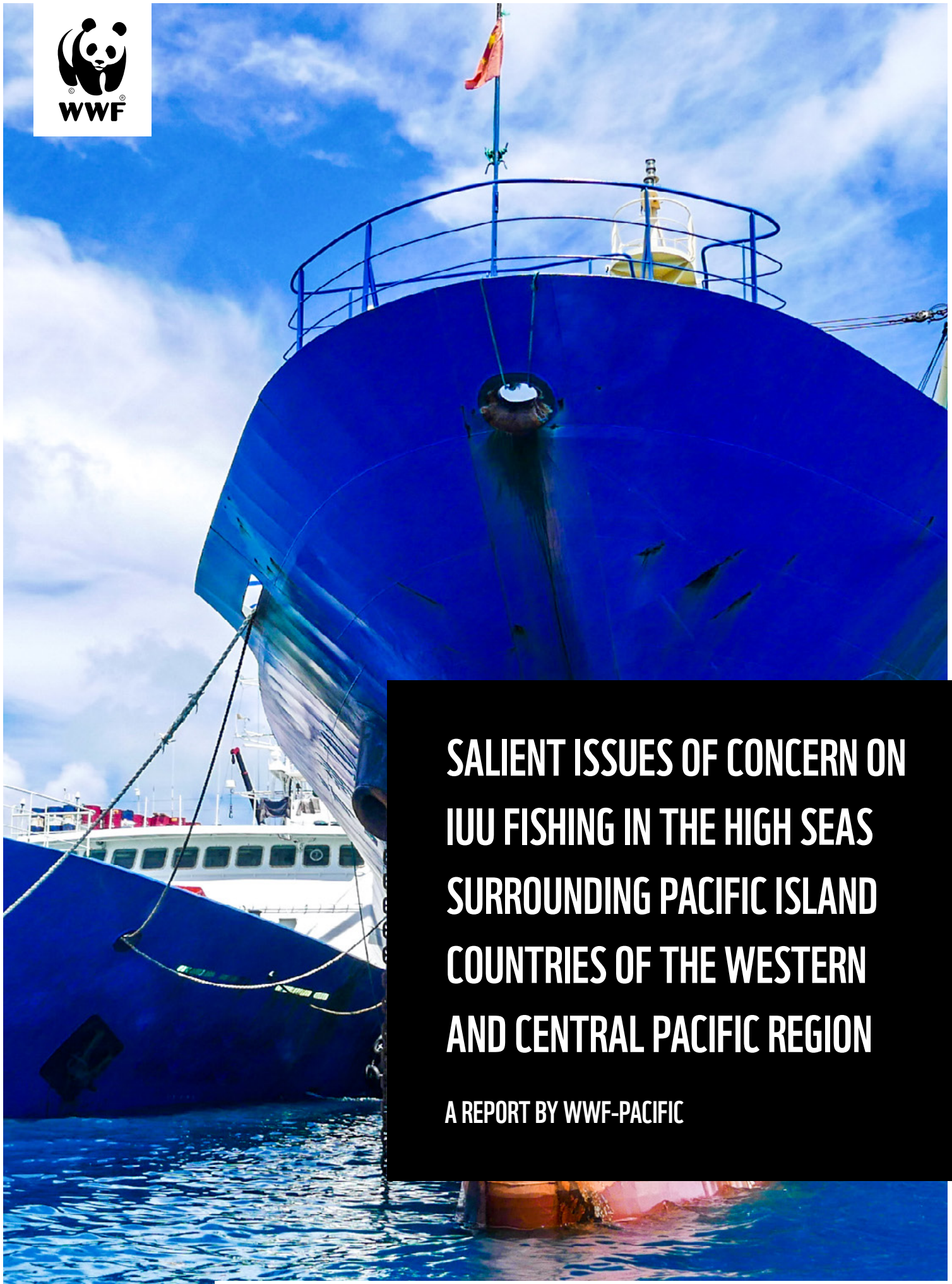

SALIENT ISSUES OF CONCERN ON IUU FISHING IN THE HIGH SEAS SURROUNDING PACIFIC ISLAND COUNTRIES OF THE WESTERN AND CENTRAL PACIFIC REGION

A REPORT BY WWF-PACIFIC

WWF is working with these partners to address issues on IUU Fishing in the WCPO.

EUROPEAN UNION

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Pacific-European Union Marine Partnership Programme

FFA

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All photographs used are for illustration purposes only and should not be seen in the context of IUU fishing.

Cover page: Transshipment in port, Tarawa, Republic of Kiribati. © Francisco Blaha

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Silky shark, Carcharhinus falciformis caught by the fin on an illegal longline hook. © Cat Holloway / WWF

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LIST OF ACRONYMS AND ABBREVIATIONS

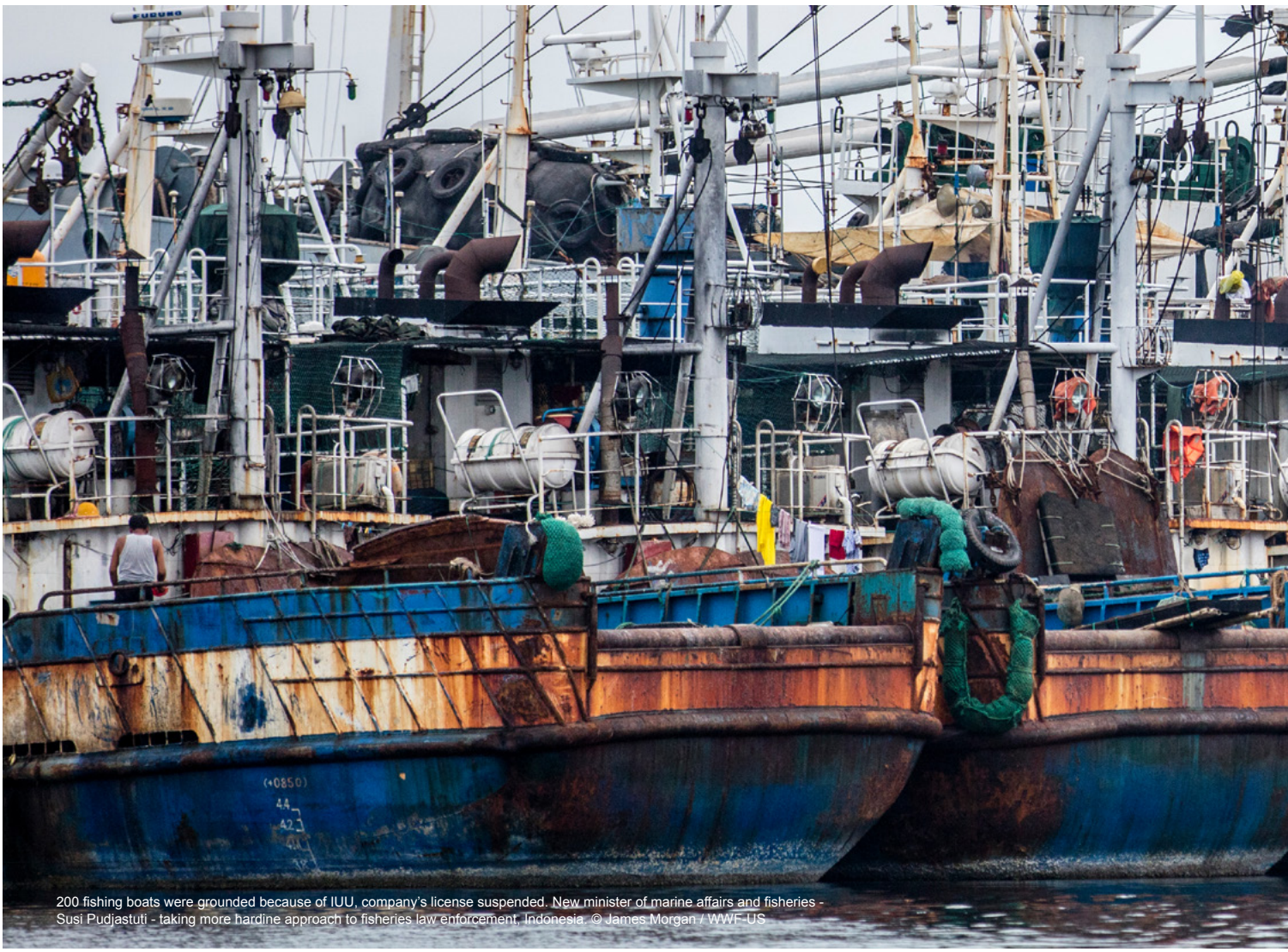
ABMTs	Area-based management tools
ABNJ	Areas beyond national jurisdiction
AIS	Automatic identification system
BMIS	Bycatch Mitigation Information System
C188	Work in Fishing Convention
CCM	Commission Members, Cooperating NonMembers, and Participating Territories of the Western and Central Pacific Fisheries Commission
CDS	Catch documentation scheme
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMMs	Conservation and Management Measures
CMS	United Nations Convention on the Conservation and Management of Migratory Species of Wild Animals
CoC	Chain of custody
COFI	Committee on Fisheries
CPRs	Common pool resources
CROP	Council of Regional Organisations of the Pacific
CSO	Civil society organization
CTA	Cape Town Agreement
DWFNs	Distant water fishing nations
EEZ	Exclusive economic zone
EJF	Environmental Justice Foundation
EMS	Electronic monitoring system
ETP	Endangered, threatened and protected species
FAD	Fish aggregation device
FAO	Food and Agriculture Organization of the United Nations
FIP	Fishery improvement project
FFA	Pacific Islands Forum Fisheries Agency
FFC	Forum Fisheries Committee
FOC	Flag of convenience
GDST	Global Dialogue on Seafood Traceability
HMTCs	Harmonised Minimum Terms and Conditions
ILBI	International legally binding instruments
ILO	International Labour Organization
IMO	International Maritime Organization
IPOA	International Plan of Action
ISO	International Organization for Standardization
ISSF	International Seafood Sustainability Foundation
IUCN	International Union for the Conservation of Nature
IUU	Illegal, unreported and unregulated fishing
MCS	Monitoring, control and surveillance
MSC	Marine Stewardship Council
NGOs	Non-government Organisations
PEUMP	Pacific European Union Marine Partnership Programme
PICs	Pacific Island countries
PNA	Parties to the Nauru Agreement
PS	Purse seine
RFMO	Regional Fisheries Management Organisation
SC	Scientific Committee
SDG	Sustainable Development Goal
SLL	Southern longline
SPC	Pacific Community
SSI	Species of special interest
TLL	Tropical longline
UNCLOS	United Nations Convention on the Law of the Sea
UNODC	United Nations Office on Drugs and Crime
VMS	Vessel monitoring system
WCPFC	Western and Central Pacific Fisheries Commission
WCPO	Western and Central Pacific Ocean

Fiji fisheries officer carrying out port sampling at Mua-i-Walu Port, Suva. © WWF-Pacific / Jason Chute

EXECUTIVE SUMMARY

This report is based on desktop research of existing reports and literature on transshipment practices, human rights issues at sea, bycatch and traceability practices and its links to illegal, unreported and unregulated (IUU) fishing. The report also demonstrates the extent, nature and impact of these issues of concern on the high seas surrounding Pacific Island countries (PICs) of the Western and Central Pacific Ocean (WCPO). The report identifies recommended management options at the international level that PICs and regional bodies such as the Western and Central Pacific Fisheries Commission (WCPFC) can implement to curb, and combat IUU fishing. It also highlights current management practices that PICs are implementing to address IUU fishing and other issues of concern. Findings from this report will help to enhance awareness and understanding of the wider public and Civil Society Organizations (CSOs) on the impact these issues have on PICs and is intended to help support PICs in their effort to address IUU fishing and related issues in the Pacific Island region.

There are however limitations due to insufficient information, research, publications, or case studies on IUU fishing and related issues of concern in the high seas owing to the reliance on secondary sources of information as a result of this report being the product of desktop based research. The nature and impact of transshipment, bycatch, human rights issues, traceability and their links to IUU fishing is also extensively documented in areas under national jurisdiction for PICSs as sub-regional bodies such as the FFA, Pacific Community (SPC) and Parties to the Nauru Agreement (PNA) have greatly assisted its members to successfully manage fisheries resources in-zone. Also, many PICs do not always have the capacity or resources to monitor and combat illegal activities in the region, both within their area of national jurisdictions and the high seas. This information on areas under national jurisdiction would be useful to fill in the gap in understanding similar issues faced by PICs in areas beyond national jurisdiction (ABNJ) or the high seas.

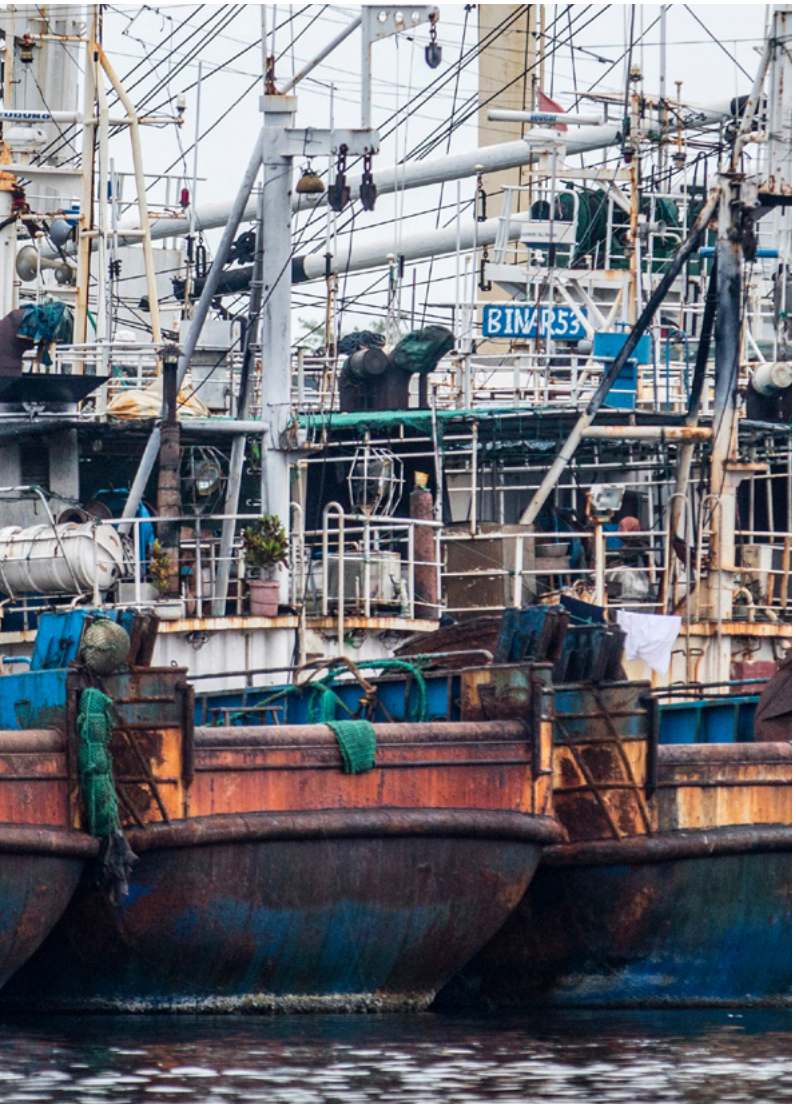


200 fishing boats were grounded because of IUU, company's license suspended. New minister of marine affairs and fisheries - Susi Pudjastuti - taking more hardine approach to fisheries law enforcement, Indonesia. © James Morgan / WWF-US

IUU FISHING

IUU fishing is found in different forms and stages of any fishery around the world. It undermines national, regional and international efforts to sustainably manage fisheries, threatening marine biodiversity stocks and sometimes associated with heinous criminal activities. IUU fishing is now viewed as the world's top maritime security threat.

According to the 2021 report prepared for the FFA by MRAG Asia Pacific, the value of tuna harvested or transshipped in the Pacific tuna fisheries involving IUU fishing activity is estimated at US$333.49 million annually for the study period 2017 - 2019. This is a reduction from an estimated US$616.11 million in the first MRAG IUU Fishing Quantification study, released in 2016. The driving factors behind the reduction include reduction in estimates of illegal transshipping and FAD fishing during closure period, availability of new information in estimating IUU fishing (e.g. scope for illegal transshipment and longline misreporting), changes in fishing effort, catch rates and fish price. Furthermore, collaborative efforts across institutions and improved monitoring, control and surveillance (MCS) activities over the years have also positively impacted the nature and value of IUU fishing in the FFA region.



Misreporting represents the key problem in the Pacific. The purse seine (PS) fishery accounted for the highest estimated volume of IUU fishing, owing to reporting violations and illegal FAD fishing during the FAD closure period. According to the MRAG report, estimates of IUU fishing in the tropical longline (TLL) and southern longline (SLL) fisheries sectors was due to misreporting of catches and post-harvest issues such as illegal transshipping. Despite the lower estimated volumes of IUU fishing in the longline fishing sector, the TLL sector in particular, constituted the highest value of estimated IUU fishing followed by the PS and SLL sectors due to the high market value of the species targeted by the TLL fishing vessels.

The study identified MCS measures to mitigate IUU fishing in the longline fisheries sector including:

- Strengthen monitoring and control of at sea transshipment practices;
- Improve observer coverage and dockside boarding and inspections and the application of e-reporting and e-monitoring to strengthen onboard monitoring of fishing activity;
- Stringent mechanisms for independent monitoring of catch in the supply chain;
- Development and implementation of an effective catch document scheme (CDS) for key target species;
- Improve investigation of reported offences;
- Strengthen cross-verification of data sources to identify discrepancies (e.g. logsheet and unloading results) through the use of information management systems; and
- Tougher sanctions for catch reporting violations.

The study identified MCS measures to mitigate IUU fishing in the purse seine fisheries sector including:

- Use cannery data to verify catch;
- Stronger and better monitoring and management of fish aggregation device (FAD) usage; and
- Stringent mechanisms to verify fishing activity (e.g. FAD fishing during closed period and evaluate non –fishing day claims) and independent verification of fishing activity.

A 2019 report on IUU fishing index highlighted that Oceania is ranked with other developing countries in Africa and Asia as being vulnerable to IUU fishing. This is due to the countries' lack of resources or capacity to counteract the threats posed by IUU fishing. Nevertheless, Oceania showed positive results or scores with Europe and North America in response to IUU fishing, highlighting the recognition of actions given to fisheries by countries in the Pacific and from regional institutions (e.g. FFA, SPC and WCPFC).

A lot of effort has been undertaken in the Pacific region to address and combat IUU fishing activities. This includes the FFA Vessel Monitoring System (VMS) for fishing vessels operating in FFA member waters, WCPFC VMS for fishing vessels operating solely in the high seas of the WCPO, FFA Regional Vessel Register and the Harmonised Minimum Terms and Conditions (HMTCs) for Foreign Fishing Access, the development of common regional data collection protocols and forms, the establishment of regional Pacific Island Regional Fisheries Observer (PIRFO) standards and training for observers, the Niue Treaty and Subsidiary Agreement (NTSA) on cooperation in fisheries surveillance and law enforcement, sharing resources and exchange information, including fisheries data and intelligence during regional enforcement and surveillance operations, in-country CDS, and 100% observer coverage on the purse seine fleet.

The effort by FFA members on MCS measures contribute to low estimates of IUU fishing in the FFA region. The WCPFC has established measures that PICs can implement, such as reporting of vessel details alleged to have been involved in IUU fishing activities and port State minimum standards for port inspection on vessels alleged involvement in IUU fishing activities. There are also many binding and non-binding instruments developed by the Food and Agriculture Organization of the United Nations (FAO) and established under the framework established by the United Nations Convention on the Law of the Sea (UNLCOS) to help address the issue of IUU fishing at the national and regional level.

Transshipment monitoring in Lae, Papua New Guinea. © Francisco Blaha

TRANSSHIPMENT PRACTICES

Transshipment operations involve the unloading of all or any of the fish onboard a fishing vessel to another vessel either in port or at sea. Transshipment operations at sea are of global concern due to the lack of oversight or monitoring by relevant authorities and where the origin of fish or fish products being transshipped might be the result of IUU fishing and may also be connected to crimes that violate human rights. The risk that human rights violations and transshipment of IUU-caught fish occurring in FFA member ports is substantially lower as authorities are able to oversee and monitor these heinous activities from happening.

Transshipment is linked to IUU fishing because transshipment in the high seas can allow longline fishing vessels to remain at sea for months or years without returning to port, saving fuel costs and improving catch rates and volumes for many fishing companies. Thus, because of the isolated and distant nature of the practice from authorities, transshipment represents a substantial risk that catch data collated from fishers or vessels engaged in transshipment activities might be manipulated or wrongfully reported.

A 2019 report by the Pew Charitable Trusts, estimates IUU catch valued at more than US$142 million is transshipped each year in the WCPO, mainly from violations on misreporting or not reporting by a licensed fishing vessel. The study gathered data from automatic identification system (AIS) and other analysis found that unauthorised carrier vessels operated in the WCPO in 2016, with the potential of carrying out the transfer of species that are managed by the WCPFC. Unreported transshipments could also arise from absence of data-sharing agreements between the WCPFC and other Regional Fisheries Management Organisations (RFMOs), which could influence the result in inaccurate stock assessments due to unreported fishing activities.

Record number of purse seiners awaiting transshipment in port, Republic of Marshall Islands. © Francisco Blaha

The study demonstrated that more stringent regulatory frameworks, specifically around reporting, monitoring such as 100% observer coverage (human or electronic) on all vessels engaged in transshipment operations and data sharing are required. Transshipment also requires the WCPFC to conduct more research, analysis, and actions to improve transparency, with findings shared with other RFMOs to more effectively manage transshipment operations. A strengthened and harmonized regulatory framework among the WCPFC and other RFMOs are essential to deter and prevent IUU-caught fish from entering the seafood supply chain.

Moreover, findings from the study suggest that transshipment in the high seas should be banned and that transshipment should instead occur in port for all fishing vessels and that the WCPFC require that there be 100% observer coverage on the receiving vessels for transshipment activities involving purse seiners and longliners.

The FAO is currently developing international voluntary guidelines based on best practices for regulating, monitoring and controlling transshipment operations. Non-government Organisations (NGOs) or CSOs support the work done by the WCPFC at the regional level, and have also called for a ban on transshipment at sea, and encourages transshipment in port as it becomes easier for relevant authorities to monitor and oversee.

HUMAN RIGHTS ISSUES AT SEA

Violations of human rights at sea, including forced labour, child labour, slavery, and crew welfare, are global in nature and are often closely associated with transshipment operations and other IUU fishing practices. This is because longline fishing vessels spend months or even years at sea, allowing them to avoid returning to port. Many fishing vessels continue to fish and transship their catches to carrier vessels, out of sight and unnoticed. This allows IUU fishing activities to thrive at sea and impede conservation and management efforts in the WCPO region resulting in overfishing, and contributes to other criminal offences such as trafficking in people, drugs and weapons through laundering and lack of oversight by national authorities in the high seas. Similarly in the Pacific context, fishing crew working on longline fishing vessels are vulnerable to trafficking, abuse, violence and other crimes that violate fundamental human rights. Fisheries observers face similar problems while serving on longline and purse seine fishing vessels, with additional threats due to the nature of their oversight role. PICs national laws covering employment or working conditions relating to fishing vessels are not well structured as the respective national fisheries laws.

Despite this, the FFA members are taking steps to address human rights abuses on fishing vessels operating in respective EEZ's and on the high seas. Regional cooperation and implementing crewing standards and fisheries observer safety on FFA's HMTCs are essential between PICs to effectively address labour and human rights issues on all fishing vessels that operate within FFA waters. FFA members have been instrumental in the adoption of a non-binding resolution on minimum labour standards for crew at the WCPFC level. FFA members are also involved in the discussions and development of a binding WCPFC measure to promote safe and decent employment for crew on a fishing vessel.

Some recommended options to address human rights issues at sea include but are not limited to:

- Building and enhancing a shared understanding of the problem at the international, regional and national level;
- Imposing stringent sanctions upon countries that engage in criminal activities;
- Increasing electronic monitoring (video surveillance) onboard fishing vessels to better ensure acceptable worker conditions and penalizing offenders that do not comply with these measures; and
- Incentivizing the purchase of fish or fish products from responsible fishing companies that can prove that they are not involved in unsustainable, unethical, or illegal practices.

Imposing strict penalties and effective cross-border law enforcement cooperation can result in significant reductions in human rights violations committed on the high seas and hopefully, strengthen responsible fishing practices worldwide.

BYCATCH

Bycatch, the unintentional catch of non-target species such as sharks, marine turtles, seabirds and cetaceans is a threat to biodiversity. The bycatch of endangered, threatened and protected (ETP) marine species warrants attention at the WCPFC level due to relatively low reproductive capacity. Bycatch is an additional threat posed by IUU fishing and contributes to overfishing and the decline of many fish populations. These ETP species often interact with longline and purse seine fishing operations. A report by FAO in 2019 estimates that 1 million seabirds, 8.5 million marine turtles, 225,000 sea snakes, 650,000 marine mammals and 10 million sharks interact with fisheries operations each year.

The WCPFC compiles the estimates of bycatch of ETP species submitted by its members including PICS. WCPFC reports on PIC longliners and purse seiners shows that seabird, marine turtle and cetacean interactions or observations had reduced between 2019 and 2020.

According to a 2021 report by the WCPFC, the combined estimated volume of discarded shark including blue shark *(Prionace glauca),* silky shark *(Carcharhinus falciformis)*, oceanic whitetip shark (*Carcharhinus longimanus*), and mako shark *(Isurus oxyrinchus)* by PIC longliners had also reduced from 3, 270 to 2, 077 tonnes between 2019 and 2020 respectively. These reductions are mainly due to the low observer coverage as a result of the Covid-19 restrictions placed on national, regional and international travels for commercial fishing. The WCPFC tuna fishery yearbook does not cover explicitly the reports of sharks, marine turtles, cetaceans and seabirds in the longline, pole and line, purse seine and South Pacific troll fisheries.

Controlling transshipment in port, Kiribati. © Francisco Blaha

The WCPFC has developed binding measures for bycatch of sharks, marine turtles and seabirds which set requirements on procedures to use to mitigate the adverse effect of fishing operations on bycatch. There are also guidelines on best safe handling practices on these ETP species to promote lower mortality. The guidelines for handling of cetaceans, for example, only addresses safe handling practices. However, PICs are capable of implementing more stringent fisheries management measures on fishing operations within its EEZs. It is a requirement, for example, under the FFA HMTCs to keep daily records of all catch including bycatch species, discarded catch, and all bycatch transshipped or unloaded offshore.

Moreover, the WCPFC also requires its members to provide reports on interactions of their fishing vessels with these bycatch species. The regional observer programme (ROP) of the WCPFC requires 5% observer coverage for all longliners and 100% observer coverage is mandatory on all purse seiners which indicate that there is good data on bycatch of ETP species at least for PS fisheries. This would support the WCPFC's work on conservation and management efforts as well as combatting IUU fishing. Global instruments provide a foundation to assist and support RFMOs in identifying, regulating, categorizing, assessing, and listing these ETP species. The binding instruments include the United Nations Convention on the Conservation and Management of Migratory Species of Wild Animals (CMS) and Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) while there are also non-binding arrangements under the UNFAO.

Monitoring Control & Surveillance fisheries officers, Papua New Guinea. © Francisco Blaha

SEAFOOD TRACEABILITY

Seafood traceability, which is the ability to trace and track fish and fish products along the supply chain by means of recorded identifications, is one of the many tools used to reduce the risk of IUU fishing. Having a transparent and traceable supply chain in place also potentially improves the socio-economic viability of the fishing industry and helps limit IUU fishing harvests to promote healthy fish stocks that PIC economies and the communities depend on. The benefits of traceability have raised global interest from government, fishing industries, CSOs, and other stakeholders in developing robust traceability systems. Some of the emerging and current traceability systems include electronic data capture systems, electronic or e-CDS databases.

Blockchain technology is a tool that can be used to support traceability. However, some of these tools remain underdeveloped in many countries in the Pacific, which still depend heavily on paper documentation. Moreover, a general lack of awareness and understanding of traceability persists as well as how it could streamline the fishing industry's internal processes while improving efficiency and, ultimately, financial performance.

While some countries have advanced efforts toward national level CDS (e.g. PNG), a regional or multilateral CDS remains undeveloped by the WCPFC to assist its members in documenting and managing the tuna catches across the region. FFA members have also developed and agreed on a CDS framework to support and inform regional CDS development of the WCPFC. The key to developing an effective CDS is through policy development and cooperation to ensure that only legal fish or fisheries products enter the supply chain and thus combatting IUU fishing. FFA members are well placed in this regard due to the high level of cooperation between the members through the application of the NTSA, which has detailed and broad information sharing provisions for validation and certification of catch. WCPFC have commissioned reports on CDS and there have been international studies on Catch certification and documentation. Over many years in collaboration with many countries, the FAO has developed guidelines on good management practices for seafood traceability, including a regulatory framework for combatting IUU fishing, and management measures applied at sea and at landing points that States can use to detect and deter IUU fishing. The FAO has also developed voluntary guidelines for CDS to assist States and RFMOs in developing or reviewing existing CDS tools.

1. INTRODUCTION

Crew carrying out transshipment in the Solomon Islands.© Francisco Blaha

Solomon Islands fisheries officers carrying out boarding and inspection on a fishing vessel.© Francisco Blaha

The ocean plays a crucial role in sustaining life on our planet. From seagrass beds to mudflats, coral reefs to the deep oceanic waters, the marine ecosystems provide us with a range of essential goods and services including food, oxygen, mitigating effects of climate change, rock and sediment for construction materials, and employment within the maritime sector to name a few. However, despite the abundance in marine biodiversity and the benefits the ocean provides, it is still probably the most undervalued and least understood ecosystem in the world and, is at times, taken for granted.[1] Multiple recent studies have attempted to identify the diverse range of benefits and values of marine ecosystems and of the likely incurred costs associated in maintaining or substituting for them.

It was not until the mid-20th century that human activities were considered a serious threat in negatively impacting the marine environment. Prior to this the world demonstrated little appreciation for the ocean's social and economic significance, viewing the ocean as limitless and impossible for human activity to influence. As the global human population gradually increased, so did the demand to tap deeper and further into the oceans for supplies of fish, oil, natural gas, minerals and new genetic resources, in an attempt to meet ever-increasing human consumption. Investment in the development of advanced fishing technologies and construction of modern fishing vessels have resulted in overcapitalization of global fisheries where the end result is, very simply, too many vessels chasing too few fish, which is further compounded by other increased human pressures and an immense, growing demand to overexploit marine ecosystems.[2]

Furthermore, in addition to overfishing, the ocean is increasingly polluted with all forms of waste such as plastics, oil spills and agricultural run off compounding further stress on ocean ecosystems through Climate Change. These threats pose great environmental degradation risks through the loss of marine biodiversity and natural infrastructure, health, safety and ultimately, the socio-economics of ocean dependent communities.[3]

One discrete area of concern is the high seas – the area beyond any State's national jurisdiction, which covers 61% of the world's oceans. Ecosystems services in the high seas include seafood, medicinal resources, air purification, carbon storage, life cycle maintenance, and tourism recreation and leisure.[4] Moreover, due to advances in the efficiency of sea transportation, the high seas are now more influenced by human activities than ever before through fishing, mineral and exploitation, climate change, maritime shipping and unsustainable land-based activities.[5] The value of fish stocks in the high seas is worth an annual US$16 billion in gross landed value (10 million tonnes of fish caught annually) and the estimated value of absorbed carbon dioxide by high seas ecosystems lies between US$74 billion to US$222 billion each year.[6] Moreover, the high seas, as part of the global commons, are not governed by any particular nation nor collectively overseen like those waters subject to national jurisdiction. Each country around the world is responsible for the vessels flying its flag in the high seas. However, since these flag States are not always physically present due to the vast distances between the flag States and the high seas, there is always potential for illegal and unlawful activities to occur

1 United Nations Environment Programme, 'The marine environment is an essential component of the global life-support system', United Nations Environment Programme (09 May 2016), https://www.unep.org/news-and-stories/story/marine-environment-essential-component-global-life-support-system, accessed 10 Aug. 2021.
2. R.A. Kenchington, 'Managing marine environments: an introduction to issues of sustainability, conservation, planning and implementation', Research Gate (15 Oct. 2014), 44, https://www.researchgate.net/publication/266855362, accessed 10 Aug. 2021.
3. United Nations Environment Programme, 'The marine environment is an essential component of the global life-support system', 1. Managing a complex ecosystem.
4. A.D. Rogers et al., 'The High Seas and Us: Understanding the Value of High-Seas Ecosystems', Open Channels: Sustainable Ocean Management & Conservation (14 Dec. 2019), 2-20, https://www.openchannels.org/literature/7720, accessed 16 Aug. 2021.
5. Pew Charitable Trusts, 'High seas at risk: why the world must act', Pew Charitable Trusts (05 Jul. 2016), https://www.pewtrusts.org/en/trend/archive/summer-2016/high-seas-at-risk-why-the-world-must-act, accessed 10 Aug. 2021.
6. A.D. Rogers et al., The High Seas and Us: Understanding the Value of High-Seas Ecosystems, 2-3.

UNCLOS:
"Areas Beyond National Jurisdiction"

- Also commonly known as the High Seas.
- International waters outside the 200nm Exclusive Economic Zone (EEZ) of national jurisdictions.
- 'Area' means the seabed, ocean floor and subsoil thereof beyond limits of national jurisdiction regulated by the UN International Seabed Authority (ISA).

(Source: © UNCLOS, 2022).

including IUU fishing, human trafficking, slavery and marine pollution. This creates challenges for countries in remotely monitoring the activities at sea or obtaining quick reports from fishing crew or observers on what they are observing or experiencing. These activities are exacerbated by the industrial-scale fishing that evolved in recent years, allowing fishing vessels, with the support of transshipment vessels, to linger for months in the high seas in the search for highly migratory fish stocks like tuna.[7]

The rapid increase in human on the high seas has led to growing concerns that its deteriorating State will not sustain marine biodiversity and human needs in the future resulting in 'a tragedy of the commons'. Hence, a deliberative system under UNCLOS has proposed a range of options for sustainable ocean management to sustain productivity of high seas ecosystems and mitigate pervasive threats to marine biodiversity, as well as ineffective management systems have been conferred to produce international legally binding instruments (ILBI) in ABNJ or high seas.[8]

Further, rights and responsibilities for fishing on the high seas by any country are limited and subject to conditions under UNCLOS, such as applying relevant conservation and management measures (CMMs) developed by RFMOs (e.g. WCPFC). Moreover, these measures apply to all member States and non-members of the particular RFMO.[9] The United Nations Sustainable Development Goals (SDGs) 14: Life below water, provide further guidelines that include innovative solutions to assist States in appreciating our ocean ecosystems which we all depend on by applying effective conservation and sustainable ocean practices to mitigate the deteriorating State currently faced by the ocean and its ecosystems.[10]

The International Maritime Organization (IMO) also supports ocean health by encouraging the safety and security of shipping, as well as the prevention of pollution (including greenhouse gas emissions) from shipping.

i. Background

WWF-Pacific was identified to implement a component of the Pacific European Union Marine Partnership Programme (PEUMP). The Programme addresses some of the most serious challenges faced by the region. Among these are the increasing depletion of coastal fisheries resources; the threats to marine biodiversity, including negative impacts of climate change and natural disasters; the uneven contribution of oceanic fisheries to national economic development; the need for improved education and training in the fisheries sector; and, the need to mainstream a rights-based approach and to promote greater recognition of gender issues within the sector.

This five-year programme is funded by the European Union with additional targeted support from the Government of Sweden The programme provides direct assistance to regional organisations to support regional and national level activities in the Pacific.

WWF is contributing to "Key Result Area 4: IUU fishing reduced through enhanced monitoring control and surveillance of both, oceanic and coastal fisheries, improved legislation, access to information, and effective marine area management". WWF is specifically implementing the activity on international outreach and advocacy on IUU fishing and control of high seas fisheries.

7 Pew Charitable Trusts, 'High seas at risk: why the world must act', 2. There are too many fishing vessels chasing an ever-diminishing supply of fish.
8. B.C. O'Leary et al., 'Options for managing human threats to high seas biodiversity', Ocean and Coastal Management,187 (2020), 1, https://doi.org/10.1016/j.ocecoaman.2020.105110
9. S. Ásmundsson, 'Freedom of Fishing on the High Seas, and the Relevance of Regional Fisheries Management Organisations (RFMOs)', Semantic Scholar (2016), 1-8, https://www.cbd.int/doc/meetings/mar/soiom-2016-01/other/soiom-2016-01-fao-18-en.pdf, accessed 12 Aug. 2021.
10. United Nations Environment Programme, 'Goal 14: Life below water', United Nations Environment Programme (n.d.), 1. Conserve and sustainably use the oceans, seas and marine resources for sustainable development, https://www.unep.org/explore-topics/sustainable-development-goals/why-do-sustainable-development-goals-matter/goal-14, accessed 13 Aug. 2021.

ii. Aim and Purpose

This report aims to enhance the awareness and understanding of the wider public and CSO's on the extent, nature and impact of transshipment, bycatch, human rights, traceability, and it'slinks to IUU fishing on the high seas surrounding PICs of the WCPO.

The purpose of the report is to:

- Develop and strengthen existing communications and advocacy products on regional IUU fishing issues including fact sheets, info graphics, case studies;
- Increase understanding and awareness and strengthen CSO engagement on IUU fishing issues of concern in the high seas;
- Fill existing gaps, build on and strengthen current information/advocacy on IUU fishing related issues and practices in the high seas; and
- Support the development of CSO position submissions to the Regular Session of the WCPFC meeting.

iii. Scope of the Report and Limitations

The scope of the report:

- Conduct desktop research and analysis on IUU fishing issues of concern in the high seas surrounding PICs of the WCPO region;
- To improve understanding of salient high seas issues on transshipment, bycatch, human rights and traceability practices and their links to IUU fishing; and
- To understand the challenges faced by PICs on high seas issues of concern and way forward in addressing those challenges.

The limitation to the desktop research is that there is insufficient information, research or publications, or case studies on IUU fishing issues of concern in the high seas including, inter alia, challenges that PICs are facing and how they are addressing those challenges and issues of concern. However the nature and impact of transshipment, bycatch, human rights, traceability and their links to IUU fishing, similarly covers the areas under national jurisdiction and ABNJ.

Processing tuna. NIRSA tuna company, Posorja, Ecuador. © Antonio Busiello / WWF-US

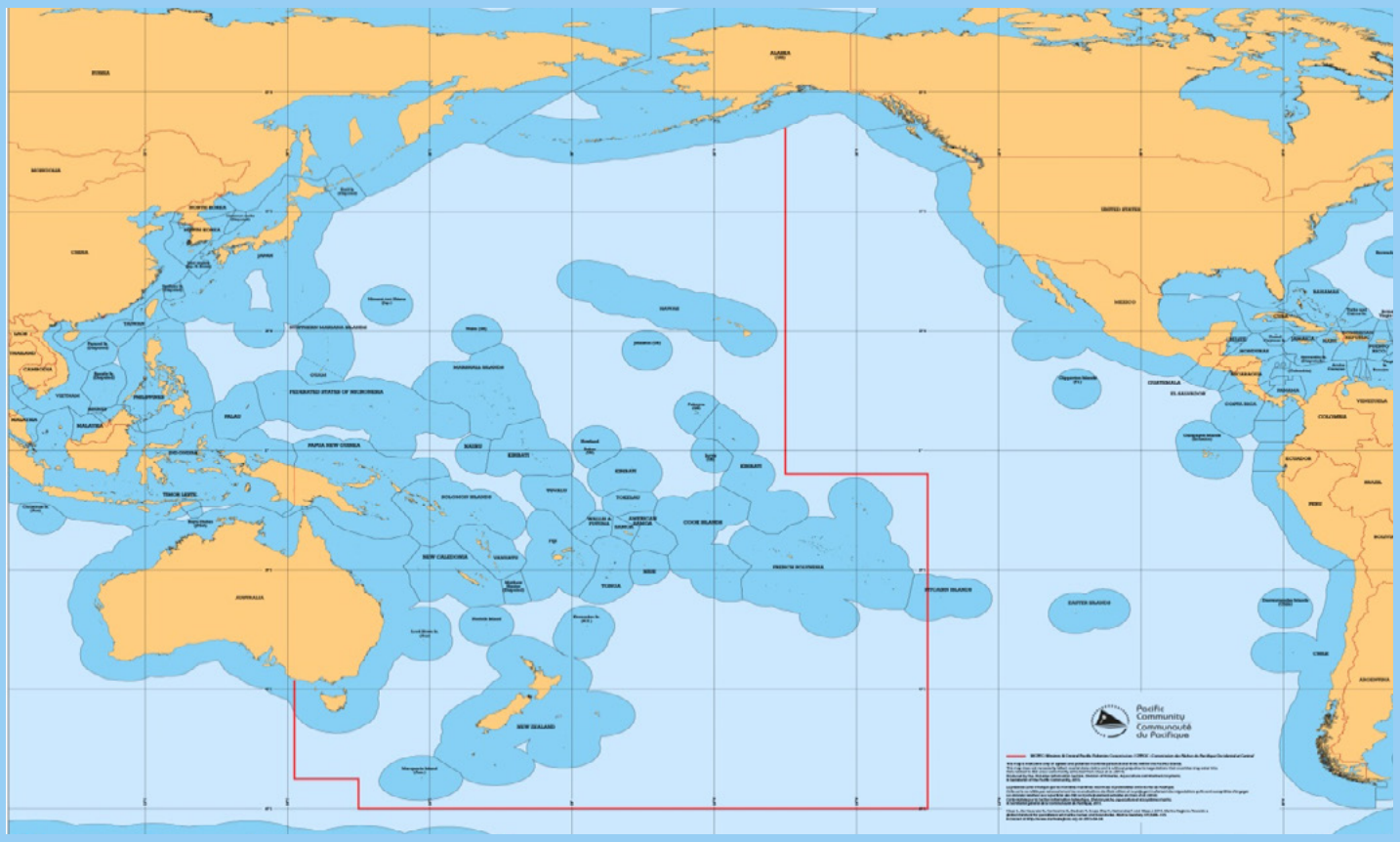
2. SALIENT AND EMERGING ISSUES OF CONCERN IN THE WCPO

Port State Measures in action. Marshall Islands Marine Resources Authority officer crosschecks suspicious vessel behaviors identified in the vessel monitoring scheme (VMS) (on the lower left) with logbooks, catch log sheets, temperature records, etc. found on board.© Francisco Blaha

The WCPFC is responsible for the sustainable management and conservation of tuna and other highly migratory species within the WCPO (Figure 1) and has the largest area of application of the tuna RFMOs. WCPFC decisions are based on consensus and members include coastal States and distant water fishing nations (DWFNs), participating territories that have participating and speaking rights at the WCPFC annual meetings, and cooperating non-members with an interest in the fishery, or whose vessels fish or intend to fish in the WCPFC Convention Area (CA). In 2018, tuna catch in the WCPO contributed to more than 55% of the global tuna catch and remains a key economic resource and for the region's sustainable development valued at an estimated US$5.3 billion each year.[11] However, for PICs that depend on the ocean and its fisheries for their livelihood, cultural identity, and economic wellbeing, some estimate that PIC coastal States only receive 6% of the financial benefits of fisheries resources.[12] The main fishing methods in the high seas of the WCPO are longline and purse seine fishing.

Although fishing is considered the greatest threat to marine biodiversity in any high seas areas, influenced by wealthy countries and industrial corporations; however, it constitutes only 5% of the global marine catch annually. It also realizes only minimal return on fishing efforts, and without government subsidies, fishing in ABNJ would likely be unprofitable.[13] Although all high seas provide many ecosystem services, there is insufficient scientific, economic or social information available to give us detailed understanding of how human activities affect high seas ecosystems and vice versa.[14] The limited information could be that these vessels that transship in the high seas rarely visit FFA member ports or those exploiting the resources in the high seas are not held accountable for their actions or there is limited observer coverage to acquire scientific and compliance data. This information is crucial for governing bodies to make informed decisions on fisheries resource management based as close to reality as possible.[15]

Figure 1. WCPFC Convention Area (CA) map.



(Source: © Pacific Community (SPC), 2022).

11 V. Post & D. Squires, 'Managing Bigeye Tuna in the Western and Central Pacific Ocean', Frontiers in Marine Science, 7 (2020), 1, https://doi.org/10.3389/fmars.2020.00619

12 J. Sloan, 'The Importance of regional c cooperation between Pacific Island Countries for fisheries management and to increase the benefits for Pacific Islanders', Ocean Law Bulletin (27 Apr. 2020), para. 13, https://www.sas.com.fj/ocean-law-bulletins/the-importance-of-regional-cooperation-between-pacific-island-countries-for-fisheries-management-and-to-increase-the-benefits-for-pacific-islanders, accessed 15 Sep. 2021.

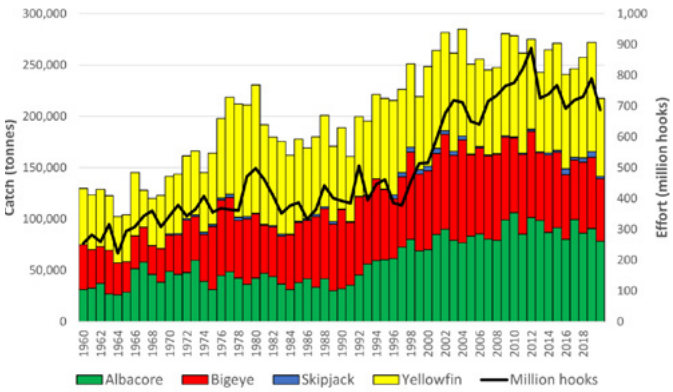
13 O'Leary et al., Options for managing human threats to high seas biodiversity, 1.

14 A.D. Rogers et al., The High Seas and Us: Understanding the Value of High-Seas Ecosystems, 3.

15 F. Zhao et al., 'Addressing Issues and Challenges in Managing Migratory Tuna Resources in the Western and Central Pacific Ocean', International Journal of the Commons, 15/1 (2021), 119-131, https://doi.org/10.5334/ijc.1069

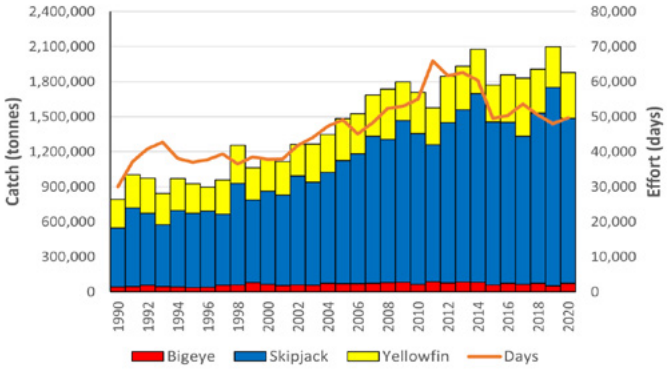
The tuna fisheries assessment report (TFAR) provides current information on the status of fisheries in the WCPO and the fish stocks (mainly tuna) that are impacted by them. Figure 2 and 3 shows the trend in catch and effort levels in the longline and purse seine fisheries respectively during the last decade with catch remaining relatively stable; however, for the longline fishery, the effort has increased. Figure 4 demonstrates the trend in catch per fishing gear in the last decade with a significant increase in the catch by purse seine gear and steady increase in catch by "other" gears (mostly artisanal fishing in Indonesia/Philippines). Pole and line fishing has steadily declined over recent decades and longline catches have fluctuated over time but have remained relatively stable over recent years. According to the WCPFC, the tuna stocks of the WCPO are currently not in a State of overfishing nor overfished. As shown in Figure 2, the effort (number of longline hooks) has increased two-fold since 2001 reaching more than 800 million hooks in 2012 while at the same time, the number of longline fishing vessels have declined over the years.[16]

Figure 2. WCPFC-CA catch and effort data in the longline fishery.



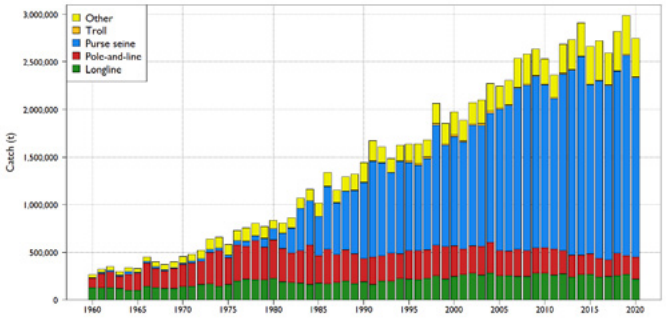
(Source: © Pacific Community (SPC), 2022).

Figure 3. WCPFC-CA catch and effort data in the purse seine fishery.



(Source: © Pacific Community (SPC), 2022).

Figure 4. WCPFC-CA tuna catch by fishing gear.



(Source: © Pacific Community (SPC), 2022).

16 F. Blaha, 'Interesting issues in the WCPO longline fishery 2019', Francisco Blaha [blog post] (25 Feb. 2021), para. 2, http://www.franciscoblaha.info/blog/2021/2/24/w3wrowyfusuap9w1u3f4ho7w9cepi7, accessed 13 Apr. 2022.

3. IUU FISHING PRACTICES

Northern bluefin tuna (*Thunnus thynnus*) in tuna ranching company's (Ecolo Fish) cages, being fattened for the sushi market, Mediterranean Sea, Spain. © Brian J. Skerry / National Geographic Stock / WWF

FAO:

"IUU fishing"

- Illegal fishing - Fishing without a license/permit or fishing by national or foreign fishing vessel on waters under the jurisdiction of a country that contravenes its national laws.
- Unreported - Misreporting or non-reporting of catch data or information on fishing activities.
- Unregulated - Fishing by 'Stateless' vessels (or vessels without an authorised flag) in the high seas. Fishing is also unregulated when it occurs in areas, or fish stocks for which there are no existing laws and is inconsistent with a countries' responsibility under international law.

(Source: © FAO, 2022).

i. Outline of Issues on IUU Fishing

According to the FAO, IUU fishing represents one of the main threats to the marine ecosystems. It is a complex problem with multiple, overlapping actions and behaviours and its effects can be felt strongly among coastal and Pacific small island countries that depend heavily on fishing. IUU fishing undermines international as well as national, and regional efforts in the WCPO in sustainably managing fisheries and conserving marine biodiversity and the productivity of marine ecosystems. These efforts might include catch limits, gear restrictions to reduce incidental catch of discards and bycatch of ETP species, and prohibiting catch of undersize or juvenile fish to name a few. Further, IUU fishing threatens food and economic security and may cause controversy between the industry and small-scale fishers.[17] IUU fishing persists because it is profitable and is relatively low risk with high reward. It takes advantage of weak and corrupt management systems, especially amongst developing countries that lack the resources, capacity and financial capabilities to effectively implement MCS activities. The FAO estimates that IUU fishing accounts for approximately 11-26 million tonnes of fish, valued at US$10-23 billion yearly across the world's oceans. Moreover, IUU fishing occurs in a wide range of fisheries around the world's oceans including the areas under national jurisdiction and beyond (high seas) and at times coincides with other serious crimes (human rights abuses). The high seas are an area of concern where IUU fishing has seemed to thrive in the past 20 years because of the distance from land, number and variety of fishing vessels which can be daunting and challenging to impose sanctions as countries are not always able to monitor the fishing activities.[18] Loss of employment and income by fishers engaged in legal fishing activities in the WCPO are significant results from the negative effects of IUU fishing activities which may deplete the fisheries resources that these fishers depend on for income, jobs, food security and livelihood. [19]

Overfishing represents a global problem that threatens ocean biodiversity and livelihoods as a result of catch levels not being adequately monitored or enforced by coastal States or fishing industries, which is further exacerbated by IUU fishing.[20] Transshipment is one area where IUU-caught fish slips into the supply chain, and, in turn, also undermines market-driven conservation efforts.[21] Additionally, because the vessels involved are less likely to acknowledge other rules, bycatch of ETP species such as marine turtles, sharks, cetaceans and seabirds are often exacerbated by IUU fishing or may constitute IUU fishing depending on measures in place. Bycatch in fisheries is a growing concern globally, as it can harm those ETP species which negatively affect the marine biodiversity as a whole and therefore warrants their protection.[22] Nevertheless, global efforts are underway by many organizations and stakeholders aimed at improving MCS across coastal States to detect IUU fishing as well as advance seafood traceability as one tool to help address IUU fishing.[23]

ii. MRAG Asia Pacific Study

In 2016, FFA commissioned MRAG Asia Pacific to undertake a first attempt to develop a framework for quantifying IUU fishing activity in the Pacific tuna fisheries. Through this process they created a basic model that can be updated as risks change or more accurate data become available over time. The study gathered all available information over a five year period (2010-2015), to produce the best estimate to quantify the level of IUU fishing in the WCPO across the purse seine (PS), tropical longline (TLL) and southern longline (SLL) fisheries. According to the study, the estimated total value of illegally caught or transshipped tuna in the Pacific tuna fisheries during the study period was US$616.11 million annually. Since it was the first study of its kind in

17 National Oceanic and Atmospheric Administration (NOAA) Fisheries, 'Improving International Fisheries Management – 2021 Report to Congress', NOAA Fisheries (10 Jan. 2022), 8-9, https://media.fisheries.noaa.gov/2021-08/2021ReporttoCongressonImprovingInternationalFisheriesManagement.pdf, accessed 14 Jan. 2022.

18 J. Sloan, 'The Importance of regional c cooperation between Pacific Island Countries for fisheries management and to increase the benefits for Pacific Islanders', Ocean Law Bulletin (27 Apr. 2020), para. 13, https://www.sas.com.fj/ocean-law-bulletins/the-importance-of-regional-cooperation-between-pacific-island-countries-for-fisheries-management-and-to-increase-the-benefits-for-pacific-islanders, accessed 15 Sep. 2021.

19 O'Leary et al., Options for managing human threats to high seas biodiversity, 1.

20 A.D. Rogers et al., The High Seas and Us: Understanding the Value of High-Seas Ecosystems, 3.

21 F. Zhao et al., 'Addressing Issues and Challenges in Managing Migratory Tuna Resources in the Western and Central Pacific Ocean', International Journal of the Commons, 15/1 (2021), 119-131, https://doi.org/10.5334/ijc.1069

22 F. Zhao et al., 'Addressing Issues and Challenges in Managing Migratory Tuna Resources in the Western and Central Pacific Ocean', International Journal of the Commons, 15/1 (2021), 119-131, https://doi.org/10.5334/ijc.1069

23 F. Zhao et al., 'Addressing Issues and Challenges in Managing Migratory Tuna Resources in the Western and Central Pacific Ocean', International Journal of the Commons, 15/1 (2021), 119-131, https://doi.org/10.5334/ijc.1069

the Pacific, there was insufficient information available in quantifying the majority of the risks, therefore denoting the secretive nature of IUU fishing.[24] More recently, MRAG conducted a second study in 2021 that examined the 2017 – 2019 year period to assess changes and update the best estimates of the nature and extent of IUU fishing in the Pacific tuna fisheries.

OUTCOMES OF THE 2021 STUDY: VOLUME AND VALUE OF IUU FISHING IN THE PACIFIC TUNA FISHERIES SECTORS

The 2021 MRAG study showed a reduction in the best estimated total value of IUU fishing in the Pacific tuna fisheries at US$333.49 million per annum respectively. The reduced estimated total value of IUU fishing was largely driven by a reduction in estimated illegal transshipment and FAD fishing during the FAD closure period. The changes in estimated quantity and value of IUU fishing between the two study periods were also due to the availability of new information (e.g. scope for illegal transshipment and longline misreporting), changes in fishing effort and catch rates and fish price. The study found that the collaborative efforts of FFA members and improved MCS activities over the years have also positively impacted the nature and value of IUU fishing in the FFA region.

Though the reduction in the value of IUU fishing highlighted in the study is positive, misreporting (as shown in Table 1) represents the key problem in the Pacific. Additionally, other problems include unlicensed fishing, non-compliance with license conditions and post-harvest (e.g. illegal transshipping). As highlighted in Table 2, the PS fishery accounted for the highest estimated volume (in tonnage) of IUU catch (72% of overall volume) with misreporting or misidentifying of target catch a key risk in this area in both studies. The value of IUU fishing in the PS fishery accounts for almost half of the overall estimated value of IUU fishing. Even though the overall estimated volume of IUU catch in the TLL and SLL fisheries are of lesser quantities, the value of IUU catch in these two fisheries together exceed that of the PS fishery due to the high market value of the species targeted by the longline fishing vessels. In terms of species, yellowfin tuna *(Thunnus albacares)* accounted for the highest estimates of IUU-caught fish both in volume and value, followed closely by skipjack tuna *(Katsuwonus pelamis)* then bigeye tuna *(Thunnus obesus)* with albacore tuna *(Thunnus alalunga)* accounting for the lowest IUU catch estimates of the four main tuna species.

Table 1. Best estimates of IUU fishing by risk categories in the Pacific tuna fisheries.

Risk	Best Estimate (tonnage)	Best Estimate (US$)
Unlicensed fishing	8,828	14.62m
Misreporting	171,548	289.80m
Other license conditions	5,504	10.22m
Post-harvest risks	6,307	18.85m

(Source: MRAG Asia Pacific Study, 2021).

Table 2. Best estimates of IUU fishing by sector in the Pacific tuna fisheries.

Sector	Best Estimate (tonnage)	Best Estimate (US$)
Purse seine	138,834	152.26m
Tropical longline	39,718	134.91m
Southern longline	13,634	46.32m

(Source: MRAG Asia Pacific Study, 2021).

The study demonstrated that quantifying IUU fishing is not straight forward and uncertainty is expected to continue in assessing the activities and risks associated with IUU fishing. The study also highlighted the more stringent MCS measures implemented in the purse seine fishery as compared to the longline fisheries. These stronger measures employed in the PS fishery included 100% observer coverage, requirements for transshipment in port and e-reporting requirements imposed by PICs, all of which were weaker in the longline fishery. Overall, IUU fishing activities are mostly attributable to the licensed fishing fleet compared to a small percentage from unlicensed fishing practices, which tends to occur on the eastern and western margins of the WCPFC Convention Area more so by longline fishing vessels not licensed to fish on the WCPO. Another key finding from the study was that less stringent MCS measures applied to high seas fisheries and poorer information availability in these fisheries which would be very pertinent to this study.[25]

RECOMMENDED OPTIONS FOR MANAGEMENT

The study demonstrated that fisheries managers must improve and strengthen the availability of information and ensure similar studies are conducted to trace the trends in IUU fishing practices as well as increase MCS efforts. Authorities must also consider other measures including, strengthening incentives to foster compliance, improving monitoring and traceability throughout the supply chain, strengthening reporting and catch-based management measures, and building up deterrents to non-compliance.

24 F. Zhao et al., 'Addressing Issues and Challenges in Managing Migratory Tuna Resources in the Western and Central Pacific Ocean', International Journal of the Commons, 15/1 (2021), 119-131, https://doi.org/10.5334/ijc.1069

25 MRAG Asia Pacific, 'The Quantification of Illegal, Unreported and Unregulated (IUU) Fishing in the Pacific Islands Region – a 2020 Update', Francisco Blaha (Toowong, 2021), 1-75, https://static1.squarespace.com/static/52a9273ae4b07fa2610392dd/t/61b7e62aa1cb747d1e6824c0/1639441975812/ZN2869+-+FFA+IUU+2020+Update+-+final.pdf, accessed 17 Dec. 2021.

The study identified some recommended MCS measures to mitigate IUU fishing in the longline fisheries sector including:

- Strengthen monitoring and control of at sea transshipment practices;
- Improve observer coverage and the application of e-reporting and e-monitoring to strengthen onboard monitoring of fishing activity;
- Stringent mechanisms for independent monitoring of catch in the supply chain;
- Development of an effective CDS for key species;
- Improve investigation of reported offences; and
- Strengthen cross-verification of data to identify discrepancies (e.g. logsheet and unloading results).
- The study identified some recommended MCS measures to mitigate IUU fishing in the purse seine fisheries sector including:
- Use cannery data to verify catch;
- Stronger and better monitoring and management of FAD usage; and
- Stringent mechanisms to verify fishing activity (e.g. FAD fishing during closed period and evaluate non – fishing day claims).[26]

iii. A Brief Overview on IUU Fishing Index

As demonstrated in a 2019 report titled Global Initiative Against Transnational Organized Crime, an IUU fishing index was developed to form the basis of analysing a countries' vulnerability, prevalence or exposure and response to combatting IUU fishing with respect to scores based from a set of indicators. Further, the analysis also covered regional and ocean basin levels and do not necessarily reflect volumes or values of IUU fishing. These analyses would help address problems faced by governments, RFMOs, donors and NGOs based in the WCPO in identifying areas where interventions are most needed. According to the study, Oceania is ranked with other developing countries in Africa and Asia as being vulnerable to IUU fishing, mainly due to the countries' lack of resources or capacity to counteract the threats posed by IUU fishing. Therefore, it is essential that supporting mechanisms are in place to support these countries efforts to combat or address the risk associated with IUU fishing. The Asian region demonstrates the worst scores in terms of prevalence or exposure to IUU fishing. In spite of this, Oceania showed positive results or scores with Europe and North America in response to IUU fishing, highlighting the recognition of actions given to fisheries by countries in the Pacific and from regional institutions (e.g. FFA, SPC and WCPFC). Lastly, the study revealed that the SDG target to end IUU fishing by 2020 has not be achieved, and that combatting IUU fishing continues to be a major issue and challenge globally.[27]

iv. Overview of Measures to Mitigate IUU Fishing Practices in the Pacific

Bigeye tuna, yellowfin tuna, skipjack tuna and the South Pacific albacore tuna are currently not in a State of overfishing or overfished in the WCPO.[28] Regional bodies like the WCPFC and sub-regional bodies including the FFA, SPC and PNA have over the years, assist PICs to strengthen their capacity in effectively managing tuna and other highly migratory stocks within their EEZs. FFA member countries have therefore engaged considerable efforts to address IUU fishing through common tools such as the FFA VMS for fishing vessels operating in FFA member waters, WCPFC VMS for fishing vessels operating solely in the high seas of the WCPO, FFA Regional Vessel Register and Good Standing requirement, FFA HMTCs for foreign fishing vessel access, the development of common regional data collection protocols and forms, the establishment of regional PIRFO standards and training for observers, the Niue Treaty and Subsidiary Agreement on cooperation in fisheries surveillance and law enforcement, sharing of resources and exchange of information, including fisheries data and intelligence during regional enforcement and surveillance operations in the South Pacific region, in-country CDS, and 100% observer coverage on the purse seine fleet. The FFA members' effort on MCS measures is evident of low estimates of IUU fishing activity in the FFA region.[29] Further, the WCPFC has adopted CMMs that are legally binding to its members, cooperating non-members and participating territories (CCMs), which includes reporting of vessel details alleged to be carrying out IUU fishing activities in the WCPO[30] and measures on Port State Minimum Standards requiring port inspections on fishing vessels alleged or suspected to be involved in IUU fishing activities.[31]

26 MRAG Asia Pacific, Towards the Quantification of Illegal, Unreported and Unregulated (IUU) Fishing in the Pacific Islands Region, 9-12.
27 G. Macfadyen et al., 'The Illegal, Unreported and Unregulated Fishing Index', Global Initiative Against Transnational Organized Crime (07 Feb. 2019), 1-14, https://globalinitiative.net/wp-content/uploads/2019/02/IUU-Fishing-Index-Report-web-version.pdf, accessed 14 Jan. 2022.
28 B. Horton, 'In Oceania, Fisheries are life and they are disappearing (Part 2)', The University of Texas at Austin (21 Dec. 2019), para. 8, https://sites.utexas.edu/climatesecurity/2019/12/21/in-oceania-fisheries-are-life-and-they-are-disappearing-part-2/, accessed 27 Aug. 2021.
29 MRAG Asia Pacific, Towards the Quantification of Illegal, Unreported and Unregulated (IUU) Fishing in the Pacific Islands Region, 11.
30 Western and Central Pacific Fisheries Commission, Conservation and Management Measure to establish a list of vessels presumed to have carried out Illegal, Unreported and Unregulated Fishing Activities in the WCPO', Western and Central Pacific Fisheries Commission (11 Dec. 2019), 1-11, https://www.wcpfc.int/doc/cmm-2019-07, accessed 27 Aug. 2021.
31 Western and Central Pacific Fisheries Commission, 'Port State Minimum Standards', Western and Central Pacific Fisheries Commission (17 Apr. 2021), para. 1, https://www.wcpfc.int/wcpfc-port-state-minimum-standards, accessed 27 Aug. 2021.
32 B. Carreon, 'NGOs: WCPFC falls short in IUU, harvest management reform', Seafood Source (16 Dec. 2019), para. 1-17, https://www.seafoodsource.com/news/environment-sustainability/ngos-wcpfc-falls-short-in-iuu-harvest-management-reforms, accessed 19 Aug. 2021.

Fishers on a purse seiner, Marshall Islands.
© Francisco Blaha

However although PICs have successfully implement management within their EEZs, monitoring and regulations remain lax on the high seas (transshipment practices occur). Further, PICs require consensus to implement complimentary measures which has often been blocked by DWFNs, opening the doorway for IUU fishing to thrive. Lack of data is also a major problem for PICs (especially in the high seas) to determine the amount of IUU fishing and therefore strengthening regulatory frameworks becomes a challenge. Many PICs do not always have the capacity or resources to monitor and curb illegal activities in the region, both with their area of national jurisdictions and the high seas.[33]

v. Fisheries Improvement Projects

WWF has been engaging with many organisations to provide online trainings for fisheries stakeholders by enhancing their knowledge and skills in implementing fisheries improvement projects (FIPs). These FIPs allow the private sectors (fishing industries) to incentivize positive changes toward sustainability in their fisheries. One of the FIP is the Marine Stewardship Council (MSC) which is an independent global sustainable certification body that awards fishing industries with eco-labels as they comply with fisheries regulatory requirements.[34]

vi. International Instruments to Combat and Deter IUU Fishing

Nevertheless, it is possible to address IUU fishing through effective global collaboration and strong partnerships, together with strong political will by countries to adopt and enforce legislations and tools including national plans of actions, traceability schemes, and stringent fisheries management practices. Over the last decades, international authorities have developed few binding and voluntary instruments as shown in Table 3 and Table 4 to assist regional bodies and States to combat and deter IUU fishing. International cooperation between countries and harmonization of catch documentation, among other things, represent some of the key tools the FAO promotes.[35]

33 B. Horton, In Oceania Fisheries are life and they are disappearing (Part 2), para. 8-10.
34 World Wide Fund for Nature (WWF), 'Fishery Improvement Projects (FIP) Online Training', WWF (2022), para. 2-3, https://www.worldwildlife.org/pages/fishery-improvement-projects-fip,accessed 14 Apr. 2022.
35 Food and Agriculture Organization of the United Nations, Illegal, unreported and unregulated fishing, 2-4.

Table 3. Binding international framework developed to combat and deter IUU fishing.

Binding International Framework	Obligations
United Nations Convention on the Law of the Sea (1982) (UNCLOS)	A body of public international law that governs countries on ocean related matters including the rights and responsibilities among countries in the use and conservation of the ocean, seabed and its natural resources as well as protection of the ocean environment.
UN Fish Stocks Agreement (1995) (UNFSA)	It aims to ensure that all countries cooperate and promote the objective of the long term conservation and sustainable use of fisheries resources (including straddling and highly migratory fish stocks) within and beyond the national jurisdiction of a country. The Agreement also ensures that measures taken for the conservation and management of those stocks in areas under national jurisdiction and in the adjacent high seas are compatible and coherent. It also addresses the duties and responsibilities of any State to implement effective mechanisms for compliance, MCS and enforcement of those measures on the high seas as well as boarding and inspection and port State measures.
FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, (1993)	Also known as the Compliance Agreement, it aims to enhance the roles of flag States by strengthening control over their vessels to ensure compliance with international conservation and management measures. The Agreement seeks to prevent the "re-flagging" of vessels fishing on the high seas under the flags of States that are unable or unwilling to enforce international fisheries conservation and management measures. The provisions of the Agreement also cover the maintenance of records of fishing vessels, international cooperation, and enforcement.
FAO Agreement on Port State Measures to Prevent, Deter and Eliminate, Illegal, Unreported and Unregulated Fishing (2009) (PSMA)	The PSMA came into effect on 5 June 2016. Its objective is to prevent, deter and eliminate IUU fishing by preventing vessels engaged in IUU fishing from using ports and landing their catches, thereby reducing the incentive of such vessels to continue to operate and blocking fishery products derived from IUU fishing from reaching national and international markets. The Agreement also covers the role of flag States and RFMOs in the implementation of port State measures.

Table 4. Non-binding global initiatives to combat IUU fishing.

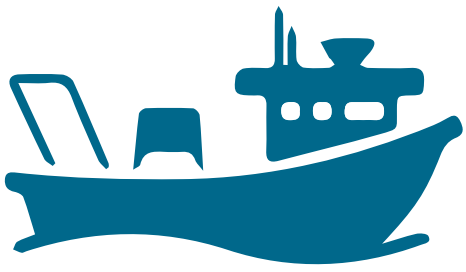
Non-binding International Framework	Obligations
FAO Voluntary Guidelines on Catch Documentation Schemes	These Voluntary Guidelines assists the development of new catch documentation schemes at the national, regional or international level. The scheme enables the tracking and tracing of fish throughout the entire supply chain from the point of catch to the consumer (sea to plate). The document determines whether the fish was caught legally and thereby prohibiting any illegally caught fish from entering the market.
FAO The Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels (Global Record)	Is a voluntary, collaborative, global tool developed to provide rapid, available information (through an online portal) on vessel identification and other vessel related activities to States in combatting and deterring IUU fishing. It enhances transparency and traceability of fishing operations and fish products.
FAO IUU fishing guidelines on methodologies for estimating IUU catches	The 34th session of the FAO Committee on Fisheries (COFI) 2021 continues to support the work of FAO in developing technical guidelines to strengthen the quality and consistency of studies on estimating IUU fishing, irrespective of the nature and scope of study.
FAO Code of Conduct for Responsible Fisheries (1995)	The Code establishes principles and international standards of behavior for responsible fishing practices to ensure long term sustainability of living aquatic resources, while taking into consideration the ecosystem, biodiversity and environment. It is voluntary and global in scope yet it covers conservation; management and development of fisheries; capture, processing and trade of fish and fishery products; aquaculture; fisheries research; and integration of fisheries into coastal area management. The Code also includes provisions on the duties of all States, flag States, port States and market States, and the role of RFMOs.

FAO International Plan of Action to prevent, deter and eliminate Illegal, Unreported and Unregulated Fishing (2001) (IPOA-IUU)	The IPOA-IUU is a toolbox to combat IUU fishing. It calls upon all countries to develop and implement a consistent National Plan of Action (NPOA) and to review it periodically. Implementation of flag State responsibilities, as well as coastal State, port State, and market-related measures, are core elements of the IPOA-IUU.
FAO Voluntary Guidelines for Flag State Performance (2014)	The objective of these Guidelines is to prevent, deter and eliminate IUU fishing through effective implementation of flag State responsibilities to ensure the long term conservation and sustainable use of living marine resources and marine ecosystems. Fisheries management, registration and records of vessels, authorisations, MCS and cooperation between flag States and coastal States are among the central components of the guidelines.
Common Oceans – global sustainable fisheries management and biodiversity conservation in ABNJ	The Common Oceans ABNJ Program supported by the Global Environment Facility (GEF) and coordinated by FAO and in close collaboration with other implementing agencies, aims to achieve efficient and sustainable management of fisheries resources and biodiversity conservation in the ABNJ, and to achieve global targets agreed in the international fora. It promotes global actions to address and combat IUU fishing by practicing sustainable ecosystem-based approach (EBA) to fisheries management.
Sustainable Development Goals (SDGs) and the 2030 Agenda	Strengthening stakeholder involvement and active participation is a critical step in the progress and success towards promoting and effectively implementing activities in the 2030 Sustainable Development Goals targets. FAO works collaboratively with other international instruments with RFMOs or Regional Fishery Bodies (RFBs) and member countries to address the issue of IUU fishing.

(Source: © FAO, 2022).

vii. Ten Principles for Global Transparency in the Fishing Industry

The Environmental Justice Foundation (EJF) has collated ten simple principles for global transparency to combat IUU fishing. This includes (i) give all vessels a unique number, (ii) make vessel tracking data public, (iii) publish lists of fishing licenses and authorisations, (iv) publish punishments handed out for fisheries crimes, (v) ban transshipment at sea, (vi) set up a digital database of vessel information, (vii) stop the use of flags of convenience (FOC) for fishing vessels, (viii) publish details of the true owners of each vessel (profit receiver), (ix) punish anyone involved in IUU fishing, and (x) adopt international measures that set clear standards for fishing vessels and the trade in fisheries products. [36]



36 Environmental Justice Foundation, 'The ten principles for global transparency', Environmental Justice Foundation (23 Nov. 2018), 1, https://ejfoundation.org/resources/downloads/EJF-Transparency-10-principles-final-1.pdf, accessed 26 Apr. 2022.

3. TRANSSHIPMENT PRACTICES

Transshipment in Rabaul, Papua New Guniea. © Francisco Blaha

FAO:
"Transshipment"
The direct transfer, over the side, of any quantity of fish on board from one vessel to another vessel regardless of the location of the event, without the fish being recorded as landed.

"Landing"
All transfers over the side, of any quantity of fish on board from a vessel, other than transshipment, including transfers of fish to a port facility, transfers of fish from one vessel to another through a port facility or other means of transportation, and transfers of fish from a vessel to a container, truck, train, aircraft, or another means of transportation.

WCPFC:
"Transshipment"
The unloading of all or any of the fish on board a fishing vessel to another fishing vessel either at sea or in port.
"Fishing vessel"
Any vessel used or intended for use for the purpose of fishing, including support ships, carrier vessels and any other vessel directly involved in such fishing operation.

FFA:
"Transshipment"
The transfer of all or any of the fish on board a fishing vessel to another vessel either at sea or in port, and does not include net sharing.

(Source: © FAO, WCPFC, FFA, 2022).

i.Outline of Issues on Transshipment Practices

Transshipment practices occur either in port or at sea. Transshipment at sea involves the transfer of fish from fishing vessels to refrigerated cargo vessels (carrier vessels) at sea (high seas and EEZ), and those carrier vessels transports catch to its port of destination for processing. Transshipment activities at sea benefit the fishing industry as fishing operations can persist at sea for longer period of times without returning to port, thereby reducing fuel costs and improving catch rates and volumes.[37] At sea transshipment practices occur within the EEZs and on high seas areas with the latter thought to be linked with greater risks of IUU fishing, and because of the area of operation, it is often difficult to monitor at sea transshipment practices. Illegally caught fish facilitated by transshipment at sea enters the seafood supply chain, and thereby indirectly supporting criminal activities through the laundered access to the legal market which is poorly overseen.[38] A lack of management authorities (flag States or coastal States) present to monitor and oversee the transshipment in the high seas contributes to the IUU fishing problem, resulting in the falsification or manipulation of information regarding species composition, amount caught or transferred between fishing vessels or other vessels, or the area of catch. The diverse nature and widespread practice of transshipment at sea also takes into consideration the area of operations, access to markets, species type, method of species captured, and level of processing of catch either on the fishing vessel or receiving vessel and avoiding management or control measures. Supervising or monitoring transshipment activities in port allows for more transparency, but only if countries possess the resources, monitoring capacity or other standard operating procedures for inspections, and this is evident for PICs where this is well monitored and supervised. The relevant fisheries authorities usually monitor, inspect, and control in port transshipment in PICs.

A 2019 report by the Pew Charitable Trusts, estimates more than US$142 million worth of IUU catch is transshipped annually in the WCPO region, with violations mostly from misreporting or not reporting by a licensed fishing vessel. These illegal activities impede conservation and management efforts in the WCPO region resulting in overfishing, and contribute to other criminal offences such as trafficking in people, drugs and weapons through laundering and lack of oversight by national authorities in the high seas. Notwithstanding the lack of capacity or resources to monitor transshipment operations and enforce regulations in the high seas, fishing industries in some developing countries including PICs still rely heavily on transshipment operations to maximize profits.[39]

37 P. Ligaiula, 'High Seas Tuna Transshipment-What it is and why it should be reformed', Pacific News Service (31 Aug. 2021), para. 4-5, https://pina.com.fj/2021/08/31/high-seas-tuna transshipment-what-it-is-and-why-it-should-be-reformed/, accessed 16 Sep. 2021.
38 Food and Agriculture Organization of the United Nations, Transshipment: a closer look, 2.39 P. Ligaiu
39 Pew Charitable Trusts 'Transshipment in the Western and Central Pacific: Greater understanding and transparency of carrier vessel fleet dynamics would help reform management', Pew Charitable Trust (12 Sep. 2019), 1, https://www.pewtrusts.org/-/media/assets/2019/09/international_fisheries_transshipment_report.pdf, accessed 25 Aug. 2021.

ii. Managing Issues

Transshipment operations that occur in port or in EEZ waters are monitored under the rule of the law of the port or coastal States with CCMs providing reports to the Secretariat under the Annual Part 1 reporting requirements. [40] Transshipment in the high seas is not as rigorously monitored as in port transshipment practices, hence the practice allows potential IUU-caught fish to find its way to the market. The WCPFC has a role in regulating transshipment at sea with developed CMMs on transshipment in the high seas, including 100% observer coverage on all transshipment activities and reporting requirements in the region. Despite this, high seas transshipment operations have increased over the years backed by poor monitoring and enforcement by its members and, has led to broadly recognized IUU fishing practices in the region connected to high seas transshipment.[41]

Although the current CMM on Regulation of Transshipment bans transshipment by purse seiners in the high seas of the Convention Area; however, it provides exemptions for countries like Papua New Guinea and New Zealand under certain conditions. Moreover, the WCPFC also ban longliners to transship in the high seas and encourages its CCMs longline and non-purse fishing vessels to practice transshipment in port. Transshipment in port can be easily monitored by authorities leading to a reduction in IUU-caught fish entering the market. However, there is also a leeway for CCMs to engage longliners in transshipment operations in the high seas by providing advice to the WCPFC 'that it is impracticable for certain vessels that it is responsible for to operate without being able to transship on the high seas' an issue taken advantage by most CCM longliners.[42]

It is impracticable because it seemed unprofitable for the fishing industry as transshipment in port results in lost fishing time and increased fuel costs of returning to port. Nevertheless, the WCPFC requires CCMs to make vessel-specific determinations in regards to its impracticability and submit plans in encouraging transshipment operations to take place in port, which some CCMs are not following. The current CMM is not effective in reducing at sea transshipments, especially in the high seas.

According to a report submitted to the 14th Regular Session to the Technical Compliance Committee (WCPFC-TCC14-2018-DP05), transshipment in port is practicable considering the availability of port facilities in the region to support these fishing vessels. Alternatively, carrier vessels with ultra-low temperature (ULT) freezer capacity can be stationed in ports that lack ULT freezer capacity when conducting transshipment operations. Furthermore, less cost is incurred with transshipment in port than costs associated with operating a tuna fishing vessel. However, the challenge for the WCPFC lies on whether operating transshipment in port would affect profitability, taking into account operating costs and subsidies. [43]

Further, the WCPFC is the only tuna RFMO that does not have an independently managed ROP to monitor high seas transshipment compared to other tuna RFMOs. At present, there is lack of transshipment observer reporting to the WCPFC Secretariat (no minimum data standards for observers on carrier vessels) and this approach of having a provider coordinating with the WCPFC on a centralised high seas transshipment ROP could address this issue. In the Pacific region, the PNA has set precedent by delegating an independent third-party in running its ROP following the requirements of the WCPFC CMM on ROP. [44]

CSOs have called for a ban on transshipment of tuna in the high seas until or unless such operations can prove effective to prevent and deter IUU fishing activities. Other State actors have also emphasized the need for improvement on discussions and controlling efforts of transshipment practices in the high seas such as reporting requirements at the national and regional levels to the WCPFC. Regional cooperation by authorities needs to be strengthened in terms of monitoring and reporting of all related transshipment operations.

iii. Impacts of Covid-19 on PICs

The PICs depend on fishing for economic benefits; however, since 2020 the Covid-19 pandemic has greatly affected them in terms of fishing operations by the closure of airports and fishing ports. This includes among other things, preventing fish carriers that originate in countries that have Covid-19 cases from using other ports or 14 day quarantine at sea for foreign fishing vessels. Disruption in transshipment operations because of such measures has also affected fishing operation for PICs, especially in the high seas. This has greatly affected those PICs that rely on revenues generated from licensed fishing vessels that also engage in transshipment operations with those carrier vessels. The closure of the airports created difficulties in mobilising fisheries observers and also because of concern on the health and safety of observers, the World Tuna Purse Seine Association (WTPO) requested a relaxation of established observer requirements on purse seine vessels from Pacific Island governments during transshipment operations, which has been endorsed by the WCPFC and its members. [46]

40 Food and Agriculture Organization of the United Nations, Transshipment: a closer look, 57. 41 Food and Agriculture Organization of the United Nations, Transshipment: a closer look, 2.39 P. Ligaiu

41 P. Ligaiula, High Seas Tuna Transshipment-What it is and why it should be reformed, para. 6-13.

42 Food and Agriculture Organization of the United Nations, Transshipment: a closer look, 5.

43 Western and Central Pacific Fisheries Commission, 'The Impracticability Exemption to the WCPFC's Prohibition on Transhiment on the High Seas', Western and Central Pacific Fisheries Commission (14 Sep. 2018), 1-26, https://meetings.wcpfc.int/index.php/node/10983, accessed 19 Jan. 2022.

44 Pew Charitable Trusts, 'The Pew Charitable Trusts Statement to the 18th Regular Session of the Western and Central Pacific Fisheries Commission', Western and Central Pacific Fisheries Commission (10 Nov. 2021), 2, https://meetings.wcpfc.int/node/14420, accessed 19 Apr. 2022.

45 P. Ligaiula, 'Calls for ban on rampant tuna transshipment in the high seas', FFA's Tuna Pacific: Fisheries news and views (03 Dec. 2017), para. 1-17, https://www.tunapacific.org/2017/12/03/calls-for-ban-on-rampant-tuna-transshipment-in-the-high-seas/, accessed 16 Sep. 2021.

46 T. Aqorau, 'Covid-19 and its likely impact on the tuna industry in the Pacific Islands', DevPolicyBlog (27 Apr. 2020), para. 3-11, https://devpolicy.org/covid-19-and-its-likely-impact-on-the-tuna-industry-in-the-pacific-islands-20200427-1/, accessed 17 Sep. 2021.

As a result of the closure of international borders, many I-Kiribati seafarers have now been stranded in overseas countries for over two years, with some of them unable to send money to their familie. This includes many that were crew on fishing vessels engaged in transshipment activities such as purse seiners and carriers. Many of the seafarers that were stranded for almost eight months in Fiji were then repatriated back to Kiribati via boat instead of plane as a strict requirement by the Kiribati government.[47]

Since 2020, the WCPFC in response to Covid-19 has been extending its decision relating to purse seine observer coverage, transshipment at sea for purse seine vessels, and at-sea transshipment observers. The latest extension ends on 15th of March 2022. The WCPFC reviews its decision based on Article 30 of the Convention and considers the safety and livelihoods of observer under the Regional Observer Programme (ROP), especially PIC observers. The WCPFC's decision includes among other things:

i. To suspend the requirements for observer coverage on purse seine vessels set out in relevant CMMs;

ii. For vessel operators and flag States to expedite repatriation of fisheries observers, as well as meeting observer costs until the observer returns to his/her home port;

iii. Without prejudice to the current measures on the ban of transshipment at sea, purse seiners will be allowed to conduct transshipment at sea under the jurisdiction of the port State, provided that these vessels despite their best efforts cannot conduct transshipment in port due to port closures and restrictions related to the prevention of COVID-19, and subject to certain conditions as outlined by the WCPFC; and

iv. Certain rules relating to observer requirements under the CMM on transshipment will be temporarily suspended subject to certain conditions as required by the WCPFC.[49]

In spite of this, FFA member countries continue to implement tools in its MCS framework, including vessel logsheets, vessel monitoring system, EM, ER and transshipment reports to collate the needed data in the absence of fisheries observers.

iv. Study by the Pew Charitable Trusts

The Pew Charitable Trusts conducted a baseline study on transshipment in the Western and Central Pacific Convention Area in 2019. The study used available AIS data from 2016 and applied machine learning technology, to analyse carrier vessels movement patterns and transshipment behaviour within the Convention Area. This data was then compared with other publicly available information provided by the WCPFC and its members.[50]

IMO:
"Automatic Identification System"

- A satellite system designed and capable of providing position, identification and other information about the ship to other ships and to coastal authorities automatically.
- Vessels with 300 gross tonnage (GRT) and above requires AIS to be fitted onboard or fishing vessels over 37m in length are required to carry AIS.

(Source: © IMO, 2022).

Key findings from the Report[51]

The report indicates inconsistent management of transshipment in the WCPFC-CA due to insufficient information being reported on transshipment activities, to violations on reporting requirements, and anomalies on reporting responses by flag States on their carrier vessels activities. This makes it hard for accurate auditing, and increase the risk of transshipment activities being unreported and unverified. Carrier vessels with 300 GRT or more are required to carry AIS onboard while making international sea trips. However, some carrier vessels do not activate AIS systems and this makes it difficult to track their movements and impedes auditing by independent organizations to analyse and verify the operations carried out by carrier vessels. It also limits the ability to produce a more comprehensive report and findings on transshipment operations by carrier vessels. Nevertheless, by analysing available AIS data, the Pew Charitable Trust was able to better understand the overall WCPFC carrier vessel fleet movement patterns—including spatial dynamics, voyage profiles and the most frequented ports.
Some other findings include:

- Only 25 carrier vessels reported high seas transshipments in the WCPO in 2016

  even though a much higher number of carrier vessels were operating in the Convention Area in 2016. There is also scarcity of information on other vessels' operations;

- More transshipments at sea might have eventuated in 2016 than what was reported to the WCPFC;

- Transshipments at sea by unauthorised carrier vessels might also occur including the species managed by the WCPFC; and

- Potential high risks in transshipments being unreported could also arise from absence of data-sharing agreements on transshipment between the WCPFC and other RFMOs,

47 M. Borovnik, C. Bedford & R. Bailey, 'Has Covid-19 ended seafaring for Kiribati', DevPolicyBlog (22 Dec. 2021), para. 1-5, https://devpolicy.org/has-covid-19-ended-seafaring-for-kiribati-20211222/, accessed 25 Jan. 2022.
48 T. Aqorau, Covid-19 and its likely impact on the tuna industry in the Pacific Island, para. 3-11.
49 Western and Central Pacific Fisheries Commission, 'Decision on Extension of WCPFC Decisions in the Context of COVID-19 relating to Purse Seine Observer Coverage, At-Sea Transhipment for Purse Seine Vessels, and At-Sea Transhipment Observers until 15 March2022', Western and Central Pacific Fisheries Commission (10 Dec. 2021), 3-4, https://www.wcpfc.int/doc/circ-2021-105/outcome-decision-extension-wcpfc-decisions-context-covid-19-relating-purse-seine, accessed 25 Jan. 2022.
50 Pew Charitable Trusts, Transshipment in the Western and Central Pacific: Greater understanding and transparency of carrier vessel fleet dynamics would help reform management, 1.
51 Pew Charitable Trusts, Transshipment in the Western and Central Pacific: Greater understanding and transparency of carrier vessel fleet dynamics would help reform management, 1-78.

including overlapping regions between the WCPFC and the Inter-American Tropical Tuna Commission (IATTC) as well as the North Pacific Fisheries Commission (NPFC). Moreover, this could result in inaccurate stock assessments due to misreporting of catches in the Convention Area waters they manage.

RECOMMENDED OPTIONS FOR MANAGEMENT[52]

The report by the Pew Charitable Trusts highlights three key areas that requires strengthened regulatory framework, specifically on reporting, monitoring and data sharing. The findings from this report can assist the WCPFC and other RFMOs in managing transshipment activities to mitigate discrepancies between reports required by carrier vessels and their flag States on transshipments. More research, analysis, and actions on greater transparency in transshipment activities should be conducted in the WCPFC, with its findings to also assist other RFMOs on managing transshipment operations. Strengthened and harmonized regulatory framework between the WCPFC and other RFMOs is essential to mitigate IUU fishing passing through the seafood supply chain. Listed below are some recommendations by the Pew Charitable Trust to strengthen regulatory frameworks on transshipments for the WCPFC and CCM national authorities in combatting IUU fishing practices.

EFFECTIVE REPORTING ON TRANSSHIPMENT:

- Reports on all activities are required and essential, irrespective of area or origin of catch;
- All reporting and notification forms needs to be updated and standardized including requirements for minimum data collection on target and non-target species e.g. bycatch species;
- A 24 hour electronic notification prior to and after each transshipment activity is required, irrespective of its location; and
- Presence of certified trained observers on all vessels engaged in transshipment operations be mandatory, including submission of observer reports at the end of each operation for independent verification purposes.

EFFECTIVE MONITORING ON TRANSSHIPMENT:

- Regardless of location, a 100% observer coverage including electronic monitoring, be mandatory on all vessels engaged in transshipment activities, for the purpose of collating data on science and compliance matters;
- Manual reporting and vessel monitoring arrangements be mandatory in case the VMS becomes malfunction; and
- Requirement by the WCPFC to consider using AIS by its member's vessel as a supplement to the VMS to enhance or improve overall monitoring of vessels and transparency in operations.

EFFECTIVE DATA SHARING ON TRANSSHIPMENT:

- Establish and expand data-sharing agreements between the WCPFC and other RFMOs, including IATTC and NPFC on all transshipment related data.

v. In-depth Study by FAO

An in-depth study using a risk-based approach was conducted by FAO in 2020. The study was based on five key elements including; field visits, a global survey on transshipment involving FAO member countries, RFMOs, NGOs and industry stakeholders, specific case studies examining the role of transshipment in global tuna and squid fisheries, expert interviews (RFMO compliance officers & international MCS experts), and a broader literature review. The study identified five critical transshipment operations (Table 5) which involves small-scale to large-scale fishing, and transport vessels. It also highlighted that transshipment practices will continue to be at risk of IUU fish and fish products seeping into market. Authorities may use Port State measures to help verify transshipment at sea as well as inspections and monitoring of transshipments in port or in anchorages to prevent the risk of IUU-caught fish entering the seafood supply chain.[53]

Table 5. Transshipment operations involving activity area and species transshipped.

	Transshipment type	Area of activity	Species transshipped
1.	Fishing vessel to reefer (refrigerated cargo vessel)	Ports, anchorages, EEZ, high seas	Tuna, small pelagic fish, krill, squid, multi-species (caught with bottom otter trawl)
2.	Fishing vessel to floating storage vessel	Anchorages	Tuna, multi-species (caught with bottom otter trawl)
3.	Fishing vessel to small transport vessel	EEZ, coastal waters	Crab, conch, small pelagic fish, multi-species (caught with bottom otter trawl)
4.	Fishing vessel to other fishing vessel	EEZ, coastal waters, high seas	Tuna, conch, small pelagic fish, multi-species (caught with bottom otter trawl)

(Source: © FAO, 2022).

52 Pew Charitable Trusts, Transshipment in the Western and Central Pacific, 1-78.
53 Food and Agriculture Organization of the United Nations, Transshipment: a closer look, 2-7.

RECOMMENDED OPTIONS FOR MANAGEMENT

As described in the FAO report, the transshipment practices, particularly in the high seas may contribute to laundering IUU-caught fish into the market. Transshipment at sea, should be regulated, monitored and controlled to mitigate the risk of supporting IUU fishing operations which 'undermine sustainable fisheries, threaten the health of the marine ecosystems and have negative socio-economic effects, especially for legitimate fishers and coastal communities'.[54] The report further added that guidelines should be developed to set a standard for the responsible management of transshipment activities, including effective monitoring and control measures to ensure compliance with the applicable national, regional and international legal frameworks. Some key consideration in the development of these guidelines in regulating, monitoring and controlling transshipment operations include consistent definition on transshipment, authorisations for vessels to engage in transshipment practices, notification and reporting requirements on all transshipping activities, and data and information-sharing; be developed for all competent authorities of relevant flag, coastal and port States and RFMOs; are among other things called for to be actioned. These factors considered by the FAO have already been developed and adopted by the WCPFC to manage transshipment operations in the high seas of the WCPO. Further, PICs continue to implement and enforce its own fisheries laws on transshipment practices that occur within its area of national jurisdiction. Effectively curbing and mitigating the risks of IUU fishing requires strict regulations on transshipment activities including monitoring and control systems. Moreover, responsible authorities must implement a precautionary approach to fisheries management where the capacity to effectively monitor and control transshipment activities are lacking.[55]

vi. Human Rights Issues Associated with Transshipment

Due to large economic incentives, high seas transshipment can facilitate and sustain fishing efforts over a long period of time, allowing longline fishing vessels to avoid returning to port while continuing to operate out of sight and unnoticed. This practice further increases the ability of the fishing industry to retain, exploit and manipulate individual crew or workers, sometimes against their will (forced labour) through stress of long periods at sea, lack of oversight by authorities and less opportunity for crew to leave vessels for being out at sea. Moreover, the high seas are areas which no country has jurisdiction or control beyond flag State authority of the vessel and where monitoring or regulations are limited or do not exist. IUU fishing activities associated with transshipment at sea thwart global efforts to effectively manage fisheries and are also simultaneously linked to transnational crimes at sea including, inter alia, smuggling of migrant workers and trafficking of weapons and drugs. [56]

According to the 2021 FAO Committee of Fisheries report, although these crimes have no direct link with daily fishing activities, they nevertheless do take place and often use fishing operations as a cover to hide nefarious activities. These crimes do exist and are often linked to corruption and money laundering; also, the lack of capacity by national authorities thwarts efforts at the international and regional levels (e.g. WCPO) to deter and prevent them from happening.[57]

Different countries have different regulations, capacities and resources regarding transshipment practices and these regulations fail to explain proper code of behaviour, to ensure that IUU fishing and human rights abuses do not occur because of transshipment operations. Further, broader challenges being faced by many countries in the WCPO region, including PICs is that fisheries officers do not have the expertise to identify this practice of human rights abuse. It is imperative that authorities employ international cooperation as well as enhanced monitoring and regulations to address, mitigate and prevent illegal activities that can coincide with transshipment, such as trafficking in people, drugs and weapons, and violations of labour standards.[58]

The fight to prevent various criminal activities by illegal operators is possible if effective and well trained interagency mechanisms are in place, regardless of limited resources or capacity. [59]

vii. United Nations Work on Transshipment Practices

The Committee on Fisheries (COFI), which is a subsidiary body of the UNFAO Council, was established in 1965. Held once every two years, COFI represents a global inter-governmental forum where governments, regional fishery bodies, NGOs, fish workers, FAO and the international community convene to discuss and address pervasive international fisheries and aquaculture problems and issues. At its recent 34th Session, one of COFI's information papers on 'Transshipment: Summary of the findings of the in-depth study' was tabled for discussion. The paper highlighted a recent study that adequate information on the various global transshipment activities including, inter alia, their drivers, levels of occurrence, economic importance and risks associated with IUU fishing. The collated information was then used to discuss and identify management elements, that

54 Food and Agriculture Organization of the United Nations, Transshipment: a closer look, 2.
55 Food and Agriculture Organization of the United Nations, Transshipment: a closer look, 2.
56 C.F. Marto, 'Human Rights Violations Consequent to Transshipment Practices in Fisheries', Ocean and Coastal Law Journal, 24/1 (2019), 36, https://digitalcommons.mainelaw.maine.edu/oclj/vol24/iss1/3
57 Committee on Fisheries, 'Transshipment: Summary of the Findings of the In Depth Study', Food and Agriculture Organization of the United Nations (Feb. 2021), 7, http://www.fao.org/3/ne753en/ne753en.pdf, accessed 26 Aug. 2021.
58 Pew Charitable Trusts, Transshipment in the Western and Central Pacific: Greater understanding and transparency of carrier vessel fleet dynamics would help reform management, 1-78.
59 Committee on Fisheries, Transshipment: Summary of the Findings of the In Depth Study, 2-7.

Implementing Port State Measures in Majuro, the Republic of Marshall Islands; the busiest tuna transshipment port in the Pacific.©Francisco Blaha

in the near future, could form the basis of developing international voluntary guidelines, based on best practices for regulating, monitoring and controlling transshipment operations. This recommended key managerial elements for consideration include definitions, authorisations, reporting, pre-event notification and record of event, post-event reporting, follow-up reporting, monitoring, data and information-sharing, use of existing and new technologies, and traceability.[60]

The IUU fishing problems associated with transshipments practices have resulted in international arrangements like the UN Fish Stock Agreement, UN General Assembly, and FAO to regulate transshipment activities at sea by either limiting or banning its operations to combat IUU fishing related activities.[61]

60 Committee on Fisheries, Transshipment: Summary of the Findings of the In Depth Study, 2-7.
61 Western and Central Pacific Fisheries Commission, The Impracticability Exemption to the WCPFC's Prohibition on Transhiment on the High Seas, 2.

5. HUMAN RIGHTS ISSUES AT SEA

Jose from the Philippines on a Taiwanese purse seiner berthed in Kiribati. © Francisco Blaha

International Labour Organization (ILO):

"Forced or Compulsory Labour"
• All work or service which is exacted from any person under the threat of a penalty and for which the person has not offered himself or herself voluntarily.
• Includes traditional practices of forced labour, such as slave-like practices, various forms of bondage, and human trafficking.

(Source: © ILO, 2022).

i. Outline of Issues on Human Rights Violations at Sea

Human rights issues (i.e. slavery, forced labour, child labour, crew welfare) are more visible now thanks to technology and excellent media reporting over the years. Some of the root causes for its prevalence include inter alia, greed, cultural inequity, corruption, and global and domestic economic conditions. This is certainly true for fishing vessels that spend a large amount of time away from land to catch a huge quantity of fish, as a result of high demand for fish. Modern slavery, which includes forced labour, debt bondage and human trafficking are often tied to IUU fishing, and is common among developing countries whose workers are recruited by agencies that offer false promises of compensation. These workers on IUU fishing vessels are usually poor and illiterate and are forced into signing contracts which they barely understand and are deprived of their documents (such as passports) and made to pay "fees and expenses" to their agents in a form of indentured servitude. Since authority over labour conditions remains unclear in multijurisdictional fisheries such as tuna, longline fishing vessels engaged in IUU fishing frequently ignore rules and, with minimum legal fines imposed, employers continue to under pay or even fail to pay workers while stressed out at sea (e.g. facilitated by at sea transshipment operations) while in breach of human rights laws.

Globally considered as one of the most dangerous professions, working on commercial longline fishing vessels is often associated with substandard working conditions, resulting in lack of proper sleep, lack of adequate food and water, long hours of forced work (sometimes under forced ingestion of methamphetamines), physical violence, sexual violence and other cruelty. Forced labour appeals to the fishing industry because the risks of prosecution for violations is low while the reward of lower labour, shipping, and other incurred costs remains high. Over the years, NGOs and many investigative journalists have elevated awareness of the issues of poor labour and safety standards, as well as blatant human rights abuses associated with IUU fishing vessels. This information collated also includes confronting video footage of poor working conditions onboard with many migrant workers commonly placed on distant water fishing fleets, specifically on tuna longliners that engage in at sea transshipments. The consequences of this kind of human trafficking and forced labour results in clear abuse, injury, or even death of those crew subject to it.[62]

A report by the United Nations Office on Drugs and Crime (UNODC) in 2011 highlighted the vulnerability of the fishing industry to organised crime due to its opaque nature associated with poor governance and rule of law. It identified the roles of fishing vessels in transnational organised activities that are linked to illicit drug trafficking (e.g. Amphetamine-type stimulants (ATS) and ATS precursors) used as barter exchange with marine living resources, such as abalone. Others include acts of terrorism, illicit trafficking of weapons and drugs (cocaine), and smuggling of migrant workers onboard fishing vessels. Child trafficking is also frequent in the fishing industry. To make the matters worse, fishers are investigated and prosecuted for these heinous crimes, who themselves are possible victims of human rights abuse and trafficking, while those who are masterminds in organising these criminal activities are seldomly targeted. Fisheries and fishing communities are affected by IUU fishing and sometimes recruited into criminal activities due the socio-economic conditions brought about by overfishing and are also desperate for sources of income.[63] Criminal activities that could arise within the fisheries sector are highlighted in Figure 5 below.[64]

62 C.F. Marto, Human Rights Violations Consequent to Transshipment Practices in Fisheries, 33-36.
63 United Nations Office on Drugs and Crime, 'Transnational Organized Crime in the Fishing Industry', United Nations Office on Drugs and Crime (Vienna, 2011), 2-5, https://www.unodc.org/documents/human-trafficking/Issue_Paper_-_TOC_in_the_Fishing_Industry.pdf, accessed 29 Aug. 2021.
64 E. Witbooi et al., 'Organised Crime in the Fisheries Sector', High Level Panel for A Sustainable Ocean Economy (Washington DC, 2020), 2, https://oceanpanel.org/sites/default/files/2020-09/Organised%20Crime%20Associated%20with%20Fisheries.pdf, accessed 30 Aug. 2021.

Figure 5. Possible organised criminal activities in the fisheries sector.

(Source: © Ocean Panel, 2022).

Human rights violations at sea and IUU fishing are well documented across some countries with weak or no regulatory frameworks, such as some Asian countries off the Pacific. The problem lies with each individual country and their work towards mitigating human rights violations. These countries with weak regulations have no independent observer, and no verification or monitoring of transnational criminal activities or human rights violations.

Some countries make efforts to sign agreements and help fight against the issue, while others refuse to be held accountable for their actions if and when this heinous activity occurs in the high seas under vessels carrying their flags, avoiding consequences as much as possible. Transshipment practices in the high seas pose risks of IUU fishing and human rights abuses because of the lack of oversight by authorities. The manner these issues are addressed by some countries (flag States) makes it more difficult to mitigate on a global scale and, ultimately, eradicate the challenges of human trafficking and other atrocious practices onboard longline fishing vessels. Furthermore, this results in less action being taken by some countries where the threats of human rights abuses are greater than others. However, incentivizing private businesses to buy their catch from responsible fishing companies, would enable these countries to take action in addressing human rights abuses.[65] Other practices of ensuring proper recruitment and protection of migrant workers, improving inspection of labor conditions and criminal activity, and creating avenues where officials can take when informing workers of their rights and employers of their responsibilities to their employees, should encourage national authorities to improve regulations and tighten surveillance over labour practices of migrant workers onboard longline fishing vessels. This will increase controls and transparency over transshipment practices in the high seas.

Notwithstanding the important work that fisheries observers do in collating data on science and management, similarly to crew, they encounter harsh conditions and other hazards on longline fishing vessels while out at sea and at times may find themselves in vulnerable situations. Moreover, their work on monitoring and compliance matters may cause tension between them and other fishing crew, putting them at risk of injuries.[66]

ii.Human Rights Issues for PICs in the WCPO

Work as a fishing crew provides employment opportunities for many Pacific Islanders to tap into their rich ocean resources. The current demand and force from the international market for cheap and yet abundance of tuna, drive poor labour conditions on longline fishing vessels which is out of control for PICs. This issue is not new to PICs

65 C.F. Marto, Human Rights Violations Consequent to Transshipment Practices in Fisheries, 35-53.
66 NOAA Fisheries, 'Fisheries Observers: Observer Safety', NOAA Fisheries (15 July 2021), 2. Fishing Can Be Dangerous, https://www.fisheries.noaa.gov/national/fisheries-observers/observer-safety, accessed 30 Aug. 2021.

as work on longline fishing vessels engaged in IUU fishing involves low wages, unsafe working conditions and stress from long hours of fishing out at sea, resulting in fishing crew being away from families and culturally important events. The ports in some PICs are mainly used by DWFN to offload catch, and the problems associated with substandard working conditions, foreign labour, and human rights abuses on these longliners are justifiably linked with IUU fishing. The onus in addressing these labour issues are the flag State of DWFNs, not the port State which are implementing port State measures on these longliners. Similarly, there are a lot of South East Asians (recruited by foreign agencies) who also work on longliners flagged to PICs and it's the responsibility of the flag State to address such labour issues. Generally because of overfishing, fish stocks are declining and this drive competition among DWFNs in recruiting migrant workers with low wages in their fishing vessels. IUU fishing vessels that fail to follow fisheries laws may also influence fishers not to follow rules on labour standards. This could further contribute in overexploitation of fish resources and the issue of human rights abuse. Regional cooperation and implementing crewing standards on FFA's HMTC are essential between PICs to effectively address these issues of forced labour and IUU fishing on all fishing vessels that fish within FFA waters. Although the fisheries legislations for PICs are well structured and advanced in regulating fishing activities, their national legislations covering employment or working conditions particularly on longline fishing vessels are weak and also exacerbated by the lack of resources and ability to address these issues that are reported. PICs under the UNCLOS must continue to exercise flag State responsibilities on their registered fishing vessels.[67] Therefore, if PICs can strengthen the level of transparency and accountability needed to address human and labour rights abuses in fisheries, then the same can be improved in addressing IUU fishing practices respectively.

A report by WWF indicated that at least nine Pacific Island fisheries observers have either disappeared or died in the last eleven years due to suspicious or, at least, unnecessary circumstances. These fisheries observers maybe threatened, bribed, or intimidated which may result in IUU fishing in the form of forced or deliberate misreporting of fisheries related activities.[68]

In its efforts to combat IUU fishing in the WCPO region, FFA members have over the years focused also in addressing the people elements linked to IUU fishing. As a key priority, FFA members continue to push the WCPFC for the adoption of observer safety measures to address safety and well-being of fisheries observers. Similarly, the FFA HMTCs has established minimum standard of fishing access for foreign fishing vessels to comply within the interest of safety and health of observers during a fishing trip within the FFA members' jurisdictions. Moreover, the growing concern by FFA members relating to poor conditions of employment on some foreign fishing vessels, has also led to a ground-breaking achievement to include crew standards in the 2019 HMTCs. The minimum requirements for employment of crew on licensed foreign fishing vessels in FFA members' fisheries waters include among other things; surety of a written contract for all crew, fair treatment of all crew, decent and fair remuneration, proper medical care, repatriation, proper accommodation, regular rest, and access to suitable food and water. Foreign fishing vessels that fail to meet license conditions regulating employment, vessel safety and crew numbers under the HMTCs will be suspended from the Good Standing on the Vessel Register, and therefore, cannot be licensed by FFA Members.[69]

The WCPFC represents the only RFMO to begin addressing human or labour rights issues, with the two main issues of concern the safety of observers and labour standards for crew. However while the protection of observers has been under the spotlight during previous meetings, labour issues on the other hand have just recently been considered. The current measure for the WCPFC regional observers highlights the requirements by member States to apply and adapt their laws to international requirements for the safety of observers as well as the actions to take if or when accidents do happen to observers (e.g. full cooperation in any search and rescue operation).

Further, FFA members also drove the adoption of the resolution for minimum labour standards for crew at the WCPFC meeting in 2018. As a result of the number of reports on crew and observer deaths on fishing vessels, some WCPFC members including PICs, have proposed the adoption of a new CMM to replace the current non-binding resolution on labour standards for crew on a fishing vessel. The proposed CMM aims to promote safe and decent employment for fishing crew and requires member States to ensure that all crew working on their flag State vessels are covered under its relevant national legislations. Safety of fisheries observers as well as crew welfare will continue to raise much attention during the WCPFC annual meetings.[70]

FFA:
"Harmonised Minimum Terms and Conditions for Access by Fishing Vessels (HMTCs)"

- One of the FFA members key strategic tools to regulate foreign fishing vessel access to their waters.
- Fundamental mechanism for setting leading standards for FFA Members to protect, as well as maximise their benefits from their fisheries resources.
- The Pacific Islands Forum Fisheries Committee (FFC) has the responsibility for adopting and amending MTCs as they see fit.

(Source: © FFA, 2022).

67 J. Sloan, The Importance of regional cooperation between Pacific Island Countries for fisheries management and to increase the benefits for Pacific Islanders, para. 17-25.
68 World Wide Fund for Nature (WWF), Inquiry into Illegal, Unreported, and Unregulated Fishing in the Pacific Islands, 14.
69 F. Blaha, 'The use of Harmonised Minimum Terms & Conditions for Access by Fishing Vessels for Crewing Rights and Welfare', Francisco Blaha [blog post] (1 June 2019), para. 5-8, http://www.franciscoblaha.info/blog/2019/6/1/the-use-of-harmonised-minimum-terms-amp-conditions-for-access-by-fishing-vessels-for-crewing-rights-and-welfare, accessed 26 Jan. 2022.
70 Human Rights At Sea, 'WCPFC 17: Human and Labour Rights Developments and Challenges', Human Rights At Sea (21 Dec. 2020), 2. What has been achieved so far, https://www.humanrightsatsea.org/2020/12/21/wcpfc-17-human-and-labour-rights-developments-and-challenges/, accessed 30 Aug. 2021.

iii. No Minimum Standards at the International Level

Other than the International Labour Organization (ILO) Work in Fishing Convention, 2007 (C188) that has not been universally adopted at the international level, there are no minimum standards for working conditions in place to be adopted by countries. This may be exacerbated by longline fishing vessels that are old with poor conditions and facilities that are unsafe for the crew and officers alike. This is well documented as labour conditions on longline fishing vessels is often characterized by low wages for the crew, unsafe working conditions and stress from long periods out at sea. Because some countries have stronger regulations than others, fishers prefer to operate in countries with weak regulatory frameworks. Further, fishing industries tend to register their longline fishing vessels with countries that focused on financial gain and do not exercise effective flag State compliance responsibilities or do not cooperate with measures adopted by RFMOs as required under the UNCLOS. These States operate an open register which accepts vessels and crew from different countries of origin, a term commonly known as flag of convenience (FOC). This practice of FOC, though it seems attractive creates further problems of poor working conditions and human rights violations. Reports surrounding FOC vessels are often related to poor working conditions because of weak regulation on such vessels. Crew members on FOC fishing vessels work under extremely dangerous and poor conditions without any insurance cover and compensation for any injuries or death. Another issue on FOC is that a seafarer's basic rights such as joining trade unions, demand for suitable pay and proper working conditions may not be available or addressed. This is similarly the case for longline fishing vessels engaged in IUU fishing that prefer ports with corrupt practices, weak laws with lack of capacity to enforce and investigate offences to IUU-caught fish or fish products – a term known as ports of convenience. These ports would then be easily associated with forced labour, human rights abuses, as well as human and drug trafficking, and may further confuse enforcement authorities on IUU fishing investigations and prosecutions.[71]

RECOMMENDED OPTIONS FOR MANAGEMENT

International cooperation is required to address the problem associated with human rights violations at sea and these include:

- Building and enhancing a shared understanding of the problem at a global level;
- Imposing stringent sanctions upon entities/people that engage in criminal activities;
- Increasing electronic monitoring (video surveillance) onboard fishing vessels to ensure acceptable worker conditions and penalize offenders that do not comply these measures;
- Governments incentivizing private businesses that purchase their catch from responsible fishing companies;
- Strengthen national inter-agency cooperation;
- Skills training and capacity building to strengthen law enforcement capacity; and
- Civil society engagements with States in developing practical tools to strengthen law enforcement.[72]

iv. Regional and International Efforts to Address Human Rights Issues at Sea

It is essential that enhanced transparency of fishing operations and traceability of fish or fisheries products be mandatory to address and mitigate the issues relating to IUU fishing, human trafficking, forced labour, and other criminal activities, resulting in more responsible managed fisheries globally. Although IUU fishing and organised crime undermines global efforts to promote sustainable developments as well as sustainable ocean economy, the fact remains more effective and coordinated enforcement is required at the national, regional and international level.[73] Some of the steps being taken regionally to address the issue include:

- Improving job prospects and safety at sea for fisheries observers during the current pandemic was one of the key focus during the 114th Forum Fisheries Committee (FFC114) meeting organised by FFA in 2020. Development of safety protocols at sea and in port, and minimum standards for observer insurance was also discussed during the meeting;.[74]
- Fiji, Cook Islands, Vanuatu, Marshall Islands, Papua New Guinea and Kiribati are the six FFA member countries that have signed the Torremolinos Declaration, in promoting the Cape Town Agreement to enter into force by 2020. The Agreement covers safety standards for crew and observers on fishing vessels;[75]
- The FFA member country Ministers adopted amendments to the HMTCs on human rights and labour during the 16th Annual Session of the Forum Fisheries Committee Ministers Meeting (FFCMIN16) organised by FFA in 2019 (include suspending Good Standing on the FFA Vessel Register for failure to comply with fishing license conditions regulating employment);

71 World Wide Fund for Nature (WWF), Inquiry into Illegal, Unreported, and Unregulated Fishing in the Pacific Islands, 6.
72 C.F. Marto, Human Rights Violations Consequent to Transshipment Practices in Fisheries, 35-53
73 E. Witbooi et al., Organised Crime in the Fisheries Sector, 2.
74 Pacific Islands Forum Fisheries Agency, Fisheries observer safety a key focus, as FFA wraps up annual meeting [media release] (22 June 2020), para. 1-8, https://www.ffa.int/node/2426, accessed 29 Aug. 2021.
75 J. Sloan, The Importance of regional cooperation between Pacific Island Countries for fisheries management and to increase the benefits for Pacific Islanders, para. 24.

- In 2018, the WCPFC adopted a non-binding resolution on labour standards for crew on fishing vessels. Due to reports on number of deaths of crew and observers, work is in progress that a binding CMM on labour standards for crew on fishing vessels be developed prior to WCPFC18. This work remains a priority for FFA member countries;
- The International Seafood Sustainability Foundation (ISSF) called for a new conservation measure on social and labour standards that will be required for all of its members, involving major tuna processors, traders and marketers;
- The FAO continues to advance and debate its work to develop human rights guidelines[76] and;
- The MSC has since 2018 introduced requirements that all MSC certified fisheries report on the actions they take to address forced and child labour, and combatting IUU fishing.[77]

The main international instruments mandated to progress and strengthen the work in addressing human rights issues, are highlighted in Table 6 below.[78]

Table 6. International framework to address human rights issues in the fishing sector.

International Labour Organization (ILO) Work in Fishing Convention, 2007 (C188)	Ensure the fishers have decent working conditions onboard fishing vessels, conditions of service, accommodation and food, occupational safety and health protection and medical care and social security
The International Maritime Organization Cape Town Agreement (CTA)	Outlines fishing vessel safety standards and includes other regulations designed to protect the safety of crew and observers. Expected to enter into force on in October 2022. A mandatory global regulation for fishing vessels (24m or longer) that fish in the high seas when enforced.

(Source: © FAO, 2022).

76 L. Campling, E. Havice & M. McCoy, 'FFA Trade and Industry News', Pacific Island Forum Fisheries Agency (6 Nov. Dec. 2020), para. 9 & 21, https://www.ffa.int/node/2511, accessed 29 Aug. 2021.
77 Marine Stewardship Council, 'Forced and child labour', Marine Stewardship Council (n.d.), 1. Labour practices at sea, https://www.msc.org/what-we-are-doing/our-approach/forced-and-child-labour, accessed 22 Sep. 2021.
78 Committee on Fisheries, Transshipment: Summary of the Findings of the In Depth Study, 7.

Offloading on a purse seiner, Republic of Marshall Islands. © Francisco Blaha

6. BYCATCH

Silky shark caught by the fin on an illegal longline hook. © Cat Holloway

i. Defining Bycatch

It is often difficult to reach an internationally agreed and accepted definition of the word bycatch. Depending on the jurisdiction, bycatch may be defined differently in different countries and this is primarily due to:

- Different definitions of bycatch at the national level;
- Fisher's choice on how different portions of their catch will be used;
- Equivocal terminologies related to bycatch;
- The diverse nature of the world's fisheries; and
- Fisheries management plans that have its own regulatory definitions of the term bycatch.[79]

According to the FAO, despite ambiguities in definitions around the world, a more commonly used definition of bycatch is shown below.

FAO:
"Bycatch"
Unintentional catch of non-targeted organisms while fishing for a particular species (or sizes of species).

(Source: © FAO, 2022).

These non-targeted organisms are further divided into two parts:

- **Byproduct (landed bycatch)** – Non-targeted organisms that are kept and eaten or sold (e.g. Billfishes such as Sailfish (*Istiophorus platypterus*), and Mahimahi (*Coryphaena hippurus*); and
- **Discards (released bycatch)** – animals that are thrown back into the sea (either dead or alive), and might also include slipped released animals (e.g. undersize or poor quality of fish, and ETP species). [80]

The Bycatch Mitigation Information System (BMIS) is a database provided by the WCPFC as a useful resource for fisheries, scientists and managers on bycatch issues and management in the WCPO. It defines bycatch as the incidental catch of non-targeted species, including seabirds, marine turtles, sharks and rays, and marine mammals associated with oceanic longline, purse seine, gillnet and billfish fisheries. These four groups of species are of special interest due to their low reproductive capacity and their tendency to interact with fisheries that target tuna in the WCPO. Bycatch interpretations can vary between fisheries, and between vessels within the same fishery.

The SPC also categorise non-targeted species into two:

- **Bycatch** – unwanted catch that are discarded back to the sea as they are protected by law or have little to no value (e.g. pelagic rays, marine turtles, sharks, seabirds and cetaceans); and
- **Byproduct** – fish species that are retained, similarly to target species due to their commercial value. [81]

ii. Outline of Issues on Bycatch

IUU fishing practices including the non-compliance with relevant CMMs aimed at protecting the wider ecosystem and non-targeted species have both direct and indirect impacts on the marine ecosystem. The discarded bycatch is of major concern globally and the focus of many studies, research and management because of its impact on ETP species, threats to biodiversity and waste of marine resources.[82] Bycatch is an additional threat posed by IUU fishing and has contributed to overfishing and the drastic decline of fish populations around the world, thwarting global efforts in sustainable fishing practices and affecting coastal and Pacific Island communities in terms of food security and economic stability. Further, the use of prohibited fishing gear and fishing in marine protected areas may destroy habitats (e.g. reefs, seamounts) of ETP species like sharks which demonstrates IUU fishing threats to the marine ecosystem.

At the global level, sometimes when fishers have reached their targeted quota, large amounts of marine captured wildlife are treated as wastes or discards, being thrown back into the sea either dead or dying, inflicting unnecessary mortalities. However, this does not apply much in the WCPO as the only limits are at the flag State level which is predominantly on bigeye tuna. These large discards by volume, prevents populations of many marine life from recovery after many years of overexploitation, especially for animals with low reproductive rates, resulting in the natural imbalance of the marine ecosystems and their functions. Lack of regulation or proper management measures for targeted and non-targeted catch is also the reason behind overfishing practices.[83] Some problems associated with bycatch in certain fisheries include, among other things, the catch of:[84]

- Species and sizes of fish not targeted in a fishery;
- Species that are endangered, threatened and protected;
- Juvenile fish; and
- Species which has no intended use.

79 The Food and Agriculture Organization of the United Nations, 'International Guidelines on Bycatch Management and Reduction of Discards', Food and Agriculture Organization of the United Nations (Rome, 2011), 4-5, http://www.fao.org/3/ba0022t/ba0022t.pdf, accessed 30 Aug. 2021.
80 M.A.P. Roda et. al., 'A third assessment of global marine fisheries discards', Food and Agriculture Organization of the United Nations (Rome, 2019), xv, http://www.fao.org/3/CA2905EN/ca2905en.pdf, accessed 30 Aug. 2021.
81 WWF, 'Best Practice for Bycatch Mitigation in Fiji's Tuna Longline Fishery: for Vessels Owners & Operators', WWF (Suva, 2021), 2, https://wwfasia.awsassets.panda.org/downloads/vessel_operators___owners_bycatch_document.pdf, accessed 31 Aug. 2021.
82 The Food and Agriculture Organization of the United Nations, A third assessment of global marine fisheries discards, xv.
83 A. Keledjian et al., 'Wasted Catch: Unsolved Problems in U.S Fisheries', Oceana (Mar. 2014), 5-6, https://oceana.org/sites/default/files/Bycatch_Report_FINAL.pdf, accessed 31 Aug. 2021.
84 The Food and Agriculture Organization of the United Nations, International Guidelines on Bycatch Management and Reduction of Discards, 4.

GLOBAL ESTIMATES

A report by FAO in 2019 estimated that around 9.1 million tonnes of fish are discarded annually in the global marine capture fisheries, representing 10.8% of the annual average catch from 2010 – 2014. Most of these discards were from bottom trawling such as otter trawls, shrimp trawls, pair bottom trawls, twin otter trawls and beam trawls. This was specifically significant in the Northwest Pacific Ocean followed by Northeast Atlantic areas. Further, fisheries that targeted tuna and other pelagic species had the lowest discard rates while fisheries that targeted crustaceans had the highest discard rates.

Taking into account ETP species in the marine commercial and artisanal fisheries, the report also estimated annual fisheries interactions with 1 million seabirds, 8.5 million marine turtles, 225,000 sea snakes, 650,000 marine mammals and 10 million sharks. This may also denote the pervasive nature of IUU fishing in the fisheries sector. However, global figures on discards of bycatch species are always unclear due to few reasons including:

- Different countries have their own laws and regulatory requirements enforced on different ETP species and their fisheries;
- Under reporting, misreporting or non-reporting of bycatch species are most common, which is attributed to IUU fishing; and
- Discarding practices vary greatly across the globe considering the fishing conditions and procedures that in turn affects discards mortalities. [85]

PIC ESTIMATES

The ABNJ of the WCPO is also home to highly migratory species of tuna, and bycatch of sharks, seabirds, and cetaceans. Purse seine and the pelagic tuna longline are the two major fisheries that cause high risk of mortality for bycatch of marine turtles, seabirds, sharks, and cetaceans, preventing regional conservation and management efforts. [86]

PICs also submit information collected on bycatch species or species of special interest (SSI) that are reported to the WCPFC via the observer programme. The WCPFC compiles the estimates of reported bycatch of ETP species which are listed in Tables 7, 8 and 9 respectively. As shown in Table 7, seabird, marine turtle and cetacean interactions or observations had reduced between 2019 and 2020.[87] Some of the key shark species (Tables 8 and 9) includes blue shark *(Prionace glauca)*, silky shark *(Carcharhinus falciformis)*, oceanic whitetip shark *(Carcharhinus longimanus)*, and mako shark *(Isurus oxyrinchus)*. According to a 2020 WCPFC tuna fishery yearbook, the combined estimated volume of these four discarded shark species by 14 PIC longliners had reduced from 3, 270 to 2, 077 tonnes between 2019 and 2020 respectively.

The reduced interactions or discards of these species of bycatch could be attributed to the implementation of relevant WCPFC measures by PICs in zone. They are also the result of low observer coverage due to Covid-19 restrictions placed on national, regional and international travels for commercial fishing. The WCPFC tuna fishery yearbook does not cover explicitly the reports of sharks, marine turtles, cetaceans and seabirds in the longline, pole and line, purse seine and South Pacific troll fisheries. Data on seabirds, marine turtles and cetaceans were taken from the WCPFC part 1 annual reports for 2020 (SC16) and 2021 (SC17) respectively. [88]

Table 7. Bycatch (numbers) recorded by PIC longliners and purse seiners.

	Seabirds	Seabirds	Marine turtles	Marine turtles	Cetaceans	Cetaceans
Country	**2020**	**2019**	**2020**	**2019**	**2020**	**2019**
FSM	0	0	11	51	141	271
Fiji	1	15	37	45	3	2
French Polynesia	27	9	2	1	0	1
Kiribati	0	0	0	8	147	40
Marshall Islands	0	0	1	2	5	31
Nauru	0	0	0	0	22	1
New Caledonia	2	3	2	1	0	2
PNG	0	0	8	25	113	73
Solomon Islands	0	0	1	10	38	59
Vanuatu	0	6	2	1	2	9
Total	**30**	**33**	**64**	**144**	**471**	**489**

(Source: © WCPFC, 2022).

85 The Food and Agriculture Organization of the United Nations, A third assessment of global marine fisheries discards, xii.
86 S. Clarke, 'Mainstreaming the Management and Conservation of Shark and Bycatch in Pacific High Seas Tuna Fisheries,' International Waters Learning Exchange & Resource Network (29 Aug. 2019), 2-3, https://www.iwlearn.net/resolveuid/2515eb43-80ab-43fe-bddc-53a074e34012, accessed 31 Aug. 2021.
87 Western and Central Pacific Fisheries Commission, 'Scientific Committee', Western and Central Pacific Fisheries Commission (2022), 1, https://meetings.wcpfc.int/meetings/type/11, accessed 18 Feb. 2022.
88 Western and Central Pacific Fisheries Commission, 'WCPFC Tuna Fishery Yearbook 2020', Western and Central Pacific Fisheries Commission (17 Nov. 2021), 1, https://www.wcpfc.int/doc/wcpfc-tuna-fishery-yearbook-2020, accessed 18 Feb. 2022.

Table 8. Incidental shark catch (tonnage) by PIC longliners in 2019.

Country	Blue shark	Silky shark	Ocean whitetip	Mako shark	Total
Cook Islands	54	2	57	1	114
FSM	200	38	63	5	306
Fiji	89	51	20	17	177
French Polynesia	197	45	192	24	458
Kiribati	2	0	0	0	2
Marshall Islands	95	20	44	2	161
New Caledonia	102	22	46	7	177
Palau	114	438	0	1	553
PNG	19	0	0	1	20
Samoa	41	1	5	6	53
Solomon Islands	65	2	0	24	91
Tuvalu	3	1	2	0	6
Tonga	2	0	0	11	13
Vanuatu	985	2	1	151	1139
Total	**1, 968**	**622**	**430**	**250**	**3, 270**

(Source: © WCPFC, 2022).

Table 9. Incidental shark catch (tonnage) by PIC longliners in 2020.

Country	Blue shark	Silky shark	Ocean whitetip	Mako shark	Total
Cook Islands	7	0	3	0	10
FSM	79	16	5	6	106
Fiji	83	73	25	14	195
French Polynesia	140	34	199	25	398
Kiribati	1	0	0	0	1
Marshall Islands	13	10	1	1	25
New Caledonia	49	2	2	0	53
Samoa	1	0	0	1	2
Solomon Islands	62	4	0	20	86
Tonga	0	1	0	6	7
Vanuatu	1,072	1	0	121	1, 194
Total	**1, 507**	**141**	**235**	**194**	**2, 077**

Source: © WCPFC, 2022).

Threats to Sharks:

- Overfishing;
- Caught as bycatch; and
- Shark finning.

Shark and ray species are incidentally captured on longline (hooking), purse seine (caught in nets or entangled in the netting beneath FADs) and gillnet (entanglement) tuna fisheries.[89] A recent study has revealed that since 1970, population of oceanic sharks and rays have declined by 71% primarily due to the 18-fold increase in fishing pressure. About three quarters of these species are threatened with extinction according to the IUCN Red List of threatened species. Moreover, fisheries management and regulations cannot seem to comprehend the fast rate in overfishing of oceanic sharks.[90]

A 2021 report titled The Shark and Ray Meat Network: A Deep Dive into a Global Affair by WWF highlighted that as much as 100 million sharks are killed annually due to overfishing, with 36% of the 1,200 known sharks threatened with extinction and would also be attributed to IUU fishing. As a result of overfishing of sharks and other marine life, the world's ocean has deteriorated. The global trade in shark and ray fin and meat is the driving factor behind it, with a total value of more than US$4.1 billion from 2012-2019. Notwithstanding, the many reports and attention received on global fin trade, the combined global trade value of shark and ray meat (US$2.6 billion) exceeds that of shark fins with a value of US$1.5 billion. The European Union (EU) is the main supplier of shark meat to Southeast and East Asian markets, with 22% of its exports and imports accounting for the total global shark meat trade. On the other hand, the global trade of ray meat is not as significant as shark meat; however, the EU remains important for the stability of this trade network. The lack of proper regulatory requirements and management measures including reporting of catches (species-specific) and landing prevents global efforts in effective fisheries management.

The lack of traceability and transparency required to capture adequate data across the supply chain from point of catch to the consumer thwarts measures to ensure that fisheries and trade are sustainable and mitigate illegal fishing and trade of sharks and rays. Suggested management measures for the global trade on shark and ray and to combat IUU fishing include among other things;

- Countries developing a shark NPOA which considers market issues;
- Strict regulation of shark and ray products intended for trade;
- Cooperation and partnership between fisheries authorities;
- Species-specific reporting must become the norm (including other bycatch species for effective management);
- Environmental NGOs and relevant stakeholders support in implementation of shark NPOAs, PSMA, and CITES; and
- Availability of resources and capacity building for fisheries and relevant authorities in MCS related activities such as species identification and understanding of exisisting laws.[91]

The WCPFC became the first tuna RFMO to establish a formal shark research plan covering stock assessment, research coordination and fishery statistics improvement. Since its inception in 2010, the WCPFC members have been providing data on annual catch estimates and operational-level catch and effort data for designated key shark species. Fisheries in the WCPO have in some cases implemented regulations that ban gear components on fishing practices. In the Pacific Islands region, the most common gear control to reduce shark catches is a ban on wire (or steel) leaders. Countries like Australia (for its Eastern Tuna and Billfish Fishery), the Cook Islands, Fiji (domestic longline fishery), the Marshall Islands, Palau, and Samoa are known to have been implementing this rule. [92]

RECOMMENDED MITIGATION METHODS (BMIS)[93]

Some effective shark bycatch mitigation techniques include:

- Deep setting, reduce soak time, avoid wire leaders, use of circle hooks and bait change (use finfish) in longline fisheries;
- Correct bycatch species reporting require careful consideration as change in gear type or design and methods can affect some species while it benefits the other; and
- Limiting FAD use and modifying FAD designs and practices in purse seine fisheries.

THREATS TO MARINE TURTLES:

- Caught as bycatch on a fishing hook (e.g. longline hook);
- Eating and illegal trade of eggs, meat and shells;
- Coastal development leading to loss of breeding and nesting grounds;
- Pollution and pathogens; and
- Climate change.

89 Bycatch Management Information System, 'Sharks and Rays', Bycatch Management Information System (n.d), para. 1, https://www.bmis-bycatch.org/bycatch-species-groups/sharks-and-rays, accessed 01 Sep. 2021.

90 N. Pacoureau et al., 'Half a century of global decline in oceanic sharks and rays', Nature, 589 (2021), 567, https://doi.org/10.1038/s41586-020-03173-9

91 S. Niedermüller et al., 'The Shark and Ray Meat Network: A Deep Dive into a Global Affair,' WWF (13 July 2021), 4-6, https://wwfeu.awsassets.panda.org/downloads/a4_shark_2021_low.pdf, accessed 31 Aug. 2021.

92 Food and Agriculture Organization of the United Nations, 'Bycatch in longline fisheries for tuna and tuna-like species: A global review of status and mitigation measures', Food and Agriculture Organization of the United Nations (Rome, 2014), 32-37, https://www.fao.org/3/i4017e/i4017e.pdf, accessed 20 Jan. 2022.

93 Bycatch Management Information System, Sharks and Rays, Para. 1.

The State of the World's Sea Turtles (SWOT) estimated that thousands of marine turtles are killed annually as bycatch within the global fishing industry. [94] Marine turtles are often incidentally caught as bycatch through longlines (hooking), entanglement in longlines, gillnets and purse seine FAD netting (both above and below the waterline), and they are sometimes encircled in purse seine nets. Loggerheads turtles, green turtles, olive Ridley turtles, hawksbill turtles and leatherback turtles are vulnerable to these fishing activities.[95] Moreover, research relating to the ecological impacts of IUU fishing on populations of marine turtles is limited which needs to be addressed and considered as high priority in the WCPO.

RECOMMENDED MITIGATION METHODS (BMIS)[96]

Some marine turtle bycatch mitigation methods used on longlines are:

- Using circle hooks with a moderate (<100) offset, deep setting, reducing daylight soak duration, limit retrieval during daylight hours, and dynamic spatial and temporal measures (i.e. TurtleWatch) in longline fisheries;
- Use net illumination for gillnets;
- Improve FAD designs (i.e. biodegradable and no-entangling are being tested to reduce marine turtle bycatch); and
- Practice safe handling and release practices to improve post-release survival.

THREATS TO SEABIRDS:

- Incidentally captured on longline fishing gears (bycatch);
- Invasive species such as pigs, dogs, goats causes problems in seabirds breeding islands; and
- Climate change.

Studies have shown that these are the top three threats to seabirds and are both found on land and at sea, making them one of the most threatened group of bycatch species. It is estimated that more than 170 million seabirds are exposed to each impact of bycatch, invasive species and climate change, while 380 million seabirds are exposed to at least one of the three threats. Climate change is often difficult to address and is exacerbated by the effects of bycatch and invasive species.[97] Bycatch of seabirds are also the result of IUU fishing in the longline fisheries sector and due to the nature of IUU fishing, it is often problematic to accurately quantify those seabird interactions with longliners. [98] Bycatch occurs when seabirds become hooked and drown while taking baited hook or can also occur when birds strike rigging gear on fishing vessels while trying to steal a meal. If these problems are not addressed, many species of seabirds will become extinct soon.

RECOMMENDED MITIGATION METHODS (BMIS)

Some mitigation measures used to prevent and mitigate bird bycatch on longline includes:

- Steamer lines (tori lines);
- Fast sinker;
- Weighted branch lines;
- Night setting; and
- Hook shielding device (e.g. hook pods).[99]

THREATS TO CETACEANS:[100]

- Collision with vessels leading to death;
- Vessel disturbance (commercial and recreational) increase physical and acoustic disturbance in cetacean habitat;
- Food supply (cetacean diets are influenced by overfishing, climate change, pollution, and human activity);
- Contaminants (environment pollutants are a major threat to cetaceans);
- Noise (underwater noise from shipping, seismic exploration etc. may affect the ability of cetaceans to forage, finding mates, navigation in the ocean);
- Depredation (removal of fish bait by toothed whales results in economic losses to fishers, and injury and death on whales);
- Commercial whaling has destroyed many populations of cetaceans and only a few have recovered. Whale products and cultural values in regards to hunting and food source continues to be significant in the life of indigenous communities;
- Entanglement of fishing lines, nets, or other materials of human origins around the body of cetaceans can cause major harm affecting their ability to maneuver in the ocean; and

94 The State of the World's Sea Turtles, 'Threats to Sea Turtles', The State of the World's Sea Turtles (n.d), 2. Why are Sea Turtles Endangered? 5 Major Threats, https://www.seaturtlestatus.org/threats-to-turtles, accessed 01 Sep. 2021.
95 Bycatch Management Information System, 'Sea Turtles', Bycatch Management Information System (n.d), para. 1, https://www.bmis-bycatch.org/bycatch-species-groups/sea-turtles, accessed 01 Sep. 2021.
96 Bycatch Management Information System, Sea Turtles, para. 1.
97 Birdlife International, 'Top threats to seabirds identified', Birdlife International (7 Aug. 2019), 1. https://www.birdlife.org/worldwide/news/top-threats-seabirds-identified, accessed 01 Sep. 2021.
98 Food and Agriculture Organization of the United Nations, Bycatch in longline fisheries for tuna and tuna-like species, 91.
99 Bycatch Management Information System, 'Seabirds', Bycatch Management Information System (n.d), para. 1, https://www.bmis-bycatch.org/bycatch-species-groups/seabirds, accessed 01 Sep. 2021.
100 B.C. Cetacean Sightings Network, 'Threats', B.C. Cetacean Sightings Network (n.d), 1. Wild Whales Face Many Threats, https://wildwhales.org/threats/, accessed 01 Sep. 2021.

Munua, a Fisheries Observer from Tuvalu verifying catch data.© Francisco Blaha

- Climate change has drastic effects on populations of cetaceans including sea surface temperatures, freshening of seawater due to melting of ice or increase rainfalls, and loss of ice polar habitats

RECOMMENDED MITIGATION METHODS (BMIS)[101]

Some mitigation techniques practices or in development includes:

- Advances in techniques for safe handling and release from purse seines, longlines and gillnets;
- Progress in development of dynamic spatial fishery management plans to avoid interactions with cetaceans;
- Closure of fishing area; and
- Weak circle hooks and strong branchlines required in the Hawaii-based deep-set and shallow-set longline fisheries.

According to a 2021 FAO report titled, Fishing operations. Guidelines to prevent and reduce bycatch of marine mammals in capture fisheries, developing countries including PICs can be assisted through financial and technical support (e.g. development of policies on reduction of bycatch of cetaceans, data collection, assessment, reporting and monitoring of cetaceans) to improve their capacity in mitigating cetacean bycatch in their fisheries, and also reduce IUU fishing practices,[102]

101 Bycatch Management Information System, 'Marine Mammals', Bycatch Management Information System (n.d), para. 1, https://www.bmis-bycatch.org/bycatch-species-groups/marine-mammals, accessed 01 Sep. 2021.

102 Food and Agriculture Organization of the United Nations, 'Fishing operations. Guidelines to prevent and reduce bycatch of marine mammals in capture fisheries', Food and Agriculture Organization of the United Nations (Rome, 2021), 74, https://www.fao.org/3/cb2887en/cb2887en.pdf, accessed 20 Jan. 2022.

iii. Regional and International Efforts in Mitigating Bycatch of ETP Species

The WCPFC has adopted CMMs that are binding to its members including PICs to mitigate the bycatch of sharks, sea turtles, seabirds, and mobulid rays. The WCPFC has also developed guidelines to assist its members and non-members on how to safely handle and release ETP species including marine turtles, whale sharks and other species of sharks, seabirds, manta and mobulid rays.[103] Although the WCPFC has approved best practice guidelines for handling of cetaceans; however, these guidelines only address safe handling practices.

Further, the WCPFC also requires CCMs to submit reports (i.e. Part 1 annual report) on interactions of their fishing vessels with bycatch of ETP species, usually collated from observer data. The ROP of the WCPFC requires 5% observer coverage for all longliners and 100% observer coverage is mandatory on all purse seiners which indicate that there is good data on bycatch of ETP species. This would support the WCPFC's work on conservation and management efforts as well as combatting IUU fishing practices. Due to the challenge of lack of information to support fisheries management decisions, the WCPFC, in collaboration with the SPC, FAO and the Common Oceans ABNJ Programme, have developed the BMIS web portal for exploring past and present efforts on mitigating bycatch issues. Though the BMIS tool might not cover existing gaps in terms of lack of data and information; however, it can address some of it.[104] Observer coverage on fishing vessels, whether pelagic longline or purse seine fishing vessels, needs to be strengthened for collation of more data to develop better management measures.

In addition to the WCPFC CMMs, PICs are capable of implementing more stringent fisheries management measures on fishing operations within their EEZs or area of national jurisdiction (e.g. boarding and inspection). As a means to combat IUU fishing in the PICs, it is a requirement under the FFA HMTCs to keep daily records of all catch including bycatch species, discarded catch, and all bycatch transshipped or unloaded offshore. It also requires submission of reports to relevant licensing authorities within 45 days upon completion of a fishing trip. The MRAG Asia Pacific study suggested that if illegal transshipment operations involve preferential transshipment of species of bycatch or shark fins over other species, then these illegal operations should be investigated and included in future models in quantifying IUU fishing. [105]

Controlling by-catch transshipment from a Taiwanese longliner in Noro, Solomon Islands. © Francisco Blaha

103 Western and Central Pacific Fisheries Commission, 'Conservation and Management Measures', Western and Central Pacific Fisheries Commission (17 Feb. 2021), 3. Currently in force Conservation and Management Measures of the Western and Central Pacific Fisheries Commission, https://www.wcpfc.int/conservation-and-management-measures, accessed 01 Sep. 2021.
104 S. Clarke, Mainstreaming the Management and Conservation of Shark and Bycatch in Pacific High Seas Tuna Fisheries, 5.
105 MRAG Asia Pacific, Towards the Quantification of Illegal, Unreported and Unregulated (IUU) Fishing in the Pacific Islands Region, 21.

The limitations and gaps in coordination, cooperation and governance including MCS in protecting biodiversity from human activities in the high seas have led to international negotiations to develop an ILBI under the UNCLOS. Area-based management tools (ABMTs), including fully marine protected areas (MPAs) are part of this new instrument to contribute in conservation efforts and sustainable use of marine biodiversity in the high seas. Existing measures being implemented in the WCPO such as fishing gear restrictions or bycatch mitigation measures can complement the application of ABMTs in future high seas management as well as addressing IUU fishing.[106] Moreover, the main international instruments that regulate, categorize, assess, and list these ETP species both at the international, regional and national level are shown in Table 10.

Table 10. International instruments used to categorise, regulate and assess ETP species.

International Union for the Conservation of Nature (IUCN) Red List of Threatened Species	It is a global tool used as a critical indicator of the world's biodiversity. It provides information about range, population size, habitat and ecology, use and/or trade, threats, and conservation actions that will help inform necessary conservation decisions. It highlights those species that are facing a risk of global extinction and is updated annually based on an objective system.
United Nations Convention on the Conservation and Management of Migratory Species of Wild Animals (CMS)	The CMS provides a global platform for the conservation and sustainable use of migratory animals and their habitats. It uses a variety of tools that range from legally binding treaties through to voluntary commitments (Memorandum of Understanding).
The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	CITES is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.
Food and Agriculture Organization of the United Nations	Has provided international guidelines to assist countries and RFMOs in the management of bycatch and reduction of discards (Guidelines to prevent and reduce bycatch of marine mammals in capture fisheries). Developed voluntary International Plans of Action (IPOA) to assist States and entities on practical steps to implement the various aspects of the Code. The four IPOAs developed include IPOA-seabirds, IPOA-sharks, IPOA-fishing capacity and IPOA-IUU.

(Source: © IUCN, CMS, CITES, FAO, 2022).

106 O'Leary et al., Options for managing human threats to high seas biodiversity, 9.

7. TRACEABILITY PRACTICES IN THE SEAFOOD SUPPLY CHAIN

Traceability verification at PAFCO, Levuka.© Adriu Iene / WWF-Pacific

i. Traceability an Important Tool to Mitigate Risk of IUU Fishing

The increase in global demand for seafood has enabled the trade in fish and fishery products around the world reaching lucrative international markets. Traceability is a complex system involving different market players, with fish travelling long distances, across multiple landing ports, handling from processing factories to wholesalers, retailers and finally the individual consumers. Some of these global retailers and owners of tuna brand have made commitments to import food sourced from countries that engage in sustainable fishing practices such as MSC certified fisheries or fisheries that do not associate themselves with IUU fishing activities. For PICs, improved communication and understanding the benefits of a traceability system between customers and/or suppliers are essential for successful implementation of traceability. Further, traceability maybe influenced through efficient transportation of the fish or fishery product from the point of catch right to the consumer, including those shipped by sea or air freight. Nevertheless, IUU fishing operators seek to undermine national and international efforts in fisheries management, which has negative impacts on many fisheries that are already experiencing difficulties in identifying, tracing and documenting, how fish and its products are transported throughout the supply food chain (sea to plate).[107] Because IUU-caught fish can penetrate aspects of fisheries from fishing operation to the end product such as canned fished food or fish sold in shops, it is necessary that PICs implement MCS arrangements at the early stages in the supply food chain in order to detect IUU fishing and apply sanctions where necessary. The lack of enforcement and monitoring by countries on their flagged fishing vessels, and poorly implemented port State measures may allow illegal catches to be landed, and may reach lucrative international markets.[108]

"Traceability"

International Organization for Standardization (ISO) 12875:2011:

- The ability to trace the history, application or location of that which is under consideration

FAO:

- Traceability or product tracing is defined by the Codex Alimentarius Commission as 'the ability to follow the movement of a food through specified stage(s) of production, processing and distribution'.

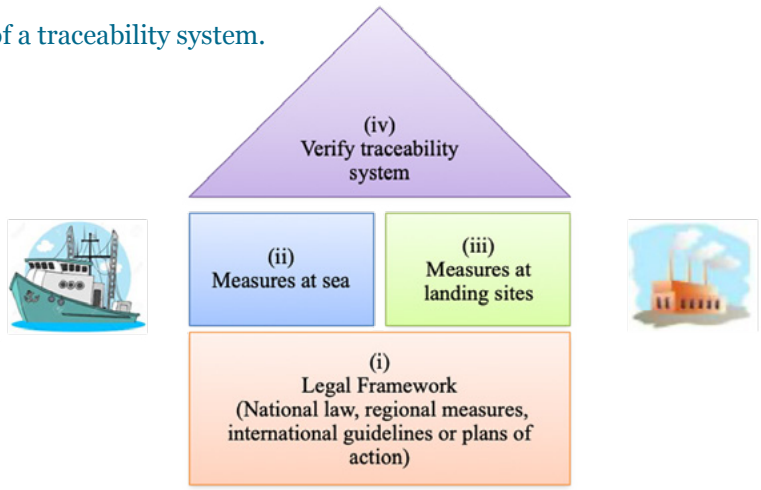
WWF:

- Traceability is the systematic ability to access any or all information relating to a food under consideration, throughout its entire life cycle, by means of recorded identifications.

(Source: © FAO, ISO, WWF, 2022).

Furthermore, having a transparent and traceable system in place to track the movement of fish and fish products from point of catch to the consumer, promotes healthy fish stocks and fisheries sustainability, and can support the socio-economic viability of the fishing industry and the communities that depend on fisheries. Over the years, the benefits associated with traceability have increased with interests from government, fishing industry, NGOs, consumers and various stakeholders in developing robust seafood traceability systems.[109] Many countries in the WCPO region have made it mandatory for traceability as a requirement to enforce food safety regulations, assessment of the chain of custody (CoC) in certification processes, and a tool to curb and mitigate IUU fishing (e.g. through CDS). [110]

Figure 6. Components of a traceability system.



(Source: © FAO, 2022).[111]

107 WWF, 'Traceability Principles for Wild-caught Fish Products', Fish Wise (Hamburg, 2015), 1, http://assets.worldwildlife.org/publications/796/files/original/WWF_Traceability_Principles_for_Wild-Caugh_Fish_April_2015.pdf?1430410438&_ga=1.119963784.1200551038.1463614484, accessed 02 Sep. 2021.

108 G. Hosch & F. Blaha, 'Seafood traceability for fisheries compliance: Country-level support for catch documentation schemes', Food and Agriculture Organization of the United Nations (Rome, 2017), 2-3, http://www.fao.org/3/i8183en/i8183en.pdf, accessed 02 Sep. 2021.

109 WWF, Traceability Principles for Wild-caught Fish Products, 1-2.

110 Committee on Fisheries, 'Traceability: FAO's Recent Work and the Future', Food and Agriculture Organization of the United Nations (Vigo, 2019), 2, http://www.fao.org/3/nb241en/nb241en.pdf, accessed 02 Sep. 2021.

111 V. André, 'Good Practice Guidelines (GPG) on National Seafood Traceability Systems', Food and Agriculture Organization of the United Nations (Rome, 2018), 6, http://www.fao.org/3/I8795EN/i8795en.pdf, accessed 02 Sep. 2021.

The components of a traceability system as outlined in Figure 6 include:

- Legal framework – the foundation in which authorities sets regulations or measures required for fishing, requirements for any traceability scheme, and other related control systems;
- At-sea measures – refers to measures used like vessel identification, VMS, inspection etc;
- Measures on land – use of CDS requirements; and
- Verify all provisions through proper documentation, and frequent audits to any traceability system within a supply chain.

ii. Work in Progress at the Regional and International Level

Since 2014, although FFA member countries seafood industry had to adhere to the new European Union (EU) labeling and traceability guidelines and implications for greater transparency, there is still less research done on the nature and effectiveness of transparency efforts associated with tuna fisheries. Moreover, this new guidelines continue to have an impact on seafood labelling and traceability requirements across the seafood supply chain, especially for PICs that export to the EU market. The traceability system require all exports of fish and fisheries products to the EU to be traceable at all stages including catch of origin, processing and distribution (which is currently being implemented in many PICs). In the recent decade, the PICs tuna fisheries have made efforts to address issues of IUU fishing and transparency through practices including, among other things, VMS, information sharing, regional aerial and sea surveillance, placement of fisheries observers, and improved use of modern technology to enhance the monitoring of vessels and supply chains leading to great economic benefits through these efforts. [112]

TRACEABILITY PRINCIPLES

WWF has developed six principles of traceability to guide State actors and stakeholders in improving traceability systems as a means to also combat IUU fishing problems. The principles can be viewed as a basic framework for the effective and successful implementation of traceability systems in wild-caught seafood supply chains. In brief, the principles include essential information, full chain traceability, effective tracking of product transformations, digital information and standardized data formats, verification and, transparency and public access to information.[113]

TRACEABILITY GUIDANCE AND TOOLS IN FISHERY IMPROVEMENT PROJECTS

WWF published a traceability guidance in early 2022 to help Fishery Improvement Project (FIP) practitioners and stakeholders work successfully with the issue of seafood traceability to encourage transparent and responsible practices across the fishing industry. The Guidance responds to strong demand expressed by FIP practitioners for education and capacity-building on traceability. [114]

GLOBAL DIALOGUE ON SEAFOOD TRACEABILITY (GDST)

To ensure that traceability standards are in place for the seafood industry to achieve interoperability, WWF and the Institute of Food Technologists' Global Food Traceability Center took the lead in organizing the GDST. A robust stakeholder consultation was conducted to develop the GDST guideline, with more than 60 companies participating from around the world, across the seafood supply chain, and across a range of enterprise sizes from the very largest multinationals to the associations of the smallest operators. The GDST standard guideline focused on four core areas: (i) defining which Key Data Elements (KDEs) should be collected and when, (ii) aligning industry expectations around criteria for reliable data verification, (iii) fostering data sharing and interoperability by defining technology standards and data access protocols that allow proprietary traceability systems to communicate with one another, and (iv) aligning seafood traceability systems with modernizing regulatory standards. [115] Although GDST adoption by industry is voluntary, it is equally important to advocate on its importance and the need for industry to incorporate the standard along its fish processing steps- preventing IUU-caught fish penetrating the supply chain and into the market.

BLOCKCHAIN TECHNOLOGY

Blockchain technology is a system of recording information in a way that makes it difficult or impossible to change, hack, or cheat the system. The system digitizes 'block' of information at key transaction points in the supply chains including fishing, landing, entry/withdrawal from cold storage, processing and delivery. Each time a transaction occurs on the Blockchain, a record of that transaction is added to every participant's ledger. This traceability method involves inserting a digital tag into the fish at the original point of production and linked to the blockchain. NGO's such as WWF have assisted countries like Fiji to advance blockchain technology for seafood traceability, with a pilot tuna traceability project with Sea Quest Fiji Pte Ltd in 2018.

112 M. Keen, Q. Hanich & G. Walton, 'Fishing for a future: Transparency challenged in Pacific Island tuna fisheries', Asia & the Pacific Policy Society (01 Jul. 2020), para. 1-12, https://www.policyforum.net/fishing-for-a-future-transparency-challenges-in-pacific-island-tuna-fisheries/, accessed 02 Sep. 2021.

113 WWF, Traceability Principles for Wild-caught Fish Products, 3-7.

114 World Wide Fund for Nature (WWF), 'Guidance and Tools for Traceability in Fishery Improvement Projects', WWF (27 Jan. 2022), para. 1, https://files.worldwildlife.org/wwfcmsprod/files/Publication/file/12v3xzk3d7_FIP_Guidance_Paper_final.pdf?_ga=2.192249706.1736968946.1648697005-1369810073.1647397009, accessed 21 Mar. 2022.

115 World Wide Fund for Nature (WWF), Guidance and Tools for Traceability in Fishery Improvement Projects, 7.

The aim was to improve tuna traceability in combatting IUU fishing practices as well as addressing human rights abuses in the tuna industry. It strengthens the management in the supply chain by tracing fish from fishing vessels to supermarkets using digital technology in the fresh and frozen tuna sectors of the western and central Pacific region. OpenSC-a platform developed and launched by WWF-Australia and BCG Digital, provides useful information to market players in identifying legally caught fish or fisheries products, environmentally damaging or unethical products by scanning a quick response (QR) code tag for each product on their smart phones. The QR provides information on where the product originated from, how it was produced and its movement along the supply chain. Although it's still at the initial stage and seems appropriate in terms of traceability, the technology (QR –coded fish) might be limited to high-end markets that support a price premium for products with traceability attributes.[116]

Digital traceability can be a way forward in regard to improving the effectiveness of business transactions as well as reducing IUU fishing practices for PICs as well as countries in the WCPO. The transfer of information becomes more reliable and conducted in a timely manner in comparison to paper-based procedures which is widely practiced. It becomes efficient as information is collated, shared and communicated over networks electronically. Although there maybe challenges for business operators in the setup of electronic systems, the system allows authorised users to access information of a product at various points in the supply chain.[121]

A 2020 FAO report provides some recommendations on the application of blockchain in seafood supply chains by government and international agencies. It seemed that current initiatives are more private-industry focused when it should include all relevant authorities along the value chain. The report highlights the importance of identifying the type of data that is needed before deciding which blockchain technology to use. Government agencies and international organisations that intends to use blockchain technology must apply due diligence at legal, commercial and operational level before commiting to such intiative. Although blockchain technology will not elimite IUU fishing, it may help the flow of money and fish or fishery products become more visible and transparent along the supply chain.[117]

CATCH DOCUMENTATION SCHEMES

CDS have the primary purpose of helping determine throughout the supply chain whether fish originate from catches taken is consistent with applicable national, regional and international CMMs, established in accordance with relevant international obligations. The FAO has developed a voluntary Guideline for CDS which would assist States, RFMO's and other entities in developing and implementing new CDS, or reviewing existing ones. The Guideline also States that CDS should only be implemented as an effective means to curb fish products taken from IUU fishing from entering the supply chain. It also States the need for a more multilateral or regional CDS than unilateral ones.[118]

The WCPFC has not developed a formal CDS; however, the FFA Secretariat has been tasked with working on a regional CDS standard which would also be tailored to meet PIC requirements. Planning on developing a practical and effective system for some or all of the tuna species has been underway for some years now, and careful consideration is required, taking into account the unique nature of the WCPFC's fishery, multiple species, and combination of EEZs and high seas areas. However, many WCPFC members, including PICs have implemented a number of traceability schemes in the region, mainly to comply with catch certification requirements of the unilateral EU Regulation to prevent, deter and eliminate IUU fishing (e.g. PNG has implemented a national CDS in place). The WCPFC has discussed the development of an electronic, standards-based CDS regime as the way forward for the region.[119] Moreover, the key to developing an effective CDS is through policy development and cooperation to ensure that only legal fish or fisheries products enter the supply chain. FFA members are well placed in this regard due to the high level of cooperation between the members through the application of the NTSA, which has detailed and broad information sharing provisions for validation and certification of catch. WCPFC has commissioned reports on CDS and there has been international studies on Catch certification and documentation.

Further, FFA members have also developed and agreed on a CDS framework to support and inform regional CDS development of the WCPFC. CDS works effectively in fisheries and supply chains when major flag, port and market States work collaboratively in enforcing the scheme and mitigate trade of fish and fishery products derived from IUU fishing. The UNFSA has provisions which obligate flag States to take actions when allegations are made against a vessel

116 E. Havice, L. Camppling & M. McCoy, 'FFA Trade and Industry', Pacific Island Forum Fisheries Agency (Jan.-Feb. 2019), 7, https://www.ffa.int/system/files/FFA_TIN_Jan-Feb_2019_0.pdf, accessed 02 Sep. 2021.

117 F. Blaha & K. Katafono, 'Blockchain application in seafood value chains', Food and Agriculture Organization of the United Nations (Rome, 2020), 40-41, https://www.fao.org/3/ca8751en/CA8751EN.pdf, accessed 14 Apr. 2022.

118 G. Hosch & F. Blaha, Seafood traceability for fisheries compliance, 4-5.

119 Western and Central Pacific Fisheries Commission, 'Tuna Traceability-A Possibility in the Pacific', Western and Central Pacific Fisheries Commission (13 Jul. 2015), 1, https://www.wcpfc.int/node/19828, accessed 02 Sep. 2021.

120 G. Hosch & F. Blaha, Seafood traceability for fisheries compliance, 6-36.

121 WWF, Traceability Principles for Wild-caught Fish Products, 2-3

on violations conducted in the high seas. The UNCLOS also requires coastal States to oversee and regulate any fishing vessel's operation within their EEZ with the application of its national laws while the FAO Code places more emphasis on the enforcement bit from flag States.[120]

iii. Tools to Reduce the Risk of IUU Fishing

There are various tools in place to support traceability systems and reduce the risk of IUU fishing for PICs of the WCPO. Strong and effective MCS arrangements such as licensing systems, VMS, observer programmes, aerial and sea surveillance operations, dockside boarding and inspections, and landing reports are needed to support traceability. A supply chain risk analysis approach can be used to enhance the traceability framework of CDS which aims to prevent illegally caught fish from entering legally certified supply chain. The analysis is cost-effective to control catch certificates and reduces administrative work for customs officials. Although it's time-consuming and costly, DNA testing can be an alternative tool to support investigation of a particular species in a consignment or tracing its place of origin. Other essential supply chain tool to support traceability include third party certification regimes (e.g. certified CoC), and legally verifying trade and record-keeping documents. [122]

iv. Gaps on Traceability

In spite of the many available tools and practices for seafood traceability, the fact remains that these approaches are still underdeveloped in many countries, and across market sectors. According to the FAO, some of these gaps include among other things:

- Lack of awareness and understanding of the term traceability, and how the concept differs from chain of custody or CDS;
- Lack of understanding of how traceability can streamline fishing industries internal processes and improve financial performance;
- Commitment gap among the public and private sectors is significant when dealing with seafood traceability systems;
- Significant gaps between regulatory requirements and implementation from the fishing industry; and
- Lack of cheap, functional technologies to extract data automatically.

v. Good Management Practices for Seafood Traceability

The FAO has provided guidelines on good management practices for seafood traceability as briefly outlined in Table 11, which States and stakeholders along the value chain can use to combat IUU fishing practices. [123]

WWF-Pacific's Industry Liaison & Facilitation Officer, Adriu Iene showing the Kariqa crew how the scanning process works in Suva. © Ravai Vafo'ou / WWF-Pacific

122 WWF, Traceability Principles for Wild-caught Fish Products, 2.
123 V. André, Good Practice Guidelines (GPG) on National Seafood Traceability Systems, 4-22.

Table 11. Seafood traceability management practices.

Regulatory framework for combatting IUU fishing	• **National laws** Clearly defines IUU fishing, fishing logbooks mandated as a component of fisheries management approaches, 'have teeth' impose penalties and fines against violations, provisions for political intervention to combat IUU fishing • **Clearly defined control mechanism** Cooperation among competent authorities (i.e. fisheries, customs, health) in harmonized actions, policies and clarified responsibilities between relevant agencies on inspections procedures • **Regional cooperation** RFMO members should implement measures in sync with the FAO Code Standards promoting implementation of management plans based on ecosystems based-based approach
Measures at sea	• **Registration/ licensing/ authorisation / permit for all fishing vessels** • **Compliance and enforcement at sea** MCS is enforced at sea, fishing gear restrictions are well established and enforced, VMS onboard fishing vessels, transshipments at sea are authorised by flag State with observer onboard, catch and efforts data submitted electronically to flag State or RFMO
Measures on landing	• **Access to port/ landing sites** Implementation of Port State Measure (PSM), port monitoring of landing of catch, available list of designated ports • **Records at landing site** Procedure in place on traceability documents (i.e. landing reports validated by a competent authority), origin and destination information of catches must be registered and issued with fish movement permit by fisheries authorities, catch certification with provision of minimum information, information on vessel and fisher identification and catch quantity, recording exact weight of fish instead of volume of fish caught, transfer of data (electronic or paper) along the supply chain with critical points identified and information is compatible among countries (i.e. match in export & import data)
Verifiability	• **Possibility of verifying the legality of the catch** • **Traceability and fish accountancy**

(Source: © FAO, 2022).

8. CONCLUSION

This report is intended to provide Pacific CSOs with an understanding of the salient issues of concern on the high seas of the WCPO that PICs are facing, as it affects the wellbeing of everyone involved in the industrial fisheries sector. IUU fishing has one of the greatest impacts on the marine ecosystem. Moreover, the nature and impact of transshipment practices, human rights abuses, bycatch, and traceability practices are all linked to IUU fishing problems on the high seas of the WCPO.

IUU fishing in the high seas of the WCPO continues to undermine international, regional and national efforts in sustainable fisheries management such as catch limits or gear restrictions to reduce incidental catch of discards and bycatch of ETP species, affects the economies, livelihoods and food security of various PICs. Globally, IUU fishing persists because it is profitable and is relatively low risk and high reward. It takes advantage of weak and corrupt management systems, especially amongst developing countries that lack the resources, capacity and financial capabilities to effectively implement MCS activities. The study by the MRAG Asia Pacific in 2021 highlighted that misreporting represents one of the key problem in the Pacific. Another key finding from the study was that less stringent MCS measures were applied to high seas fisheries and poorer information availability in these fisheries which would be very pertinent to the study.

Despite the problems of IUU fishing in the WCPO, FFA members have done a lot in addressing this issue. These efforts include FFA VMS for fishing vessels operating in FFA member waters, WCPFC VMS for fishing vessels operating solely in the high seas of the WCPO, FFA Regional Vessel Register and Good Standing requirement, FFA HMTCs for foreign fishing vessel access, the development of common regional data collection protocols and forms, establishment of regional PIRFO standards and training for observers, the Niue Treaty and Subsidiary Agreement on cooperation in fisheries surveillance and law enforcement, sharing of resources and exchange of information, including fisheries data and intelligence in the South Pacific region, in-country CDS, and 100% observer coverage on the purse seine fleet. These efforts on MCS measures are evident of low estimates of IUU fishing activity in the FFA region.

Transshipments at sea which enables longline fishing vessels to operate for a long period of time, away from land and monitoring by authorities are usually linked to IUU fishing. Discrepancies between data and reporting requirements by carrier vessels and fishing vessels, ineffective management systems or weak legislations, and less cooperation among States and other regional bodies are the reason IUU fishing and violation of human rights laws thrive at sea by large fishing industries. According to a study by the Pew Charitable Trust in 2019, reporting, monitoring and data sharing are three areas that needs to be strengthened in the WCPO. This includes among other things, reporting on all activities irrespective of area or origin of catch, monitoring be mandatory such as 100% observer coverage as well as e-monitoring on all vessels engaged in transshipment practices (collate data on science and compliance matters), and develop and expand data sharing agreement between RFMOs. This is particularly true for transshipment practices in the high seas due to the poor oversight by authorities. The WCPFC has adopted measures on transshipment practices at sea including 100% observer coverage on all transshipment activities, and reporting requirements which are being implemented by PICs. Many PICs still rely on transshipment activities to maximise their economic benefits. Transshipment in port is well monitored and supervised where PICs apply their national laws for compliance purposes and addressing IUU fishing problems.

Transshipment in the high seas allow longline fishing vessels to operate for months or even years without returning to port, and out of sight of authorities to monitor and regulate its fishing operations. These practices on the high seas further increase the ability of those longline fishing vessels to engage in IUU fishing as well as other heinous criminal activities including forced labour, deaths, violence and trafficking in people, and drugs. It also allows the fishing industry to retain, exploit and manipulate individual crew or workers, exercise the practice of forced labour, violence, and thereby providing less opportunity for crew to leave vessels while out at sea. PICs legislations covering employment or labour conditions on longline fishing vessels are not well structured as compared to their fisheries legislations. Despite this, FFA member countries have over years done a lot in addressing the issues of forced labour on fishing vessels. This cooperation has led to the implementation of crewing standards on FFA's HMTC to address forced labour and IUU fishing. FFA members have continued to push the WCPFC for the adoption of observer safety measures to address the safety and well-being of observers. FFA memebers have been instrumental in the adoption of a resolution on labour standards for crew in 2018 and also with a proposed CMM on labour standards for crew on fishing vessels which is currently being drafted.

Bycatch remains a threat posed by IUU fishing, contributing to overfishing and the decline of fish populations around the world including the WCPO. It prevents regional and national efforts in sustainable fishing practices affecting coastal communities like PICs in terms of food security and economic stability. The use of prohibited fishing gear and fishing in marine protected areas may destroy habitats (e.g. reefs, seamounts) of ETP species like sharks which demonstrates IUU fishing threats to the marine ecosystem. Bycatch of ETP species in the WCPO include sharks, sea turtles, seabirds and cetaceans. The purse seine and the pelagic tuna longline fisheries cause high risk of mortality for bycatch of these ETP species in the WCPO. However as a requirement by the WCPFC in the WCPO, 100% observer coverage is mandatory for purse seiners which indicate there is good data on bycatch that would support the WCPFC's work on conservation and management efforts and combatting IUU fishing practices. The WCPFC has provided CMMs and guidelines that would assist PICs in safe handling practices as well as mitigating the incidental catch of these bycatch species.

Seafood traceability is an important step for many PICs to combat IUU fishing in that information about the fish and fisheries product can be traced along the supply seafood chain. Blockchain technology which digitizes 'blocks' of information at key transaction points in the supply chains including fishing, landing, entry/withdrawal from cold storage, processing and delivery has been trialled in some PICs like Fiji. CDS helps determine throughout the supply chain whether fish originate from catches taken is consistent with applicable national, regional and international measures or rules. Countries like PNG have developed its own CDS. The FFA member countries have done a lot by agreeing on the development of a CDS framework to support and inform the development of a WCPFC CDS.

Cooperation between RFMOs and States, governance and other effective management systems needs to be strengthened at the national, regional and international level. FFA member countries have done a lot in addressing the issues of transshipment practices, human rights abuse, bycatch and traceability practices which are linked to IUU fishing.

9. RECOMMENDATIONS

This report provides a variety of recommended options for PICs of the WCPO to follow (or already following) that would mitigate some of the highlighted issues of concern in the high seas, including transshipment operations, human right issues, bycatch and traceability practices which are closely associated with IUU fishing. These issues calls for greater collaboration, cooperation, partnership, and network between CSOs to use their expertise to address these underlying problems and further support the work at the national, regional and international level.

The following are some of the recommendations for CSOs to consider:

i. CSOs must continue to participate and support international (FAO Code of Conduct, CITES, CMS, IUCN) and regional (WCPFC) arrangements on matters relating to sustainable fishing practices and combatting IUU fishing;

ii. CSOs to continue to push forth at the WCPFC in implementing requirements on compliance monitoring scheme (CMS), a 100% observer coverage including electronic monitoring be mandatory on all fishing vessels (including those engaged in transshipment activities), timely delivery of transshipment reporting, encourage transshipment in port and prohibit transshipments at sea, strong sanctions on non-compliance, adoption of CMM on reducing bycatch (e.g. marine mammals), and CMMs relating to the safety and well-being of fisheries observers and crew. The WCPFC to improve transparency in its proceedings by engaging CSOs and private sector's contribution in discussions and decision making process during its annual meetings;

iii. Support the work of CROP agencies such as SPC and FFA in addressing these issues of concern across the PIC region;

iv. Support research, analysis and actions on transshipment operations at sea in the WCPO, or if quantification studies are needed to target MCS efforts in the high seas. Support primary research into the ecological and economic consequences of human activities in the high seas. This research should also include the costs of current governance and management of the high seas and the potential future costs of proposed reforms; and

v. Assist PICs where relevant through financial and technical support to enhance their capacity to develop policies or regulations at the national level to combat and deter IUU fishing (e.g. NPOA on sharks, PSMA, and bycatch reduction), greater transparency and traceability processes and cost effective technology, adoption of GDST guidelines, effective MCS frameworks, adopt and implement PSMA, research and development as well as awareness and communication on relevant issues at the national level. CSOs must also support and encourage PICs to ratify the IMO Cape Town Agreement and ILO's Work in Fishing Convention to ensure safety and well-being of crew and observers.

10. BIBLIOGRAPHY

André, V., Good Practice Guidelines (GPG) on National André, V., Good Practice Guidelines (GPG) on National Seafood Traceability Systems, Food and Agriculture Organization of the United Nations (Rome, 2018), http://www.fao.org/3/I8795EN/i8795en.pdf, accessed 02 Sep. 2021.

Aqorau, T., 'Covid-19 and its likely impact on the tuna industry in the Pacific Islands', DevPolicyBlog (27 Apr. 2020), https://devpolicy.org/covid-19-and-its-likely-impact-on-the-tuna-industry-in-the-pacific-islands-20200427-1/, accessed 17 Sep. 2021.

Ásmundsson, S., 'Freedom of Fishing on the High Seas, and the Relevance of Regional Fisheries Management Organisations (RFMOs)', Sematic Scholar (2016), https://www.cbd.int/doc/meetings/mar/soiom-2016-01/other/soiom-2016-01-fao-18-en.pdf, accessed 12 Aug. 2021.

B.C. Cetacean Sightings Network, 'Threats', B.C. Cetacean Sightings Network (n.d), https://wildwhales.org/threats/, accessed 01 Sep. 2021.

Birdlife International, 'Top threats to seabirds identified', Birdlife International (7 Aug. 2019), https://www.birdlife.org/worldwide/news/top-threats-seabirds-identified, accessed 01 Sep. 2021.

Blaha, F., 'Interesting issues in the WCPO longline fishery 2019', Francisco Blaha [blog post], (25 Feb. 2021), http://www.franciscoblaha.info/blog/2021/2/24/w3wrowyfusuap9w1u3f4ho7w9cepi7, accessed 13 Apr. 2022.

Blaha, F., 'The use of Harmonised Minimum Terms & Conditions for Access by Fishing Vessels for Crewing Rights and Welfare', Francisco Blaha [blog post], (1 June 2019), http://www.franciscoblaha.info/blog/2019/6/1/the-use-of-harmonised-minimum-terms-amp-conditions-for-access-by-fishing-vessels-for-crewing-rights-and-welfare, accessed 26 Jan. 2022.

Blaha, F. & Katafono, K., 'Blockchain application in seafood value chains', Food and Agriculture Organization of the United Nations (Rome, 2020), https://www.fao.org/3/ca8751en/CA8751EN.pdf, accessed 14 Apr. 2022.

Borovnik, M., Bedford, C & Bailey, R., 'Has Covid-19 ended seafaring for Kiribati', DevPolicyBlog (22 Dec. 2021), https://devpolicy.org/has-covid-19-ended-seafaring-for-kiribati-20211222/, accessed 25 Jan. 2022.

Bycatch Management Information System, 'Marine Mammals', Bycatch Management Information System (n.d), https://www.bmis-bycatch.org/bycatch-species-groups/marine-mammals, accessed 01 Sep. 2021.

Bycatch Management Information System, 'Seabirds', Bycatch Management Information System (n.d), https://www.bmis-bycatch.org/bycatch-species-groups/seabirds, accessed 01 Sep. 2021.

Bycatch Management Information System, 'Sea Turtles', Bycatch Management Information System (n.d), https://

www.bmis-bycatch.org/bycatch-species-groups/sea-turtles, accessed 01 Sep. 2021.

Bycatch Management Information System, 'Sharks and Rays', Bycatch Management Information System (n.d), https://www.bmis-bycatch.org/bycatch-species-groups/sharks-and-rays, accessed 01 Sep. 2021.

Campling, L., Havice, E. & McCoy, M., 'FFA Trade and Industry News', Pacific Island Forum Fisheries Agency (6 Nov. Dec. 2020), https://www.ffa.int/node/2511, accessed 29 Aug. 2021.

Carreon, B., 'MSC warns WCPO tuna fisheries of potential certification suspension', Seafood Source (28 Jul. 2021), https://www.seafoodsource.com/news/environment-sustainability/msc-warns-wcpo-tuna-fisheries-of-potential-certification-suspension, accessed 15 Sep. 2021.

Carreon, B., 'NGOs: WCPFC falls short in IUU, harvest management reform', Seafood Source (16 Dec. 2019), https://www.seafoodsource.com/news/environment-sustainability/ngos-wcpfc-falls-short-in-iuu-harvest-management-reforms, accessed 19 Aug. 2021.

Clarke, S., 'Mainstreaming the Management and Conservation of Shark and Bycatch in Pacific High Seas Tuna Fisheries,' International Waters Learning Exchange & Resource Network (29 Aug. 2019), 2-3, https://www.iwlearn.net/resolveuid/2515eb43-80ab-43fe-bddc-53a074e34012, accessed 31 Aug. 2021.

Committee on Fisheries, 'Traceability: FAO's Recent Work and the Future', Food and Agriculture Organization of the United Nations (Vigo, 2019), http://www.fao.org/3/nb241en/nb241en.pdf, accessed 02 Sep. 2021.

Committee on Fisheries, 'Transshipment: Summary of the Findings of the In Depth Study', Food and Agriculture Organization of the United Nations (Feb. 2021), http://www.fao.org/3/ne753en/ne753en.pdf, accessed 26 Aug. 2021.

Environmental Justice Foundation, 'The ten principles for global transparency', Environmental Justice Foundation (23 Nov. 2018), https://ejfoundation.org/resources/downloads/EJF-Transparency-10-principles-final-1.pdf, accessed 26 Apr. 2022.

Food and Agriculture Organization of the United Nations, 'Bycatch in longline fisheries for tuna and tuna-like species: A global review of status and mitigation measures', Food and Agriculture Organization of the United Nations (Rome, 2014), https://www.fao.org/3/i4017e/i4017e.pdf, accessed 20 Jan. 2022.

Food and Agriculture Organization of the United Nations, 'Fishing operations. Guidelines to prevent and reduce bycatch of marine mammals in capture fisheries', Food and Agriculture Organization of the United Nations (Rome, 2021), https://www.fao.org/3/cb2887en/cb2887en.pdf, accessed 20 Jan. 2022.

Food and Agriculture Organization of the United Nations, 'Illegal, unreported and unregulated fishing', Food and Agriculture Organization of the United Nations (Rome, 2016), http://www.fao.org/3/i6069e/i6069e.pdf, accessed 16 Aug. 2021.

Food and Agriculture Organization of the United Nations, 'International Guidelines on Bycatch Management and Reduction of Discards', Food and Agriculture Organization of the United Nations (Rome, 2011), http://www.fao.org/3/ba0022t/ba0022t.pdf, accessed 30 Aug. 2021.

Food and Agriculture Organization of the United Nations, 'Transshipment: a closer look', Food and Agriculture Organization of the United Nations (14 Sep. 2016), http://www.fao.org/3/cb0987en/CB0987EN.pdf, accessed 25 Aug. 2021.

Havice, E., Campling, L. & McCoy, M., 'FFA Trade and Industry News', Pacific Island Forum Fisheries Agency (6 Nov. Dec. 2020), https://www.ffa.int/system/files/FFA_TIN_Jan-Feb_2019_0.pdf, accessed 02 Sep. 2021.

Horton, B., 'In Oceania, Fisheries are Life. And They are Disappearing. (Part2)', The University of Texas at Austin (21 Dec. 2019), https://sites.utexas.edu/climatesecurity/2019/12/21/in-oceania-fisheries-are-life-and-they-are-disappearing-part-2/, accessed 27 Aug. 2021.

Hosch, G. & Blaha, F., 'Seafood traceability for fisheries compliance: Country-level support for catch documentation schemes', Food and Agriculture Organization of the United Nations (Rome, 2017), http://www.fao.org/3/i8183en/i8183en.pdf, accessed 02 Sep. 2021.

Human Rights At Sea, 'WCPFC 17: Human and Labour Rights Developments and Challenges', Human Rights At Sea (21 Dec. 2020), https://www.humanrightsatsea.org/2020/12/21/wcpfc-17-human-and-labour-rights-developments-and-challenges/, accessed 30 Aug. 2021.

Keen, M., Hanich, Q. & Walton, G., 'Fishing for a future: Transparency challenged in Pacific Island tuna fisheries', Asia & the Pacific Policy Society (01. Jul. 2020), https://www.policyforum.net/fishing-for-a-future-transparency-challenges-in-pacific-island-tuna-fisheries/, accessed 02 Sep. 2021.

Keledjian, A. et al., 'Wasted Catch: Unsolved Problems in U.S Fisheries', Oceana (Mar. 2014), https://oceana.org/sites/default/files/Bycatch_Report_FINAL.pdf, accessed 31 Aug. 2021.

Kenchington, R.A., 'Managing marine environments: an introduction to issues of sustainability, conservation, planning and implementation', Research Gate (15 Oct. 2014), https://www.researchgate.net/publication/266855362, accessed 10 Aug. 2021.

Ligaiula, P., 'Calls for ban on rampant tuna transshipment in the high seas', FFA's Tuna Pacific: Fisheries news and views (03 Dec. 2017), https://www.tunapacific.org/2017/12/03/calls-for-ban-on-rampant-tuna-transshipment-in-the-high-seas/, accessed 16 Sep. 2021.

Ligaiula, P., 'High Seas Tuna Transshipment-What it is and why it should be reformed', Pacific News Service (31 Aug. 2021), https://pina.com.fj/2021/08/31/high-seas-tuna-transshipment-what-it-is-and-why-it-should-be-reformed/, accessed 16 Sep. 2021.

Macfadyen, G. et al., 'The Illegal, Unreported and Unregulated Fishing Index', Global Initiative Against Transnational Organized Crime (07 Feb. 2019), https://globalinitiative.net/wp-content/uploads/2019/02/IUU-Fishing-Index-Report-web-version.pdf, accessed 14 Jan. 2022.

Marto, C.F., 'Human Rights Violations Consequent to Transshipment Practices in Fisheries', Ocean and Coastal Law Journal, 24/1 (2019), 31 -58, https://digitalcommons.mainelaw.maine.edu/oclj/vol24/iss1/3

MRAG Asia Pacific, 'The Quantification of Illegal, Unreported and Unregulated (IUU) Fishing in the Pacific Islands Region – a 2020 Update', Francisco Blaha (Toowong, 2021), https://static1.squarespace.com/static/52a9273ae4b07fa2610392dd/t/61b7e62aa1cb747d1e6824c0/1639441975812/ZN2869+-+FFA+IUU+2020+Update+-+final.pdf, accessed 17 Dec. 2021.

MRAG Asia Pacific, 'Towards the Quantification of Illegal, Unreported and Unregulated (IUU) Fishing in the Pacific Islands Region', SPREP PROE Pacific Islands Protected Area Portal (Toowong, 2016), https://www.sprep.org/sites/default/files/documents/publications/towards-quantification-illegal-fishing-pacific-region.pdf, accessed 16 Aug. 2021.

National Oceanic Atmospheric Administration (NOAA) Fisheries, 'Fisheries Observers: Observer Safety', NOAA Fisheries (15 July 2021), https://www.fisheries.noaa.gov/national/fisheries-observers/observer-safety, accessed 30 Aug. 2021.

National Oceanic Atmospheric Administration (NOAA) Fisheries, 'Improving International Fisheries Management – 2021 Report to Congress', NOAA Fisheries (10 Jan. 2022), https://media.fisheries.noaa.gov/2021-08/2021ReporttoCongressonImprovingInternationalFisheriesManagement.pdf, accessed 14 Jan. 2022.O'Leary, B.C. et al., 'Options for managing human threats to high seas biodiversity', Ocean and Coastal Management,187 (2020), 1-12, https://doi.org/10.1016/j.ocecoaman.2020.105110

Niedermüller, S. et al., 'The Shark and Ray Meat Network: A Deep Dive into a Global Affair,' WWF (13 July 2021), https://wwfeu.awsassets.panda.org/downloads/a4_shark_2021_low.pdf, accessed 31 Aug. 2021.

Pacoureau, N. et al., 'Half a century of global decline in oceanic sharks and rays', Nature, 589 (2021), 567-571, https://doi.org/10.1038/s41586-020-03173-9Pew Charitable Trusts, 'High seas at risk: why the world must act', Pew Charitable Trusts (05 Jul. 2016), https://www.pewtrusts.org/en/trend/archive/summer-2016/high-seas-at-risk-why-the-world-must-act, accessed 10 Aug. 2021.

Pew Charitable Trusts, 'High seas at risk: why the world must act', Pew Charitable Trusts (05 Jul. 2016), https://www.pewtrusts.org/en/trend/archive/summer-2016/high-seas-at-risk-why-the-world-must-act, accessed 10 Aug. 2021.

Pew Charitable Trusts, 'Illegal, Unreported and Unregulated Fishing', Pew Charitable Trust (25 Feb. 2013), https://www.pewtrusts.org/en/research-and-analysis/articles/2013/02/25/illegal-unreported-and-unregulated-fishing-frequently-asked-questions, accessed 15 Sep. 2021.

Pew Charitable Trusts, 'Transshipment in the Western and Central Pacific: Greater understanding and transparency of carrier vessel fleet dynamics would help reform management', Pew Charitable Trust (12 Sep. 2-19), https://www.pewtrusts.org/-/media/assets/2019/09/international_fisheries_transshipment_report.pdf, accessed 25 Aug. 2021.

Pew Charitable Trusts, 'The Pew Charitable Trusts Statement to the 18th Regular Session of the Western and Central Pacific Fisheries Commission', Western and Central Pacific Fisheries Commission (10 Nov. 2021), https://meetings.wcpfc.int/node/14420, accessed 19 Apr. 2022.

Post, V. & Squires, D., 'Managing Bigeye Tuna in the Western and Central Pacific Ocean', Frontiers in Marine Science, 7 (2020), 1-8, https://doi.org/10.3389/fmars.2020.00619

Roda, M.A.P. et al., 'A third assessment of global marine fisheries discards', Food and Agriculture Organization of the United Nations (Rome, 2019), http://www.fao.org/3/CA2905EN/ca2905en.pdf, accessed 30 Aug. 2021.

Rogers, A.D. et al., 'The High Seas and Us: Understanding the Value of High-Seas Ecosystems', Open Channels: Sustainable Ocean Management & Conservation (14 Dec. 2019), https://www.openchannels.org/literature/7720, accessed 16 Aug. 2021.

Sloan, J., 'The Importance of regional cooperation between Pacific Island Countries for fisheries management and to increase the benefits for Pacific Islanders', Ocean Law Bulletin (27 Apr. 2020), https://www.sas.com.fj/ocean-law-bulletins/the-importance-of-regional-cooperation-between-pacific-island-countries-for-fisheries-management-and-to-increase-the-benefits-for-pacific-islanders, accessed 15 Sep. 2021.

The State of the World's Sea Turtles, 'Threats to Sea Turtles', The State of the World's Sea Turtles (n.d), https://www.seaturtlestatus.org/threats-to-turtles, accessed 01 Sep. 2021.

United Nations Environment Programme, 'Goal 14: Life below water', United Nations Environment Programme (n.d.), https://www.unep.org/explore-topics/sustainable-development-goals/why-do-sustainable-development-goals-matter/goal-14, accessed 13 Aug. 2021.

United Nations Environment Programme, 'The marine environment is an essential component of the global life-support system', United Nations Environment Programme (09 May 2016), https://www.unep.org/news-and-stories/story/marine-environment-essential-component-global-life-support-system, accessed 10 Aug. 2021.

United Nations Office on Drugs and Crime, 'Transnational Organized Crime in the Fishing Industry', United Nations Office on Drugs and Crime (Vienna, 2011), https://www.unodc.org/documents/human-trafficking/Issue_Paper_-_TOC_in_the_Fishing_Industry.pdf, accessed 29 Aug. 2021.

Western and Central Pacific Fisheries Commission, 'Conservation and Management Measures', Western and Central Pacific Fisheries Commission (17 Feb. 2021), https://www.wcpfc.int/conservation-and-management-measures, accessed 01 Sep. 2021.

Western and Central Pacific Fisheries Commission, 'Conservation and Management Measure to establish a list of vessels presumed to have carried out Illegal, Unreported and Unregulated Fishing Activities in the WCPO', Western and Central Pacific Fisheries Commission (11 Dec. 2019), https://www.wcpfc.int/doc/cmm-2019-07, accessed 27 Aug. 2021.

Western and Central Pacific Fisheries Commission, 'Decision on Extension of WCPFC Decisions in the Context of COVID-19 relating to Purse Seine Observer Coverage, At-Sea Transhipment for Purse Seine Vessels, and At-Sea Transhipment Observers until 15 March2022', Western and Central Pacific Fisheries Commission (10 Dec. 2021), https://www.wcpfc.int/doc/circ-2021-105/outcome-decision-extension-wcpfc-decisions-context-covid-19-relating-purse-seine, accessed 25 Jan. 2022.

Western and Central Pacific Fisheries Commission, 'Port State Minimum Standards', Western and Central Pacific Fisheries Commission (17 Apr. 2021), https://www.wcpfc.int/wcpfc-port-state-minimum-standards, accessed 27 Aug. 2021.

Western and Central Pacific Fisheries Commission, 'Scientific Committee', Western and Central Pacific Fisheries Commission (2022), https://meetings.wcpfc.int/meetings/type/11, accessed 18 Feb. 2022.

Western and Central Pacific Fisheries Commission, 'The Impracticability Exemption to the WCPFC's Prohibition on Transhiment on the High Seas', Western and Central Pacific Fisheries Commission (14 Sep. 2018), https://meetings.wcpfc.int/index.php/node/10983, accessed 19 Jan. 2022.

Western and Central Pacific Fisheries Commission, 'Tuna Traceability-A Possibility in the Pacific', Western and Central Pacific Fisheries Commission (13 Jul. 2015), https://www.wcpfc.int/node/19828, accessed 02 Sep. 2021.

Western and Central Pacific Fisheries Commission, 'WCPFC Tuna Fishery Yearbook 2020', Western and Central Pacific Fisheries Commission (17 Nov. 2021), https://www.wcpfc.int/doc/wcpfc-tuna-fishery-yearbook-2020, accessed 18 Feb. 2022.

Witbooi, E. et al., 'Organised Crime in the Fisheries Sector', High Level Panel for A Sustainable Ocean Economy (Washington DC 2020), https://oceanpanel.org/sites/default/files/2020-09/Organised%20Crime%20Associated%20with%20Fisheries.pdf, accessed 30 Aug. 2021.

World Wide Fund for Nature (WWF), 'Best Practice for Bycatch Mitigation in Fiji's Tuna Longline Fishery: for Vessels Owners & Operators', WWF (Suva, 2021), https://wwfasia.awsassets.panda.org/downloads/vessel_operators___owners_bycatch_document.pdf, accessed 31 Aug. 2021.

World Wide Fund for Nature (WWF), 'Guidance and Tools for Traceability in Fishery Improvement Projects', WWF (27 Jan. 2022), https://files.worldwildlife.org/wwfcmsprod/files/Publication/file/12v3xzk3d7_FIP_Guidance_Paper_final.pdf?_ga=2.192249706.1736968946.1648697005-1369810073.1647397009, accessed 21 Mar. 2022.

World Wide Fund for Nature (WWF), 'Inquiry into Illegal, Unreported, and Unregulated Fishing in the Pacific Islands', New Zealand Parliament (22 Oct. 2021), https://www.parliament.nz/resource/en-NZ/53SCFD_EVI_113422_FD692/143e2f8fa17b27c256004150100b75c7c5a4dfb4, accessed 19 Jan. 2022.

World Wide Fund for Nature (WWF), 'Traceability Principles for Wild-caught Fish Products', Fish Wise (Hamburg, 2015), http://assets.worldwildlife.org/publications/796/files/original/WWF_Traceability_Principles_for_Wild-Caugh_Fish_April_2015.pdf?1430410438&_ga=1.119963784.1200551038.1463614484, accessed 02 Sep. 2021.

Zhao, F. et al., 'Addressing Issues and Challenges in Managing Migratory Tuna Resources in the Western and Central Pacific Ocean', International Journal of the Commons, 15/1 (2021), 119-131, https://doi.org/10.5334/ijc.1069.

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