sovereign rights, obligations, and responsibilities of ASEAN-SEAFDEC Member Countries under relevant international laws and arrangements* (SEAFDEC, 2016).

## Initiatives in Combating IUU Fishing in the Waters of Southeast Asia

If not rooted out, IUU fishing could continue to contribute to overexploitation of the fish stocks, hinder the recovery of fish populations and ecosystems, put fishers operating legally at a disadvantage, and in the end, adversely affect the economic and social well-being of fishing communities. Thus, in the Southeast Asian region, the countries have been promoting

sustainable fisheries management and implementing appropriate countermeasures against IUU fishing. Increased recognition of the importance of fisheries management schemes such as fishing gear licensing, fishing vessels registration, among others, has been eminent in the region, recognizing that these could serve as effective measures to promote sustainable use and long-term conservation of the marine fishery resources.

In 2010 and in support of the adoption of the Regional Guidelines for Responsible Fisheries in Southeast Asia: Responsible Management by the AMSs, SEAFDEC launched the three-year JTF-funded project “Promotion of Sustainable Fisheries and IUU Fishing-related Countermeasures in Southeast Asia.” Comprising activities that included fishing licensing, fishing vessels registration, and promotion of port State measures, the Project paved the way for the development of fisheries management tools to combat IUU fishing in the Southeast Asian region (Matsumoto *et al.*, 2012). This was made possible through the compilation of information on the procedures of fishing licensing and vessels registration in the Southeast Asian region including the corresponding minimum requirements for obtaining fishing license and vessel registration certificates. In addition, the ways and means of preventing the export of IUU fishing products by the AMSs were also identified. Such information provided the inputs for the proposed establishment of the Regional Record of Fishing Vessels starting with vessels 24 meters in length and over.

The Project also provided assistance to the AMSs to make sure that their respective systems of fishing licensing are in accordance with the regional and international requirements for combating IUU fishing. Therefore, as envisioned, the establishment of regional fishing vessels record together with the refined fishing licensing systems would serve as fisheries management tools in combating IUU fishing in the Southeast Asian region (Pongsri *et al.*, 2014).

Along the lines of the relevant stipulations in RES&POA-2020, SEAFDEC implemented in 2014 the five-year project “Promotion of Countermeasures to Reduce IUU Fishing” as means of strengthening the collaboration among the AMSs in reducing IUU fishing in the region. Led by SEAFDEC/TD and promoted as a collaborative effort among the AMSs as well as with regional and international organizations, the Project was instrumental in the development of additional measures that could be used to effectively address IUU fishing concerns in the waters of Southeast Asia.

In the subsequent RES&POA-2030, which was adopted in October 2020 to be used as a regional framework for the sustainable development of fisheries and enhancing the contribution of fisheries to food security and livelihood of peoples in the ASEAN region in the next decade, provisions that follow up on the need to combat IUU fishing in Southeast



Asia have also been stipulated (Smithrithee *et al.*, 2020; SEAFDEC, 2020a). The provisions relevant to combating IUU fishing in RES&POA-2030 are shown in **Box 2**.

Box 2. Relevant provisions in the Resolution (RES) and Plan of Action (POA) on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030 that provide directives for addressing the issues on IUU fishing in the Southeast Asian region
RES 08: Strengthen cooperation among AMSs and with international and regional organizations in combating IUU fishing and management of fishing capacity to balance available resources;
POA 12: Implement measures to prevent unauthorized fishing and eliminate illegal fishing practices, <i>e.g.</i> strengthening enforcement of laws and regulations, establishing monitoring control and surveillance (MCS) mechanisms and network, developing and promoting responsible fishing practices, encouraging supplementary livelihood option;
POA 13: Enhance implementation of comprehensive policies for fisheries management through (i) licensing systems (boats, gear, and people); (ii) rights-based fisheries; (iii) supportive legal and institutional frameworks; (iv) strengthened institutional cooperation; and (v) streamlined co-management;
POA 28: Strengthen the implementation of measures and activities to combat IUU fishing by ensuring compliance with national laws and regulations, and with the provisions of relevant international instruments; encourage the development and implementation of national plans of action to combat IUU fishing; promote inter-agency coordination for effective implementation of laws and regulations; and enhance awareness and understanding of applicable international and regional instruments and agreements through information dissemination campaigns;
POA 29: Establish and strengthen regional, sub-regional, and bi-lateral coordination on fisheries management and efforts to combat IUU fishing; and where appropriate promote the establishment of Monitoring, Control and Surveillance (MCS) network through inter-agency coordination and information sharing;
POA 30: Mobilize regional/sub-regional collaboration frameworks and tools for combating IUU fishing, <i>e.g.</i> <i>Regional Plan of Action to Promote Responsible Fishing Practices</i> including Combating Illegal, Unreported and Unregulated Fishing (RPOA-IUU); ASEAN Regional Plan of Action for the Management of Fishing Capacity (RPOA-Capacity); Regional Fishing Vessels Record (RFVR); ASEAN Catch Documentation Scheme (ACDS), and the use of technologies;

Source: SEAFDEC (2020a)

During the implementation the project “Promotion of Countermeasures to Reduce IUU Fishing” from 2014 until its completion in 2019, the project objectives of improving countermeasures to reduce IUU fishing and enhancing awareness and common understanding of the countermeasures to reduce IUU fishing, had been attained through the implementation of three main activities, namely: Promotion and Development of the Regional Fishing Vessels Record; Strengthening of Port State Measures; and Promotion of Information Technology to Combat IUU Fishing. From such activities, various measures had been established for combating IUU fishing. Moreover, other relevant projects

implemented by SEAFDEC through the other SEAFDEC Departments and in collaboration with various donors, also came up with additional measures to combat IUU fishing in the Southeast Asian region. It should be noted that all these measures and tools (**Box 3**) also dovetail with the relevant provisions in RES&POA-2030.

## Conclusion

Considerable efforts had been made by the AMSs towards improving governance in fisheries with the main objective of attaining sustainability in the region’s fisheries. However, this has not yet been completely achieved because of many factors that include continued practice of IUU fishing activities brought about by large numbers of fishing vessels and fishers, weak law enforcement, and poverty in fishing communities, among others. Isa *et al.* (2011) suggested that enhancing governance in the regions’ fisheries sector could be pursued through the context of management based on an ecosystem approach, as provided for in the Regional Guidelines for Responsible Fisheries in Southeast Asia: Responsible Fisheries Management (SEAFDEC, 2003). Moreover, in promoting the implementation of MCS which is a key factor in pursuing effective fisheries management, the involvement of small-scale fishers in the planning and implementation of the relevant activities, should be enhanced. This would also address the concerns on continued practices of IUU fishing not only by commercial fishers but also by small-scale fishers.

## Way Forward

The “Teleseminar on the Way Forward for Combating IUU Fishing in Southeast Asia” organized virtually by SEAFDEC/TD from 24 to 26 August 2020 (SEAFDEC/TD, 2020a) facilitated the sharing of experiences in adopting the measures for combating IUU fishing, and explored new ideas and the suggested ways forward for combating IUU fishing in the Southeast Asian region as shown in **Box 4**.

Furthermore, during the abovementioned Teleseminar, the fundamental elements necessary to eliminate IUU fishing in the Southeast Asian region were identified (SEAFDEC/TD, 2020a). Specifically, the AMSs have been encouraged to consider mainstreaming these elements in their respective programs and activities relevant to combating IUU fishing in their countries’ waters. These elements are summarized in **Box 5**.

Meanwhile, guided by the directive of the SEAFDEC Council during its Fifty-second Meeting in May 2020, SEAFDEC/TD virtually organized the Teleworkshop on the Development and Improvement of Regional Tools (RFVR and PSM) for Combating IUU Fishing in Southeast Asia on 27-28 August 2020 (SEAFDEC/TD, 2020b). The Teleworkshop discussed the issues and concerns on the management of

### Box 3. Continuing initiatives of SEAFDEC and the AMSs to counter IUU fishing in Southeast Asian waters

#### Listing of Fishing Vessels in the Global and Regional Records

The series of meetings and consultations among the ASEAN-SEAFDEC Member Countries agreed to compile data and information for the establishment of the Regional Fishing Vessels Record (RFVR) with initial focus on fishing vessels measuring 24 meters in length and over (Saraphaivanich *et al.*, 2016a). Upon the endorsement of the proposed establishment of the RFVR by the SEAFDEC Council at its Forty-fifth Meeting in April 2013, and subsequently by the Special Senior Officers Meeting of the Thirty-fourth Meeting of the ASEAN Ministers on Agriculture and Forestry, the RFVR Database was launched as a collaborative effort of the AMSs and as a channel of sharing information on fishing vessels identification, and other relevant data and information. Being maintained by SEAFDEC/TD as an online system, the RFVR would be expanded later to cover fishing vessels measuring less than 24 meters in length (Kawamura & Siriraksophon, 2014). Now serving as a platform to facilitate the compilation and exchange of information on registered fishing vessels of the AMSs, starting with vessels 24 meters in length and over, the RFVR Database has been used as a practical tool for relevant authorities of the AMSs for monitoring all registered fishing vessels and taking corrective actions against their inappropriate behavior, thereby supporting the elimination of IUU fishing in the region. The RFVR also provides information for the “Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels” or Global Record developed by FAO and similar efforts of relevant RFMOs, to be used in updating the lists of vessels believed to be engaged in IUU fishing. The RFVR Database also supports the effective implementation of the Port State Measures Agreement (PSMA), which requires that information on fishing vessels, either legally registered or IUU vessels should be shared. Presently, the RFVR Database is mainly for the AMSs only, so that for security purposes, accessing the RFVR Database System requires a Username and Password from SEAFDEC/TD. The following data and information on fishing vessels 24 meters in length from the AMSs, are shared with the RFVR Database (Saraphaivanich *et al.*, 2016a).

The following are the information on fishing vessels 24 meters in length and over from the AMSs shared with the RFVR Database:

- |                                        |                                         |
|----------------------------------------|-----------------------------------------|
| 1. Name of vessel                      | 15. International Radio Call sign       |
| 2. Vessel Registration Number          | 16. Engine Brand                        |
| 3. Owner's Name                        | 17. Serial number of engine             |
| 4. Type of fishing method/gear         | 18. Hull material                       |
| 5. Fishing License Number              | 19. Date of registration                |
| 6. Expiration date of fishing licenses | 20. Area (country) of fishing operation |
| 7. Port of registry                    | 21. Nationality of vessel (flag)        |
| 8. Gross tonnage (GRT/GT)              | 22. Previous name (if any)              |
| 9. Length (L)                          | 23. Previous flag (if any)              |
| 10. Breadth (B)                        | 24. Name of captain/master              |
| 11. Depth (D)                          | 25. Nationality of captain/master       |
| 12. Engine Power                       | 26. Number of crew (maximum/minimum)    |
| 13. Shipyard/Ship Builder              | 27. Nationality of crew                 |
| 14. Date of launching/Year built       | 28. IMO Number (If available)           |

#### Intensifying the Promotion of Port State Measures

The RES&POA-2020 stipulated the need to “*build up capacity among Member Countries, including functions for regional and sub-regional cooperation to effectively meet the requirements of Port State measures and Flag State responsibilities.*” Towards this end, SEAFDEC in collaboration with partner organizations, has been supporting the efforts of the AMSs to ensure that Port State Measures (PSM) are successfully carried out, through capacity building of the countries’ fishery officers and inspectors. As envisioned, the continued capacity building of concerned officers would enable the AMSs to effectively adopt the “Agreement on Port State Measures to Prevent, Deter, and Eliminate Illegal, Unreported and Unregulated Fishing” or PSMA which provides that foreign vessels engaged in IUU fishing are denied from using ports and landing their catches, thus warranting that fish caught from IUU fishing activities would not reach the markets. Southeast Asia has emerged as one of the major fish producing regions of the world, and also is a leading exporter of fish and fishery products supporting the world’s requirements for food fish. In order to secure the niche of the region’s seafood products in the world market, the Southeast Asian region has been adopting PSM as one of the means for sustaining fair seafood trading in the global market arena. Meanwhile, capacity building has also been sustained to support the AMSs in complying with the requirements of the PSMA (Saraphaivanich *et al.*, 2016b). This is also in accordance with the relevant provisions in the RES&POA-2030 shown in Box 2.

As stipulated in the IPOA-IUU, the implementation of PSM is one of the effective means for combating IUU fishing. However, recognizing that human resources development is necessary to support the implementation of the PSM, FAO developed the “Model Scheme on Port State Measures” in 2005 where the international minimum standards for PSM are stipulated (FAO, 2007). Upon the adoption of the PSMA, it has become necessary that port States should take actions to restrict the entry into port, use of port, access to port services, among others, by foreign-flagged fishing vessels, as well as to conduct inspection and other enforcement activities. The concerned AMSs have already established their respective national PSM systems and designated ports, and reviewed the required legal frameworks to support the implementation of the PSMA. SEAFDEC, for its part, had intensified its awareness-raising activities to ensure deeper understanding of the implications of enforcing the PSMA, including the institutional responsibilities that are relevant to the laws and regulations of each of the AMSs. Six AMSs have already become Parties to the PSMA, namely: Cambodia, Indonesia, Myanmar, Philippines, Thailand, and Viet Nam (SEAFDEC, 2017a; Saraphaivanich *et al.*, 2017a).

#### Strengthening MCS and Regional MCS Networks

Proper management of the fishery resources would sustain their contributions to the nutritional, economic, and social well-being of the growing population. Effective fisheries management measures such as the implementation of the MCS systems would ensure that appropriate controls are properly set, monitored, and complied with. The MCS, where M (Monitoring) refers to data collection and analysis, C (Control) touches on the legislation and administrative ordinances, and S (Surveillance) denotes law enforcement, comprise the basic elements in developing the MCS systems, and are tools that could be used to track the implementation of fisheries management plans ensuring that the economic opportunities and benefits are maximized. MCS systems also encompass the development and establishment of modern data collection systems that incorporate information from traditional coastal fisherfolk (SEAFDEC, 2017a). To supplement and enhance the effectiveness of MCS measures in the respective AMSs, strengthening of cooperation among relevant agencies (e.g. fisheries, transportation, customs, navy, etc.) through Regional MCS Networks, has also been pushed forward. Many AMSs have already initiated some efforts to counter IUU fishing including the development and establishment of national MCS systems as well as strengthening of regional and sub-regional coordination on fisheries management for the promotion of the MCS Networks. Sub-regional cooperation through such MCS Networks

### Box 3. Continuing initiatives of SEAFDEC and the AMSs to counter IUU fishing in Southeast Asian waters (Cont'd)

#### Strengthening MCS and Regional MCS Networks (Cont'd)

could also lead towards improved verification and certification of the legal status of catch and landing of fish and fishery products, enhanced effectiveness of sub-regional/bilateral coordination for facilitating trade, and strengthened product traceability; improved scientific assessment for transboundary species; and the development of new coordinating body and cooperation for MCS that could be linked through the existing cooperation on surveillance (Yleaña and Velasco, 2012).

In a similar development, when SEAFDEC in collaboration with the ASEAN-SEAFDEC Member Countries and with joint support from the JTF and the SEAFDEC-Sweden Project established the “ASEAN Regional Plan of Action for the Management of Fishing Capacity” or RPOA-Capacity, it was clarified that in order to achieve the specific objectives of the RPOA-Capacity, it would be necessary to strengthen the aspect of MCS at the sub-regional level. It should be noted that the SEAFDEC-Sweden Project defined four sub-regional areas in Southeast Asia, namely: Gulf of Thailand, Andaman Sea, Sulu-Sulawesi Seas, and Lower Mekong River Basin. From the series of consultations among the bordering countries of the sub-regional areas, multilateral cooperation had been identified as a platform to promote fishing capacity management through the sub-regional cooperation in MCS. Moving towards this direction, a common understanding of the scopes and the provisions stipulated in legislations of the countries in the region, was reached among the AMSs, where various government agencies not necessarily directly concerned with fisheries (e.g. environment authorities, national defense, coast guard, customs, and immigration) had been encouraged to be involved in dialogues that discuss these relevant matters, especially in sharing of information during the development of MCS practices and MCS Networks in the sub-regions (Wanchana *et al.*, 2016). This is considering that creating a network for sharing of information on the monitoring, control, and surveillance of fisheries and fisheries-related activities among the Southeast Asian countries, is deemed essential (Jaya *et al.*, 2019). The development of MCS networks as a major tool to combat IUU fishing in the sub-regional areas and the Southeast Asian region as a whole, could positively reduce the long-term damages on fish stocks and marine ecosystems that otherwise might be inevitable. Moreover, one of the key actions to combat illegal fishing in the region more effectively is to strengthen coordination on the development of the MCS Networks among relevant line agencies in each country as well as between the countries of the region.

#### Promoting the “ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain” in the Southeast Asian region

Many fishers still continue to catch more fish to supply the increasing demand for fish to the extent that IUU fishing is possibly practiced. Such intentions could lead to overexploitation of the fish stocks, hindering the recovery of fish populations and the ecosystems; and damaging the marine habitats. Occurring in virtually any fisheries from inland waters, shallow coastal or even in offshore areas, IUU fishing is difficult to quantify. Nevertheless, strengthening of fisheries management strategies could address the concerns related to the inadequacy of resources for landing controls and vessel inspections, and the limited number of patrol vessels to enforce the necessary regulations (Latun *et al.*, 2017). While most countries in Southeast Asia have developed and/or enhanced their respective regulations in fisheries management based on the Regional Guidelines for Responsible Fisheries in Southeast Asia: Responsible Fisheries Management, such endeavor has enabled the AMSs to support all efforts to implement the necessary trade measures to counter IUU fishing in the region. In this connection, it is also crucial that the countries should be willing to take on the primary responsibility of adopting such measures in order to combat IUU fishing in the region. Given such premise, the SEAFDEC Marine Fishery Resources Development and Management Department (SEAFDEC/MFRDMD) collaborated with the AMSs for the implementation of the JTF-funded Project “Combating IUU Fishing in the Southeast Asian Region through the Application of Catch Certification for International Trade in Fish and Fishery Products” from 2013 to 2019. Mainly focusing on the identification of existing trade practices and mechanisms in small-scale fisheries, and the associated problems encountered by the AMSs in complying with the international and regional frameworks for combating IUU fishing, the Project compiled the relevant information that could serve as inputs for the development of the necessary regional guidelines that aim to prevent the trading of fish and fishery products from IUU fishing activities (Latun *et al.*, 2013).

Known as the “ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain,” this regional framework for combating IUU fishing in the Southeast Asian region, also identifies the forms of IUU fishing activities in the region, viz: (1) illegal fishing activities within a country; (2) unauthorized transshipment and landing of fish/catch across borders; (3) poaching in the EEZs of other countries; (4) illegal fishing and trading practices of live reef food fish and reef-based ornamental and endangered aquatic species; (5) IUU fishing in the high seas and RFMO areas (Latun *et al.*, 2016a). While providing full support to the development of such Guidelines that was spearheaded by SEAFDEC/MFRDMD and promotion of the implementation of the Guidelines in the region, the AMSs also recognized that regional cooperation should be strengthened to address the various issues, concerns, and anticipated difficulties that the countries encounter in the implementation of the Guidelines. Nonetheless, as agreed during the series of consultations on the development of the ASEAN Guidelines, implementation of the Guidelines implies that the AMSs should undertake all the actions necessary for combating IUU fishing, e.g. illegal fish and fishery products from IUU fishing activities should not be traded, since the ASEAN Guidelines is the central measure which covers not only market measures such as documentation of catches but also incorporates the MCS approaches including registration of fishing vessels, licensing of fishing gears used for fishing operation, recording of catch, and designation of landing areas and control of foreign fishing vessels through the implementation of port State measures. In the process of developing the Guidelines, SEAFDEC/MFRDMD was able to establish that IUU fishing activities in the region had expanded to include illegal trading of IUU fishes, which could have emanated from the weak enforcement of regulations and frameworks aimed at combating IUU fishing (Kawamura and Siriraksophon, 2014). For such reason, the AMSs agreed to intensify the promotion of the ASEAN Guidelines in the whole Southeast Asian region as means of countering IUU fishing activities (Latun *et al.*, 2016b).

#### Advocating the Adoption of RPOA-Capacity to Manage Fishing Capacity in Southeast Asia

Fishing capacity, as defined by FAO, is the “amount of fish (or fishing effort) that could be produced over a period of time (e.g. a year or a fishing season) by a vessel or a fleet if fully utilized and for a given resource condition.” The existence of too many fishing vessels operating over limited fishery resources is one of the major contributors to the depletion of fishery resources due to overcapacity. Insufficient management, regulation, and control of fishing capacity espouse the continued operation of fisheries in “open-access” regime resulting not only in increased numbers of fishing vessels but also the number of people engaged in fisheries. Fishing capacity should therefore be managed by controlling access to the fisheries to ensure that utilization of the resources is sustainable. Uncontrolled exploitation of the fishery resources could end up with overcapacity, which in turn lures fishers to be engaged in illegal fishing operations resulting in overfishing, and ultimately to resources depletion. The task of managing the fishery resources on a sustainable basis has therefore become increasingly challenging, and the immeasurable threats of over-exploitation and degradation of aquatic habitats have become serious problems. Recognizing the severity of such a situation, SEAFDEC has exerted continuous efforts to address this serious issue by organizing



### Box 3. Continuing initiatives of SEAFDEC and the AMSs to counter IUU fishing in Southeast Asian waters (Cont'd)

#### Advocating the Adoption of RPOA-Capacity to Manage Fishing Capacity in Southeast Asia (Cont'd)

series of consultations. With funding support from the JTF and the SEAFDEC-Sweden Project, the ASEAN-SEAFDEC Member Countries came up with the Regional Plan of Action for the Management of Fishing Capacity (RPOA-Capacity) to serve as management tool and voluntary guidelines for preventing the over-exploitation of the fishery resources and consequently combating IUU fishing in the region (Amornpiyakrit and Siriraksophon, 2016). The RPOA-Capacity, which specifies the need for States to establish registration and licensing systems, and records of fishing vessels and gears, would be fundamental for the management of fishing capacity as well as implementation of several measures for combating IUU fishing in the Southeast Asian region (SEAFDEC, 2017b). Specifically, Malaysia as a maritime nation in Southeast Asia spearheaded the action to address this concern by putting in place its National Plan of Action for the Management of Fishing Capacity or the NPOA-Fishing Capacity (Shaupi *et al.*, 2011). Other AMSs also have other forms of national policy in relation to management of fishing capacity or are in the process of developing their respective NPOA-Capacity. Meanwhile, Hagberg (2018) suggested that the use of Harvest Control Rule (HCR) could be also pursued in the Southeast Asian region where capture fisheries are catching more than one species in what is known as multi-species fisheries. Since some countries have started to adopt fishing capacity to control the catch of fish corresponding to the available amounts of fish, the adoption of HCR could be pursued in such multi-species fisheries situations, and especially in circumstances where effort or quota regulation is being promoted.

#### Promoting Catch Documentation and Traceability of Fish and Fishery Products

Catch documentation schemes (CDS) are market-related measures developed specifically to combat IUU fishing by documenting the verifiable information on fish catch from point of capture to their final destination. The IPOA-IUU has called for the countries to develop internationally-agreed market-related measures to prevent, deter and eliminate IUU fishing that could encompass several types of controls on trading of fish and fishery products derived from IUU fishing. Some examples of such measures are catch certification and trade documentation requirements, and import and export restrictions and prohibitions (FAO, 2002c). In response to such call, SEAFDEC/TD and SEAFDEC/MFRDMD had initiated a collaborative JTF-funded project which includes an activity on preventing the export of fish and fishery products from IUU fishing operations. In the process of developing the necessary regional guidelines, it was considered that preventing the landings, export and import of IUU fishing products, could be the first step towards creating a catch certification scheme to eliminate IUU fishing. Under such scheme, all imports would be considered legal if the flag State could certify that the fish has been harvested in accordance with the requirements or from an area governed by an RFMO or other regional bodies, or in the high seas that comply with international standards (Latun *et al.*, 2013). In response therefore to the provision in Resolution # 19 of the RES&POA-2020, viz: "Support the competitiveness of the ASEAN fish trade through the development of procedures and programs that would certify, validate or otherwise indicate the origin of fish to reflect the need for traceability, sustainable fishing practices and food safety, in accordance with international and national requirements," SEAFDEC in collaboration with the AMSs developed the ASEAN Catch Documentation Scheme or ACDS as a regional scheme to improve the traceability of fish and fishery products, and enhance the international as well as intra-regional trade of fish and fishery products of the Southeast Asian countries. Under the ACDS, five main documents are issued. These are: Catch Declaration (CD), Movement Document (MD), Catch Certification for Export (CC), Processing Statement (PS), and Re-export Certification (RE) (Saraphaivanich *et al.*, 2017b).

Included in the ACDS is the Info-graphic on the Usage of the ACDS in Various Scenarios of Catch Flows of Fish and Fishery Products into the ASEAN Region (SEAFDEC/MFRDMD, 2013). Moreover, SEAFDEC has also made sure that the ACDS is in line with the systems that are already being implemented by the AMSs. As an essential part of the ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain (Ali *et al.*, 2015), the ACDS records the catch data and information from all steps of the supply chain for traceability of the fish and fishery products.

As a part of ACDS, an electronic catch documentation system or the eACDS has been developed to reduce the burden of the AMSs in the implementation of the ACDS (Siriraksophon *et al.*, 2016). The eACDS consists of three main processes, namely: (1) Issuance of Catch Declaration (CD); (2) Issuance of Movement Document (MD); and (3) Issuance of Catch Certification (CC). Based on these processes, the importer would be able to make clearance on the CC and trace the origin of fish and fish products along the supply chain. For marine capture fisheries, the eACDS requires basic data and information known as "Key Data Elements" (KDEs) to ensure and enhance the efficiency of the system and support more effective fisheries management and good governance. The KDEs include: 1) Point of Catch; 2) Buyers/ Receivers and Sellers (Broker/Wholesale); 3) Processors; 4) Exporters and International Shipping; 5) Importers; and 6) End Consumers. Web-based and mobile applications of the eACDS had also been developed to support the users from different sectors throughout the supply chain of fish and fishery products. The eACDS Web-based Application consists of five (5) modules, namely: (1) list of fish species, (2) list of vessels, (3) list of fishing zones/areas, (4) Manage User, and (5) System Setting, while Mobile Application of the eACDS can be downloaded from Play Store of the Android operating system. The eACDS Mobile Application has been developed mainly for relevant users, such as fishing masters, buyers or fisheries agencies, and other concerned stakeholders. In the process of catch reporting onboard fishing vessels or at sea, fishing masters should report their catch by species and weight to the eACDS system via the Mobile Application (Siriraksophon *et al.*, 2017).

#### Applying the Novel Satellite Technologies to Track Activities of Fishing Vessels

Flag States have critical roles in controlling and monitoring the activities of their respective flagged fishing vessels to make sure that their operations within and beyond their national jurisdictions are legal. Several technologies have been developed and promoted in the region e.g. VMS, AIS, among others, to support the monitoring and surveillance of fishing vessels' activities, including their positions, and eventually detecting any alleged IUU fishing activities.

Vessel Monitoring System (VMS), a satellite-based system, allows national regulatory agencies or RFMOs to track and monitor a vessel's position, course, and speed, thereby detecting possible IUU fishing activities at sea. To ensure that flag State vessels are fishing within the authorized fishing areas/zones and not to engage in IUU fishing activities, the use of VMS has been promoted in the Southeast Asian region at the country level. In the case of Viet Nam, which has been encountering several difficulties, in monitoring its fishing vessels that could have been engaged in IUU fishing activities, and consequently resulted in the issuance of a "yellow card" by the European Union (EU), the installation of vessel monitoring system (VMS) on fishing vessels has been recommended as one of the essential actions to address the concerns on continued IUU fishing activities. A pilot research study was therefore carried out to assess the impacts of installing VMS on the offshore fishing vessels of Khanh Hoa Province in Viet Nam (Phuong and Nguyen, 2019).

Automatic Identification System (AIS), an automated system that transmits ship's position to other ships, could also be used to reveal a fishing vessel's activities especially in the high seas. AIS could also retrace the routes and activities of fishing vessels, including those suspected of doing illegal fishing operations. The use of AIS in the Southeast Asian region is still being explored.

**Box 3. Continuing initiatives of SEAFDEC and the AMSs to counter IUU fishing in Southeast Asian waters (Cont'd)**

**Strengthening Cooperation for Information Exchange to Combat IUU Fishing**

Cooperation in fisheries surveillance and law enforcement could be an effective means of dealing with IUU fishing activities, especially where the fisheries is transboundary. In the Southeast Asian region, exchange of relevant information is being promoted through the utilization of the Regional Fishing Vessels Record (RFVR) Database, strengthening of regional cooperation for the implementation of Port State Measures, and creation of platforms for sharing relevant information including legal frameworks among the countries. In accordance with relevant provisions stipulated in RES&POA-2030 (SEAFDEC, 2020a), SEAFDEC and the AMSs have been encouraged to: “Support consultative dialogues at regional/sub-regional level among fisheries legal officers to share and exchange information on updated legal and regulatory frameworks in addressing issues in fisheries management” (POA # 31).

Strengthening of cooperation for information exchange is also along the lines of the IPOA-IUU, especially on the need to establish and maintain systems for the acquisition, storage, and dissemination of MCS data, taking into account applicable confidentiality requirements, and allow and enable their respective MCS practitioners or enforcement personnel to cooperate in investigations of cases involving IUU fishing activities. Moreover, this endeavor would also be in response to relevant provisions in RES&POA-2030 (SEAFDEC, 2020a) which stipulate the need to: “Strengthen fisheries governance, in line with international practices, by evaluating current constraints to ensure comparability and compatibility of the required practices and the operations of fisheries in the AMSs” (RES # 4); “Implement measures to prevent unauthorized fishing and eliminate illegal fishing practices, e.g. strengthening enforcement of laws and regulations, establishing monitoring control and surveillance (MCS) mechanisms and network, developing and promoting responsible fishing practices, encouraging supplementary livelihood options” (POA # 12); and “Establish and strengthen regional, sub-regional, and bi-lateral coordination on fisheries management and efforts to combat IUU fishing; and where appropriate promote the establishment of Monitoring, Control and Surveillance (MCS) network through inter-agency coordination and information sharing” (POA # 29).

**Box 4. Summary of the Way Forward for Combating IUU Fishing in Southeast Asia (Adapted from SEAFDEC/TD (2020a))**

**National Level**

- Strengthen the respective countries’ capacity in undertaking their responsibilities as flag State, coastal State and port State, as well as in promoting the market-related measures for combating IUU fishing
- Apply the multiple tools for combating IUU fishing, taking into consideration different scenarios and requirements, e.g. in a domestic environment, territorial seas, EEZs, and RFMO areas, among others
- Consider countering not only IUU fishing in commercial/large-scale fisheries but also exploring appropriate approaches in dealing with IUU fishing in small-scale fisheries in coastal and inland waters
- Ensure that focus is placed not only on illegal fishing but also on unreported and unregulated fishing
- Adopt the innovations for more effective MCS programs, including the use of remote sensing (RS), and artificial intelligence (AI) to alert possible IUU fishing activities, and the conduct of risk assessment before fishing vessels enter the ports
- Enhance the effective adoption of the PSMA with implementation protocols, and identify designated ports taking into account inter-agency cooperation and coordination with relevant countries, for its effective implementation
- Develop and/or improve the respective countries’ traceability systems to ensure that these could complement those of the importing countries
- Enhance cooperation and collaboration, including multi-national engagement in the investigation of IUU fishing, and public-private partnership in combating IUU fishing
- Encourage the development of NPOA-IUU that fits with the country’s major roles, e.g. whether the country mainly plays the roles as flag State, coastal State or port State, to assist the implementation of the IPOA-IUU

**Regional Level**

- Strengthening global and regional information exchange, e.g. linking regional systems (e.g. RFVR) with the global system for combating IUU fishing, e.g. PSMA information systems, Global Record
- Enhancing collaboration between organizations in the region for information exchange, e.g. linking with RPOA-IUU Watchlist and RFVR (to enhance reporting of IUU fishing activities occurring in the region), and moving towards online reporting of information by the respective countries
- Furthering harmonization of catch documentation scheme importer’s requirements (paper-based and electronic), including the IT Catch, and moving toward ensuring compatibility and linking of data in the future.
- Improving efforts to check unregulated fishing especially of shared stocks by establishing a monitoring plan (e.g. stock assessment) and management plan among concerned countries
- Facilitating the exchange of information on the progress of the various initiatives in combating IUU fishing undertaken by the AMSs
- Continuing dialogues on the establishment of ASEAN policies, the ASEAN General Fisheries Policy (AGFP), ASEAN Network for Combating IUU Fishing (AN-IUU)

the RFVR Database as a tool to combat IUU fishing in the Southeast Asian region that include the possible linking of the information from the RFVR Database with the FAO Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels (Global Record); the expansion of the RFVR Database to include vessels less than 24 meters in length; and the possibility of establishing the regional IUU fishing vessels watchlist, among others. In considering such issues and concerns, the AMSs on various occasions, such as

during the aforementioned Teleseminar and Teleworkshop, as well as during the Forty-third Meeting of the SEAFDEC Program Committee (SEAFDEC, 2020b) and the Twenty-third Meeting of the Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (SEAFDEC, 2020c), raised some recommendations to address these issues and concerns, which are summarized in **Box 6**, and which SEAFDEC and the AMSs could take into consideration in their programs and activities relevant to combating IUU fishing.



#### Box 5. Fundamental elements for eliminating IUU fishing in the Southeast Asian region

<ul style="list-style-type: none"> <li>• <b>Political will and commitment:</b> strong “political will” is very important for each country to combat IUU fishing, particularly in establishing the necessary legal frameworks and mechanisms for combating IUU fishing, and in allocating the necessary resources</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Cooperation and collaboration:</b> since each country cannot work alone, cooperation among countries is necessary, <i>e.g.</i> in exchange for information among flag states, coastal states, and port states, etc.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Transparency:</b> sharing of plans and strategies among countries is crucial for countering IUU fishing, especially in transboundary waters</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Law enforcement:</b> ensuring that compliance of the laws, regulations, and international and regional requirements is strictly practiced and monitored</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Mechanism:</b> detections of IUU fishing activities should result in ACTIONS that include sanctions and punishments, to discourage further practices of IUU fishing (however penalty should be reasonable and comparable among the countries in the region)</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Capacity development:</b> conduct of needs assessment in order to come up with proper capacity building programs, and to translate such capacity building programs into actual implementation</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Adoption of technologies and innovations:</b> the use of new technologies and top-of-the-line innovations could facilitate monitoring large numbers of vessels including those of the small-scale fishers</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Sustainability:</b> making sure that the initiatives and mechanisms for combating IUU fishing are sustained</li> </ul>

#### Box 6. Way forward for the management of the RFVR Database as tool to combat IUU fishing (SEAFDEC/TD, 2020b)

Issues and Concerns	Recommendations of the AMSs (SEAFDEC/TD, 2020a & 2020b; SEAFDEC 2020b & 2020c)
<ul style="list-style-type: none"> <li>• Linking of the RFVR Database with the FAO Global Record</li> </ul>	<ul style="list-style-type: none"> <li>• protocol and mechanisms should be thoroughly discussed among the AMSs through a consultation meeting</li> <li>• burden of the AMSs should be minimized in providing the fishing vessels data to regional and international organizations</li> </ul>
<ul style="list-style-type: none"> <li>• Expansion of RFVR Database to include vessels less than 24 meters in length</li> </ul>	<ul style="list-style-type: none"> <li>• utilization of RFVR Database on vessels more than 24 m in length should be enhanced before expanding this to include vessels less than 24 m in length</li> <li>• benefits of expanding the RFVR database to cover vessels less than 24 meters in length, should be carefully assessed as small-scale fishers usually do not operate very far from coastal areas</li> <li>• objectives of RFVR should be revisited as its expansion could pose challenges considering the large numbers of such vessels operating in the region (<i>Note:</i> agreed measurement of vessels less than 24 m in length during the Teleworkshop: 18.00-23.99 m or 50-100 GT)</li> </ul>
<ul style="list-style-type: none"> <li>• Establishment of a regional IUU vessels watchlist</li> </ul>	<ul style="list-style-type: none"> <li>• the regional IUU vessels watchlist should be independent from the watchlist of RPOA-IUU, however, coordination between SEAFDEC and RPOA-IUU should be strengthened so that sharing of information for both watchlists is facilitated</li> <li>• AMSs to support the activities of the ASEAN Network for Combating IUU Fishing (AN-IUU)</li> </ul>

## References

- Ali, M., Isa, M.M., Katoh, M., Ahmad, M.T.A., Kawamura, H. & Siriraksophon, S. (2015). ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain. SEAFDEC/MFRDMD/SP/29; 22 p
- Amornpiyakrit, T. & Siriraksophon, S. (2016). Management of Fishing Capacity for Sustainable Fisheries: RPOA-Capacity. *In:* Fish for the People Volume 14 Number 2 (Special Issue): 2016. Southeast Asian Fisheries Development Center, Bangkok, Thailand; 18-23
- FAO. (2002a). The State of World Fisheries and Aquaculture 2000. FAO. Rome Italy; 159 p
- FAO. (2002b). The State of World Fisheries and Aquaculture 2002. FAO. Rome Italy; 159 p
- FAO. (2002c). Implementation of the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing. FAO, Rome, Italy; 122 p
- FAO. (2004). The State of World Fisheries and Aquaculture 2004. FAO. Rome Italy; 153 p
- FAO. (2007). The State of World Fisheries and Aquaculture 2006. FAO. Rome Italy; 162 p
- FAO (2010). The State of World Fisheries and Aquaculture 2010. FAO. Rome Italy; 197 p
- Hagberg, J. (2018). Beyond Capacity Adaptations – for what should be adopted? *In:* Fish for the People Volume 16 Number 1: 2018. Southeast Asian Fisheries Development Center, Bangkok, Thailand; pp 35-36
- Isa, M.M., Ahmad, A.T., Latun, A.R., Ali, M. & Sulit, V.T. (2011). Ensuring Improved Governance in Fisheries Management in Southeast Asian Countries. *In:* Fish for the People Volume 9 Number 1: 2011. Southeast Asian Fisheries Development Center, Bangkok, Thailand; 12-18
- Jaya, IBM S., Wanchana, W., Sulit, V.T. & Chumchuen, S.V. (2019). Strengthening Sub-regional Cooperation to Enhance the Implementation of MCS in Southeast Asia. *In:* Fish for the People Volume 7 Number 1: 2019. Southeast Asian Fisheries Development Center, Bangkok, Thailand; pp 12-18
- Kawamura, H. & Siriraksophon, S. (2014). Sustained Promotion of Responsible Fisheries to Secure the Competitiveness of ASEAN Fish and Fishery Products in Intra- and Inter-regional Trade: SEAFDEC Initiative. *In:* Fish for the People, Volume 12 No. 3 (2014); Southeast Asian Fisheries Development Center, Bangkok, Thailand; pp 9-14
- Latun, A.R., Ahmad, A.T., Ali, M., Katoh, M., & Sulit, V. (2013). Developing Market Measures to Control IUU Fishing in Southeast Asia. *In:* Fish for the People, Volume 11 No. 1 (2013). Southeast Asian Fisheries Development Center, Bangkok, Thailand; pp 19-25

- Latun, A.R., Ali, M., Ahmad, A.T. & Katoh, M. (2016a.) Boosting National Mechanisms to Combat IUU Fishing: Dynamism of the Southeast Asian Fisheries Sector. *In: Fish for the People* Volume 14 Number 1: 2016. Southeast Asian Fisheries Development Center, Bangkok, Thailand; pp 36-43
- Latun, A.R., Ali, M., Hassan, R.B.R. & Sulit, V.T. (2017). Preventing the Entry of IUU Fish and Fishery Products into the Supply Chain: the Regional Guidelines. *In: Fish for the People*, Volume 15 Number 3: 2017. Southeast Asian Fisheries Development Center, Bangkok, Thailand; pp 45-48
- Latun, A.R., Ali, M., Nuruddin, A.A., Siriraksophon, S., Sulit, V. & Abdullah, A.F.S. (2016b). Promotion of Measures to Avert Entry of Fish and Fishery Products from IUU Fishing into the Supply Chain. *In: Fish for the People* Volume 14 Number 2: 2016 (Special Issue). Southeast Asian Fisheries Development Center, Bangkok, Thailand; 2-11
- Matsumoto, K., Chokesanguan, B., Sulit, V. & Saraphaivanich, K. (2012). Development of Regional Fishing Vessels Record as a Tool to Combat IUU Fishing in Southeast Asia. *In: Fish for the People*, Volume 10 Number 3: 2012. Southeast Asian Fisheries Development Center, Bangkok, Thailand; pp 12-16
- Phuong, V. & Nguyen, H. H. H. (2019). Equipping fishing fleet with vessel monitoring system for sustainability in fishing operations: A case study in Khanh Hoa Province, Viet Nam. *In: Fish for the People* Volume 17 Number 2: 2019. Southeast Asian Fisheries Development Center, Bangkok, Thailand; pp 49-55
- Poernomo, A., Purwanto & Ahmadi. (2011). Combating Illegal, Unreported and Unregulated (IUU) Fishing to Attain Food Security and Alleviate Poverty: Initiative of Indonesia. *In: Fish for the People* Volume 9 Number 2: 2011 (Special Issue). Southeast Asian Fisheries Development Center, Bangkok, Thailand; 79-85
- Pongsri, C., Kawamura, H., Siriraksophon, S. & Chokesanguan, B. (2014). Regional Fishing Vessels Record: Option to Mitigate IUU Fishing in Southeast Asia. *In: Fish for the People*, Volume 12 Number 1: 2014. Southeast Asian Fisheries Development Center, Bangkok, Thailand; pp 11-15
- Pongsri, C., Matsumoto, K. & Sulit, V.T. (2011). Steering the Development of Southeast Asian Fisheries towards Sustainability. *In: Fish for the People* Volume 9 Number 2: 2011 (Special Issue). Southeast Asian Fisheries Development Center, Bangkok, Thailand; pp 2-9
- RPOA-IUU. (2020). To Promote Responsible Fishing Practices. RPOA-IUU, Jakarta, Indonesia. Accessed 20 October 2020
- Saraphaivanich, K., Imsamram, N., & Suthipol, Y. (2017b). Boosting the Traceability of ASEAN Fish and Fishery Products through the eACDS. *In: Fish for the People* Volume 17 Number 3: 2019; pp 23-28
- Saraphaivanich, K., Suthipol, Y. & Imsamram, N. (2017a). Strengthening Regional Cooperation to Support the Implementation of Port State Measures in Southeast Asia. *In: Fish for the People*, Volume 15 Number 3: 2017. Southeast Asian Fisheries Development Center, Bangkok, Thailand; pp 17-22
- Saraphaivanich, K., Suthipol, Y., Imsamram, N. & Siriraksophon, S. (2016b). Supporting Southeast Asian Countries in Implementing Port State Measures. *In: Fish for the People*, Volume 14 Number 2: 2016 (Special Issue). Southeast Asian Fisheries Development Center, Bangkok, Thailand; pp 41-47
- Saraphaivanich, K., Suthipol, Y., Imsamram, N., Chokesanguan, B. & Siriraksophon, S. (2016a). Regional Fishing Vessels Record: A Management Tool for Combating IUU Fishing in Southeast Asia. *In: Fish for the People*, Volume 14 Number 2: 2016 (Special Issue). Southeast Asian Fisheries Development Center, Bangkok, Thailand; pp 12-17
- SEAFDEC. (2001). Resolution and Plan of Action on Sustainable Fisheries for Food Security in the New Millennium. Southeast Asian Fisheries Development Center, Bangkok, Thailand; 12 p
- SEAFDEC. (2003). Regional Guidelines for Responsible Fisheries in Southeast Asia: Responsible Fisheries Management. Southeast Asian Fisheries Development Center, Bangkok, Thailand; 69 p
- SEAFDEC. (2005). Fishery Statistical Bulletin for the South China Sea Area 1999-2001. Southeast Asian Fisheries Development Center, Bangkok, Thailand; I-169 p; II-181 p; III-183 p
- SEAFDEC. (2006). Fishery Statistical Bulletin for the South China Sea Area 2002-2003. Southeast Asian Fisheries Development Center, Bangkok, Thailand; I-179 p; II-173 p
- SEAFDEC. (2010). Fishery Statistical Bulletin for the South China Sea Area 2007. Southeast Asian Fisheries Development Center, Bangkok, Thailand; 165 p
- SEAFDEC. (2011). Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2020. Southeast Asian Fisheries Development Center, Bangkok, Thailand; 23 p
- SEAFDEC. (2016). Joint ASEAN-SEAFDEC Declaration on Regional Cooperation for Combating Illegal, Unreported and Unregulated Fishing and Enhancing the Competitiveness of ASEAN Fish and Fishery Products. Southeast Asian Fisheries Development Center, Bangkok, Thailand; 4 p
- SEAFDEC. (2017a). Southeast Asian State of Fisheries and Aquaculture 2017. Southeast Asian Fisheries Development Center, Bangkok, Thailand; 167 p
- SEAFDEC. (2017b). ASEAN Regional Plan of Action for the Management of Fishing Capacity (RPOA-Capacity), Southeast Asian Fisheries Development Center. Bangkok, Thailand, 34 p
- SEAFDEC. (2020a). Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030. Southeast Asian Fisheries Development Center, Bangkok, Thailand; 23 p
- SEAFDEC. (2020b). Report of the Forty-third Meeting of the Program Committee of the Southeast Asian Fisheries Development Center (Online Meeting), 10-12 November 2020 (unpublished)
- SEAFDEC. (2020c). Report of the Twenty-Third Meeting of the Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (Online Meeting), 17-18 November 2020 (unpublished)
- SEAFDEC/MFRDMD. (2013). Report of the Regional Core Expert Meeting in Combating IUU Fishing in Southeast Asian Region through Application of Catch Certification for International Trade in Fish and Fishery Products, Kuala Lumpur, Malaysia, 7-9 October 2013: MFRDMD/RM/28
- SEAFDEC/TD. (2020a). Report: Teleseminar on the Way Forward for Combating IUU Fishing in Southeast Asia, 24-26 August 2020; TD/RP/212 (September 2020); 6 p



SEAFDEC/TD. (2020b). Report: Teleworkshop on the Development and Improvement of Regional Tools (RFVR and PSM) for Combating IUU Fishing in Southeast Asia, 27-28 August 2020; TD/RP/213 (October 2020); 23 p

Shaupi, M., Khalil, A., Ahmad, A. T., Saktian, A., Rahman, A., & Mohamed, H. (2011). Putting a Plug on Increasing Fishing Capacity: NPOA for the Management of Fishing Capacity in Malaysia. *In: Fish for the People* Volume 9 Number 2: 2011 (Special Issue). Southeast Asian Fisheries Development Center, Bangkok, Thailand; 86-90

Siriraksophon, S., Kawamura, H. & Imsamram, N. (2016). Securing the Niche of ASEAN Fish and Fishery Products in the Global Market: ASEAN Catch Documentation Scheme for Marine Capture Fisheries. *In: Fish for the People* Volume 14 Number 2: 2016 (Special Issue). Southeast Asian Fisheries Development Center, Bangkok, Thailand; pp 24-33

Siriraksophon, S., Rukjai, P., Konphet, P., & Imsamram, N. (2017). Automating Marine Fisheries Catch Documentation Scheme: the eACDS. *In: Fish for the People* Vol. 15 No 3 (2017). Southeast Asian Fisheries Development Center, Bangkok, Thailand; pp 49-55

Smithrithee, M., Chamsai, S., Tongdee, N., Wanchana, W., & Kaewnurachadasorn, P. (2020). Moving Towards the Renewed Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region. *In: Fish for the People* Volume 18 Number 3 (2020). Southeast Asian Fisheries Development Center, Bangkok, Thailand; pp 34-43

Wanchana, W., Torell, M., Siriraksophon, S. & Sulit, V.T. (2016). Addressing Trans-boundary Issues and Consolidating Bilateral Arrangements to Combat IUU Fishing. *In: Fish for the People*, Volume 14 Number 2: 2016 (Special Issue). Southeast Asian Fisheries Development Center, Bangkok, Thailand; pp 48-53

Yleaña, J. and Velasco, P.E.L. (2012). Monitoring, Control and Surveillance (MCS) in Southeast Asia: Review of the Establishment of Regional MCS Network. *In: Fish for the People* Volume 10 Number 1: 2012. Southeast Asian Fisheries Development Center, Bangkok, Thailand; pp 7-12

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