

# EXPEDITED ENTRY PORT SYSTEM: A Proposal for the Implementation of a Voluntary Compliance-Based Structure to Reduce Global IUU Fishing

Laura Anderson, Sadie Cwikiel, Josheena Naggea

## Abstract

Illegal, unreported, and unregulated (IUU) fishing accounts for nearly 20% of the world catch and has widespread and well-recognized negative effects on the environment, economies, and human rights. Enforcement efforts to penalize vessels engaged in IUU fishing can be costly, given the vastness of the ocean. Developing innovative solutions that look beyond the traditional enforcement model may provide new pathways to combat IUU fishing. A compliance-based system could shift the burden of demonstrating compliance to vessels such that port authorities would have more capacity for inspecting noncompliant vessels. This research evaluates the requirements to operationalize an Expedited Entry Port System (EEPS) for fishing vessels at ports. The research examines the possibilities and constraints of a proposed EEPS by delving into current Port State control measures in two island states, the Republic of the Marshall Islands and the Republic of Mauritius. To develop the proposed system, the researchers used analogous systems and interviews for reference. From this work, a series of recommendations emerged, including the need for a more integrated approach at port level to incorporate different Regional Fisheries Management Organizations (RFMOs) and fishery types, regional support for more effective implementation of EEPS, and expanded electronic reporting systems (ERS) to facilitate efficient communication among port authorities, government agencies, and RFMOs, all while recognizing that physical inspections cannot be fully exempt for a system to work effectively.

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## A. Introduction

### 1. IUU Fishing

IUU fishing is an issue prevalent around the globe. Accounting for nearly 20% of the world's catch,<sup>1</sup> IUU fishing has widespread and well-recognized negative effects on the environment, economies, and human rights.

Millions of people around the world depend on fisheries for food and livelihood. An estimated 17% of the world's population relies on fish as their main source of animal protein,<sup>2</sup> but those fish stocks are at risk of depletion. The losses due to IUU fishing worldwide represent 11–26 million tonnes of fish every year.<sup>3</sup> There are also significant economic costs to IUU fishing, with a yearly estimate of more than \$US15 billion in economic losses to nations and communities.<sup>4</sup> Vessels engaging in IUU fishing have large economic incentives and participate in a low-risk, high-gain activity, while legal fishers experience negative economic impacts and reduced fish stocks. With increasingly thin economic margins for legal fishing and decreasing fish populations, IUU fishing may become increasingly more appealing and further negatively impact legal fishers.<sup>5</sup> Climate change may also decrease fish stocks and increase pressure on fishing communities and the fishing industry.<sup>6</sup> Depleted fish stocks and fishing practices like bottom trawling, cyanide fishing, dynamite fishing, purse seine fishing, using fish aggregating devices (FADs), and longlining can have a damaging impact on marine ecosystems, the fishing industry, and nations around the world.

### 2. Policy Context

Given the vastness of the ocean, there has been an increased focus on port control efforts and policies as a more cost-effective way to tackle IUU fishing. Implementing Port State measures (PSM) to increase the security of fishing ports and reduce the landing of illegal fish has the potential to significantly reduce the amount of IUU fishing that occurs globally.

Due to the complexity and the scale of IUU fishing, a comprehensive global system consisting of enforcement and voluntary compliance is essential. So far even though numerous efforts to deter IUU fishing are international and regional (through RFMOs), national governments must initiate much of the action. This includes regulating their respective coastal fisheries, enacting

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1 David J. Agnew et al., "Estimating the Worldwide Extent of Illegal Fishing," *PLoS ONE* 4, no. 2 (2009), <https://doi.org/10.1371/journal.pone.0004570>.

2 Food and Agriculture Organization of the United Nations, *The State of World Fisheries and Aquaculture 2016: Contributing to Food Security and Nutrition for All* (Rome: United Nations, 2016), <http://www.fao.org/3/a-i5555e.pdf>.

3 Supra, note 1.

4 Xuechan Ma, "An Economic and Legal Analysis of Trade Measures against Illegal, Unreported and Unregulated Fishing," *Marine Policy* 117 (July 2020), 103980, <https://doi.org/10.1016/j.marpol.2020.103980>.

5 Sjarief Widjaja et al., *Illegal, Unreported and Unregulated Fishing and Associated Drivers* (Washington, DC: World Resources Institute, 2019), <https://www.oceanpanel.org/blue-papers/illegal-unreported-and-unregulated-fishing-and-associated-drivers>.

6 Julie M. Roessig et al., "Effects of Global Climate Change on Marine and Estuarine Fishes and Fisheries," *Reviews in Fish Biology and Fisheries* 14, no. 2 (2004): 251–75, <https://doi.org/10.1007/s11160-004-6749-0>.

regulations at ports of entry, ratifying international agreements, and making use of new tracking and transparency technologies.<sup>7</sup>

One key regulation that has made strides toward the ambitious international goal of combating IUU by implementing controls at national ports is the Port State Measures Agreement (PSMA).<sup>8</sup> The PSMA builds on multiple legal frameworks (for example, the 1982 United Nations Convention on the Law of the Sea [UNCLOS] and the 2005 Rome Declaration on Illegal, Unreported and Unregulated Fishing) and sets minimum standards and processes that ports need to apply when foreign vessels seek entry. It also denies access to suspicious vessels that are linked to malpractices. Our proposal seeks to support the PSMA by rewarding “good vessels” and expediting their entry into ports.

### 3. Objectives

While the PSMA, which engages port states and RFMOs, aims to penalize blacklisted and suspicious vessels engaged in IUU, the agreement lacks incentives to reward highly compliant vessels. These vessels will be incentivized by market preference for strong PSM in the long term<sup>9</sup> and can be negatively impacted by IUU fishing actions by other vessels. Developing incentives for these “good actors” could encourage greater transparency and recognize and reward these compliant vessels. The more time a vessel spends at port for checks, the fewer profits it makes. For instance, the average time an Australian tooth fishing vessel that meets all requirements spends at a port is seven days. An appealing incentive for fishing vessels would be to spend at least 20% less time at ports.<sup>10</sup>

A voluntary compliance-based system could also shift the burden of demonstrating compliance to vessels such that port authorities have more capacity for inspecting noncompliant vessels. Along with the positive implications of such a system, it will be important to consider any potential disincentives for port states. The less time fishing vessels spend at ports, the less revenue is generated for port states.<sup>11</sup> Understanding and mitigating that revenue loss through other incentive structures is important for a successful system.

The objective of this policy memo is to explore and lay out a proposal to operationalize an EEPS for port state implementation. The system we recommend takes into account insights from fisheries policy and legal, industry, and agency experts around the world, as well as in-depth case study research in the Pacific Islands and the Indian Ocean. We aim to answer the following research questions: What are the possibilities and constraints to developing a voluntary compliance-based system for expedited entry of fishing vessels for port inspections? How might port states operationalize an expedited entry system?

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7 Supra, note 5.

8 Food and Agriculture Organization of the United Nations, “Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing,” opened for signature November 22, 2009, 129 Stat. 664 (entered into force June 5, 2016), <http://www.fao.org/iuu-fishing/international-framework/psma/en/>.

9 Dawn Borg Costanzi, personal communication, May 15, 2020.

10 Rhys Arangio, personal communication, May 12, 2020.

11 Jeromine Fanjanirina, personal communication, May 18, 2020.

## B. Methodology

We conducted 18 semi-structured interviews using a snowball sampling approach with experts from the IUU policy and regulatory level, port states, industry actors, and fishing vessel operators. We iteratively analyzed and distilled more than 90 transcript pages from the interviews using an inductive approach.

To propose a system to operationalize the EEPS, we used the 2018 NOAA Fisheries Commerce Trusted Trader Program (CTTP),<sup>12</sup> the Environmental Justice Foundation report on improving transparency in global fisheries,<sup>13</sup> and the PSMA<sup>14</sup> as reference points. We also incorporated insights from other technical reports and from interviews.

Our research team used a comparative case study approach to understand possibilities and constraints and capture the nuances of port state operationalization. We focused on the Pacific region and the Indian Ocean region. In the Pacific, the Republic of the Marshall Islands (RMI) has pioneered a system of assessing vessel risk before its entry at the port of Majuro, without having yet ratified the PSMA. In the Indian Ocean, we focused on the Republic of Mauritius, a small island nation with one of the busiest ports in the region, which has ratified the PSMA.

**Figure 1. Case Study Locations**





Both RMI and Mauritius are large, important ports regionally with high numbers of transshipments, and high numbers of visits from foreign fishing vessels with large hold sizes. They are both members of several regional fisheries bodies, and both have some form of ERS. The main difference in terms of fisheries policy between the two nations is that RMI has not ratified the PSMA while Mauritius has (see Table 1).

<sup>12</sup> U.S. Department of Commerce, National Oceanic and Atmospheric Administration, “Proposed Rule: Commerce Trusted Trader Program,” 2018, <https://www.regulations.gov/document?D=NOAA-NMFS-2016-0165-0001>.

<sup>13</sup> Environmental Justice Foundation, *Out of the Shadows: Improving Transparency in Global Fisheries to Stop Illegal, Unreported and Unregulated Fishing* (October 23, 2018).

<sup>14</sup> Supra, note 8.

**Table 1. Comparisons between the Fisheries Systems in RMI and Mauritius**

	 <b>Republic of the Marshall Islands</b>	 <b>Republic of Mauritius</b>
<b>Foreign Vessel Visits</b>	1168	957
<b>Foreign Fishing Vessel Hold Size</b>	943,000 m <sup>3</sup>	319,985 m <sup>3</sup>
<b>Regional Fishery Bodies</b>	Pacific Islands Forum Fisheries Agency (FFA); The Pacific Community; Western and Central Pacific Fisheries Commission (WCPFC); Parties of the Nauru Agreement (PNA)	Indian Ocean Tuna Commission (IOTC); Southern Indian Ocean Fisheries Agreement (SIOFA); Southwest Indian Ocean Fisheries Commission (SWIOFC); Commission for the Conservation of Antarctic Marine Living resources (CCAMLR)
<b>PSMA Ratification</b>	No	Yes
<b>Electronic Reporting System</b>	Yes	Yes

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## C. Findings

### 1. Related Models

We explored related port entry and risk assessment models around the world to develop an understanding of port-entry procedures and create a more informed EEPS proposal. These related models (see Table 2) were highlighted by our interviews with experts and recommendations for further exploration.

These models and insights from our interviews generated an overview of essential elements of an EEPS. First, as previously stated, fishing operators must demonstrate complete transparency to be granted expedited entry into a port. Second, port authorities must be able to efficiently and effectively process the information they need to verify vessel compliance, such as in the electronic Food and Agriculture Organization of the United Nations (FAO) Catch Documentation Scheme (CDS) guidelines.<sup>15</sup> Third, system stakeholders must feel incentivized to participate in the EEPS, balancing the benefits with any potential costs. And finally, the key incentive lies in that the entry system is more efficient for all key actors involved.

<sup>15</sup> Supra, note 16.



**Table 2. Related Models for an EEPS**

Model	Background	Indicators	Insights
Port State Risk Scores	Based on a peer-reviewed study <sup>16</sup> supported by the Pew Charitable Trusts and mentioned by multiple respondents Attempts to show which states are most at risk of having illegally caught fish passing through their ports	AIS-derived and public domain data PSMA ratification status or other strong PSM RFMO compliance reports Flag of convenience states	Using a broad suite of indicators could create a more robust risk assessment system
FAO Catch Documentation Scheme (CDS) <sup>17</sup>	The CDS is a market-related supply-chain management measure The FAO guidelines assist actors (e.g., states, RFMOs) looking to develop or improve CDS systems	Risk scores based on catch certificates Electronic information systems (e.g., sharing vessel identity information or tracking)	Electronic-based systems can help expedite processes An overarching framework assisting regional design is an example to consider for implementation
2018 U.S. National Marine Fisheries Service CTPP <sup>18</sup>	Importers can volunteer to adhere to certain requirements and become Commerce Trusted Traders (CTTs)	Establish a secure supply chain (free of IUU fish or fish product and falsely labeled seafood product) over at least a five-year history Submit to yearly third-party audits	Comparable proposed system/idea in a major state Incentives of streamlined entry and flexibility on certain documentation-heavy recordkeeping requirements
2017 Global Dialogue on Seafood Traceability <sup>19</sup>	Seafood industry forum working to “advance a unified framework for interoperable seafood traceability practices” Dialogue guidelines released in March 2020	“Key Data Elements” Data verification Data sharing and regulatory alignment	Established vessel data standards relevant to our EEPS proposal

16 Gilles Hosch et al., “Any Port in a Storm: Vessel Activity and the Risk of IUU-Caught Fish Passing through the World’s Most Important Fishing Ports,” *Journal of Ocean and Coastal Economics* 6, no. 1 (March 2019), <https://doi.org/10.15351/2373-8456.1097>.

17 Food and Agriculture Organization of the United Nations, *Voluntary Guidelines for Catch Documentation Schemes* (Rome: United Nations, 2017), <http://www.fao.org/3/a-i8076e.pdf>.

18 Supra note 12

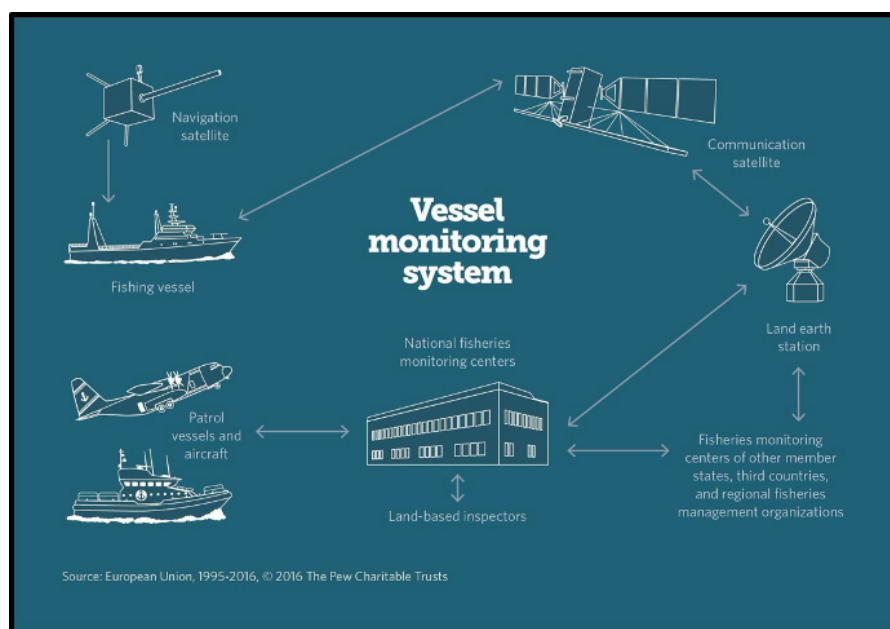
19 Global Dialogue on Seafood Traceability, *Standards and Guidelines for Interoperable Seafood Traceability Systems – Technical Implementation Guidance (Version 1.0)* (February 2020), [https://traceability-dialogue.org/wp-content/uploads/2020/03/2020.03.11\\_GDST1.0TechnicalImplementationGuidancefinalMARI3.pdf](https://traceability-dialogue.org/wp-content/uploads/2020/03/2020.03.11_GDST1.0TechnicalImplementationGuidancefinalMARI3.pdf).

## 2. Monitoring and Data Considerations

Global Fishing Watch (GFW) and other platforms have tracked global fishing operations from more than 60,000 vessels using open-source automatic identification system (AIS) data. Each year, an estimated 10–30% more vessels broadcast AIS data.<sup>20</sup> These tracking data have been used to digitize numerous systems in the shipping industry and share real-time positioning patterns used to combat illegal fishing.<sup>21</sup> Yet, there is no global mandate for vessels to have AIS transponders and to share AIS data. AIS transponders can also be turned off or tampered with, including manipulating vessel identity.<sup>22</sup>

A different tracking system that can be effective for combating IUU fishing uses Vessel Monitoring System (VMS) data. This satellite-based proprietary system is used by management authorities to monitor vessel activity and is highly reliable. However, not all countries operate a VMS system, and there are varying levels of data sharing related to VMS.<sup>23</sup> Certain policy measures like the PSMA and cooperation among members of RFMOs create pathways for VMS data sharing, including data sharing between member states and/or through arrangements with a secretariat. Still, the flag state in question may restrict access to VMS data because there are specific agreements between flag states and fishing vessels with regard to VMS data sharing. Agreements between flag states and port states are critical in these negotiations.

**Figure 2. Vessel Monitoring System Overview** <sup>24</sup>



<sup>20</sup> Marc Taconet, David Kroodsmas, and Jose A. Fernandes, *Global Atlas of AIS-Based Fishing Activity – Challenges and Opportunities* (Rome: FAO, 2019).

<sup>21</sup> Dong Yang et al., "How Big Data Enriches Maritime Research – A Critical Review of Automatic Identification System (AIS) Data Applications," *Transport Reviews* 39, no. 6 (2019): 755–73, DOI: 10.1080/01441647.2019.1649315.

<sup>22</sup> Supra, note 5.

<sup>23</sup> Ibid.

<sup>24</sup> The Pew Charitable Trusts, "Tracking Fishing Vessels Around the Globe," 2016, <https://www.pewtrusts.org/-/media/assets/2016/05/tracking-fishing-vessels.pdf>.

Interviews with key actors yielded multiple perspectives related to monitoring systems and data requirements. For several experts, accessing vessel VMS data was a central component of tracking and verification efforts. International, regional, and bilateral agreements and collaborations were highlighted as pathways for VMS data sharing. Agreements like the PSMA and the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) set standards for participating states regarding VMS capacity and transparency. Regional bodies like the Pacific Islands Forum Fisheries Agency (FFA) and the Indian Ocean Tuna Commission (IOTC) provide guidance in their respective regional waters to support PSM policies and implementation among member states. Agreements for data sharing between flag states and port states are critical in this context because many vessels are highly protective of VMS positions due to protecting intellectual property, preserving competitive fishing locations, and minimizing risk of IUU fishing.<sup>25</sup>

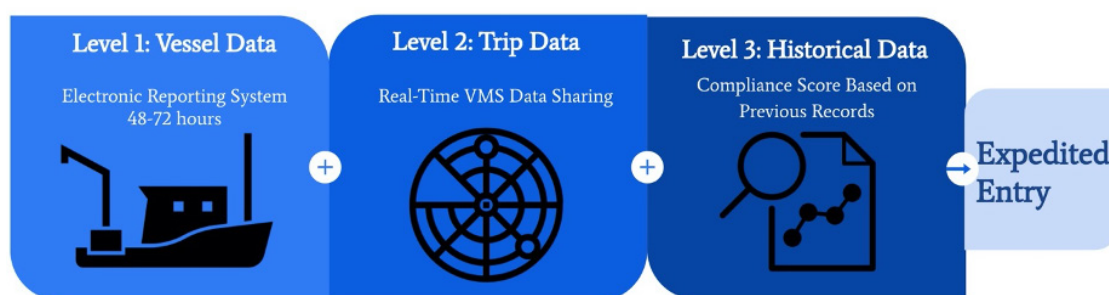
### 3. EEPS

The EEPS will require vessels to provide the necessary data and information to demonstrate compliance with fishing laws and regulations. It will be consistent with the PSMA and is meant to provide an added incentive for vessel compliance as well as a way to make ports more efficient and effective. If a vessel can demonstrate its compliance, with the support of its flag state it will be given expedited entry into port to land its catch. One estimate was that a fishing vessel loses around \$US10,000 each day it is in port instead of fishing.<sup>26</sup> Given the potential cost of delays, expedited entry to land fish will be a significant incentive for vessel compliance.

#### *A Proposed Model for an Expedited Entry Port System:*

Forty-eight to seventy-two hours (depending on location and existing national requirements) before a fishing vessel<sup>27</sup> intends to enter a port, the vessel must provide the following information to the port authority in addition to the port's other entrance application requirements.

**Figure 3. EEPS Level System Overview**



<sup>25</sup> Supra, note 10.

<sup>26</sup> Francisco Blaha, personal communication, April 28, 2020.

<sup>27</sup> Based on personal interviewee feedback, the EEPS could apply to fishing, carrier, supply, and support vessels.



If a vessel can provide or receive validation of all three levels of data and there is no evidence of noncompliance, the vessel will receive expedited entry. Table 3 specifies the data required by each level to prove compliance.

By shifting the burden of proof onto fishing vessels during port inspections, EEPS aims to reward proactively transparent and compliant vessels that meet three levels of information checks.



**Table 3. Data Required to Receive Expedited Entry**

Level One: Vessel Data	Level Two: Trip Data	Level Three: Historical Data
<ul style="list-style-type: none"> <li>• Name of vessel</li> <li>• International Maritime Organization (IMO) number</li> <li>• Type of vessel</li> <li>• Flag of vessel</li> <li>• Size and tonnage of vessel</li> <li>• Registration number and date</li> <li>• Name and address of license holder</li> <li>• License or permit number and dates</li> <li>• Contact details</li> <li>• Registration number of any aircraft associated with the vessel; name and address of operator of the aircraft</li> <li>• Vessel catch log since last port of entry</li> <li>• Coastal or flag state method and species authorizations to fish</li> <li>• Reports of contact with other vessels</li> <li>• Full reports on transshipping, including the time, port, and areas that were authorized for transshipment</li> <li>• Report, clear marking, and identification of any FADs used by the vessel</li> </ul>	<ul style="list-style-type: none"> <li>• VMS data since last port of entry or VMS compliance verification from the flag state</li> </ul>	<ul style="list-style-type: none"> <li>• Historical VMS (or, if unavailable, AIS) track analysis where previous inspection outcomes could be stored to inform port authorities</li> <li>• Previous IUU violations</li> <li>• FAO Global Record status or good standing on a relevant regional or industry vessel register</li> <li>• Membership in industry compliance organizations</li> <li>• Observer reports</li> <li>• Flag state risk</li> </ul>

**Level One: Vessel Data** includes data already required by ports around the world. The list above is adapted from the FFA Minimum Terms and Conditions (MTCs).<sup>28</sup> In cases where not all of these pieces of information are required by a port, the vessel must include the additional information to be eligible for expedited entry.

**Level Two: Trip Data** is the location data of the vessel since the last port of entry. This must be in the form of VMS data because this cannot be tampered with, unlike AIS data. Real-time VMS data sharing is ideal for proving compliance, but this data does not necessarily need to be public for this proposed system to work. Analysis of this location data in comparison to the vessel catch log, transshipping reports, and so on will ultimately determine the compliance of a vessel. This analysis would show if the vessel was fishing, stationary, motoring, or transshipping where they reported they were. Any inconsistencies between the logs or reports and the location data could indicate noncompliance and would be reason to investigate the vessel more thoroughly and not immediately give the vessel expedited entry. Currently, there is not enough capacity in most ports to be able to analyze all of the real-time location data, so a major priority moving forward with EEPS is to improve the analysis technology and ability of VMS data.

A port state does not necessarily have access to a vessel's VMS data, and the vessel might not even have access to its own VMS data; instead, it may be automatically shared with its flag state. Data sharing often involves agreements between the port state and the flag state. In many ports currently, a vessel's VMS location data is verified through a port access letter (PAL) from the flag state to the port state rather than the vessel sharing VMS data directly with the port state. Using flag state verification in the form of a PAL would not be as ideal as directly sharing VMS data to be analyzed by the port state, but it could also be a legitimate way a vessel could prove compliance. PAL systems are already in place in many ports, so for EEPS to be most realistically integrated into ports, the tradeoffs involved and the credibility of the PAL and the flag state issuing the PAL would need to be explored.

It is important to note that certain legal barriers for vessels from specific flag states or those from states that do not require their vessels to have VMS/AIS on board will be at a disadvantage from this system. Without support from the flag state, the vessel itself may not have the resources or the ability to meet the requirements of the EEPS.

**Level Three: Historical Data** aggregates historical data about a vessel's compliance, as well as the role of its flag state in reducing IUU fishing, into one holistic historical compliance score (HCS). The HCS will be a scale from 1.0 (completely noncompliant) to 5.0 (completely compliant). The HCS will take into account numerous historical data and information, averaging each category into a total score that informs the port state of that vessel's historical compliance and subsequent IUU fishing risk. The HCS will take into account data up to five years in the past. More recent data will be given more weight when calculating the weighted average compliance score. An HCS database will be available to ports online, providing accessible real-time information about the likelihood of compliance and risk of IUU fishing activity.

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28 Pacific Islands Forum Fisheries Agency, *The Harmonized Minimum Terms and Conditions for Access by Fishing Vessels* (July 4, 2016), [https://www.ffa.int/system/files/FINAL%20MTCs%20as%20revised%20by%20FFC99\\_4July2016.pdf](https://www.ffa.int/system/files/FINAL%20MTCs%20as%20revised%20by%20FFC99_4July2016.pdf).

While there is no current algorithm or streamlined way to analyze historical location data, this score would attempt to merge past offenses that would hopefully be analyzable in the future with current activity and compliance. The HCS database could be developed and maintained by a collection of RFMOs or other governmental agencies in collaboration with the FAO, or by a third-party organization such as GFW. Such operationalization would need to be explored in future research efforts. Additionally, observer reports, if available, would be included in the HCS. The rigor of the flag state's IUU regulations would be taken into account when analyzing whether a vessel is awarded expedited entry. A flag state would be scored based on their national IUU regulations, enforcement, levels of corruption, and rigor and legitimacy of inspections.

In this proposed EEPS, if a vessel can provide all of the necessary Level One, Level Two, and Level Three data and shows no evidence of IUU activity, the vessel is eligible for expedited entry into the port to unload its catch. If the vessel fails to do so, the port state may request more information from the flag state and/or the vessel, and the vessel may be inspected by a port authority. The port may also choose to automatically deny entry to the vessel if they do not provide the necessary data or have an HCS of 1 or 2.

#### 4. Key Actor Perspectives

Interviews with key actors produced a range of feedback and insights. While overarchingly actors were interested in initiatives that could increase transparency, expedite systems, and reduce IUU fishing, there was a range of concerns that would need to be addressed or negotiated for effective implementation.

**Table 4. Key Actor Interview Perspectives**

Actor	Insights
<p><b>Vessel Operators</b>  <i>Expedited entry could be an effective incentive, but there were concerns about public VMS data sharing.</i></p>	<p>Current State:</p> <ul style="list-style-type: none"> <li>• Boats try to get in and out of port in 5–7 days</li> <li>• Relationships with port authorities are central to efficiency at port</li> <li>• Use a port access letter from their flag state for transparency requirements</li> </ul> <p>Potential Implementation:</p> <ul style="list-style-type: none"> <li>• Expedited entry (EE) enough of an incentive because any potential holdups at port are very costly</li> <li>• Interested in industry incentives</li> </ul> <p>Concerns:</p> <ul style="list-style-type: none"> <li>• Concerned about public VMS data sharing as part of EEPS and would prefer arrangements between port and flag states or nonpublic sharing</li> <li>• Any increased data-sharing requirements would need to include data confidentiality agreements</li> </ul>
<p><b>Monitoring, Control and Surveillance (MCS) Professionals</b>  <i>Port states determine what is required for compliance, and agreements with flag states are the predominant method of VMS data sharing.</i></p>	<p>Current State:</p> <ul style="list-style-type: none"> <li>• Data-sharing agreements between port and flag states are the most common method of VMS data sharing</li> <li>• In some cases, vessels can provide own VMS track to port state</li> <li>• Port states ultimately determine whether AIS or VMS data is a sufficient demonstration of compliance</li> </ul> <p>Potential Implementation:</p> <ul style="list-style-type: none"> <li>• EE could occur by making it incumbent upon the vessel itself to provide tracking data and last track since port of call</li> <li>• An AIS track combined with multiple other lines of documentation for verification could be sufficient based on the capacity for data analysis and automated systems</li> </ul> <p>Concerns:</p> <ul style="list-style-type: none"> <li>• Historical vessel tracks are not typically accessible without a port–flag state agreement</li> <li>• AIS tracking is not recognized as an MCS system by many states</li> </ul>

Actor	Insights
<p><b>Industry Buyers</b>  <i>An industry focus on traceability is different depending on species type. Interest in improving speed and transparency but concerns about credibility of flag and port states.</i></p>	<p><b>Current State:</b></p> <ul style="list-style-type: none"> <li>• Reputational risk drives a focus on traceability along the supply chain</li> <li>• Increased attention on sourcing has sparked several industry alliances (such as the International Seafood Sustainability Foundation [ISSF] and the Global Tuna Alliance)</li> </ul> <p><b>Potential Implementation:</b></p> <ul style="list-style-type: none"> <li>• EE would need a significant improvement on the speed of delivering catch and reduced administrative red tape</li> <li>• Different fish species involve different levels of industry action and coordination</li> <li>• Tuna industry has stronger coalitions and alliances</li> <li>• Non-tuna supply chains may need to rely more heavily on risk-based assessments</li> <li>• EEPS may need to be tailored to both regional and species contexts to be most effective, though that would reduce scalability and uptake</li> <li>• Buyers can drive further incentive structures for vessels and port states, but the incentives of transparency, economic gain, and efficiency must trigger one another</li> </ul> <p><b>Concerns:</b></p> <ul style="list-style-type: none"> <li>• Some companies may be worried about increased exposure based on reduced inspections</li> <li>• System dependent on the credibility of the flag and port state</li> </ul>



Actor	Insights
<p><b>Policy</b></p> <p><i>Implementation most feasible at port-state level with regional leadership to avoid competition and varying standards. Industry pressure is important for maintaining incentive structures.</i></p>	<p>Current State:</p> <ul style="list-style-type: none"> <li>• Not all ports are implementing the control measures of the PSMA</li> <li>• FAO Global Record of vessels (a 10-year project still in progress) will provide a one-stop shop for official and unofficial (but credible) information about vessels</li> <li>• The tuna industry (and tuna RFMOs) tend to be more influential for creating and maintaining incentives</li> </ul> <p>Potential Implementation:</p> <ul style="list-style-type: none"> <li>• EEPS should complement the PSMA</li> <li>• Should happen at port-state level with regional leadership to avoid competition with neighboring ports</li> <li>• Should be some global or regional guidelines like the FAO voluntary CDS so that each country does not have a different version of EEPS</li> <li>• Need to maintain industry pressure so that the entire supply chain is incentivized to be compliant</li> <li>• Denying entry to noncompliant vessels can benefit port states in the long run because industry actors do not want to purchase fish from suspicious ports</li> <li>• Compliant vessels will favor strong ports, which can create greater market access in the long term</li> </ul> <p>Concerns:</p> <ul style="list-style-type: none"> <li>• Creating an HCS based solely on RFMO vessel lists would not be feasible because those lists are not always updated</li> <li>• One challenge to EEPS is engaging non-tuna vessels, which tend to have lower levels of transparency and traceability</li> </ul>

Actor	Insights
<p>Regional Partnership (FFA/IOC)</p> <p>Need to standardize protocols on a regional level. Physical inspections cannot be entirely exempt.</p>	<p>Current State:</p> <ul style="list-style-type: none"> <li>• FFA is working on regional PSM and risk assessments</li> <li>• Nature of IUU fishing has changed from unregulated to unreported and illegal fishing</li> </ul> <p>Potential Implementation:</p> <ul style="list-style-type: none"> <li>• Port states make money from vessels entering port and would rather attract vessels with EE than deny entry</li> <li>• Need to standardize protocols at a regional level to increase reporting compliance</li> <li>• Standardized protocols decrease competition between port states</li> <li>• EEPS needs to build on existing national legislation and regional frameworks to expedite the implementation process</li> </ul> <p>Concerns:</p> <ul style="list-style-type: none"> <li>• Physical inspections cannot be exempt, because multiple verifications based on national port requirements need to happen to look into other malpractices, such as forced labor and drug trafficking</li> <li>• Identifying other areas of delay in the inspection process could target major delays, allow for these necessary checks, and still provide the incentive of faster port entry and exit</li> </ul>

Actor	Insights
<p><b>Port State</b> ERS are effective and could expedite the system. EEPS needs to factor in third-party agents and brokers. Physical inspections cannot be exempt in EEPS, and the system should target other delays.</p>	<p>Current State:</p> <ul style="list-style-type: none"> <li>ERS are highly effective in ensuring transparency and fast communication between RFMO and port state inspectors</li> </ul> <p>Potential Implementation:</p> <ul style="list-style-type: none"> <li>The PSMA requires interagency collaboration, which could be a strong factor facilitating the implementation of EEPS</li> <li>Different fisheries have different ERS (for example, multiple government approvals are needed for species like toothfish) and could be combined to create more efficiency</li> <li>Advantage of placing vessels on a good standing list. The flag state has a responsibility to communicate that good standing to the regional body (RFMO or otherwise)</li> <li>Fisheries specific checks include physical logbook examinations and VMS tracking, which could be done using an ERS</li> </ul> <p>Concerns:</p> <ul style="list-style-type: none"> <li>Third-party agents and brokers are critical to the system</li> <li>Fishing agents submit all paperwork on behalf of fishing vessels, often before vessels enter port</li> <li>In the case of malpractice, both the vessel owner and the fishing agent are liable for penalties</li> <li>Independent brokers provide services for refueling and the purchase of food and medical supplies while the vessel is in port</li> <li>Physical inspections cannot be entirely exempt in the EEPS</li> </ul>

## 5. Comparative Regional Case Studies

Even though the PSMA is a global treaty, implementation happens at the national level, supported by regional bodies such as RFMOs and NGOs providing support for collaboration, data sharing, and capacity building. Port system culture, governance structure, and bilateral agreements with flag states highly influence how agreements like the PSMA are implemented. We anticipate some overlapping hurdles and considerations with the EEPS, which we are conceptualizing to complement the PSMA and build on national legislation. Social norms around efficiency and transparency differ from port to port, which needs to be considered when operationalizing this system.

The small island states in the Pacific Ocean and Indian Ocean regions rely heavily on the oceans, and today fishing is one of their primary sources of economic well-being and food security. Distant water fishing nations pay small island states for access to fish in their extensive exclusive economic zone (EEZ).<sup>29</sup> We investigated two case studies in RMI and Mauritius to understand how an EEPS can build on existing systems of controls and enforcement at port level.

### *The Republic of the Marshall Islands in the Pacific Ocean Region*

RMI has implemented strong PSM even though they have not ratified the PSMA. Majuro is one of the most important ports in the Pacific region for transshipment and tuna fishery in general. They have more than 400 transshipments each year, and the port has the second-highest number of foreign vessel visits in the Pacific (1,168 annual visits) and the highest total volume of foreign fishing vessel hold size.<sup>30</sup>

RMI is a leading nation in the FFA, an agency founded in 1979 by 16 island nations in the Pacific Ocean. The FFA acts as a forum for harmonizing and coordinating fisheries policies of its member states, and they negotiate arrangements with distant water fishing nations. FFA member countries have a small fleet of surveillance vessels. The FFA coordinates surveillance missions among the countries, navies, and air forces of France, the United States, Australia, and New Zealand. However, this sort of enforcement is expensive, and the FFA has been a large supporter/implementer of PSM.<sup>31</sup> The FFA has been a regional and global leader in combating IUU fishing. Although the majority of their member states have not ratified the PSMA, they provide strong support and resources to help nations tailor and implement a regional PSM framework. One such system is harmonized MTCs for access by fishing vessels. The MTCs require vessels to provide ports with comprehensive information about the vessel's specifications, ownership, and licenses, as well as details about any transshipments that may have occurred since the last port of entry.

Ships must also have a VMS unit on board—either an automatic location communicator (ALC) or a mobile transceiver unit (MTU)—that is FFA-approved if they want to be included on the FFA Vessel Register. The location data from these devices must transmit to the FFA VMS consistently

29 Quentin Hanich and Martin Tsamenyi, "Managing Fisheries and Corruption in the Pacific Islands Region," *Marine Policy* 33, no. 2 (2009): 386–92, <https://doi.org/10.1016/j.marpol.2008.08.006>.

30 The Pew Charitable Trusts, *Study Measures Countries' Exposure to Illegal Catch, Actions to Keep It from Markets* (July 2019), [https://www.pewtrusts.org/-/media/assets/2019/12/psma\\_brief\\_round2\\_v3.pdf](https://www.pewtrusts.org/-/media/assets/2019/12/psma_brief_round2_v3.pdf).

31 *Supra*, note 26

and automatically at all times during the period of a license.<sup>32</sup> Data sharing in the FFA is bilateral between the member nation and the FFA. The FFA has access to all regional VMS for vessels within EEZs, and if they are licensed under the regional Parties to the Nauru Agreement (PNA) arrangement, then they have access to vessel records, including location data and catch logs.<sup>33</sup> FFA members can track and monitor fishing activities across the region through the satellite-based system that monitors the position, speed, and direction of registered fishing vessels and is accessible to all FFA member countries.<sup>34</sup> PNA members are required to share vessel-location information, but this only happens on a country-to-country basis and is not uniform throughout the Pacific Islands.

In large part, the FFA has implemented measures that require vessels to provide all of the necessary information to demonstrate compliance with fishing regulations. The EEPS would help provide the incentive to vessels to be able to readily provide detailed information, and it would also provide a more universal way to convey historical compliance in addition to the latest trip data. Vessels and flag states may be more likely to comply and share data with the strong incentive that EEPS creates. Given the strong policies the FFA already has in place, the addition of EEPS would be manageable and would help ensure that some of the world's most vital fisheries are not further depleted.

The FFA Regional Monitoring and Control Strategy includes data sharing and management, various legal frameworks, and the Regional Surveillance Picture, which integrates and analyzes multiple datasets for real-time risk assessment and compliance monitoring.<sup>35</sup> There is a promising emergence of cost-effective electronic monitoring and reporting tools, and the FFA is working to digitize data and help member states move to e-reporting. Additionally, the FFA regional register compliance indices are used to track the compliance history of each entity on the register (for example, vessels, masters, owners).<sup>36</sup> Our proposed HCS could potentially be integrated or combined with this compliance index.

RMI currently has the highest level of implementation, and there is a lesser risk to the industry in terms of breaking the traceability claims here. The nation has a good reputation when it comes to fighting IUU fishing, although it is somewhat unclear how much data is being shared directly with other nations.<sup>37</sup> Although RMI has not ratified the PSMA, they are committed to upholding the standards of the PSMA. They have developed and implemented a similar system based on risk assessment without the administrative accountability required of parties to the PSMA.<sup>38</sup> RMI has started to implement the PSM system in its major port of Majuro.

Another important actor in the Pacific region is the Western and Central Pacific Fisheries Commission (WCPFC). The WCPFC is an RFMO focused on tuna management, and they have

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32 F. McEachan, *Evaluation of the Regional FFA MCS Framework* (Australia: FAWT Group PTY LTD of the ACT, 2016).

33 Anonymous FFA personal communication, May 21, 2020.

34 Francisco Blaha, personal communication, May 31, 2020.

35 *Supra*, note 32.

36 *Supra*, note 32.

37 *Supra*, note 34.

38 Bronwen Golder, personal communication, May 4, 2020.



The key  
incentive lies in  
that the entry  
system is more  
efficient for all  
actors involved.



the highest MCS transparency of all RFMOs that overlap with FFA.<sup>39</sup> Around 1,500 vessels are registered with the WCPFC and share VMS data directly with the RFMO. They collaborate with the FFA significantly, and their conservation and management measures are consistent with the FFA MCS. They also have strong MCS arrangements in the high seas.<sup>40</sup> FFA provides VMS services to WCPFC. This means that RMI has access to information about vessels from all 27 WCPFC member countries, 9 participating territories, and 7 cooperating nonmember countries fishing for tuna in the Pacific Ocean. Through a VMS unit, vessels that are members of the WCPFC fishing for tuna must provide information on vessel position, course, and speed 24 hours a day, 365 days a year for compliance, fisheries management, and research.<sup>41</sup>

In RMI and the Pacific Islands, for effective EEPS, increasing and supporting capacity building is important, especially for data analysis and training inspectors. VMS and other data are available through the FFA and WCPFC, but there is not always enough capacity to analyze the vessel track to check for compliance before the vessel comes to port.<sup>42</sup> There is also a lack of a formalized system between agents and port authorities throughout the FFA even though RMI has started to implement e-reporting, so being able to formalize and digitize throughout the region would be helpful to make EE possible.<sup>43</sup>

### *The Republic of Mauritius in the Indian Ocean Region*

The Republic of Mauritius is located in the Indian Ocean, 804 kilometers off the east coast of Madagascar. Mauritius has an EEZ extending to more than 2.3 million square kilometers of exploitable marine resources. The national government prioritizes the ocean economy as a pillar in its future development endeavors, with a major focus on the fishing industry, which includes port-related services, seafood processing, and aquaculture. Globally, Port Louis in Mauritius, along with Port Victoria in Seychelles, are among the most frequently visited mid-ocean ports by foreign fishing vessels in terms of visit numbers as well as hold size of both fishing and carrier vessels.<sup>44</sup> Mauritius provides port facilities for landing and transshipment of tuna and other species such as toothfish, thus providing a free trade zone and associated infrastructures, including ship repair facilities, which incentivize Japanese, Taiwanese, and other Asian longliners.

39 Supra, note 34.

40 Western and Central Pacific Fisheries Commission, *Conservation and Management Measures (CMMs) and Resolutions of the Western Central Pacific Fisheries Commission (WCPFC)* (May 28, 2020), <https://www.wcpfc.int/system/files/booklets/31/CMM%20and%20Resolutions.pdf>.

41 Supra, note 34.

42 Supra, note 26.

43 Supra, note 32.

44 Supra, note 15.

The main inspection body for monitoring of fishing vessels at ports is the Port State Control Unit (PSCU), under the aegis of the Ministry of Blue Economy, Marine Resources, Fisheries and Shipping. PSCU is part of the MCS/VMS, Port State Control, and Import/Export Division, which is responsible for monitoring IUU in collaboration with the National Coast Guard, which is primarily focused on surveillance at sea in the EEZ of Mauritius. The principal objectives of this division are to implement the conservation and management measures for combating IUU fishing, monitoring licensed fishing vessels in the EEZ of Mauritius using VMS, keeping the port free of illegal fishing vessels, controlling the import and export of fish and fish products, and ensuring that only legally caught fish are traded.<sup>45</sup> National, regional, and international tools are followed, such as the Fisheries and Marine Resources Act 2007 and its associated regulations, the National Plan of Action to Combat IUU Fishing, the PSMA, ERS, UNCLOS, the Code of Conduct for Responsible Fishing, Resolutions of the IOTC, and Conservation measures of CCAMLR.<sup>46</sup> The focal activities carried out by the MCS unit and PSCU that can support EEPS are online processing of Advance Request for Entry into Port (AREP) through e-PSM (IOTC), boarding and inspection of fishing boats/vessels (both local and foreign); authorization for the landing of fish to all fishing vessels calling in the port; issuance of catch certificates for fish caught legally by the local fishing vessels; monitoring of unloading of fish (for example, Patagonian toothfish, which is reported to CCAMLR); and submitting reports and statistics to RFMOs such as IOTC and CCAMLR.

At the regional level, following IOTC requirements, the division is also involved in the national state scientific fisheries observer program, whereby Mauritian observers are deployed in Mauritian flagged vessels to monitor fishing activities and to collect data.<sup>47</sup> There were previously joint fisheries surveillance missions under the Regional Plan for Fisheries Surveillance.<sup>48</sup> The Geo-Maritime Information System (SIGMA) and the Regional Web Database Standardized Real Time Fisheries Information System Hub (StaRFISH) (outlined in Appendix C-II) have been two critical systems launched by IOC in 2014 to aggregate multiple information sources across countries and enable regional collaboration.<sup>49</sup> These two initiatives have run out of funding, but because they were influential in identifying IUU vessels, these systems will be incorporated into the upcoming Ecofish Program.<sup>50</sup> The Ecofish Program, funded by the European Union, involves support to joint regional MCS action plans, notably to deter IUU fishing, and implementation of conservation measures based on scientific evidence.<sup>51</sup> Systems like SIGMA and StaRFISH, through the Ecofish Program, could help support EEPS.

In terms of VMS tracking, since April 2005 Mauritius has set up a National Fisheries Monitoring Centre (FMC) with VMS tracking capacity to monitor fishing activities of Mauritian licensed

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45 Ministry of Blue Economy, Marine Resources, Fisheries and Shipping, Republic of Mauritius, "MCS\_ VMS\_ Port State Control and Import/Export Division," accessed April 25, 2020, [http://blueeconomy.govmu.org/English/Departments/Pages/MCS\\_-VMS\\_Port-State-Control-and-ImportExport-Division.aspx](http://blueeconomy.govmu.org/English/Departments/Pages/MCS_-VMS_Port-State-Control-and-ImportExport-Division.aspx).

46 Ibid.

47 Indian Ocean Tuna Commission, "Resolution 11/04 on a Regional Observer Scheme" (2011), <https://iotc.org/cmm/resolution-1104-regional-observer-scheme>.

48 Supra, note 45.

49 Jeromine Fanjanirina, "The IOC Information Exchange Tools for Fisheries Monitoring Control and Surveillance," Indian Ocean Commission, SmartFiche 37.

50 Southwest Indian Ocean Fisheries Commission, *New Project "ECOFISH"*, 2019, <http://www.fao.org/3/ca6575en/ca6575en.pdf>.

51 Ibid.

fishing vessels.<sup>52</sup> Under the VMS Regulation 2005, these vessels are obligated to share VMS data every two hours to the FMC.<sup>53</sup> In case of any suspicious activity, the officers of the MCS and Port State Control units can check directly with the FMC or vice versa. For fishing vessels with non-Mauritian fishing licenses, flag states and RFMOs are informed of the irregularities and port inspectors also check for VMS data once they board the vessel. This can take longer, highlighting the advantages of real-time VMS data sharing with the port state (Level Two of our proposed EEPS model).

There are two types of ERS by RFMOs that Mauritius follows closely: e-CDS through CCAMLR and e-PSM instituted by IOTC.

#### CCAMLR system:

- e-CDS is a user-friendly web-based application to create, validate, and store *Dissostichus* (toothfish) catch documents, export documents, re-export documents, and specially validated catch documents.
- e-CDS has been implemented to track toothfish from point of landing throughout the trade cycle and aims to include all toothfish landed and traded by CCAMLR participating states. CDS requires participating states to identify the origins and fishing methods of toothfish entering their markets and to determine whether toothfish was harvested in the CCAMLR area and is landed/imported into their territories.<sup>54</sup>
- Along with the e-CDS system, CCAMLR also pioneered the tracking of IUU vessels. Both the CDS and the IUU vessel list have been critical tools for success in curbing IUU fishing within CCAMLR.<sup>55</sup>

#### IOTC system:

- Through this e-PSM system (outlined in Figure 4), a vessel operator/agent submits a request to enter port, the port state receives it and can request more info or contact flag state, and then the port state decides whether to let the vessel enter, the extent of inspections, and so on.
- The e-PSM system by IOTC is completely in line with the PSMA.<sup>56</sup> Information requested through the AREP form in the e-PSM application is included in Appendix C-III.

52 Ministry of Fisheries and Rodrigues, *National Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing* (2010), <http://extwprlegs1.fao.org/docs/pdf/mat165160.pdf>.

53 Ibid.

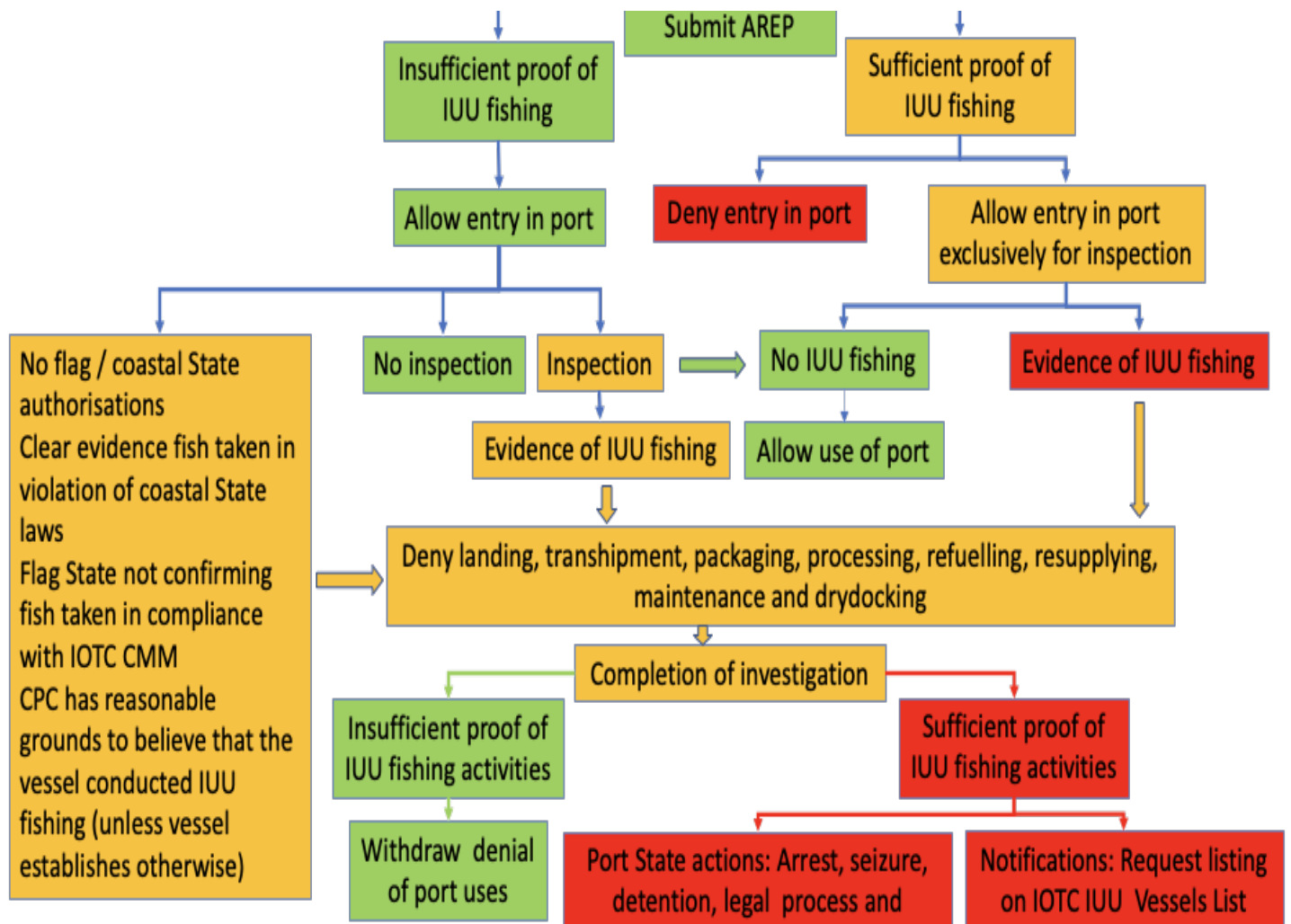
54 Commission for the Conservation of Antarctic Marine Living Resources, "Catch Documentation Scheme (CDS)," 2017, <https://www.ccamlr.org/en/compliance/catch-documentation-scheme>.

55 Lisen Schultz et al., "Adaptive Governance, Ecosystem Management, and Natural Capital," *Proceedings of the National Academy of Sciences of the United States of America* 112, no. 24 (2015): 7369–74, doi: 10.1073/pnas.1406493112.

56 Supra, note 9; IOTC Secretariat, personal communication, May 12, 2020.

- A risk assessment tool is incorporated on the e-PSM platform. The purpose of the Risk Assessment Report (RAR) (Appendix C-IV) is to provide assessment of criteria to guide the port state to define a risk score with the criteria in the RAR as well as other criteria the port state has at his disposition.<sup>57</sup> Port inspectors incorporate their observations following the physical inspection into the RAR. Depending on the level of suspicious activity, legal action is taken according to national legislation. Tools like RAR and the data generated over time could be incorporated into Level Three of our proposed EEPS model.

**Figure 4. The Port State Process: From Vessel Advance Request to Enter Port to Port State Decision and Follow-Up Action<sup>58</sup>**



<sup>57</sup> IOTC Secretariat, personal communication, May 12, 2020.

<sup>58</sup> IOTC, *Procedures for the Implementation of the Indian Ocean Tuna Commission Port State Measures* (Seychelles: FAO, 2020).

As such, e-PSM is the most closely related system to EEPS. Nonetheless, within the Mauritius case study, we have identified a specific scenario whereby all three levels of checks that we identified in our system model (Table 3) occur to a certain extent. For tuna vessels with Mauritian fishing licenses:

- **Level One Vessel Data Using ERS:** An ERS is already being used to notify inspectors about intention to enter the port through the e-PSM application system. It enables prescreening by port inspectors.
- **Level Two Trip Data:** There is real-time VMS data tracking, as all vessels with Mauritian fishing licenses have to share VMS tracks with the national FMC (as a requirement under the VMS Regulations 2005). Under this regulation, Mauritian licensed vessels are obligated to share their VMS data with the national FMC, whereas non-Mauritian licensed vessels have no such obligation and share their VMS data through their flag states.<sup>59</sup>
- **Level Three Historical Data:** The RAR tool on the e-PSM system (Appendix C-IV) provides a guideline to assess vessel risk based on previous violations and current fishing trip. In the Mauritius case study, risk scores are not computed. Port inspectors share their observations on the RAR online system in the Level Three criteria, which helps them decide on action to be undertaken based on national legislation in case of any violations.
  - Note: In terms of incorporating observer data in Level Three of our proposed model, the IOTC observer scheme is scientific in nature. There is no compliance observer scheme in IOTC on fishing vessels like the WCPFC compliance observer scheme. The IOTC Regional Observer Programme monitors transshipment at sea and is included in the RAR.<sup>60</sup> In the future, observer data can also be incorporated into Level Three of our proposed model in the Mauritius case study.

This scenario highlights the essential components and strengths of EEPS: (1) efficient communication and monitoring by port inspector and RFMO, improving transparency in the system of prescreening; (2) real-time VMS data tracking, helping quickly identify anomalies without having to contact flag states. To note, there are still discussions ongoing between IOTC members to adopt a regional VMS system;<sup>61</sup> and (3) regional support of RFMOs, such as IOTC and intergovernmental organizations like the IOC instrumental for capacity building to operationalize EEPS. Expanding this system that combines Level One to Level Three data for tuna fisheries to other fishery types using an integrated approach will be a step toward implementing EEPS.

However, additional considerations have been suggested by our respondents to properly incentivize fishing vessels for EEPS. Physical inspections, when there is no suspicious activity, typically take 1 to 2 hours.<sup>62</sup> In many cases, additional approvals from other government entities and inspections from other authorities can be the source of longer delays. In that sense, the

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<sup>59</sup> Supra, note 52.

<sup>60</sup> Supra, note 32.

<sup>61</sup> Ibid.

<sup>62</sup> Supra, note 11.



PSMA guideline of improving interagency collaboration becomes essential to effectively make the system more efficient so that vessels can start offloading more quickly at ports. It is important to note that even in the case of the most compliant vessel, physical inspections at ports will not be able to be completely exempt, as there are many entities beyond fisheries monitoring that need to check the vessels—for example, the Customs Department, Veterinary Services, the Ministry of Health, and the Passport and Immigration Office. Moreover, after the MCS/PSCU units give approval for entry, the order of vessels arriving into port is determined by a different port authority, and sometimes there can be space constraints due to vessels like cruise ships, whereby a fishing vessel must wait outside the harbor until it can have access to a quay. These logistical concerns need to be taken into consideration on a case-by-case basis to ensure that the EEPS system can work effectively.

Building off existing systems, an EEPS that would be valuable in the Mauritian context will (1) include an integrated ERS that will include different fishery types and RFMOs and incorporate electronic logbooks that will minimize time spent during physical inspections; (2) require real-time VMS data sharing to port authorities, irrespective of the country that provided the fishing license; and (3) include a synchronized way of assessing historical compliance of vessels by involving different RFMOs and regional bodies, and a streamlined way of calculating risk scores.

## D. Discussion

From our case studies, we see multiple instances of strengths that EEPS can build on as well as caveats we need to take into consideration to improve the proposed model. The tuna fisheries example with Mauritius fishing licenses is the most closely related model to the proposed EEPS that satisfies all three levels of data checks we proposed. A key strength highlighted is the advantage of prescreening through ERS in expediting the system. After risk assessments are conducted through RFMO assistance, a port inspector will spend time accordingly on the vessel for boarding and physical inspections: less time is spent on less risky vessels. Online reporting systems such as e-PSM and e-CDS increase transparency between port states and RFMOs, as both have access to information being provided by fishing vessels.

Policy experts have also highlighted that our proposed EEPS can build off and complement the existing PSMA framework. Measures encouraged by the PSMA, such as national interagency collaborations, will greatly benefit our proposed EEPS system by expediting bureaucratic approvals and streamlining inspection procedures.

Regional support of RFMOs and advising bodies like FFA and IOC are instrumental for capacity building to operationalize EEPS. These organizations understand the regional and local contexts best and are well positioned to support port states. Through our research process, multiple respondents have referred to strong regional collaborations through regional bodies as being strong influences to enhancing the strength of control systems at port state levels. In both case study regions, regional organizations are strongly advocating for a shift toward ERS. Capacity building for port inspectors for ERS supported by these regional bodies will be critical to support EEPS.

At present, in the Mauritian case study, VMS checks (for non-Mauritian licensed vessels) and physical logbooks checks are conducted during physical inspections. However, if (1) real-time VMS was looked into at the time of doing risk assessments (at the AREP stage) when the vessels request entry and (2) logbooks were in an electronic format, fisheries inspection could be streamlined. Other checks, such as customs, immigration, and health services, would still have to be conducted by the respective officers.

Currently in the Pacific, there is seemingly a lack of coordination between port states, flag states, and regional bodies, and efforts are disjointed. To be able to grant expedited entry, all of the disparate data and information need to be integrated into a single platform. Additionally, efforts are mainly focused on tuna fisheries because this is the dominant industry in the region. This needs to be considered when insights from RMI are extrapolated to other regions. There are opportunities to harmonize conservation measures and data sharing with adjoining or overlapping RFMOs or other agencies.<sup>63</sup>

## Regional support of RFMOs and advising bodies like FFA and IOC are instrumental for capacity building to operationalize EEPS.



By integrating and consolidating the system of checks regionally with FFA's leadership and strong regional support, adding an expedited entry system to PSM efforts could be possible. Similar observations are made in the Mauritius case study, where efforts seem disjointed: tuna fishing vessels use the e-PSM system, toothfish vessels use the e-CDS system, while other fisheries rely on paperwork submitted by their fishing agents. For effective operationalization of EEPS, an integrated approach needs to be adopted, building off these existing systems of checks and controls. Efforts were made in that direction in the Indian Ocean, whereby there is a module on Port Inspection in StaRFISh (Appendix C-II) to avoid countries entering the same information twice on e-PSM and StaRFISh systems. The objective was to create the link between e-PSM and StaRFISh. Unfortunately, this was not completed due to lack of funding, but the Ecofish Program will potentially take over this component.<sup>64</sup>

Additional considerations include understanding the impact of fishing seasonality. Some months tend to be busier for ports compared to others. Hence, EEPS might provide a greater incentive during the peak seasons. For Levels Two and Three of our data checks, we need to delve further into port state, flag state, and RFMO agreements to understand VMS data sharing regulations.

Lastly, for our proposed HCS system (Level Three), the score system will need to be explored further. At present, we can use the existing vessel lists by regional bodies—for example, the FFA

<sup>63</sup> Supra, note 32.

<sup>64</sup> Supra, note 11.

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Vessels Good Standing list and the IOTC vessel list. FAO is also working on a global record of vessels, which could be incorporated into our proposed model. HCS will also benefit from the inclusion of observer assessments on fishing vessels. Efforts to train observers and ensure their security will need to be considered. The HCS is a component of EEPS that would assist the port authority by combining multiple pieces of compliance data into one number that gives a strong indication of the vessel's historical IUU risk. When combined with real-time location data and vessel catch logs, the ports will be able to obtain an adequate picture of a vessel's compliance before it enters the port.

While the EEPS exploration and case study analysis provide a variety of possibilities for system efficiency and potential implementation, it is important to consider and analyze constraints relevant to such a system and how to address them.

**Table 5. Evaluation of Constraints and Opportunities for Addressing Constraints (cont. on next page)**

Constraint	Details	Addressing Constraint
Port state partnership and collaboration	<p>Potential revenue loss from vessels spending less time physically in port could be a disincentive for EEPS and port state participation</p> <p>Need to standardize protocols at a regional level to increase reporting compliance</p>	<p>Encourage regional or global guidelines like the FAO voluntary CDS so that each port state does not have a different version of EEPS</p> <p>Implement EEPS and standardize protocols using the leverage of RFMOs and other regional bodies</p> <p>Target key ports that already have strong PSM standards for pilot implementation</p>
VMS data sharing	<p>EEPS will need to guarantee and support secure data sharing and analysis</p> <p>Several actors have expressed discomfort with public VMS data sharing</p> <p>A port access letter stand-in for VMS data sharing relies on negotiations between flag and port state and credibility not verifiable by the EEPS</p> <p>In Mauritius, there is a specific VMS Regulation 2005 in the legal framework, and authorities are comfortable sharing data only with other government entities nationally and in the IOC region</p> <p>In RMI, given that VMS data is already available through FFA (Level Two of our proposed model) and FFA has a list of vessels of Good Standing (Level Three of our proposed model), more support is needed to analyze the existing sources of data efficiently to detect anomalies</p>	<p>Capacity building for data analysis capability among port states and port inspectors</p> <p>Regional collaboration and system support for secure VMS data sharing among participating port states with ERS (for example, SIGMA and StaRFISh systems)</p>

Constraint	Details	Addressing Constraint
Physical port inspections cannot be completely waived	National governments have a set of regulations to follow before allowing offloading of fish; these regulations need to be respected (police checks, customs, immigration, health services, veterinary services)	Streamlined and efficient system for inspections Move from physical to electronic logbooks, so that logbooks can be prescreened, which can reduce duration of physical inspections Potential for an online platform where all approvals by different entities can be viewed by all relevant stakeholders (for example, Mauritius TradeNet system which is used in seafood export) <sup>65</sup>
Bureaucratic delays	While physical inspections can take from one to two hours up to one day, <sup>66</sup> transferring paperwork and getting approvals from multiple government agencies can take multiple days depending on the season and other factors	Prescreening where port inspectors and RFMO officers can use the same online portal to monitor progress on inspections and share information As mentioned, in regard to RMI, there is a need to support ERS capacity for Level One to Level Three data to enhance the efficiency of the system for fully transparent vessels

<sup>65</sup> Mauritius Network Services, *Mauritius Tradelink (MFISH)* (April 2018), [http://servicesmns.mu/forms/SW/TradeLink\(MFISH\)%20Import%20Permit%20-%20QuickStepsGuide\(ver2.0\)%20for%20Applicant.pdf](http://servicesmns.mu/forms/SW/TradeLink(MFISH)%20Import%20Permit%20-%20QuickStepsGuide(ver2.0)%20for%20Applicant.pdf).

<sup>66</sup> Supra, note 11.



## E. Conclusion

IUU fishing is an elusive problem to solve given the scope and complexity of the issue and potential solutions. An EEPS could provide a relatively inexpensive and effective way to reduce IUU fishing compared to open ocean enforcement methods. By shifting the burden of proof onto fishing vessels during port inspections, EEPS aims to reward proactively transparent and compliant vessels that meet three levels of information checks. EEPS adds a strong incentive to existing PSM being implemented by fisheries agencies around the world. This proposal lays out a potential model for a general system that could be implemented at a port-state level and tailored to the specific needs and existing structures of the port.

Based on our exploration we have a several key recommendations:

- While implemented at a port-state level, EEPS would need strong regional leadership from RFMOs or other fisheries and regional agencies to effectively integrate different nations and fisheries types and navigate VMS data-sharing agreements.
- An ERS could expedite bureaucratic processes, as physical inspections cannot be fully exempt.
- Expanded ERS could facilitate efficient communication among port authorities, government agencies, and RFMOs, further expediting a port-entry procedure.

Further research and negotiations will be needed to reinforce and tailor the levels of assessments we have proposed in this report.

## F. Next Steps

Following this exploratory analysis of a potential EEPS, there are numerous next steps to consider when moving forward:

- **Understanding and operationalizing an HCS** to develop a system of weighting factors and prioritizing certain compliance indicators. This investigation should explore which historical VMS data would be sufficient to verify compliance and which indicators and analyses would allow a determination of whether a vessel had fished illegally in the past. Operationalizing an HCS would also require an understanding of which body would host and manage the HCS database or online platform.
- **Exploring frameworks** like the FAO Voluntary Guidelines for CDS to understand how EEPS guidelines might be operationalized. Such guidelines would provide consistency across regions so that each port state does not have a different version of EEPS.
- **Identifying pilot ports** that supply key markets (for example, EU, US, Japan, China) and hold strong PSM standards to support a preliminary implementation of the EEPS based on either a FAO CDS guideline framework or another model.

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- **Exploring the feasibility of a port access letter** standing in for real-time VMS data sharing in the EEPS. While this letter is currently used as a method to verify VMS data based on an agreement between a flag state and a port state, ensuring credibility and compliance in these agreements is critical should it suffice as a replacement for data sharing. Analyzing the tradeoffs of credibility and efficiency could assist in consideration of this port access letter.
  - **Conducting a more in-depth regional comparative case study** between port states within one region and investigating specific port and flag state agreements. There is a need to understand collaborations between port states and the feasibility of ERS among port states in the same region.
  - **Conducting an economic analysis** to understand the financial incentive of the EEPS for fishing vessels and any potential losses for port states if vessels spend less time at port. This analysis would help develop a system that factors in economic costs and benefits and foresees unintended negative consequences of expedited entry.
  - **Interviewing third-party agents/brokers and coastal states actors** to include a broader range of perspectives. This could assist system assessments and highlight the nuances relevant to port-entry procedures in regions around the world.