



First virtual Global Fisheries Enforcement Training Workshop

Held online, 13–14 July 2021



First virtual Global Fisheries Enforcement Training Workshop (GFETW)

Held online, 13–14 July 2021

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Preparation of the document

This document contains the report of the First Virtual Global Fisheries Enforcement Training Workshop (GFETW), which was convened online on 13 and 14 July 2021. The Workshop was organized by the International Monitoring, Control and Surveillance Network (IMCSNET) supported by a Steering Committee consisting of both IMCSNET Member and Observer Organization representatives. The First Virtual GFETW was sponsored by the Food and Agriculture Organization of the United Nations, the United States National Oceanic and Atmospheric Administration (NOAA) Office of Law Enforcement (OLE), the Australian Fisheries Management Authority and New Zealand Ministry for Primary Industries. The Pew Charitable Trusts also supported the Virtual GFETW. Any mistakes in form, formatting or wording are solely the responsibility of the IMCSNET Secretariat. Special acknowledgement is made for the support and assistance of Ms Lauren Dana, IMCSNET intern, for her extensive work in the preparation of this document.

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Abbreviations and acronyms

ABNJ	area beyond national jurisdiction
AI	artificial intelligence
AIS	Automatic Identification System
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCSBT	Commission for Conservation of Southern Bluefin Tuna
CMM	conservation and management measure
COFI	Committee on Fisheries
CSIRO	Commonwealth Scientific and Industrial Research Organization (Australia)
ERS	electronic reporting system
FAO	Food and Agriculture Organization of the United Nations
FFA	Pacific Islands Forum Fisheries Agency
FLUX	Fisheries Language for Universal eXchange
FMC	Fisheries Monitoring Centre
FRA	Fisheries Research Agency
GFETW	Global Fisheries Enforcement Training Workshop
GIES	Global Information Exchange System
ICCAT	International Commission for the Conservation of Atlantic Tunas
ILO	International Labor Organization
IMCSNET	International MCS Network
IMO	International Maritime Organization
INTERPOL	International Criminal Police Organization
IPOA-IUU	International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing
IUU	illegal, unreported and unregulated
MCS	monitoring, control and surveillance
MIMRA	Marshall Islands Marine Resources Authority
MPA	marine protected area
NAF	North Atlantic Format (information exchange)
NAFO	Northwest Atlantic Fisheries Organization
NEAFC	North-East Atlantic Fisheries Commission
NFDS	Nordenfjeldske Development Services
NGO	non-governmental Organization
NOAA	National Oceanic and Atmospheric Administration
NPFC	North Pacific Fisheries Commission
OLE	Office of Law Enforcement
PSMA	Port State Measures Agreement

RFMO	regional fisheries management organization
SADC	Southern African Development Community
SAFET	Seafood and Fisheries Emerging Technologies
SIDS	Small Island Developing States
SIF	Stop Illegal Fishing
SIOFA	Southern Indian Ocean Fisheries Agreement
SPC	The Pacific Community
SPRFMO	South Pacific Regional Fisheries Management Organization
TMT	Trygg Mat Tracking
UN/CEFACT	United Nations Centre for Trade Facilitation and Electronic Business
UNODC	United Nations Office on Drugs and Crime
UVI	Unique Vessel Identifier
VMS	vessel monitoring system
WATF	West Africa Task Force
WCPFC	Western and Central Pacific Fisheries Commission
WWF	World Wide Fund for Nature

Executive summary

This document contains the proceedings of the IMCSNET's first ever virtual GFETW, which took place online on 13–14 July 2021.

Nearly 600 monitoring, control, and surveillance (MCS) practitioners from around the world, as well as other fisheries stakeholders and organizations, registered to participate in the online conference, which consisted of a schedule of speakers, presentations, panel discussions, and interactive discussion rooms. In addition, the virtual platform software utilized for the GFETW facilitated the ability for participants to create and use private meeting rooms for networking sessions, as well as an online chatting function.

One of the primary focuses of the IMCSNET is to increase fisheries MCS cooperation and collaboration between Member countries, especially with and between developing country Members. The virtual conference included participants from both developing and developed nations as well as stakeholder organizations involved in fisheries MCS. The overall theme of the virtual GFETW was *“Illuminating the unknowns – Global cooperation to eliminate the “U’s” from Illegal, Unreported, and Unregulated (IUU) fishing”*. The GFETW focused on an interactive format highlighting three interactive panel discussions on emerging MCS areas of interest or challenges. The event also included MCS papers, presentations, and short videos relevant to one of the following four GFETW themes: cooperation and partnerships, risk assessment and analysis, technology as an enabler, and transparency.

Introduction

1. This document is the official record of the first-ever virtual International MCS Network (IMCSNET) Global Fisheries Enforcement Training Workshop (GFETW), which was held online on 13 and 14 July 2021. The Workshop was organized by the IMCSNET with the support of a GFETW Steering Committee established by the IMCSNET Executive Committee. The virtual GFETW was sponsored or otherwise supported by:

- Food and Agriculture Organization of the United Nations (FAO);
- The United States of America National Oceanic and Atmospheric Administration (NOAA) Office of Law Enforcement (OLE);
- The Australia Fisheries Management Authority (AFMA);
- The New Zealand Ministry for Primary Industries (NZ MPI); and
- The Pew Charitable Trusts (Pew).

2. Many individuals and organizations contributed to the success of the virtual GFETW, but most of the planning and organizing was carried out by the IMCSNET Secretariat supported by the GFETW Steering Committee. The Steering Committee was composed of IMCSNET Member and Observer organization representatives from around the world, including Australia, New Zealand, Republic of Marshall Islands, Norway, Scotland, Kenya, Commission for Conservation of Southern Bluefin Tuna (CCSBT), Global Fishing Watch, and the IMCSNET Secretariat. A sincere thank you to this dedicated group of individuals for taking the lead and making the virtual GFETW a reality.

3. Like previous Workshops, the virtual GFETW was highly successful in bringing together a global community of fisheries MCS professionals to share information and experiences and to receive training on a broad array of MCS topics. The virtual nature of the Workshop also meant that a wider global audience was able to participate in the event which opened greater opportunities for registered participants to network and connect with one another. This proved to be a valuable outcome of the virtual GFETW as providing opportunities for MCS practitioners and other MCS stakeholders to meet and increase their own MCS networks aligns with one of the strategic objectives of the IMCSNET. In the end, the virtual GFETW drew nearly 600 registered participants from more than 60 countries around the globe, 30 of which were IMCSNET member countries.

4. The overall focus of the virtual GFETW was “*Uncovering the Unknowns - Global Cooperation to eliminate ‘the U’s’ in Illegal, Unreported, and Unregulated (IUU) Fishing*”. Four thematic areas within the overall focus were also highlighted, including (a) cooperation and partnerships, (b) risk assessments and analysis, (c) technology as an enabler, and (4) transparency. A copy of the final GFETW Prospectus is provided as an Appendix. The IMCSNET Secretariat and Steering Committee were committed to putting together an agenda and GFETW program that maximized all opportunities for participants to have an interactive experience with the Workshop rather than it being delivered as a series of “one-way” presentations. As a result, the agenda was dominated by three interactive panel discussions as well as post-plenary discussion rooms that

not only facilitated engagement between the moderators and panelists with Workshop participants, but also included opportunities for participants to “meet the author” of the MCS papers posted as part of the Workshop program, allowing them to interact with and ask questions of the authors and the topics presented.

5. The virtual GFETW panel discussions and presentations focused on four central themes critical towards effectively addressing the global threat posed by illegal fishing. These include maximizing the benefits emanating from cooperation and partnerships, recognizing the importance of risk assessment and analysis in understanding, and responding to IUU fishing threats, using technology as an enabler to detect and respond to illicit activities, and the important role that transparency plays in fisheries MCS, especially in providing greater maritime domain awareness and understanding of what activities are occurring in the maritime environment.

6. During the Workshop, participants were exposed to a series of presentations reflective of these four themes as well as in-depth interactive panel discussions revolving around three emerging and challenging MCS topics of interest. These three panels discussed:

- the emerging complexities associated with the growing use of refrigerated containers to transport fish product, especially as this relates to the fishing activities of transshipment and landings as well as potential loopholes in the FAO Port State Measures Agreement;
- what the real barriers are to effective MCS information-sharing, both internally between national fisheries stakeholder agencies as well as externally between countries on a bilateral basis as well as multilaterally on a regional basis; and
- directed fishing effort on squid, especially in regions of the world where high seas fishing for squid is unregulated, or even not comprehensively managed within an regional fisheries management organization (RFMO) context, and how increased effort towards these fisheries can destabilize fisheries, compliance and governance.

7. MCS professionals and other virtual GFETW participants and stakeholders had the opportunity to learn and gain greater insight from these examples of emerging MCS challenges and where national and regional efforts were directed in efforts to more effectively tackle IUU fishing and illicit activities associated with them. This multi-pronged approach makes the framework, goals, and objectives of the IMCSNET GFETW effective and unique.

GLOBAL FISHERIES ENFORCEMENT TRAINING WORKSHOP BACKGROUND

8. For decades, IUU fishing has proliferated due primarily to the globalization of the fishing industry and increased demand for fishery products. In 2001, FAO adopted the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU), which defines IUU fishing activities. IUU activities are a primary obstacle to achieving sustainable fisheries and a threat to food security. They directly compromise livelihoods, and they have detrimental effects on the environment. Combating IUU fishing has become a priority for the international community over the past 20 years, resulting in many initiatives by international organizations, governments, non-governmental organizations, civil society, and others.

9. IUU fishing activities take place both on the high seas and within waters under national jurisdiction, and, due to globalization in the marketplace, no region or area is immune to these activities or their harmful effects. Since individual States working on their own cannot solve such an extensive problem, combating IUU fishing activities requires communication, cooperation, and collaboration among national fisheries enforcement authorities as well as between and with regional fisheries organizations.

10. IUU fishing activities involve a spectrum of activities and are not confined solely to the act of fishing. They include transport, sale, purchase, processing and other steps in the supply and distribution chain. The amount of IUU fishing activity that occurs and the costs attributable to IUU fishing activities are difficult to quantify due to the covert nature of IUU fishing operations, but, in 2009, the value was estimated to be USD 10 billion to 23.5 billion annually. This estimation is currently under review considering progress in several areas due to efforts of the international community to combat IUU fishing.

11. The gradual strengthening of the IMCSNET, which is made up of dedicated MCS practitioners of its members who know each other personally, has facilitated some of these international efforts and cooperation, including but not limited to, exchanges of information and best practices, mutual technical and logistic support and joint MCS activities. However, despite the progress made over the last 20 years, there is still a long way to go in combating IUU fishing activities in all parts of the world.

12. The overarching goal of the IMCSNET is to improve the efficiency and effectiveness of fisheries related MCS activities through enhanced cooperation, coordination, information collection and exchange amongst competent national and regional organizations and institutions. As an initial step toward realizing this goal, the IMCSNET convened the first GFETW in Kuala Lumpur, Malaysia, in 2005 (FAO/FishCode, 2007). This Workshop brought together operational-level MCS professionals from around the world dedicated to resolving IUU fishing issues and provided them with information and training on a wide range of MCS topics.

13. Due to the success of the first Workshop, the second GFETW was convened in Trondheim, Norway, in 2008 (FAO, 2009) to further the work of the global community of operational MCS professionals and to offer them a global platform for sharing information and exchanging MCS experiences and best practices. The outcomes of the second GFETW were recorded in the 2008 Trondheim Declaration, in which participants recognized the serious threat posed by IUU fishing and the need for cooperative MCS efforts. By means of the Declaration, the participants also called for increased MCS training and capacity building and more opportunities for productive international cooperation, as well as encouraged countries to join the IMCSNET and endorsed the continuation of the Network's core services.

14. The third GFETW, convened in Maputo, Mozambique in 2011, expanded on the progress of the first two Workshops by adopting a focus on the special needs of developing countries in successfully implementing MCS programs. The participants in the third GFETW emphasized the urgent need for expanded MCS cooperation on all levels, further recognized the need for increased data sharing, and discussed MCS implementation challenges that small scale fisheries confront.

15. The fourth GFETW was held in San José, Costa Rica in 2014 (FAO, 2015) and focused on the protection of artisanal and regional fishing communities through the promotion of legal, reported, and regulated fisheries. Many national laws reserve near-shore areas for local fishing communities but developing countries have limited

resources to devote to MCS and enforcement to protect small-scale fisheries. At the fourth GFETW, low-cost MCS solutions and information-sharing were identified as key at both small-scale and regional levels, as was establishing trust—trust between fishers and government authorities and trust among various governments. MCS systems that also improve safety at sea can help to incentivize participation and build this critical trust. A good number of presentations offered concrete examples of programs and systems that are working at national and regional scales, inspiring similar cooperative efforts in other regions such as the Pacific Islands Forum Fisheries Agency (FFA) in the Western and Central Pacific Ocean and the Fish-i Africa and West Africa Task Forces.

16. The fifth GFETW was convened in Auckland, New Zealand in 2016 (FAO, 2017) with a theme of “*Working together to combat IUU fishing to ensure the sustainability of world fish stocks*”. New Zealand’s close relationship with many Pacific Island Nations enabled their robust representation. Collective efforts in combating IUU fishing in the Pacific region were shared with the international community of the fifth GFETW participants.

17. The sixth GFETW was convened in Bangkok, Thailand in 2019 (IMCS Network, 2019) with the theme of ‘Closing the Net’ through global cooperation between flag, coastal, port and market States for effective enforcement of international and domestic law. The focus of the Workshop was “*Regional and global collective efforts in combating IUU fishing using effective MCS management tools including enforcement powers to protect the sustainability and cultural and economic viability of all fish stocks.*” The sixth GFETW program consisted of eleven thematic sessions, one special evening session, and included break-out workshop sessions.

18. The sixth GFETW was immediately preceded by the Seafood and Fisheries Emerging Technologies (SAFET) conference which helped to promote attendance in both the SAFET and GFETW meetings. In addition, the IMCSNET Secretariat facilitated the third workshop of the Tuna Compliance Network (TCN) immediately following the end of the sixth GFETW. During this third workshop, the IMCSNET made a commitment to continue to support and animate the goals and objectives of the TCN following the end of the TCN capsule of work which was funded by the FAO area beyond national jurisdiction Tuna Project.

EVOLUTION OF THE 2021 VIRTUAL GLOBAL FISHERIES ENFORCEMENT TRAINING WORKSHOP

19. As an outcome of the July 2020 IMCSNET Executive Committee meeting, the IMCSNET Secretariat established a Steering Committee to oversee and guide the planning, organization and convening of the 2021 GFETW, which coincided with the 20th anniversary of the formation of the IMCSNET. However, the Executive Committee agreed by consensus that the 2021 GFETW should be planned and scheduled as a virtual event due to the ongoing issues and challenges posed by the global COVID-19 pandemic.

20. The Steering Committee was composed of representatives from the following IMCSNET members: Australia, Canada, Kenya, Marshall Islands, New Zealand, Norway, Scotland, and the United States of America representing four different regions of the globe. CCSBT was also represented as a regional fisheries organization Member and Global Fishing Watch participated as an Observer organization.

21. The Steering Committee convened in August 2020 and met every two weeks throughout the period leading up to June 2021. Steering Committee meetings were held virtually via Zoom led by the IMCSNET Chair and facilitated by the IMCSNET Executive Director. The Network Secretariat prepared and distributed Agendas prior to each Steering Committee meeting and captured and distributed Minutes to Steering Committee members following each meeting.

22. Based upon discussion and inputs provided by the Steering Committee, the IMCSNET Secretariat drafted a prospectus for the 2021 virtual IMCSNET GFETW. The prospectus was produced in English and support was provided by Canada and the United States of America to translate the prospectus into Spanish and French versions. The Steering Committee agreed by consensus on the overall theme for the 2021 virtual GFETW as “*Uncovering the unknowns: global cooperation to eliminate the “U’s” in Illegal, Unreported, and Unregulated Fishing*”. Four overarching thematic areas for the GFETW were agreed to guide the development of the agenda and presentations. These thematic areas included:

- **Cooperation and partnerships;** where we are “*United in the fight against illegal fishing*”.
- **Risk Assessment and analysis;** where we look to “*Uncover hidden activities*”.
- **Technology as an enabler;** where we are “*Unwavering in pursuit*”.
- **Transparency;** where we seek to “*Unmask the perpetrators of IUU fishing*”.

23. Through the prospectus, solicitation was not only made for MCS practitioners to register and attend the virtual GFETW, but also for organizations and agencies involved in fisheries MCS to submit abstracts for papers, presentations, or short videos on MCS topics related to the four thematic areas of the virtual GFETW to be considered for inclusion as a component of the workshop.

24. Recognizing the importance for the virtual GFETW to be more than just a series of static “one-way” virtual presentations on a range of MCS topics, the Steering Committee successfully put together a multifaceted approach for delivery of the two-day agenda which consisted of a combination of presentations, panel discussions, posted papers, and interactive discussion rooms. The presentations were planned to be consistent with the four thematic focus areas of the workshop and the panel discussions were targeted at three emerging MCS challenges faced by fisheries compliance and enforcement officers.

25. To provide greater interaction and engagement with registered participants, virtual discussion rooms were also planned which would provide the opportunity for participants to engage with and ask questions of the presenters and panelists as well as “*Meet the Authors*” for the posted papers component of the program.

26. In October 2020, recognizing that the IMCSNET Secretariat lacked the capacity and expertise to plan, coordinate and execute a comprehensive virtual GFETW, the Executive Director conducted outreach to solicit requests for proposals from a range of commercial vendors specializing in organizing digital conferences with the intent for them to host the event.

27. Formal proposals were received from four different commercial vendors (Meeting Tomorrow, Ecast, vFairs, and Outsourced Events) which were shared with the Steering Committee for their consideration. In the end, Outsourced Events was selected to provide their services as their proposal represented the best value for

money given the limited budget of the IMCSNET Secretariat. A formal agreement for the services of Outsourced Events was signed in January 2021 by Impact Philanthropy Group (IPG), the IMCSNET's fiscal sponsor and legal entity.

28. Upon signing of the agreement, the Network Secretariat and IPG Project Officer met weekly with the Outsourced Events project team assigned to support the IMCSNET with planning and delivering the virtual GFETW. The virtual GFETW site, which was launched on 28 June 2021, was developed with the following features:

- **Home page:** A dashboard page that allows participants to use links to connect to all other conference pages. The page also includes acknowledgements to the organizations that supported the GFETW and the IMCSNET as well as displays a range of metrics associated with the registered participants.
- **Agenda:** A page that provides a detailed outline of the speakers, presentations, and panel discussions including selected documents relevant to the three panel discussions that provide background context on the issue being discussed.
- **Speakers:** A page that provides both photos and brief biographies of all speakers, presenters, moderators, and panelists.
- **Registrants:** A page that provides basic contact info of all registered participants designed to facilitate opportunities for connections and networking between the participants.
- **Papers:** A page that provides participants access to all papers, presentations, and videos included as part of the GFETW program divided into the four thematic areas.
- **MCS photo gallery:** A collection of photos from the previous six GFETWs, winners of the three IMCSNET Stop IUU Fishing Awards, and selected photos relevant to MCS activities and tools.
- **Post plenary discussion rooms:** Provides a link to all the discussion rooms established to facilitate interactive engagement between presenters, panelists, and authors with GFETW participants.
- **IMCSNET organizational documents:** Provides participants access to downloadable copies of the IMCSNET Governing Framework, Strategic Plan and Application for Membership (available in English, Spanish, and French).
- **Post event surveys:** Provides a link to post-event surveys to be filled out by participants (one for basic registrants and one for registrants affiliated as an IMCSNET Member).
- **Info hub:** Provides basic information on how to navigate and utilize the GFETW site.
- **My event:** Allows participants to organize participation in the GFETW by allowing selection of specific presentations or panel discussions to watch or engage in.

29. To secure funding support for the virtual GFETW beyond the current baseline IMCSNET budgetary funding level, the Network Secretariat conducted outreach and engagement with both developed country Network Members and non-governmental organizations involved in fisheries MCS and ending illegal fishing. Funding commitments to support both the virtual GFETW and the 2022 Halifax GFETW were secured not only from FAO, but also the New Zealand Ministry for Primary Industries, the Australian Fisheries Management Authority, Fisheries and Oceans Canada (as host country for the Halifax GFETW) and The Pew Charitable Trusts.

30. Through the prospectus for the virtual GFETW, the IMCSNET website, the IMCSNET LinkedIn page, and multiple email distributions, the Network Secretariat solicited for participation in the GFETW as well as for submission of papers, presentations, and short videos on MCS initiatives and activities relevant to the themes of the virtual GFETW to be included in the workshop program.

31. Submissions were subject to an IMCSNET peer review and evaluation prior to approval for inclusion in the GFETW program. The Network Secretariat, supported through efforts of the Steering Committee, also secured the participation of appropriate speakers, panel moderators and panel members with adequate background expertise and experience on the themes of the virtual GFETW as per the agreed program, agenda, and prospectus.



**FISHERIES
ENFORCEMENT**

Global Fisheries Enforcement Training Workshop program

DAY ONE

INITIAL COMMENTS

IMCSNET Executive Director

32. The First Virtual GFETW was opened by Mr Mark Young, the IMCSNET Executive Director. The Executive Director welcomed the participants to the IMCSNET's first-ever virtual GFETW and noted that nearly 600 people from over 60 countries around the world registered to take part in the workshop. This interest spoke directly to the continued relevance of the IMCSNET and the GFETW's global reach. Not only has the IMCSNET increased in membership, but participation in the global workshops have also increased.

33. The Executive Director reiterated his hope that the participating MCS practitioners and other MCS stakeholders would take the opportunity of the virtual nature of GFETW, and the online platform to connect with other participants to create a wider global network of MCS practitioners and increase MCS connections, collaborations, and cooperation. He reiterated the GFETW offered the opportunity for the registered participants to learn from one another, share ideas, and develop and strengthen their own relationships - one of the strategic overarching goals of the IMCSNET identified within its Strategic Plan.

34. He continued by indicating the IMCSNET was established to promote cooperation and exchange of information and ideas, to coordinate MCS capacity building and training activities, and to develop activities in line with the needs of MCS practitioners around the world. The Network works to link MCS practitioners with other organizations such as FAO, the International Criminal Police Organization (INTERPOL), and many other entities and organizations who are focused on combating IUU fishing such as Trygg Mat Tracking, Global Fishing Watch, and Vulcan.

35. In closing, the Executive Director emphasized the importance of ensuring the virtual GFETW was developed to be as interactive as possible rather than just a series of "one way" presentations. As such, the agenda was developed to create opportunities for participants to not only listen to a few specific key presentations, but also be exposed to interactive panel discussions on emerging MCS topics of interest and can directly engage with the speakers, panelists, and moderators - including the authors of relevant MCS papers uploaded to the conference website for the participants to review and gain further insight into various areas of MCS interest.

WELCOME TO PARTICIPANTS*National Director of the National Fisheries and Aquaculture Service for the Government of Chile (SERNAPESCA)*

36. The Executive Director formally opened the virtual GFETW by introducing Mr Claudio Baez Beltran, National Director of the National Fisheries and Aquaculture Service for the Government of Chile. Mr Baez delivered opening remarks to the participants and thanked the IMCSNET on behalf of SERNAPESCA for giving him the opportunity to send greetings, recognize the people that worked to make the IMCSNET possible, and to briefly share the origins of the Network's story.

37. Director Baez indicated that, although the IMCSNET has been operating for the last two decades, its origin goes back much further to the 1980's, with the United Nations' Convention on the Law of the Sea (UNCLOS). In 1995, Chile and 170 other countries approved the FAO Code of Conduct for Responsible Fishing which urged all, as fishing and aquaculture nations, to work together to conserve hydrobiological resources and ecosystems.

38. Director Baez indicated the application for the Code of Conduct for Responsible Fishing required a substantive improvement in rates of international participation and coordination that did not exist at the time. As such, in January 2000, Chile organized the first International Conference on Fisheries Monitoring, Control and Surveillance. The purpose of this conference was to contribute to the sustainable exploitation of fishery resources and to create strategies for countries to work together through the exchange of technical experience of fishery inspections.

39. As a result of this Conference, Chile proposed the creation of the IMCSNET, an idea that was approved by the Conference and established by the Santiago Declaration. This Declaration pointed out that States should make their best efforts to organize and establish an international coordination network for fisheries inspectors that facilitated a cooperative mechanism for information-sharing and technical assistance in fisheries monitoring, control, and surveillance.

40. A commission comprising Australia, Peru, the United States of America, Chile and the European Community worked together for a year to create the International Monitoring, Control and Surveillance Network, which held their first meeting in Florida in January 2001. Since then, the IMCSNET has continued with uninterrupted work in the field of international cooperation by exchanging experiences and complying with regional fisheries monitoring, control, and surveillance programs of undeclared and unregulated illegal fishing.

41. Director Baez further indicated Chile was not only an enthusiastic promoter in this instance, in which they have worked uninterruptedly, but wants to continue contributing their own experience, especially in terms of innovations relating to surveillance and inspection. The Director indicated Chile was the first country in the world to implement vessel monitoring system (VMS) surveillance in their industrial and artisanal fleets as well as the first country to implement mandatory 100 percent disembarking certification of catch and to put restrictions on the disembarking of catch of foreign fleets with port State control measures.

42. Director Baez concluded by indicating Chile was the first country to implement onboard cameras controlling discard levels and they hope that this and other measures will continue to make fishing an environmental and economically sustainable activity.

Chile would be happy to continue sharing their experiences with participants and to continue learning from all MCS practitioners, honoring the original purpose of the IMCSNET. Director Baez offered his congratulations for the important 20th anniversary of the IMCSNET and provided his best wishes for success in the virtual GFETW.

OPENING REMARKS

IMCSNET Chair

43. Welcome remarks were delivered by Mr Gary Orr, IMCSNET Chairman. He indicated to the participants the main purpose of the GFETW was to improve and enhance MCS capacity in enforcing fisheries legislation at national, regional, and global levels, as well as to provide a platform for open discussion and exchanges of information and experiences between MCS practitioners from all over the world.

44. The Chair noted that unregulated and unreported fishing activities represent bigger threats to the sustainability of fisheries, beyond just the activities that are considered to be “illegal” fishing. He concluded his remarks by highlighting that making a real difference in combatting IUU fishing comes through a combination of cooperation and looking at the bigger picture through legislation, technology, analyzing data, and transparency. Mr Orr mentioned the possible limitations that can arise through the GFETW being conducted in a virtual setting and made note to ensure that the IMCSNET would ensure information and awareness on outcomes of the GFETW would be shared with participants and the Network would continue to focus its activities on engagement with its members.

45. In conclusion, the Chair provided the participants a reminder that the seventh GFETW will be hosted by the Department of Fisheries and Oceans (DFO) Canada in Halifax, Nova Scotia from 01–05 August 2022 and encouraged all interested participants to preregister for the GFETW via the www.imcsnet.org website.

KEYNOTE ADDRESS: ADDRESSING THE U’S IN IUU FISHING

Mr Wez Norris, CEO, Australia Fisheries Management Authority

46. The virtual GFETW Keynote Address was delivered by Mr Wez Norris, Chief Executive Officer of the Australia Fisheries Management Authority (AFMA). Mr Norris offered his thanks to the IMCSNET Chair and Executive Director as well as the Steering Committee for the opportunity and privilege of talking to the participants in the Keynote Address. He also congratulated the Steering Committee for coming up with the interactive virtual platform to deal with the restrictions that COVID-19 placed before everyone so that the IMCSNET could continue to plan for and deliver the workshop.

47. Mr Norris began by indicating he was pleased to be asked to speak specifically about effectively addressing “*the U and the U in IUU fishing*”. He indicated to the participants that while he did not have all the answers to that question, he hoped he could provide some thoughts and ideas to set the scene for the GFETW sessions to follow.

48. Mr Norris continued:
“*When people think and talk about IUU fishing, there is a tendency to think about it as a single entity. Additionally, if someone is asked what their impression of IUU fishing is, they quite often conjure up an image of a vessel sneaking into an area that*

it's not supposed to be in, catching fish, running away, and then selling that fish on the black market. This is certainly a real risk that many face every day and certainly for Australia, this is an ongoing threat; one we have invested very significantly in being able to respond to. However, it would be very foolish to only focus on that in terms of one's efforts to address IUU fishing. For me, I think the term IUU fishing and the fact that it has those three components built into its name - Illegal, Unreported, and Unregulated - has not evolved by accident. I think the three components are there to try and serve as a reminder to us that IUU fishing comes in many shapes and forms. In fact, when you think about it, IUU fishing is probably as diverse, or more diverse and more dynamic, than the legitimate fishing industry.

So, when I started thinking about this Keynote address, I thought, perhaps I'll try and unpack the definition of IUU a little further. And there's plenty of literature on this. If you look on the FAO website or the website for this workshop, you'll find those well-established definitions. So, instead I will start by focusing on the concept that each of those three components are not necessarily mutually exclusive. So, using my example of a rogue vessel fishing illegally, it's unlikely that that vessel is then going to go and record its activities in a logbook and give that logbook to somebody. So that activity is unreported. Similarly, rogue vessels are usually either stateless or operating under flag states that have a lax regulatory environment. So perhaps they are in the realm of unregulated fishing as well. So, as I say, there's an enormous crossover between each of the three components that makes it difficult to try and talk about them in isolation.

But I'm going to give it a go and talk about unreported fishing and then unregulated fishing. So, in my view, at the global level, unreported fishing is the most insidious and largest component of the IUU fishing risk that we face. This is because we must remember that unreported also includes under-reporting, misreporting and non-reporting. So why do I think that this is such a significant component? The first reason is because of that crossover, unreported fishing also crosses into unregulated fishing and illegal fishing. Perhaps more importantly, under-reporting is an issue that plagues the legitimate fishing sector as well as being a component of the illegitimate sector. There are many reasons for this; some of them are perfectly rational and understandable. It is difficult to estimate species composition and catch composition on the back deck of a trawler at night in rough seas. But unfortunately, we also need to be mindful that there are a range of commercial incentives for misreporting or non-reporting or under-reporting of activities and catch. So, whether that's to avoid quota decrementation or to get around fees and charges and levies; whether it's to hide interactions with protected species or mask activities in areas that are not that they're not supposed to be taking place; there are a range of reasons why a vessel operator may feel it's in their short-term interest to not report accurately and correctly. So, if that under-reporting, misreporting is taking place intentionally or even recklessly, this is simply the industry not exercising the care and attention it should. As such, it falls squarely into IUU fishing. Anything we do in fisheries management is, or at least should be, based on good information. Whether that's formal data to feed into stock assessments and research projects, or whether it's broader information and intelligence that guides the way that we manage and regulate our fisheries. Everything we do should be based on some information base. So, the importance of data is key and getting that data right is important.

At the global level, we think there is somewhere around a hundred million tonnes of wild catch production. That is a huge quantity of fish that's being produced by our oceans and inland waters. When you've got such a huge starting point, a hundred million tonnes, even a small proportional error because of reporting inaccuracy turns out to be quite a big deal. For instance, if you've got a hundred million tonnes and you've got a

10 percent reporting issue, well then there's 10 million tonnes of product that's being caught that perhaps we don't know about. That's a big deal. To put it in context, the world's largest single species fishery for anchoveta is around seven million tonnes per year which is about four to five times the size of the entire Western and Central Pacific Ocean tuna fishery. So, as I say, small reporting inaccuracies when aggregated across the whole of the seafood sector, turn into a big deal. Compromised data really impacts on the accuracy of our stock assessments and undermines our ability to monitor and implement our other management arrangements as I said before. Perhaps more importantly, as well as the sustainability impacts of not having a full understanding of what's going on out on the water, under-reported fishing, in the same way that other forms of IUU fishing do as well, really has the potential to rob our people and our communities of the economic and social benefits that they should be gaining from the fisheries resources that they own. So that's the nature of unreported fishing as a problem. The tools to address this issue are well known. We've all had experience with different tools about improving the accuracy of reporting. Whether that's through electronic reporting, catch documentation schemes, monitoring unloading inspections, electronic monitoring, observer programs, and so on. We all know that those tools are out there, and we have variable success in deploying them. The key point I wanted to make in terms of the ability to deal with unreported fishing though, is that it's important that we each undertake an assessment of what our unreported risk is and deploy the tool that makes the most sense to address that risk because these tools are expensive - which prevents us from rolling out all those tools. So, we need to really focus on the tool that is going to address our biggest point of concern.

For me, addressing unreported fishing really must start with a conversation between the regulators, the governments, and the legitimate fishing industry. In Australia we strongly promote the concept of voluntary compliance. This is the concept that if you make the rules simple enough and you adequately explain what those rules are and why they are in place, then the bulk of your population will comply with the rules because it is the right thing to do. That holds true in the fishing industry with reporting. Of course, that takes care of the bulk of the population. Of course, we need those independent verification and monitoring tools there. In our case in Australia, we rely quite heavily on electronic monitoring and observer programs. This caters for another big chunk of your population, those who just need that little bit of an extra incentive to make sure that they are putting the effort in to do the right thing. Of course, in any industry, unfortunately, there will always be a small group of people that are willing to flout the law or try and work around the rules for their own personal gain. So, we also need a strong investigation, compliance, enforcement, prosecution regime, to be able to hold that small group to account.

Turning to unregulated fishing, unregulated fishing as a component of IUU fishing, for me, is the most frustrating part of the formula. The reason I say that is because unregulated fishing really points to a failure of governments. As a key government employee, obviously I need to take my share of responsibility for that. When I say a failure, unregulated fishing really flows from either a failure of governments to get together and cooperate and develop management regimes and arrangements that will govern a fishery, or a failure of a single government to discharge its duties fully to create a regulatory environment so that its vessels do the right thing when they get out on the water and over the horizon. Most of the flag States of the world, and particularly the largest flag States, are party to at least one of the key international agreements that we operate under, whether that is the Law of The Sea Convention, the Fish Stocks Agreement, or individual RFMO conventions and agreements, most of them are party to at least one. This means that, at the highest levels, our governments have committed to doing the right thing. In a lot of cases, we've taken the next step and participated in the development of measures that we intend to operate under. So, given that, what is lacking?

If we're all coming together and we are operating under these high-level international agreements and we are developing these measures, what's lacking? Unfortunately, it's better effort from those governments at sea level. To take that next step and enforce these arrangements onto their flagged fishing vessels.

The good news here comes from the RFMO sector. In my view, the regional fisheries management organizations are taking fantastic steps forward in terms of schemes that can facilitate Parties to assure each other that they are doing the right thing. This is not looking at what a vessel is doing on the water, it is looking at do you, as a Party to this RFMO, take your obligations seriously and implement the things that you say you will. If you step back about a decade, RFMO compliance schemes of this nature were almost unheard of. There were some, but most of those were rudimentary. If you look at the way that they are evolving now. They are becoming more sophisticated, they are focusing on points of risk that the Parties agree are important to the RFMOs and they are producing, by and large, common sense outcomes. Which is a good step forward. More importantly, perhaps, what they're doing is providing the basis for Parties to these RFMOs and to these measures, to better understand and draw a common view on how measures should be implemented and what is acceptable in terms of oversight from a flag State, or a port State, or a coastal State, and what is not. So, these schemes as well as being an opportunity to slap a Party on the wrist, if they're not doing the right thing, are more importantly creating a common understanding that allows Parties to understand each other's expectations. This is not too dissimilar to the concept of voluntary compliance that I spoke about before. That is, if everybody understands exactly what is required, then there's a greater chance that they will implement it because it's the right thing to do.

In wrapping up my Keynote Address, I wanted to leave you with six key messages and none of these are going to be particularly surprising to anybody in this workshop. They are all things that we all intrinsically know. But I want to raise them to try and bring them to the forefront of participants' minds so that you can have them to think about as you move through other sessions of this workshop.

The First one is that IUU fishing is a global problem, and it needs a global solution. None of us can fix this on our own. There is not a single country, RFMO, or NGO that can solve the problem of IUU fishing. The Second one is on illegal fishing, the I in IUU, and that my message is that certainly it exists. It is a real risk and one that has dire consequences, but it is not the only problem. And we cannot afford to only focus our MCS solutions on that component of IUU fishing. Thirdly, on unreported fishing, including misreported fishing activities, I want to promote the fact that this is an additional challenge because it has an even greater flow on risks to our fisheries management regime than illegal fishing because of compromises it places in the data and information that we play such high importance on. Fourthly, unregulated fishing, the message again is that this is an issue that needs to be dealt with at the government level. This is not an issue about vessels, but about governments working together and working to make sure that they are creating that regulatory environment. The Fifth point is about the diverse nature of IUU fishing. Each of us need to be keeping a continual eye on what our IUU risks are and how they manifest in terms of our personal situations or our country situations and the fisheries that are important to us. Because it's only through that assessment of what our individual risks are that we can then start tailoring what our response is. We cannot always afford to respond to every single component of IUU fishing, so it's important that we respond to the ones that are most impactful. The Sixth and last point is that from my last comment, we are not all in the exact same position. We all face different risks. We all have different capabilities to respond to those risks. But what I really want to promote is that we all need other Parties. We all rely on support from someone else to be able to

adequately address our own IUU fishing risks and we all have something to offer to other Parties in their efforts to fight their IUU fishing risks.

I really want to end with the message that cooperation is key. Thank you again for the opportunity to talk about these issues. I hope that some of the ideas and issues that I have laid out will be useful as you move through the rest of the session. Thank you.”

49. The Keynote Address was concluded and the IMCSNET Executive Director advanced the agenda to Session 1A on cooperation and partnerships where he introduced Mr Duncan Copeland, Executive Director of Trygg Mat Tracking; Mr Seraphin Dedi Nadje, Executive Secretary, Fisheries Committee for the West Central Gulf of Guinea; and Mr Mark Ssemakula, Vice-Chair, Stop Illegal Fishing (SIF), who collectively provided a presentation on cooperation in East and West Africa.

SESSION 1A - COOPERATION AND PARTNERSHIPS

Cooperation in East and West Africa

50. Mr Duncan Copeland commenced this presentation and spoke about the Task Force Model Report. He indicated that at the core of the Task Force model is the objective to increase regional cooperation and information sharing to combat illegal fishing. The Task Force Model Report examines how countries in East and West Africa facing very different regional situations have worked to achieve that common goal, providing the opportunity for reflection and lesson learning. East and West Africa are now building on the foundation of their Task Forces through the establishment of regional MCS centers.

51. He continued by indicating that it is not easy to develop cooperation, but there are many good reasons to do so. For instance, national efforts have limited impact, and cooperation makes the most of limited capacity and resources; cooperation also helps to stop the exploitation of States and institutions; and finally, cooperation helps to put regional priorities first.

52. The goal of regional cooperation is that each participating country gains greater benefits by working together with other countries within a geopolitical or fisheries related region, than they can by working alone. There are four stages to working together: (1) Acting alone; (2) Coordination; (3) Cooperation; and (4) Collaboration.

53. If regional cooperation is considered a worthwhile approach, deciding which type of cooperation will be most suitable is the next step. Experiences from the FISH-i Africa and West Africa Task Force (WATF) show that regional task forces can be a useful approach to tackle IUU fishing, but what they do, who is involved, and how they operate will differ across regions with no one size fitting all. The Key Needs include: (1) A shared task; (2) Resources to operate; and (3) A concept for change.

54. The operations of a Task Force will depend on the shared objectives of the Task Force and the local environment, funding and so forth. However, from the experience of FISH-i Africa and WATF the following activities were important for both: routine sharing of information; monitoring of vessel activity; supporting investigations and actions; working with national agencies; international engagement; training and mentoring; and research, analysis and understanding.

55. The people involved in the Task Forces and the role they play has followed a similar model for each Task Force. The various groups of people involved can be broken down by Member States, a Coordination Team, a Technical Team, Regional Partners and Experts, Observers, and Funding Partners.

56. Mr Mark Ssemakula continued the presentation speaking specifically about the FISH-i Africa Task Force experience. He explained that FISH-i Africa was established by referring to the words of Mr Peter Sinon, the former Ministry of Fisheries for the Seychelles who said *“...at that point, our actions were not as strong as our words. Our efforts were fragmented, and we rarely shared what we knew or asked questions. Without a united platform to fight illegal fishing, our individual efforts were at best ineffective with no, or very sparse results...”*

57. The FISH-i Africa Task Force was established in 2012 by like-minded fisheries enforcement officers from coastal States of the Western Indian Ocean. This regional cooperation demonstrated that information sharing, good communication, and commitment were effective tools in fighting illegal fishing. The FISH-i Africa mechanisms are now embedded in the newly established Southern African Development Community (SADC) Fisheries MCS Coordination Center (MCSCC). The MCSCC provides a focus for coordination, cooperation, and collaboration in MCS activities across the SADC region.

58. Key activities of the MCSCC include: sharing of intelligence and information between fisheries enforcement officers and other regional and global players, building capacity through training, mentoring, and the development of practical tools, developing a register of fishing vessels through improved and coordinated checks before issuing licenses, registering vessels, or allowing port entry, coordination of investigations and actions against IUU fishing operators, and increasing oversight through monitoring vessel and fishing activity.

59. The MCSCC has changed how regional cooperation works. This is evidenced by increased coordination of MCS activities relating to patrols, inspections, and port denials and a move towards greater collaboration through the implementation of MCS tools such as minimum terms and conditions for licensing and an authorized vessel register. In addition, there has been an expansion to key coastal and port States including South Africa, Namibia, Angola, and the Democratic Republic of Congo as well as adaptation of the model for inland waters such as Lake Malawi and Lake Victoria.

60. Understanding the success of FISH-i Africa includes keeping one step ahead of the illegal operators; growing of transparency and trust; adding value; acting against illegal operators; and embedding change. The members involved know how important it is to conduct thorough checks on vessels before they are allowed to operate in the region. Systematic checks really can weed out some of the most hard-core illegal operators. These processes, alongside the online communications portal, regular meetings and technical support will be assimilated into the SADC MCSCC so that the members can continue to advance the regional cooperation and investigative success of FISH-i Africa.

61. Mr Seraphin Dedi Nadje next spoke about the WATF which was formed in 2015 by the Fisheries Committee of the West Central Gulf of Guinea (FCWC) to provide a regional approach to MCS. The six member countries of Benin, Côte d’Ivoire, Ghana, Liberia, Nigeria, and Togo, work together by sharing information and coordinating activity.

62. In 2020, the FCWC Regional MCS Center (RMCSC) was established to provide an operational hub for MCS activities and a cost-effective mechanism to support operational cooperation, improve communications, and build regional capacity to stop illegal fishing. Key activities include: vessel monitoring and analysis to support coordinated fisheries inspections in port and at sea; developing a regional record of authorized fishing vessels to maintain an up to date, easy to access list of authorized and IUU listed fishing vessels; coordinating regional and joint at-sea patrols to identify vessels operating illegally, without authorization, or in contravention of national or regional conservation and management measures; establishing a regional observer program to provide first-hand scientific and compliance information; and training and capacity building to strengthen capacity for MCS.

63. He further indicated the reason the WATF was established was that its members saw that when countries act alone their impact is limited. The FCWC, as a regional fisheries body (RFB), made important progress by adopting its first Regional Plan of Action to Prevent, Deter and Eliminate IUU Fishing in 2009. There was strong political will in the countries of the region, and this led to the establishment of a regional working group on combating IUU fishing in 2010.

64. The WATF works for multiple reasons. It supports regular information sharing, including establishment of regional licensed vessels list; integration and strengthening of MCS processes, such as due diligence on new license applications and improved port inspections; and notorious IUU listed vessels are denied port access. In addition, it has led to national policy changes such as introduction of mandatory International Maritime Organization (IMO) numbers and Automatic Identification System (AIS) usage by Nigeria and strong regional support for the Port State Measures Agreement (PSMA) of FAO; support for the Cape Town Agreement by FCWC members.

65. He concluded the presentation by highlighting the value of established and effective regional cooperation is immense. It protects precious resources and people. The positive experiences gained through the WATF cooperation form a solid basis for ongoing and future cooperation which makes everyone stronger. All those involved have greater knowledge, greater capacity, and greater will to act against IUU fishing.

66. The IMCSNET Executive Director thanked the three presenters for their informative presentation and introduced the next presentation. The next presentation dealt with MCS capacity development needs presented by Dr Matthew Camilleri, Team Leader, Fisheries Global and Regional Responses, of the Food and Agriculture Organization of the United Nations (FAO).

SESSION 1B - COOPERATION AND PARTNERSHIPS

MCS capacity development needs

67. Dr Camilleri began his presentation by providing an overview of the FAO's global capacity development program which is focused on MCS needs. He provided a brief overview of the international fisheries instruments implemented to combat illegal fishing including the binding instruments of the UN Convention on the Law of the Sea (UNCLOS), the FAO Compliance Agreement, the UN Fish Stocks Agreement, and the FAO PSMA. He further indicated that flag, coastal, port and market States had responsibilities associated with information sharing and cooperation.

68. He described the FAO PSMA global capacity development program by outlining its four objectives of: strengthening implementation of the PSMA and complementary international instruments; improving detection of IUU fishing incidents; improving performance and fulfilment of international obligations; and ultimately preventing, deterring, and eliminating IUU fishing to achieve sustainable fisheries. The assistance provided through the program includes strengthening national legal and policy frameworks; strengthening MCS, enforcement, coordination and cooperation; enhancing capacity to implement coastal, flag, and port State responsibilities; and implementing market access measures such as catch documentation and traceability schemes.

69. The thematic areas of the program include needs assessments, policy development and implementation, improved legislation, fisheries management, MCS tools, enforcement, market related measures, coordination and cooperation, and training.

70. There have been 43 countries supported through this FAO program since 2017. These countries received direct support related to the PSMA and flag, coastal, and market State responsibilities. There are currently 11 projects totaling USD 20 million supported through various countries. FAO's technical assistance approach is based on the results of a needs assessment and field visits. This is followed by a national strategy and action, and compliance with the PSMA and complementary international instruments and mechanisms. Next, national policies and legislation and MCS systems and operations are reviewed and aligned as appropriate with the national institutions, entities, and authorities on matters related to combating IUU fishing.

71. The FAO determined there are six main challenges for effective MCS which were identified through the needs assessments. These include MCS and enforcement frameworks, training programs and capacity building, MCS means and technological tools, human resources, information collection mechanisms, and standard operating procedures. Despite these challenges, FAO achieved measurable achievements in 20 countries in four global regions including Latin America, Caribbean, Africa, and Asia-Pacific.

72. The FAO is also developing a suite of tools to support the capacity development program with a series of publications including checklists, guidelines, and an online capacity development portal. The series of checklists should serve as reference documents and as assessment tools to identify national level weaknesses in complying with international responsibilities. These include a consolidated checklist, a legal checklist, and an MCS checklist. The MCS checklist focuses on assessing MCS systems, operations, procedures, and tools to combat IUU fishing and providing a list of minimum requirements and a desired standard. The content includes addressing the six challenge areas identified for effective MCS.

73. The FAO developed the PSMA capacity development portal as a tool to bring together information on capacity development projects to support States in combating IUU fishing (planned or implemented) around the world. The results are published on a map or in a list and can be exported from the application and provides links to further information about individual projects, published resource material, and contact information for the lead implementing institution. The link to the PSMA capacity development portal is: <http://www.fao.org/iuu-fishing/capacity-development/en> FAO has websites on combating IUU fishing associated with IUU fishing, PSMA, and the Global Record.

74. The IMCSNET Executive Director thanked Dr Camilleri for his presentation and introduced the next session which dealt with risk assessment and analysis. This presentation was specific to translating risk assessment and analysis into operational responses and was presented by Commander Robert Lewis RAN, who is the Surveillance Operations Officer for the FFA.

SESSION 2: RISK ASSESSMENT AND ANALYSIS

Risk to results - translating risk assessment and analysis into effective operational responses

75. CDR Lewis provided a brief introduction on FFA which provides expertise, technical assistance, and other support to its 17 Members to sustainably manage their fishery resources. The FFA runs and maintains a Regional Fisheries Surveillance Center (RFSC). The RFSC supports and assists Members MCS activities to counter IUU fishing in the region including regional Operations such as Ria Balang, Tui Moana, Island Chief and Kurukuru. The RFSC implements a range of MCS tools including a Regional Surveillance Picture, an Aerial Surveillance Program, QUADs coordination, regional cooperation, and the Niue Treaty Subsidiary Agreement (NTSA).

76. FFA Members utilize regional surveillance assets such as 21 Pacific/Guardian Class Patrol Boats, a program supported since the late 1980s by Australia through the Pacific Maritime Security Program (PMSP) with 12 of the FFA Members. In addition, the RFSC coordinates regional support from the defense forces of Australia, France, New Zealand, and the United States of America via the Pacific Quadrilateral Defense Coordinating Group.

77. The PMSP program also provides FFA the use of two dedicated surveillance aircraft that offers 1 400 hours of surveillance support per year. These aircraft operate under an Australian Defense Contract with operational control provided by FFA through the RFSC. The aircraft are truly regional aerial surveillance assets as they provide support to all 15 Pacific Island members of FFA.

78. The RFSC coordinates intelligence driven operations that include a risk-based analysis of potential IUU fishing activities to drive more effective asset planning and tasking. These operations include inspections at sea and dockside and are primarily developed to target “unreported” fishing activities. The FFA Regional Surveillance Picture is used by the RFSC and FFA Members as a combined operational picture that includes such datasets as FFA VMS, Western and Central Pacific Fisheries Commission (WCPFC) VMS, AIS, reports from surveillance assets, both FFA Member and QUADS, vessel licensing data, and intelligence analysis. These were all used to great effect during FFA’s most recent regional surveillance operation, Rai Balang in March 2021.

79. FFA is continuing to look into the future to further enhance the MCS tools utilized by the RFSC. This includes incorporating emerging technologies such as Dark Vessel Detection (DVD) provided by Canada, Satellite Aperture Radar (SAR) provided by KIOST Korea, analytical capacity building and machine learning through the United Nations Office on Drugs and Crime (UNODC) and Vulcan Skylight, transshipment analysis through Global Fishing Watch’s Carrier Vessel Portal, the Starboard MDA Platform provided by Xerra based in New Zealand, and IUU data analysis via Commonwealth Scientific and Industrial Research Organization (CSIRO Australia).

80. In summation of his presentation, CDR Lewis indicated that analysis and risk assessment is critical to efficient asset employment. In addition, surveillance data needs to be fed back into risk assessment. Finally, a holistic approach is needed, and human input is critical.

81. The IMCSNET Executive Director thanked CDR Lewis for his presentation, especially highlighting the suite of regional MCS tools utilized by FFA Members and the importance of both data analysis and risk assessment to support operational responses. The Executive Director then introduced the first panel scheduled in the agenda which was an interactive discussion focusing on the emerging use of refrigerated containers in transporting catch and the implications this presents to transshipment as a fishing activity.

PANEL DISCUSSION 1

The emerging complexities of containers related to transshipment

82. **Context for the panel discussion 1:** *A recent FAO global study on transshipment documented an increasing practice of direct transfers of fish from catching vessels to containers occurring in several different regions of the world. In some places, these transfers are considered 'landings' while in others, these transfers are variously termed 'transshipment in transit' and happen in bond, without fisheries inspections or any reporting on the 'landing' or 'transshipment' of the volumes and species involved. The clarity on whether these transfers of fish are considered 'landings', 'transshipments' or something in between is hampered by the lack of an agreed definition of 'landing'. This allows for subjective interpretation of this activity which results in inconsistent application and documentation of the activity in practice. This presents an emerging management challenge for fisheries authorities who must ensure implementation of appropriate and consistent management controls to prevent catch from being unreported or otherwise facilitate the entry of illegally caught fish into the market. In practice, the direct transfers of fish into containers which are then immediately unloaded onto a container vessel can potentially be used to circumvent port State measures, especially when the fisheries products are assumed by destination port authorities to have been previously 'landed'. It appears that with the growing number of parties to the FAO PSMA and strengthened port State measures around the globe, this practice could be chosen by certain unscrupulous actors as one way to allow the entry of unreported fish product or illicitly caught fish into the market due to a gap in the effective monitoring or control of the activity. Responsible port States have rejected containers of fish where it was clear that this was the case. However, use of containers in international trade continues to grow exponentially given the logistical efficiencies of their use. This means that an ever-increasing fleet of container vessels is being used to handle the vast number of containers offloaded in ports throughout the world each day makes thorough monitoring and control of containerized fish products entering a country a daunting task given the limited port inspection capacity found in most countries. Also, the growing use of privately owned and operated ports can provide barriers to effective monitoring and control of fish being landed or transshipped. In some countries, fisheries inspectors are not even granted access to these ports. In these cases, there is little to no oversight of the activities of domestic and/or foreign-flagged fishing vessels operating in these ports and whether these activities include the landing or transshipping of catch in concert with receipt of port services. This results in a lack of transparency and documentation regarding the overall volume and composition of catch that may have been landed or otherwise transshipped. In the search for solutions to address these concerns, fishery managers may*

find that port and vessel operators will exhibit resistance to any change in procedures for how these direct offloads of fish into containers are conducted and documented as any new management controls over the activity may result in significant changes to current operations – changes that may result in economic losses for those involved. The panel will discuss the emerging growth of the use of containers and container vessels to transfer fish to destination or processing ports and how this practice may present some emergent management challenges in the effective traceability of fish products from ‘hook to plate’. The introduction of new legislation and procedures allowing for inspections in port will need to be by political will and a thorough change in management processes. Panelist perspectives will include whether ports, public or privately operated, can address the challenges posed by the increasing use of containers for the transport of fish product and ensure that all landing and transshipment of catch is effectively monitored and controlled to prevent IUU catches entering the seafood supply chain.

83. Reference documents provided for participants include:
- Western Africa’s missing fish: the impacts of IUU fishing and under-reporting catches by foreign fleets; Overseas Development Institute; 2016
 - Transshipment: A closer look - an in-depth study to support the development of International Guidelines; FAO Technical Paper 661; 2020
 - Moving tuna: transshipment in the Western Indian Ocean; stop illegal fishing; 2020
 - Transshipment and the FCWC region: case studies; West Africa Task Force (WATF); 2020
 - WCPO transshipment business ecosystem study; MRAG Asia-Pacific; 2019
84. Panel discussion 1 moderator and panelists included:
- Moderator: Mr Tony Long, CEO, Global Fishing Watch
 - Panelist: Mr Duncan Copeland, Executive Director, Trygg Mat Tracking
 - Panelist: Mr Francisco Blaha, MCS Consultant, RMI
 - Panelist: Mr Peter Flewwelling, Compliance Manager, North Pacific Fisheries Commission (NPFC)
 - Panelist: Ms Kristin Von Kistowski, MCS and Compliance Expert, Fisheries Global and Regional Responses, FAO
85. The IMCSNET Executive Director provided a short summary of the first panel discussion and briefly explained the risks of inadequately regulated, controlled, and monitored transshipment in relation to IUU fishing before turning over the discussion to the panel moderator.
86. The moderator started the panel discussion by setting the scene and introducing the topic of transshipment. He provided an example of the recent FAO global study on transshipment which documented an increasing practice of direct transfers of fish from catching vessels to containers occurring in several different regions of the world. In some places, these transfers are considered landings while in others they’re referred to as “transshipment in transit”. This practice can happen in bond without fisheries inspections or any reporting on the landing of the catch or follow on “transshipment” of the volumes and species involved. The clarity on whether the transfers of fish are considered landings, transshipments, or something in between, is further hampered by the lack of an agreed globally recognized and used definition of landing. This is an emerging management challenge for fisheries authorities, as they must ensure appropriate and consistent management controls. The moderator then introduced the

first panelist speaker who was Ms Kristin Von Kistowski, MCS and Compliance Expert, with the Fisheries Global and Regional Responses Team of FAO.

87. Ms Von Kistowski provided an overview via a visual presentation and discussed how vessels, including transport vessels, enter a port to land their catch, which is an important control point to make sure that only legally caught fish, and not IUU caught fish, enter the supply chain. She mentioned how this shouldn't be a complicated practice. However, the competent authorities of some port States do not consider this as a "landing" but a kind of transshipment. The containers are often moved to other vessels or means of transportation and then leave the country, which is called transshipment in transit.

88. She mentioned how the dominant type of transshipment in most large-scale fisheries, including tuna and squid, is the direct movement of fish from a catching vessel to a refrigerated cargo vessel. This allows for catching vessels to stay near the fishing grounds without being interrupted. In many fisheries and in many parts of the world, containerization is on the rise and operation of refrigerated cargo vessels are going down and disappearing slowly.

89. Switching topics to what the movement of transshipment means in relation to the risk of IUU caught fish entering the market, Ms Von Kistowski provided a visual diagram to show a fishing vessel that landed its catch in port. This movement of fish is subject to port State Measures or flag State actions, depending on whether the vessel is a foreign or domestic flagged, after which the catch enters the market. An ideal situation is that prior to entering port, a catching vessel transships its catch to a carrier vessel with observers on board and this activity is accompanied by a transshipment declaration. The carrier vessel will then land the fish subject to the port States measures in place along with appropriate documentation including all transshipment declarations.

90. Ms Von Kistowski then brought forward the challenge posed by the increasing use of refrigerated containers to transport catch; especially in instances where catch is directly transferred into a container without clarity of whether the catch is "landed" or "transshipped". Many times, these transfers are neither monitored nor conducted with the appropriate documentation. The container could then be transported by container ship to another port where it is not clear whether the catch within the containers has been previously landed or not. In many commercial ports where these container vessels offload, this question may not even be asked which results in the risk of IUU caught fish entering the market and fisheries inspectors never seeing and documenting the catch. Equally, containers are often transported further than the first port considered to be the point of first landing of catch and documenting the catch is missed and legality of the catch checked. This situation creates a grey area, where catch is neither considered to be landed nor transshipped and means that IUU caught fish can potentially enter the market. This grey area creates a huge loophole in implementing measures to combat IUU fishing.

91. Ms Von Kistowski then shifted the conversation to the Port State Measures Agreement (PSMA), because at times there is a misunderstanding or misinterpretation of the PSMA in relation to containers. In Article 3 on Application, Paragraph 1B indicates *"...each Party shall in its capacity as a port State, apply the Agreement in respect of vessels not entitled to fly its flag that are seeking entry into its ports or in one of its ports except for container vessels that are not carrying fish, or if carrying fish only fish that have been previously landed provided that there are no clear grounds for suspecting that such vessel to have engaged in fishing related activities, in support of IUU fishing..."* This means the PSMA only applies to container vessels carrying previously landed catch. As such, these

container vessels should come with landing declarations for all containers carrying fish products when they arrive in port. It is important that no catch escapes regulation, monitoring, and control and does not arrive in port without being accompanied with appropriate documentation. She noted that landing and transshipment are not only physical acts, but also formalized and documented processes.

92. Regarding the guidelines of transshipment, Ms Von Kistowski mentioned that the international community has for some time expressed concerns about the risks of transshipment in relation to supporting IUU fishing operations. In response, the FAO Committee on Fisheries (COFI) in two consecutive meetings called for two studies on transshipment. The second study, completed in 2020, followed a risk-based approach, showing that a lack of regulation, monitoring and control increases the risk of IUU caught fish entering the market. COFI 34 in February 2021 called upon FAO to proceed with the development of draft voluntary guidelines on transshipment using an Expert and Technical Consultation.

93. The objective of these guidelines is to help develop transshipment regulations, or to review existing ones, with a view to integrating these into the broader global regulatory framework and formal processes based on the best technical, operational, and legal information available. This includes guidance on what constitutes “landing” and what is “transshipment” as there needs to be a common understanding globally of what a landing and transshipment are. Once these transshipment guidelines are adopted by the Technical Consultation and endorsed by COFI 35 in 2022, there will be a new voluntary instrument put in place to help national and regional efforts with combating IUU fishing.

94. Ms Von Kistowski concluded by stating a range of instruments lay out the responsibilities of flag, port, coastal and market States to combat IUU fishing. This is relevant as flag, port and coastal States have different obligations when it comes to landing and when it comes to transshipment. The moderator then introduced the next panelist, Mr Francisco Blaha, a MCS Consultant representing the Republic of the Marshall Islands (RMI), who has experience in MCS, as well as a fishing crewmember and a scientific observer in fishery research.

95. Mr Blaha also commenced his discussion by providing a visual presentation. He initially discussed the unloading process for vessels, using RMI as an example. The process requires permission to land the fish. He indicated fish should not come off the vessel during the unloading process if it is not proven to be a non-IUU vessel. In RMI, intelligence analysis is conducted by the port inspectors before any vessel comes in port to unload. After that, the vessel’s logbook is reviewed for consistency with the analysis prior to offloading being authorized.

96. Mr Blaha continued the discussion of unloading by mentioning if carrier vessels did not exist, there would be no tuna industry as there are not enough containers and port capacity flowing around the world to bring fish to processing ports. RMI places an emphasis on observing and monitoring all transshipments and vessels from the time the port inspectors go on board to evaluating how much and what species exactly are being transferred. He mentioned that there is potential for transshipment to occur between two catching vessels. However, this practice is discouraged due to the possibility of complications and greater risks to legal and traceable catch efforts.

97. Following unloading, Mr Blaha discussed the issue of landing by stating a definition of landing: the catches of marine fish which are landed in foreign or domestic

ports. Essentially, it is putting things on land. He stated he believed that the activity of authorizing unloading is independent of whether it is transshipment or landing, if it is not approved by a fisheries authority, fish should not leave the harvesting vessel. If this catch is identified to be transshipped, it doesn't matter if the activity takes place in a private port, or another type of port, the fish should not leave the vessel without the fisheries authority of the country where this is happening, being involved - this is irrelevant of the custom status of that fish. However, this status should not be the issue. Port State Measures should never be subordinate to the customs status of the fish. To pass the responsibility of determining the IUU status of that catch to a further country (the one that finally receives the fish) that cannot act against the catching vessel is absolutely against the effectiveness and fundamental principles of the PSMA.

98. The final point made by Mr Blaha was that the offloading of fish from a vessel falls under the port State measures implemented by the country that is hosting the event. Even if fish were just landed to be put immediately into a container, these containers are never put onboard a container vessel immediately thereafter. He mentioned the activity of container sorting as handling space is not typically available on the deck of a container. If the fish cannot be put onto the deck of a container immediately, these containers on the wharf need to be moved around by a vehicle and be refrigerated by having electricity mains that are powered from land. He mentioned that container vessels are typically on a tight schedule, so it is fundamental that the speed of loading of containers is not about the amount of people available, but the space available at any given moment.

99. To conclude, Mr Blaha explained that prior to loading of a container vessel, there is an extensive amount of documentation required to put a container on the vessel. There are several requirements for a container operator vessel to accept the container such as shipping instructions, container identification, and bill of lading. Regardless of efficiency, he mentioned loading a container is something that is not done in a hurry. Following these remarks, the moderator introduced the next panelist, Mr Duncan Copeland, Executive Director of Trygg Mat Tracking.

100. Mr Copeland commenced his presentation by discussing how containers are increasingly moving through areas where fisheries officers don't have access, creating a very real challenge across fisheries. He mentioned that there have been recent analyses of in port transshipment in both East and West Africa that identified that, unlike the situation in the Marshall Islands, unsupervised in port transshipment is more extensive and common than at sea transshipment. In some ports, up to 95 percent of total transshipments in port are unobserved and uninspected.

101. Furthering the conversation, Mr Copeland mentioned that this is a complicated issue because it is not always a single activity, but often an activity where a single vessel can choose to offload onto a carrier vessel, offload into a container, or even offload directly into shore canneries. As such, there can often be a mixed structure, meaning some fish will be offloaded at anchor in port into a carrier vessel, then it will go alongside the pier and transfer more fish that go into containers. Meanwhile, fish are also being offloaded either into local canneries or even into the local market and sometimes a mixture of the two.

102. Mr Copeland then provided an example of a transshipment in Takoradi, Ghana. The transshipment took place without any inspectors on board, at anchor. The carrier vessel then departed and five days later ended up in Abidjan in Cote d'Ivoire and offloaded the fish. Most fish went directly into containers. This was an example of a

mix of what Ms Von Kistowski mentioned in her presentation of transshipment versus landings. A lot of grey areas exist where IUU fish may slip into the supply chain. According to Mr Copeland, this raises a very important point that there is an integral link between strong port controls and transshipment controls.

103. Mr Copeland then switched the discussion to the increasing blurring between a carrier vessel and a container ship. He provided a photo that illustrated a vessel with four holds, which is a typical standard carrier vessel; however, they are not entirely inclusive anymore. Many carrier vessels can now have the capacity to carry containers. These vessels can pick up fish from a group of purse seiners or other vessels and then move into another port and pick up a number of containers loaded with fish. This creates a more complicated picture when that container vessel then arrives in a destination port and offloads those products. Increasingly container vessels themselves can also have refrigerated hulls where bulk or palletized goods can be stacked as secondary cargo. Therefore, this blurring between the two types of vessels adds to the complexity of transshipment.

104. An example of Nigeria was provided, as it is a country Mr Copeland works closely with regarding a study of imported fish to understand where that fish is coming from and the associated risks. Nigeria is very reliant on fishing ports for its domestic food security with over one million tonnes a year going into their market. They are also exporting many products, mainly prawns and shrimp, in containers that generally go to the US market. Mr Copeland provided an image of a map which identified all the ports in Nigeria, along with specific-colored points that identified official container ports. This illustrated a very complicated scene of a country with a lot of ports. All those ports can take containers. However, fisheries officers are only present in two of the ports and even though these are identified as container ports, the officers do not have access to the container terminals. The issue of free ports and bonded ports is a challenge, but also increasingly container ports are also contentious. These ports are often handed over to private companies to run on behalf of national authorities. In Lagos, there are three separate companies that divide up the port and keep it running and make those ports as efficient as possible, a state which can be impacted by port inspections related to fisheries.

105. Mr Copeland indicated container vessels coming into port with containers loaded with fish may or may not be IUU in its origin and are not something that private companies really want to know about. There are very different priorities for the customs agents who primarily deal with containers versus port authorities who are primarily trying to get goods through the port as fast as possible, compared to fisheries authorities who make sure that fish being landed is not IUU caught. The inter-agency cooperation on this issue is key. Customs, particularly, see fish in a container as a commodity, and so they treat it very differently than how a fisheries officer treats the fish.

106. Mr Copeland concluded by mentioning there are various complex issues happening in the global fisheries sector, but the link between port controls and transshipment is key. He concluded that inter-agency cooperation is the only way we are going to be able to start dealing with these issues. The moderator then introduced the final panel speaker, Mr Peter Flewwelling, Compliance Manager for the North Pacific Fisheries Commission.

107. Mr Flewwelling commenced his discussion by continuing the discussion of containerization. He stated three key thoughts to initiate conversation with the other panelists and workshop participants. His first point was that we should collectively be doing everything possible to encourage China to ratify and implement the Port State Measures Agreement, as China has seven out of ten of the largest container ports in the

world. Secondly, we should encourage all RFMOs to develop and implement a Port State measures conservation and management measure (CMM). This is because there are approximately 15 RFMOs around the world but not all have a CMM addressing Port State Measures. His third and final thought was that developing countries have low capacity for implementing the PSMA and are therefore at risk of being taken advantage of by organizations conducting IUU fishing. He concluded by posing the question: should we not be putting funds into media awareness, campaigns, and capacity building in these countries to encourage commitment and implementation of PSMA?

108. Mr Flewwelling offered some suggestions to help with the issues surrounding transshipment. First was encouraging compliance through media awareness, enhanced monitoring of ports. He provided a visual of existing technology being used by the SIF Program in East Africa who were working with countries to implement live streaming body cameras to assist compliance officers in conducting port inspections. He concluded his discussion by mentioning that enabling new technologies can protect the officers, protect the vessel, protect the vessel captain, and reduce the possibility of corruption. Importantly, it also allows direct feedback to the officer during the inspection. Upon this conclusion, the moderator commenced a short interactive question and answer session with the panelists.

109. As the moderator, Mr Long asked Ms Von Kistowski *“...From the US perspective, the movement of fish from a vessel into a container on land is a landing and must be treated as a PSMA inspection on the offload. This activity must be considered a landing and countries need to implement the requirements consistent with landing for this type of activity. However, some ports in other countries seem to be taking the easy way out by simply calling this activity transshipment and just not inspecting it. This practice could also impact custom fees due to the fish products not being considered for collection of fees before they are exported. Does the FAO agree with this thought process...?”*

110. Ms Von Kistowski indicated that the important thing is that an international common understanding is needed on what constitutes a “transshipment” and what constitutes a “landing”. It is not for individuals or even individual countries to decide. There is a good opportunity now in the context of the development of global guidelines for transshipment to bring clarity to the issue and have a universal approach as to how to differentiate the two and leave nothing in between so that no catch slips through without being checked. That is the main point, and while it’s important to have discussions and views about what is a landing and what is a transshipment, these can be subject to interpretation. So, it’s better to have an agreed definition, and this is for the international community to come up with, so that it is formulated in a way that nothing falls through the cracks and ends up as a movement of fish that is not being monitored and where there is no accompanying documentation for the next step in the supply chain.

111. The moderator followed up with another question directed to either Mr Blaha or Mr Copeland - *“...What measures and efforts have been done to reduce the containerization practices while we try and keep a lid on it in effect, whilst we really understand how we can control it, are there any practical examples...?”*

112. Mr Blaha responded by explaining that containerization is increasing - but that if carrier vessels are eliminated, there will be an increase in other problems with things such as crew changes. For instance, RMI’s location in the Central Pacific is a major transshipment location. To get to and from RMI, crews’ transit through either Australia, New Zealand, or the United States of America which are not open countries

in terms of accepting people from South Asia without having appropriate documents or visa. Yes, there are advantages to containerization, and these continue to grow, but there are real life limitations to how much one really can put on a future where the transporting of catch is conducted only via containers.

113. The moderator offered Mr Copeland the opportunity to provide any additional thoughts on answering the same question on reducing containerization. Mr Copeland responded by indicating carrier vessels are not going away since very often carrier vessels are already booked for several weeks or months ahead. Some of the smaller carrier vessels in particular are being pushed to also use containers because they don't have that option. Very often this state is driven by logistics and a lot of what Mr Blaha indicated in his response is right. It's very complicated in many ways regarding containers. On the other hand, you can stack up containers at a port while offloading and not necessarily have to wait for a carrier vessel to visit that port at the same time whose holds are full of catch in the vessel.

114. The moderator followed up this response with another question - "*...Are we seeing this happen in any particular regions or areas or are there any particular hotspots for this activity...?*" Mr Copeland answered by saying it is not necessarily looking at it in terms of regions but looking at it in terms of the fish itself. He is seeing, for example, a lot more containerization of small pelagic species whereas tuna still seems to be primarily transported in carrier vessels except for some long line vessels. So, it might be better to look at the issue that way rather than just looking at regions.

115. The moderator responded by asking if the panelists agree that this is a vital starting point to require documentation for containerized fish. Mr Blaha responded by agreeing and indicating that fish should not leave a vessel unless it's proven legal - if this is done, then where it goes doesn't matter. So, it is a matter of logistics. The problem is that we allow fish to leave a vessel without ensuring its legality. It is as simple as that. So, wherever the fish goes, there should be an unloading authorization based on a risk analysis of those sensitivities. If fish is not authorized to leave a vessel but still does, then you can consider that as part of the non-compliance process.

116. The discussion continued with the moderator responding to Mr Blaha by indicating that when containers come into port, they're generally not 100 percent inspected. It is sometimes more like 10 percent or less. As such, it struck doubt in the moderator's mind as to the number of normal containers coming into a port that are really, truly getting inspected. It's a challenge to begin with, but when it comes to IUU fish, how do appropriate inspections get conducted? The moderator further asked the questions on what the baseline benchmark is for a physical inspection of a frozen ship cargo.

117. Mr Flewwelling was the first panelist to answer the question and stated there is no documentation following a shipment or movement of fish at each step, which is an issue with compliance. Mr Blaha agreed and added that it is the responsibility of those in fisheries to sign off on all authorizations involving the movement of fish as allowed by fisheries bodies. The moderator then asked the question about how developing countries can be encouraged not to permit weak MCS capacity and how these countries can be further supported. Mr Copeland responded by saying weak MCS is not necessarily just an issue about capacity, it can also be about who is responsible for what, and that's part of what makes the issue so complex.

118. Mr Flewwelling responded by agreeing with exactly what Mr Copeland had said. He then commented about the PSMA which is probably the cheapest

tool to implement with respect to MCS. It is one way that donor funds can be used in developing countries to enhance capacity and understanding. He continued by indicating that if we can, we should work towards changing attitudes in developing countries and conduct MCS capacity building so that the people in the port, be it cross trained customs officers or fisheries officers, understand the importance of what they are doing and receive international support in their efforts. Mr Copeland added that there are other stakeholders involved who really need to be engaged on the issue and need to be made aware of the issues associated with IUU fishing. Equally, those who are running private ports also have a role to play so engaging those stakeholders are also going to be very, very important.

119. Mr Blaha highlighted Mr Flewwelling's response by adding that fisheries officers normally see maritime police or the navy or civilians as natural allies, but with the increase of containerization, the new ally are customs officers. As they are the first and last officials that see fish.

120. All the panelists were given the opportunity to answer a final question posed by the moderator who asked: "...*What would be your point to those involved in the upcoming FAO consultations regarding the most important factor that should be considered to help address the containerization issues around transshipment...?*" Mr Blaha was the first to respond and indicated the most important thing for the consultation would be feedback to be included in the process. Mr Flewwelling agreed and added the need for both the operational and management side to be involved. Mr Copeland added that it would be important to bring onboard broader stakeholder groups that are relevant who have experience in this area.

121. The moderator concluded by inquiring of Ms Von Kistowski the work that has gone into combating IUU fishing at FAO. Ms Von Kistowski answered by indicating the role of the Experts in the Consultation process is to support the Secretariat in providing a draft that will then go into the Technical Consultation where the countries will come in to be involved. All the background, technical, operational, and legal aspects must be involved and also a good distribution of the regions of the world to make sure that all aspects and all realities are represented. In addition, it is also from the market side that the pressure can be put on those entities involved in transshipment to ensure that the paper trail is complete or however it may look like in the electronic digital world.

122. The IMCSNET Executive Director thanked the moderator and all panelists for their presentations and lively discussion and reminded everyone of the importance of this issue to be considered as FAO embarks on the development of global guidelines for transshipment. The Executive Director then introduced the next speaker who was Ms Alicia Mosteiro, Fisheries Officer, Fisheries Global and Regional Responses Team of FAO. Ms Mosteiro will give a presentation regarding the FAO Global Record and an update on work of the PSMA Information Exchange Working Group.

SESSION 3: TECHNOLOGY AS AN ENABLER

FAO Global Record and PSMA information exchange

123. Ms Mosteiro began her presentation by speaking of the importance of information sharing. She outlined three fundamental elements to eliminate IUU fishing as; (1) Compliance; (2) Cooperation; and (3) Transparency, and the key steps or processes associated with making these a reality - Ratification/accession, Implementation, and Information-Sharing. Ms Mosteiro outlined that the PSMA

Information Working Group was looking to use technology to assist with developing an electronic information exchange network.

124. She reminded the participants on the range of international instruments dealing with IUU fishing, including the binding agreements of UNCLOS (168 Parties), the FAO Compliance Agreement (42 Parties), the UN Fish Stocks Agreement (91 Parties), and the FAO PSMA (69 Parties) which all had obligations associated flag, port, coastal, and market State responsibilities. There are also a range of non-binding agreements as well including the IPOA-IUU, Rome Declaration, Voluntary Guidelines for Flag State Performance, the Global Record, Voluntary Guidelines for Catch Documentation Schemes, and Voluntary Guidelines for the Marking of Fishing Gear.

125. In accordance with these binding agreements, there is a range of information sharing and cooperation “tasks or duties” for flag States, port States, coastal States, and market States. To help promote information sharing and cooperation, FAO is working in several ways. With the PSMA Information Exchange, the FAO has developed a PSMA Application to share data on Designated Ports and National Contact Points (under Articles 7 and 16) and as of July 2021, there are a total of 525 Designated Ports and 54 National Contact Points. In addition, FAO is developing the Global Information Exchange System (GIES) (under Articles 15 and 16) related to port denials and inspections. A prototype of GIES was presented at a Meeting of the Parties in June 2021 and preparations are being made to launch a GIES pilot version.

126. With respect to the FAO Global Record of Fishing Vessels, Refrigerated Transport Vessels, and Supply Vessels, this initiative is supporting the implementation of the PSMA and other instruments to combat IUU fishing. A pilot version of the Global Record was released in 2016 with a first working version released in 2017. The first public version was released in 2018 which is still the current version, but an updated version 2 is under development to be launched in 2022.

127. Further to the FAO Global Record, Ms Mosteiro indicated that it was a collaborative global tool that gathers and disseminates through a unique access point, certified, relevant, and up-to-date information on vessels used for fishing or in support of fishing activities. The goal of the Global Record is to combat IUU fishing through increased transparency and traceability. The nature of the Global Record is through a single hub for flag State fleet information as requested by COFI. The scope of the Global Record includes all fishing and fishing-related vessels (transport, support, and supply vessels) that have an IMO Number and whose products access international markets.

128. The FAO Global Record has six information modules (with more than 100 data fields) which are provided by the State’s relevant authorities with RFMOs having a role to channel information. There are five essential data fields which include: (1) Unique Vessel Identifier (UVI) or IMO Number; (2) Current flag State; (3) Vessel name; (4) Length overall (LOA); and (5) GT or GRT. To date a total of 66 countries have provided information into the Global Record for 11 846 vessels, with greater than one-third having an IMO Number.

129. Ms Mosteiro then spoke about the FAO Port State Measures Agreement (PSMA) and the GEIS as a facilitator for the information sharing obligations under the PSMA. She indicated the PSMA entered into force in 2016 and currently has 69 Parties (including the European Union). Article 16 of the PSMA deals exclusively with the electronic exchange of information.

130. The PSMA GEIS was discussed at the second and third Meeting of the Parties where it was agreed it would be developed as an integrated system. FAO indicated it would be built using a modular and phased implementation approach. FAO worked closely with RFMOs and other systems such as the IMO GISIS, Equasis, and the Global Record. Once GEIS enters a pilot phase, it will include data protection, confidentiality, and interoperability. FAO will also strengthen information exchange with relevant organizations at both the regional and international levels.

131. Components of the GEIS application include (1) Denial of entry or use of port and withdrawal of port denials; (2) Inspection reports; and (3) flag State actions. Functionalities include manual online forms, automated connection for near-real time exchange, notifications, and a search functionality. Accessibility of GEIS will include the public for general information; however, there will be limited access only for Parties which provides for summary information and risk analyses.

132. Ms Mosteiro concluded the presentation by providing an overview on how the GEIS will be used to help overall implementation of the PSMA in cases where a foreign fishing vessel requests entry into a designated port. The GEIS will help tie together the Global Record, Catch Documentation Schemes and other MCS tools to provide a wealth of information that would be used by port inspectors in making decisions on whether to authorize the use of the port by the vessel, or in cases where there is IUU fishing activity clearly identified, denying the use of the port.

133. The IMCSNET Executive Director thanked Ms Mosteiro for her presentation and detailed update on both the Global Record and the PSMA Information Exchange Working Group, especially with outcomes of the Meeting of the Parties just one month prior to the virtual GFETW and the updates related to the development of the PSMA GIES system.

134. The IMCSNET Chair wrapped up the Day One virtual GFETW plenary session and recapped the presentations and discussions held. He invited all participants to attend and actively participate in the planned post plenary discussion rooms that would commence following a short break. These discussion rooms include follow-on discussions based on Day One presentations and panel discussion as well as “Meet the Author” discussion rooms related to the vetted MCS papers and presentations posted on the GFETW conference site as a component of the workshop. In addition, a Special Session was scheduled supporting the EDF/WWF-sponsored SAFET conference and Technology Providers associated with this conference series.

135. The SAFET discussion room included an introduction to five technology providers that have each independently developed a range of technologies that could be used to support both national and regional MCS efforts. Further details on these technology providers are included in paragraph 291 of this report.

DAY TWO

PANEL DISCUSSION 2

What are the real barriers to MCS information sharing?

136. **Context for panel discussion 2:** *Exchange of MCS information between national, and regional fisheries authorities is vital for managing shared fish stocks and for effective monitoring and control of both small-scale and industrial fishing fleets. This is especially true when these fleets follow fish stocks across maritime boundaries and offload their catches in ports in different regions than where the fish was caught. MCS information sharing is also essential to enable harmonization of agreed RFMO CMMs and is a critical component for the development of regional strategies for the conservation of fisheries resources and marine ecosystems. It is not only regional MCS information sharing that is important – encouraging national interagency cooperation is also vital. Cooperation between national agencies including Fisheries, Navy and Coastguard, Maritime and Port Authorities, Customs, and others enables compliance officers responsible for the enforcement of fisheries rules and regulations to have the information needed to effectively combat illegal, unreported, and unregulated (IUU) fishing and associated crimes. Increasing transparency in the fisheries sector has also been widely identified as a key factor in tackling illegal fishing and fighting corruption. Regional level sharing of information and data is a critical first step to increase transparency, the formal process of which has been implemented in several regions such as between members of the Pacific Islands Forum Fisheries Agency (FFA) through the Niue Treaty Subsidiary Agreement and members of the Fisheries Committee for the West Central Gulf of Guinea (FCWC) which adopted the Convention on the Pooling and Sharing of Information and Data. On the international level, the FAO also set up the Global Record of Fishing Vessels as a global information exchange system. However, in practice, there remain barriers to effectively operationalizing these MCS information-sharing agreements. As indicated, part of the issue relates to constraints on transparency in fishing which helps keep the veil of secrecy on fishing activities, especially when these take place on the high seas. Greater transparency in fisheries provides national and regional authorities with more information to drive risk analyses that allow for better-informed decisions on enforcement actions. The panel will discuss their various viewpoints on MCS information-sharing and the drivers that prevent true sharing of information between authorities that, if conducted in a manner consistent with established agreements or national and regional MCS information-sharing strategies, would lead to real changes on the water. The panel will also provide their perspective and recommendations on actions that could improve MCS information-sharing and tear down the real barriers that prevent effective MCS information-sharing and transparency that would result in an overall positive impact in the fight against illegal fishing.*

137. Reference documents provided for participants include:

- a) Information Sharing is Key to Ending Illegal, Unreported, and Unregulated Fishing; The Pew Charitable Trusts; 2021
- b) An Agent-Based Model of IUU Fishing in a Two-State System with Information Sharing; CEBR; 2020

138. Panel 2 Discussion moderator and panelists include:

- a) Moderator: Ms Alicia Mosteiro, Fisheries Officer, FAO
- b) Panelist: Mr Allan Rahari, Director of Fisheries Operations, FFA
- c) Panelist: Mr Martin Exel, Executive Director, SeaBOS
- d) Panelist: Mr Hrannar Mar Asgeirsson, MCS Officer, North-East Atlantic Fisheries Commission (NEAFC)
- e) Panelist: Mr Tony Long, CEO, Global Fishing Watch

139. The Panel 2 discussion commenced with the moderator, Ms Alicia Mosteiro, providing a brief overview and background of the different panelists. She then provided a summary of the importance of information sharing by mentioning how it is a key element to support the adequate implementation of international agreements, such as the PSMA, the FAO Compliance Agreement, and the Voluntary Guidelines for Flag State Performance to name but a few. She touched on the fact that there are already various initiatives sharing control information, particularly at the regional level such as FFA and North-East Atlantic Fisheries Commission (NEAFC), at national level interagency coordination, as well as within the private sector and non-for-profit organizations. Before she introduced the first panelist, she indicated that global solutions were still scarce and there is a long path yet to be walked, but we have made the first steps of the journey with initiatives such as the FAO Global Record and the very recent PSMA GIES, and among those key official international initiatives, they will bring about a leap forward in information sharing in the coming years.

140. The first panelist was Mr Allan Rahari, Director of Fisheries Operations, Pacific Island Forum Fisheries Agency (FFA). The topics covered by Mr Rahari dealt with the FFA experiences regarding data and information sharing. In particular, he focused on data and information sharing initiatives and efforts in the Pacific amongst FFA members and some of the key lessons learned and key points to consider moving forward towards improving MCS data and information sharing.

141. Mr Rahari provided information about the FFA by detailing their mission, which is to empower FFA members to take collective and national actions for sustainable use of offshore fisheries resources through a collaborative, regional approach that has provided substantial support to its members for more than 40 years. Some of these collaborative approaches included the establishment of the Regional Register of Foreign Fishing Vessels that was established in 1983 as a compliance tool to assist FFA members so they can better control the activities of foreign fishing vessels licensed by FFA members to operate within their waters in the region. The FFA Regional VMS which was established in 1998 and the FFA VMS Data Sharing Arrangements that followed.

142. Mr Rahari continued by providing further background on the FFA. He indicated FFA members have entered many arrangements over time to facilitate improved fisheries data information sharing, which have been implemented at the bilateral, quadrilateral, regional, and subregional levels. These regional initiatives have included a treaty on cooperation in fisheries surveillance and enforcement in the South Pacific region, commonly known as the Niue Treaty of 1992. This agreement was strengthened further in 2012 with an implementing agreement commonly referred to as the Niue Treaty Subsidiary Agreement. All these cooperative arrangements are underpinned by a strong shared desire of FFA members to share fisheries data and information among themselves and share it with key partners such as the Quadrilateral Defense forces of Australia, New Zealand, France, and the United States of America. The Niue Treaty and the Niue Treaty Subsidiary Agreement go beyond just data and information sharing and provide a framework for the effective sharing of resources as well.

143. He further mentioned fisheries data and information sharing developments need to be targeted and have clear objectives in fisheries. Data and information can be shared, but it can be difficult to use all this data and information effectively. To combat this within the FFA region, they have implemented an integrated regional MCS framework that uses the available fisheries data information to provide risk assessments and a common operating picture to target MCS responses, whether it be port-based

measures, surface, or aerial surveillance, or even employing other imaging, or remote monitoring technology.

144. The integration of new fisheries data information is vital to ensure that members are always able to make the best use of this information. As such, fisheries data and information developments cannot be considered independent of the resources available and the ability of the receiving party to ingest, use and respond to the information. A key example of this is the growth of online tools using AIS data to allow near real-time vessel tracking to anyone who can have access to a computer and internet. These tools are making an impact in increasing the transparency of fishing vessel information and there is obvious overlap of AIS with VMS that has operated at the national, sub-regional, regional, and the RFMO level for some time.

145. Mr Rahari followed up by stating that States and organizations need to be able to see the benefit of this data and information sharing and that the broader elements around integration, accessibility, and security need to be considered. A key part of that is also ensuring the requirements of Small Island Developing States (SIDS) to effectively participate in data and information sharing arrangements and their capacity to make best use of the shared data and information. He mentioned protocols for data and information security must exist and should be maintained and regularly reviewed to ensure information security, with existing protocols being the starting point. For expanded information sharing, originally agreed information security and management system policies as set out in the framework for the management of data and information security within FFA which sets out key components and the principles, should be reflected in national level information security policies.

146. Mr Rahari concluded his comments by outlining the FFA integrated regional MCS framework has been successful for the last 42 years due to the strong data and information sharing arrangements in place, which underpin the strong collaborative approach undertaken by FFA members specific to fisheries. The Niue Treaty and the Niue Treaty Subsidiary Agreement represent important frameworks used by FFA members to share fisheries data information. However, he indicated that the sharing of resources and fisheries data and information needs to be considered alongside advances in technology.

147. Before introducing the next panelist, Ms Mosteiro summarized Mr Rahari's presentation by reiterating several areas mentioned such as the FFA integrated regional MCS framework based on risk assessment. Additionally, while information sharing is a key component, this sharing requires a secure and readily available system for members to be able to access that information. She also mentioned that the sovereign rights of States on data are clearly to be preserved, particularly for exclusive economic zones, and that the needs for SIDS should be considered. She concluded by pointing out the need for protocols for data sharing as a starting point, particularly including security components and principles at both the national and regional level.

148. The moderator introduced the second panelist, Mr Hrannar Már Ásgeirsson, MCS Officer, of the NEAFC. His discussion used the NEAFC as a case study to detail how MCS information is shared in this region and how important it is for MCS purposes. He commenced by highlighting a few key elements that can be considered a barrier to MCS information sharing if not implemented by the relevant RFMO. The first key element is the importance of clear and binding regulations in the RFMO management measures. Secondly, the importance of automated electronic reporting systems (ERS).

149. Mr Ásgeirsson expanded on the importance of clear and binding regulations in RFMO management measures by indicating the management measure requirements need to be clear. For example, the regulations or requirements should be clarified for the Contracting Parties, the national Fisheries Monitoring Centers, and the relevant RFMO regarding VMS and the systems for monitoring and communicating catch and transshipments between vessels. This means there needs to be binding and standardized reporting requirements, which also need to clarify how the fishing effort, or the fishing activity is reported. There also needs to be a standardized reporting format in place. When we do not use compatible formats, protocols, codes, and definitions, fisher's data cannot be shared nor explored at the regional or global levels and can ultimately lead to data chaos.

150. As an example, Mr Ásgeirsson noted that NEAFCs expanding regulations include management measures or the NEAFC scheme of controlling enforcement. The scheme also includes NEAFC port State control procedures and provisions. So, the scheme is a key element of the measures implemented by NEAFC containing the detailed MCS and enforcement provisions. The Scheme therefore establishes a comprehensive number of requirements and procedures for the Contracting Parties as the relevant flag States and for the vessel operators. Most procedures are automated using the North Atlantic Format (NAF) data strings that have been used since 2000 and data in the NAF is basically sent from database to database between national Fisheries Monitoring Centres (FMCs) and the vessels.

151. Mr Ásgeirsson further discussed the HTTPS gateway. This gateway is a slash delimited format and is computer readable but can also be read as a text. However, NEAFC is in the process of moving from this format towards a new electronic reporting system or a global standard for electronic exchange fisheries data by implementing the Fisheries Language for Universal eXchange (FLUX) standard developed by the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT). The ERS FLUX standard basically means fisheries language for universal exchange and, in short, provides a harmonized measured standard that allows automatic access to the electronic data that are generated from the electronic logbooks from the vessels. By using the ERS FLUX standard, there is a possibility for data exchange between different systems, such as between FMCs and even between RFMOs and the FAO.

152. A potential barrier Mr Ásgeirsson mentioned, is the lack of a robust ERS or electronic reporting system for MCS information sharing purposes. For instance, it is important to have this in place for both inspections at sea, as well as in port. Regional fisheries data can be extensive, and it can be impossible to explore all this data manually and doing so is just not sustainable in the long term. All NEAFC fishing activity information is reported in accordance with the scheme and communicated to the NEAFC Secretariat, via the NAF and the HTTPS gateway and all the data goes directly into the MCS database, which is the current NEAFC system. However, this system is at risk of being outdated with the introduction of ERS FLUX.

153. The new system means not only does the NEAFC Secretariat have access to all the data via the MCS database, but also, importantly, is that the Contracting Parties also have access to the data when they have active inspection presence in the high seas in the NEAFC regulatory area. Fishing activity information is shared via the system and the Contracting Parties can import the information into their own MCS systems if they want. The objective is to allow for data analysis for risk management and inspection purposes. Both of which are important as Contracting Parties are allowed to inspect another Contracting Party's vessels inside the NEAFC regulatory area.

154. Mr Ásgeirsson also indicated all surveillance or inspection reports are shared between Contracting Parties on the restricted NEAFC website. NEAFC also implemented a port State control system in 2007 and in 2013, all the procedures became fully automated web-based procedures. This means they can monitor authorization processes and previous port State inspections, as all port State inspection reports are uploaded in parallel with the submitted authorization via the authorized port State control form.

155. Mr Ásgeirsson concluded by saying, when the transition period for FLUX starts, and, and in preparation for risk assessments prior to port State inspections, the inspectors will be entitled to view all data regarding all fishing activity inside the NEAFC regulatory area for a period of one year prior to the inspection. This does not only apply to fishing vessels, but also vessels involved in transshipments. NEAFCs new FLUX system will give access to all this information in a web-based user interface, which will provide enhanced visualization of all the fishing activity and catch including real time and historical maps.

156. The moderator summarized Mr Ásgeirsson's presentation and thanked him for detailing the comprehensive MCS system of NEAFC, which could allow full monitoring of all documents. She highlighted some of the main points, including clear, binding regional regulations, automated electronic reporting systems, and data sharing between RFMOs as well as the comprehensive MCS systems of NEAFC. These are all fully electronic, which is very important for near real time information and accessibility to Contracting Parties through restricted access. The key barrier mentioned was the need to make all the systems compatible and be able to speak to each other, as well as fixing the lack of robust electronic reporting systems on fishing activity, which is a risk to the effective analysis of inspections.

157. The moderator then introduced the next speaker, Mr Martin Exel, Executive Director of SeaBOS. He started his presentation by discussing what "success" looks like by showing some photos of IUU toothfish fishing vessels interdicted and destroyed in various locations other than the Southern Ocean, which demonstrates the global issue of IUU fishing. All the vessels presented are famous for different reasons, but Mr Exel explained the key to finding these vessels was information sharing and the collaboration and information sharing that occurred to achieve this. He then showed a visual of catch estimates for Patagonia and Antarctic toothfish, which showed the connection and the collaboration between industry, government, science, conservation, national, and international agencies combined in a way that virtually eliminated IUU fishing from the Patagonian fishery since 2005, and almost eliminated in the Antarctic toothfish fishery as of 2018.

158. Mr Exel switched focus and gave a brief description of SeaBOS, which stands for Seafood Business for Ocean Stewardship. He explained that lessons that came from that collaboration and information sharing on toothfish have been brought into this construct, which is comprised of ten of the largest seafood businesses in the world. He also mentioned that through SeaBOS, the CEOs of these seafood businesses collaborate with science teams out of the Stockholm Resilience Center, the Bayer Institute, Lancaster University and the Stanford Center for Ocean Solutions. The theory is if we can share information, if we can collaborate, if we can work with science-based solutions, we can create a true shift towards global sustainable seafood production and a healthy ocean.

159. The initial barrier to information sharing is people understanding why information sharing is so critical. This means understanding there are many cultural, social, political, and other dynamics at play that must be considered when we try to get information shared. The key is to find out what the value proposition is for each group, or each individual boat, or whatever it might be that unlocks that information sharing potential.

160. The key is to start aligning IUU Fishing Vessel Lists, a best move forward in terms of achieving a clear focus and alignment of what we're trying to get out of the other end. Additionally, how best to share information considering all these differences as well as commercial confidentiality. He indicated there are some very real hurdles to overcome when industry members are competing against each other, which becomes a challenge and recognizing things like the costs to provide for information sharing, which does increase the price of production. Branding and demonstrating sustainability claims are a clear opportunity for compliance and surveillance to hook onto and start saying, if an industry is going to use traceability to demonstrate their sustainability and social claims, how can MCS access or work with that information in a way that MCS can use it and help achieve the goal that we all want, which is to eliminate IUU fishing.

161. Another challenge to tracking down IUU fishing vessels is that different organizations chase those who are actually very good, but not perfect, and leave those who are actually very bad alone. In that regard, there needs to be positive reinforcement provided for those that are demonstrating compliant activities. Secondly, certification schemes can discourage organizations such as SeaBOS by allowing them to question whether they are doing the wrong thing by telling these fisheries that they might be downgraded, or suspended, or hold a certification while a company is trying to sort things out.

162. Mr Exel indicated that because of the supply chain, buyers and customers are all looking for a reason to shift and buy a product that is slightly cheaper. Government regulations and flexibility is a real challenge as well because if you're trying to enforce things, or if you're trying to have true compliance, then flexibility is a nightmare. But if it means it stops us from indicating what is really happening on the water, that's a problem. And the problem is that everybody just pretends things are fine until they are caught. The goal should be, how we can find a mechanism to unlock that real situation, which is happening out on the water, and have information sharing between industry, government, compliance, science, conservation, and everyone else.

163. Mr Exel concluded his presentation by encouraging collaborations. He provided an example of the toothfish issue, which worked very powerfully for everyone from Sea Shepherd, right through every agency one can think of to every part of the seafood business, the industry, right to gear manufacturers, retailers, wholesalers, processes, everybody was involved together. This ended up being the key for unlocking information barriers.

164. The moderator recapped Mr Exel's presentation by stating the importance of the role that industry can play through the supply chain in providing this positive feedback that can unlock the situation and not provide negative feedback all the time. She then introduced the final panelist, Mr Tony Long, CEO of Global Fishing Watch.

165. Mr Long started his presentation by stating the two real barriers for information sharing that need to be addressed. First, that the data is seen as more valuable if retained, and second, there seems to be a default to confidentiality that must be questioned.

Additionally, even when information is shared, it's not widely shared. The combination of these barriers serves to undermine any effort to improve the efficiency of current government systems and we need to urgently consider how we can shift attitudes and access to data for the global good.

166. The first real barrier for information sharing is considering when data is truly confidential. People do not want to give information to their competitors, but he questioned at what stage can that information be released, where that information is no longer a threat to the fishery because it's timely or no longer a real use to the competitors. Even when one comes across a piece of information that may not seem shareable, there are likely ways around it, whether it be time delays or even redactions.

167. To fully explain the problem of data confidentiality, Mr Long gave an example of when piracy was at its worst in the Horn of Africa. There were over 32 different nations working to counter piracy at different times, which included the Chinese Navy, Russian, Iranian, the United States of America, European Union Navy, and the Gulf States. Traditionally, there's a lack of information sharing between these different countries. Yet they found a way to do it through shared awareness and deconfliction that allowed an information sharing system to form an order that all those nations, whilst operating in the Indian Ocean and the Horn of Africa could operate officially together and drive down the issues around piracy. He concluded by saying it's time that the world of fisheries governance adjusted its attitude to follow a similar pattern.

168. Mr Long mentioned there's growing evidence of a shift in recognizing the true value of data sharing and information sharing or transparency, and it's clear that the proprietary nature of fisheries data is really undermining a successful global enforcement system, or a global monitoring system. He mentioned Global Fishing Watch has seen nine countries elect to share their VMS data with the Global Fishing Watch platform in the past three years and expects possibly three or four more to do so by the end of 2021. These countries have overcome different barriers to sharing that information and there have been laws changed in certain countries and regulation has changed in others.

169. When discussing transparency, Mr Long mentioned Global Fishing Watch is focused heavily on tracking but noted that many other agencies have been advocating for additional data to be shared. The tracking data itself is important for the identification of a vessel, so that it is permanent and fixed. Public vessel registers guard who are authorized to fish and where transshipment is authorized. Together, when combined and applied in the public forum, these will be a huge deterrent to IUU fishing and will provide a clear way to understand what's happening out at sea. Additionally, this will allow coastal States to get the information they need to govern their waters more effectively.

170. The information that Global Fishing Watch puts out is aggregated. This data doesn't need to be "live" to have the impact that is needed to understand who's fishing where, nor is it necessary for fishers to have the freedom to fish in the best fishing grounds without fear of competition due to information sharing. Mr Long noted that open data platforms are being seen as complementary to information that already exists, so that confidential data and open data are working side by side. He indicated the FFA is a great example of nation States being able to work together across a wide area, and how with trust and open data, there is much clearer awareness about what is happening as well as a more cost-effective way of using valuable resources.

171. Mr Long also mentioned how technology is a significant barrier. He indicated the Global Fishing Watch platform, as an example, provides information that is made free and accessible globally, and the goal is to increase people's access to this data. Lack of access is because cost is a major barrier with accessing technology more widely. He added how the Global Fishing Watch platform removed another barrier, which are effectively the information silos. The goal is that if countries that neighbor each other are using different technologies that are not sharing information between them, all that is being created is an electronic wall and a silo that illegal fishers will use to navigate the system. There is a strong effort to forge a partnership to fill the gaps in the Global Fishing Watch's public platform, which led to the active partnerships with Vulcan Skylight to provide more latent data alongside Global Fishing Watch's delayed and wider system. Another partnership Mr Long mentioned was with groups like Trygg Mat Tracking, which have provided deep analysis skills that can help uncover information beyond the technology side.

172. In conclusion, Mr Long mentioned there is work being done alongside governments like Japan and their Fisheries and Research Agency, and the North Pacific Fisheries Commission to provide data that allows an understanding about what is happening in the North Pacific. There is also a relationship with the Canadian Department of Fisheries and Oceans and technology providers like MDA for sharing of data. In summary, to deal with IUU fishing, he mentioned there needs to be a shift to an open data system because with data being open and available, it is more cost-effective and scalable in that manner.

173. The moderator summarized Mr Long's presentation by highlighting there is certain proprietary data in fisheries that clearly the authorities that create and circulate the data do not wish to disclose at the global level or in the public domain. The issue of when this data can be released is important because certainly in the public domain, there is very little data that comes from the authorities involved. The moderator then moved the panel discussion to a short question and answer session.

174. This portion of the panel discussion commenced with a question concerning documentation, specifically where information on data standards can be obtained or otherwise shared. Mr Ásgeirsson responded by providing information on the FLUX standards.

175. A question was posed about the key elements for success with collaborations for information sharing. Mr Exel answered that the key is building trust amongst all different players and ensuring accountability.

176. Another question concerned how NEAFC has been able to eradicate IUU fishing in their Convention Area. Mr Ásgeirsson responded by providing an example of a vessel being placed on the IUU Vessel List, then confronting the flag State authorities. This led NEAFC to bolster a more robust legal framework for inspection procedures, as well as its MCS tools in order to better stop IUU fishing.

177. A final question was posed to Mr Long which was related to the benefits that countries that collaborate see in sharing information such as VMS through an open platform. He responded by explaining it varies between countries, while providing various examples such as partnerships with Panama and Chile. He concluded by mentioning the AIS system Global Fishing Watch uses is also providing information that support international agreements. The moderator then closed the panel discussion.

178. The IMCSNET Executive Director thanked the moderator and panelists for the informative discussion and remarked how valuable information sharing is with combating IUU fishing; however, more efforts need to be made to expand more universal information sharing. He then introduced the next session on Transparency and a presentation by Rear Admiral Scott Clendenin of the US Coast Guard on the new US Coast Guard Strategy on IUU Fishing.

SESSION 4A - TRANSPARENCY

The new US coast guard strategy on IUU fishing

179. RADM Clendenin began his presentation by indicating that IUU fishing is a pervasive security threat to US national interests. IUU fishing undermines international agreements and fisheries conservation measures. It also jeopardizes global food security, with pronounced destabilizing effects on vulnerable coastal States. IUU fishing robs legal fishers of their livelihoods, endangering the economic security of all nations with a maritime boundary.

180. He indicated that industrial scale fishing vessels deployed by irresponsible and aggressive flag States can increase geopolitical tensions, undermining the rights of nations to exercise their sovereignty and benefit from their economic resources. A lack of accountability by these flag States to enforce responsible maritime behavior on their fleets further enables illegal fishing actors to violate international rules-based order and opens the door to transnational criminal organizations to use profits from IUU fishing to monetize a suite of other illegal activities.

181. RADM Clendenin indicated it is the responsibility of all nations to deter IUU fishing activity within their capacity and capability, particularly vessels under their own flag. The US Coast Guard has always sought to ensure safety, security, and stewardship at sea. Under the new US Coast Guard IUU Fishing Strategic Outlook, the Coast Guard would apply their own broad authorities, capabilities, capacities, and partnerships to be a global leader in the fight against IUU fishing.

182. He further indicated that by working with partners in the NOAA, the Department of State (DOS), and the Department of Defense (DOD), the Coast Guard would uphold a whole-of-government effort to advance national interests in the maritime domain and promote economic prosperity. Through enhanced engagement with like-minded nations and key maritime stakeholders, the Coast Guard is ready to spearhead the global fight against IUU fishing.

183. RADM Clendenin indicated the Coast Guard will do this by pursuing the following Lines of Effort:

- *Promote Targeted, Effective, Intelligence-Driven Enforcement Operations.* The Coast Guard will lead global efforts to detect and deter IUU fishing on the high seas and in the exclusive economic zones (EEZs) of partner nations. Through the innovative use of intelligence, technology, data analysis, and information sharing, the Coast Guard will identify, target, and interdict illicit actors in the maritime domain to disrupt corrupt cycles of influence that enable illegal operations.
- *Counter Predatory and Irresponsible State Behavior.* The Coast Guard will prioritize operations and engagement in areas where their efforts are most critical to demonstrate US commitment and model responsible behavior. The Coast Guard will shine a light on the activities of those who violate international rules-based order, exposing and holding accountable the most egregious predatory actors.

- *Expand Multilateral Fisheries Enforcement Cooperation.* The Coast Guard will build and maintain lasting cooperation with key partners to empower regional resource conservation and management. Working with US and international partners, the Coast Guard will assist at-risk coastal States and like-minded nations to develop and maintain their own robust counter-IUU fishing capacity, bolstering their governance and enforcement systems, and affirming the United States of America as a preferred partner. Through targeted, persistent, and collaborative efforts, the Coast Guard will sustain and strengthen connections with partner nations supporting international oceans governance.

184. RADM Clendenin went on to say that Ocean Guardian, the US Coast Guard's Fisheries Enforcement Strategic Plan, has guided effective and professional at-sea enforcement for decades to advance national goals for the conservation and management of living marine resources and their environment. Ocean Guardian focused the Coast Guard's efforts on three strategic priorities: protect the US EEZ from foreign encroachment, enforce domestic living marine resource laws, and ensure compliance with international agreements.

185. This new Strategic Outlook complements Ocean Guardian by articulating the global reach of the IUU fishing problem, its threat to national security, and the US Coast Guard's role in combating it. It provides a holistic US Coast Guard approach to combating IUU fishing, incorporating not only at-sea enforcement, but also vital operations ashore to include intelligence targeting, information sharing, legal support, and policy development. All of which are necessary to inform operations and advance United States of America priorities that uphold rules-based order in the maritime domain.

186. In addition to the specific counter-IUU fishing strategic objectives, he indicated there are several enabling concepts that are critical for the US Coast Guard to ensure long-term success:

- *Unity of Effort:* The US Coast Guard relies on close working relationships with Federal agencies, primarily NOAA and DOS, to bring a balanced, whole-of-government approach to promote economic prosperity and advance US strategic objectives in the maritime domain. Additionally, as a military Service, the US Coast Guard will strengthen interoperability with DOD and complement the capabilities of the other military services to support the National Security Strategy and the National Defense Strategy. Together with its interagency partners, the Coast Guard will collaborate with like-minded nations to uphold sovereignty and international law. This unity of effort will ensure US Coast Guard priorities remain aligned with national goals and international governance systems that foster peace, access, and stability.
- *Partnership:* The US Coast Guard will actively support and enhance its engagement in multilateral organizations focused on maritime governance, such as RFMOs, as well as play a leadership role in the operationally focused Regional Coast Guard Forums. The Coast Guard will continue to dedicate resources to cooperate with allies and partners, conducting combined operations and exercises to protect sovereign interests and advance national priorities. The Coast Guard's unique and valuable relationship with nations with which we have bilateral agreements builds mutual trust and improves mission capacity and readiness. The Coast Guard will continue to incorporate lessons-learned from engagements with its partners, as well as industry, academia, non-governmental organizations (NGOs), and other stakeholders, in the development and implementation of the Coast Guard's policy and strategy.

- *Investment in the Future:* The US Coast Guard will build a mission ready workforce of law enforcement professionals, mission managers, and legal and policy experts to guide counter-IUU fishing operations. This investment includes updating training and education programs to develop necessary skills and knowledge for mission needs within the Coast Guard's workforce.
- *Innovation:* The US Coast Guard will strive to stay abreast of advancements in new technology to combat IUU fishing. The Coast Guard will continue to recapitalize aging assets, including cutters, boats, aircraft, and facilities. The Coast Guard will also invest in digital tools and information technology infrastructure to meet the challenges of maintaining maritime domain awareness and information sharing.

187. RADM Clendenin concluded his presentation by indicating the peace and prosperity of the United States of America requires a capable, innovative, and effective US Coast Guard to combat the destabilizing effects of IUU fishing. Ensuring the safety, security, and stewardship of the maritime domain is an enduring US Coast Guard mission. The US Coast Guard will continue to advance the rules-based order on the world's oceans by exercising broad authorities and capabilities to combat IUU fishing. By promoting a unified effort with federal partners, like-minded nations, and international stakeholders; sparking innovation; and building a mission-ready workforce; the US Coast Guard will lead global efforts to strengthen and invigorate international fisheries enforcement regimes and stop IUU fishing's threats to the marine environment and maritime rules-based order.

188. The IMCSNET Executive Director thanked RADM Clendenin for his valuable presentation and thanked the Coast Guard for looking at the issue of IUU fishing from a strategic perspective requiring a global, international effort of both government and non-government institutions working collaboratively together to solve. The Executive Director then introduced the next session which was a second session on Transparency related to the experiences of Chile in dealing with the topic and he welcomed Ms Alicia Gallardo, Undersecretary of Fisheries and Aquaculture for the Government of Chile.

SESSION 4B - TRANSPARENCY

The Chile experience

189. Ms Gallardo commenced her presentation by sharing her experiences related to Chile in the fight against IUU fishing and the relevance of transparency in the legal sector. Chile has a high level of commitment dedicated to protecting marine life and maintaining certain areas protected from different illegal fishing activities. Chile jointly shares fishery activities with protection and offers multiple uses for relevant areas under protection which includes enforcement.

190. She provided a summary of different actions to address IUU fishing in the form of legal enforcement. First, she started with innovation and mentioned the importance of using transparency with the citizens of Chile to work together to protect resources. She indicated that communicating between actors is essential for transparency to combat IUU fishing. In the aspect of innovation, remote inspection via electronic monitoring is a good example that can be used further in Chile. Additionally, some vessels and aquaculture centers need to share technology to increase transparency.

191. She continued by indicating the use of digital technology can be explored further as it is a big challenge to face that could be helpful in the fight against illegal fishing. Ms Gallardo emphasized the value of working together between public and private institutions and considering the participation of all actors in fisheries and aquaculture, including all agencies and practitioners. She discussed risk assessment as a tool to fight against IUU fishing. Currently there are not a lot of resources or people working in public institutions, and those that don't prioritize activities based on appropriate risks. As such, it would be beneficial to put resources into different priority risk factors.

192. Ms Gallardo focused on transparency as an important tool that is needed to be further implemented to have better results in the illegal fishing sector. Transparency is needed in vessel monitoring systems and all processes with management plans. Another process Chile is involved and participating in is the APEC road map to try to combat IUU fishing and communicate with different actors included in APEC. Capacity building in the APEC road map is one of the main activities related to putting the tools and resources of different countries to use together to stop IUU fishing. Some countries have better resources and ideas, and it is necessary to develop the same level of capacity building.

193. Ms Gallardo continued by indicating traceability is related to food security and how important it is to trace fish in the sea and establish legal processes between processing plants to domestic consumption or market. Knowing the model of commercialization is critical because the information is important for models of enforcement, not just for fisheries but for aquaculture as well. Increasing coordination of APEC economies makes information more accessible for the public and working together increases public and private engagement.

194. She then discussed the importance of implementing port State measures and collaborating with FAO to present Chile's experience with port inspection improvements. She summarized four critical points which were to (1) control foreign fishing threats, (2) control vessels using the PSMA, (3) increasing communication between MCS practitioners and participation with VMS, and (4) increasing communication with regional police. More than 2 000 vessels are under the control of Chile with VMS, as this is used to control vessel operations in restrictive areas.

195. Ms Gallardo provided information on fishing laws in Chile that allow for transparent fleet operation data with vessel location systems. A new Chilean law has been implemented that requires the location of vessels to be published in a monthly statement. Before this law, information on vessel location was difficult to understand. This law has increased transparency and increased the quality of information provided to the public

196. She concluded by sharing some benefits of transparency which included the concept that transparency facilitates access to information on fleet deployment, contributes to the fight against IUU fishing, promotes compliance, and satisfies the desire of the scientific community, the fishing sector, and the public with information on capture. The IMCSNET Executive Director thanked Ms Gallardo for her presentation and indicated how informative it was.

197. The Executive Director further indicated that he was impressed with the leadership demonstrated by Chile and reiterated the virtual workshop was opened with Director Baez who talked about the work that Chile did to help form the IMCSNET more than 20 years ago. Ms Gallardo's presentation showcased that all the work Chile

has done, and continues to do, in fighting illegal fishing, shows true leadership. This is specifically true regarding Chile's focus on risk assessments, increasing transparency, innovation, communication, participation, and public and private engagements. He concluded by highlighting how good it was to see Chile on the APEC roadmap on IUU fishing, as this includes Chile conducting one hundred percent inspections on all the foreign flagged fishing vessels that pull into their ports. This is a laudable achievement to have regarding the inspections relating to MCS. The Executive Director ended by saying he has always been a believer in transparency and certainly the statement of "... *transparency of information breeds self-correcting behavior...*"

PANEL DISCUSSION 3:

Squid - how an unregulated fishery destabilizes fisheries, compliance, and governance

198. **Context for panel discussion 3:** Over the last several years, a dramatic increase in directed fishing effort and operations targeting several different species of squid have been documented on the high seas in several regions of the globe. Targeted hotspots of squid jigging activity include the high seas in the Eastern Pacific off the coasts of Ecuador and Peru; the high seas of the Southwest Atlantic off the coasts of Argentina, Uruguay, and Brazil; the high seas in the Northwest Indian Ocean off the coast of Yemen and Somalia; and the eastern part of the North Pacific high seas area. While the management of squid is covered under the remit of RFMOs in two of the regions (South Pacific Regional Fisheries Management Organization [SPRFMO] in the Eastern Pacific and NPFC in the Northwest Pacific), this management is not comprehensive. In the other two regions, there is no management framework in place for squid capture on the high seas which means this targeted fishing effort could be considered unregulated fishing activity. In the FAO 2001 International Plan of Action on Illegal, Unreported, and Unregulated Fishing (IPOA-IUU), unregulated fishing refers to fishing activities:

- *Paragraph 3.3.1 - in the area of application of a relevant regional fisheries management organization that are conducted by vessels without nationality, or by those flying the flag of a State not party to that organization, or by a fishing entity, in a manner that is not consistent with or contravenes the conservation and management measures of that organization; or*
- *Paragraph 3.3.2 – in areas or for fish stocks in relation to which there are no applicable conservation and management measures AND where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law.*

Noting the use of the word "AND" in paragraph 3.3.2 denotes that the IPOA-IUU reflects both conditions outlined in the paragraph must apply for fishing to be considered unregulated. With this context in mind, several recent studies have provided clear evidence of increased directed squid jigging effort taking place in several high seas regions, especially in waters where no international fisheries arrangements are in place other than those covering tuna and tuna-like species. The studies indicate the number of squid jiggers has increased in some regions by more than 830 percent in the last five years, numbering in some places by up to 300 fishing vessels supported by more than fifty carrier vessels. The size of these fleets means the impact of any unsustainable or destructive fishing practice exercised by the vessels is likely to not only be harmful to the marine ecosystem but allowed to continue with no restrictions. Without evidence to the contrary, the potential adverse impacts could provide the basis for satisfying the second requirement in paragraph 3.3.2 of the IPOA-IUU definition of unregulated fishing. On a parallel track is the identification of a huge

fleet of Chinese squid jiggers that appeared to be fishing illegally in Democratic People's Republic of Korea waters that likely were at least partially responsible for squid stocks in this region to decline by more than 70 percent. The Chinese-flagged vessels – nearly 800 in 2019 – appear to be in violation of United Nations sanctions imposed in 2017 in response to the country's nuclear tests and designed to punish Democratic People's Republic of Korea by not allowing it to sell fishing rights in its waters. According to some researchers, this case was the largest known case of illegal fishing perpetrated by a single industrial fleet operating in another country's waters. This same Chinese squid jigger fleet can shift their high levels of catch and effort from Democratic People's Republic of Korea waters to high seas regions where there is an absence of management arrangements for squid capture. Catch and effort associated with both illegal and high seas fisheries to which there are no applicable management arrangements are also not reported to any regional management authority which means there is a high risk that squid jiggers are catching untenable quantities of squid and are doing so in the absence of any sustainable fisheries management or conservation measures. In addition, the fisheries are not bound by any regional monitoring, control, and surveillance (MCS) systems making it extremely difficult for coastal State authorities bordering these high seas regions to identify whether any of these vessels are operating near their waters or are opportunistically fishing illegally within their respective EEZs. At the very least, the size of these fleets operating on the high seas, close to or even inside waters under national jurisdiction, oftentimes of countries with limited MCS capacity or resources, can be both intimidating and destabilizing to the coastal States involved, even if most of the activity is not illegal. The consequences of not sustainably managing all high seas fisheries, especially those with high levels of direct fishing effort, are manifest in the destabilization of regulated fisheries occurring within the same spatial regions, the degradation of compliance behavior of the fleets involved, and weaker governance of the wider marine ecosystem. Weaknesses and gaps in high seas squid management coverage can cause harmful or destructive fishing activities to occur such as the unintended capture of large quantities of bycatch, illegal or unreported transshipping, and adverse interactions with endangered species. This void in the fisheries management framework allows these unsustainable fishing practices to continue unabated and unchecked. While international attention focuses heavily on illegal and unreported fishing, the unregulated aspect of IUU fishing is often overlooked. The panel will discuss the range of issues and challenges associated with squid fisheries, especially within the context where directed squid fishing effort on the high seas could be considered unregulated. The panelists will provide a range of viewpoints and highlight recommendations that might help facilitate the transition of these fisheries to ones where directed effort can be regulated by sustainable fishing practices which reduce the destabilizing effects of unconstrained effort on the marine ecosystem. The transformation would not only help global efforts to ensure all fish stocks remain sustainable and productive, but also improve overall fisher and flag State compliance behavior with relevant fisheries management and governance frameworks.

199. Reference documents provided for participants include:
- a) Oceana Finds 300 Chinese Vessels Pillaging the Galapagos for Squid; Oceana; 2020
 - b) Fisheries Intelligence Report: IUU Risk Assessment NW Indian Ocean; Trygg Mat Tracking and Global Fishing Watch; 2020
 - c) Illuminating Dark Fishing Fleets in Democratic People's Republic of Korea; Jaeyoon Park *et al*; Science Advances; 2020
 - d) Managing the Southwest Atlantic: the Case of *Illex Argentinus*; Santiago Dunne; University of Edinburgh; 2017

- e) Squid Capture in the Northwest Indian Ocean: Unregulated Fishing on the High Seas; SIF, Trygg Mat Tracking and NFDS; 2017
 - f) Sustainability and Management of Southwest Atlantic Squid Fisheries; D.J. Agnew et al; Bulletin of Marine Science, 76(2); 2005
 - g) World Squid Fisheries; Alexander Arkhipkin et al; Reviews in Fisheries Science and Aquaculture; 2015
 - h) Now You See Me, Now You Don't; Vanishing Vessels Along Argentina's Waters; Oceana; 2021
200. Panel 3 Discussion moderator and panelists include:
- a) Moderator: Ms Kerry Smith, Senior Manager, International Compliance, AFMA
 - b) Panelist: Mr Duncan Currie, International and Environmental Lawyer, GlobeLaw
 - c) Panelist: Dr Masanori Miyahara, Senior Advisor, RWE Renewables Japan
 - d) Panelist: Mr Peter Horn, Project Director, International Fisheries, Ending Illegal Fishing, The Pew Charitable Trusts
 - e) Panelist: Mr Osvaldo Urrutia, International Fisheries Legal Advisor, Government of Chile

201. Ms Kerry Smith commenced the panel discussion by indicating in Australia it is an important part of any meeting that the traditional owners of the land on which they meet be acknowledged and that for all her colleagues around Australia, she acknowledged the traditional custodians of the various lands across Australia on which they are meeting today and the Aboriginal and Torres Strait Islander people participating in the workshop. She paid her respects to elders' past, present and emerging and welcomed everyone to, firstly, the virtual GFETW, and to this panel session on squid and how an unregulated fishery can destabilize fisheries compliance and governance. She noted that, as the IMCSNET Executive Director pointed out, this topic aims to discuss a range of policy, legal and advocacy viewpoints on the issues associated with directed fishing activities on an unregulated species that occur in the same waters as a regulated fishery.

202. Ms Smith indicated this scenario can involve the same vessels targeting both fisheries simultaneously - a situation that presents management and control challenges for both fisheries management and compliance regimes. There is a myriad of complexity that is associated with managing regulated and unregulated fisheries in the same space.

203. Ms Smith then introduced the four panelists. She indicated Dr Masanori Miyahara did not need much introduction but will bring his considerable knowledge on squid fishing in the Sea of Japan and some recent analysis on IUU fishing. Mr Osvaldo Urrutia, is the former South Pacific Regional Fisheries Management Organization (SPRFMO) Chair and was also the Chair of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) Compliance Committee for many years. He will bring some points in relation to the management of squid by the SPRFMO. She also introduced Mr Duncan Currie from GlobeLaw, who is an experienced international lawyer and advisor on matters of international environmental law and the law of the sea. Finally, she introduced Mr Peter Horn from The Pew Charitable Trust who will elaborate and provide insights on the destabilizing effects of unregulated fishing on MCS. Ms Smith indicated the panelists represent a range of different perspectives and views and have considerable experience in looking at the issue of IUU fishing.

204. Ms Smith indicated the format for the session would revolve around unregulated fishing using squid fisheries as an example. Panel members used short PowerPoint presentations to illustrate points, but the focus was on discussion. She would open the session with some opening remarks, setting the scene, talking about the definition of unregulated fishing and some of the benefits and challenges with that definition as set out in the International Plan of Action on IUU, and then follow with some points around squid fishing that were designed to establish and outline why managing the commercial take of squid is quite a complex endeavor. She would then open the floor to the four panelists to provide their views. She asked that the dialogue on the issue be respectful and considered. There is a wealth of media and reporting on this issue, and there are many perspectives.

205. Ms Smith continued by saying that obviously, as MCS practitioners, this example presents an opportunity to understand the suite of tools available to MCS practitioners beyond the traditional tools of enforcement and prosecution. She noted Ms Gallardo's presentation earlier in the GFETW agenda on Chile's experiences is a useful step. By thoroughly understanding the problem that is before us and the objective that we're setting out to achieve, we can be better equipped to deliver targeted and more meaningful solutions.

206. Ms Smith commenced by asking what is meant by the term unregulated fishing? Many would be familiar with the definition that is set out in the FAO IPOA-IUU. To set the scene, the IPOA-IUU is a critical part of the high seas governance framework. It is a voluntary framework and sits as part of the FAO Code of Conduct for Responsible Fisheries. It calls on all States to take effective measures globally, regionally, and nationally to combat IUU fishing. While it was agreed by the FAO Committee of Fisheries some 20 years ago, it still resonates today as the issue of illegal, unreported, and unregulated fishing continues to threaten efforts to manage sustainable fish stocks. The definitions of illegal, unreported, and unregulated as set out in the IPOA-IUU continue to form the basis of definitions used today in States' own National Plans of Actions and by other multilateral and sub-regional organizations for dealing with the same issues.

207. She continued by indicating the international community, when referring to that web of activity included in the "catch all" phrase of IUU, while beneficial at some level to group these activities, it is worth thinking about and exploring each term on its own merits. Often described as the most ambiguous of the terms within the category of IUU, Unregulated fishing is described as:

- a) *Paragraph 3.3.1 - in the area of application of a relevant regional fisheries management organization that are conducted by vessels without nationality, or by those flying the flag of a State not party to that organization, or by a fishing entity, in a manner that is not consistent with or contravenes the conservation and management measures of that organization; or*
- b) *Paragraph 3.3.2 - in areas or for fish stocks in relation to which there are no applicable conservation and management measures AND where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law.*

It is important to note that this definition does permit certain unregulated fishing. If it takes place in a manner that is not in violation of applicable international law and may not require the application of measures. As such, there are some caveats and some conditions that need to be considered.

208. An important point on this definition of unregulated fishing, as mentioned earlier, the term IUU fishing has been around for some time and emerged out of discussions approximately 20 years ago around fishing for toothfish on the high seas, in waters under the jurisdiction of the Commission for the Conservation of Antarctic Marine Living Resources. But today, it is used largely as a “catch all” phrase to cover a range of activities that impact the sustainability of global fish stocks. There is an increasingly accepted view that the term IUU fishing needs to be understood in the context in which it is being used as the nature of IUU fishing is different if we’re talking about coastal artisanal fishing or large-scale industrial fishing, for example. The context has important ramifications for the solutions that are put in place.

209. Ms Smith began speaking a bit about squid fishing but did not go into too much detail as it was not a fishery she knew very well. She left that to Dr Miyahara who has extensive experience; but she did make a few points mainly to highlight the complexities of managing these species. She went on and mentioned giant squid and how they are a novelty when they wash up on beaches around the world. Ms Smith indicated she had read recently that dozens of baby squid were launched into space a few months ago as part of a shipment of experiments being run by the international space station. The squid are going to be monitored to better understand the effects of space flight on animal microbe interactions. So, squid, or to put it scientifically, the class of cephalopods, which makes up the octopus, the squids, and the cuttlefish, are known for their ability to quickly adapt to changing environmental conditions and to play a significant role in filling ecological niches.

210. So interestingly, scientists are using squid to better understand how marine animals adapt to environmental changes in the maritime domain. They are short-lived, typically one to two years, and grow rapidly and occur both in pelagic and coastal environments. It has been hypothesized that decreases in global fish stocks have reduced the number of predators and competition pressure, which has led to an increase in some fish stocks. In short, scientists have acknowledged that the interactions between squid and other marine species at an ecological level are complex and require more analysis to better understand the impact of environmental factors on population dynamics. When this complex relationship between abundance and environmental changes is overlaid with commercial fishing, it presents a very interesting management problem.

211. There are more than 300 species of squid across the world, but only about 12 of them comprise the bulk of the global catch. The world’s population eats more than 2.7 million tonnes of squid per year according to the FAO. However, their short lifespan has meant that the data needed to inform management is patchy. In some cases, management arrangements for these species have not kept up with the increased catches. The SPRFMO agreed earlier this year to a series of enhanced measures that are aimed at improving data collection and monitoring fleets. These changes have by necessity, included fishing fleets that target both oceanic stocks, as well as coastal stocks.

212. Commercial catches of squid peaked around five years ago, and there is some recent analysis that shows the landings of some species are declining. Squid in commercial numbers are caught by a few countries, including Argentina, China, India, New Zealand, Peru, Taiwan Province of China, and the United States of America. As many have seen in the recent media, China has posed a temporary ban on their vessels catching squid in the Atlantic and Pacific oceans due to concerns relating to overfishing. This ban covers areas, including the breeding grounds for two key species of squid, the Argentine shortfin squid, and the Humboldt squid.

213. These species are also targeted by several artisanal and subsistence fisheries in the waters of Peru and Chile. It is against this backdrop of ambiguity around the term of unregulated fishing and the need for complex ecosystem-based fisheries management arrangements for squid that Ms Smith opened the floor to the panel. Firstly, she introduced Dr Masanori Miyahara to discuss the management of squid.

214. Dr Miyahara introduced himself and indicated he worked for the Fisheries Agency of Japan for 35 years. There, he handled fishery enforcement consisting of 37 patrol boats and four aircraft and that he, himself, was involved in the enforcement activities. That is why he fully respects MCS practitioners now working to combat IUU fishing activities. Then, after working for the Fishery Agency of Japan, he joined the Fishery Research Institute for the Japanese government and there started joint international research activities to understand IUU fishing mainly around Japan.

215. The Fisheries Research Agency (FRA) started to work with the Global Fishing Watch and ANCORS in Australia to jointly analyze activities in international waters. The main target of the analysis was Democratic People's Republic of Korea waters because Democratic People's Republic of Korea waters fishing is prohibited by UN Security Council Resolutions which is a sanction against Democratic People's Republic of Korea. However, a lot of fishing activities are going on in the Democratic People's Republic of Korea area. That's why there are three bodies of the research team (ANCORS, FRA, and GFW) that have started analysis of the IUU fishing activities in Democratic People's Republic of Korea waters.

216. In this analysis, the project team found that many of the fishing boats come from the Chinese coast to Democratic People's Republic of Korea waters and then go back to the Chinese coast. In addition, the team also monitored transshipments by fish carriers that leave from Chinese ports and sometimes travel to Republic of Korea then go to the fishing grounds in Democratic People's Republic of Korea and get catches of squid from there. The squid in this area is a common Japanese sweet squid, and the squid is quite like the squid caught by the Argentine fisheries. They are small fish, but a very popular item in Asian markets.

217. Then the team found three types of fishing boats operating in the Democratic People's Republic of Korea waters, with one being a very small type of artisanal fishing fleet originally from Democratic People's Republic of Korea. These are very small squid fishers and have a high number of smaller boats operating, but while they originally operated in the Democratic People's Republic of Korea waters, they were kicked out by the relatively larger boats from China. Another group of vessels are the pair trawlers. They are operating not only in Democratic People's Republic of Korea waters, but also in Chinese coastal waters. They vary in fleet size but the total number of the pair trawlers from China is huge, with over 20 000 boats operating in Chinese coastal waters. However, these vessels are also seeking fishing grounds outside of Chinese waters and now come within the Democratic People's Republic of Korea waters. The other type of large fishing boats that are using different types of fishing gear and they can change fishing gear from trawling to sometimes squid jigging vessels. So, their operating area is global. Sometimes they go to the North Pacific and sometimes they go to the waters off South America or even Argentina.

218. There is a squid the FRA have studied in the Sea of Japan called the Japanese flying squid which is caught in huge amounts. The Chinese boats caught over 160 thousand metric tonnes of this squid in 2019 which amounted to more than USD 440 million. That amount of catch is more than the total Japanese and Korean

catches. As a result, the impact on the stock was huge and the stock abundance declined very rapidly.

219. Fishing grounds for neon flying squid also have shifted between 2019 and 2020. There is more effort in the eastern area of the North Pacific because the US Coast Guard and Japanese patrol boats are monitoring the western side of the North Pacific very closely. So those boats shifted from Democratic People's Republic of Korea waters in the Sea of Japan and moved to the eastern side of the North Pacific. This type of shift is seen frequently when controls are tightened in one area like the Sea of Japan, and it is reported. A study that recently came out last year resulted in the Chinese authorities tightening their controls and their fishing fleet operating in Democratic People's Republic of Korea waters was reduced very sharply and moved to another area.

220. There is a network of fishing grounds for squid. From the North Pacific, those fleets fishing for squid frequently shift their efforts from Japanese waters to high seas fishing grounds. Other preferable areas for squid fishers include Argentine waters and the high seas around Argentina and Falkland area waters. Because of the increased control in Democratic People's Republic of Korea waters, this has caused more frequent illegal fishing activities in other places such as the Argentina area. This is why there have been several recent news stories about illegal activity conducted by Chinese vessels. What is concerning is the shift in fishing efforts to the poorly controlled Indian Ocean squid fishery. They are seeking the room for more fishing in that area now which is why there is a global network of squid fishing.

221. Dr Miyahara then showed a picture taken at a Chinese processing factory where giant squid was being processed and exported to Japan and the European Union market. However, the source of the squid was not clear, as neon flying squid are processed in the same manner and exported by the same company. This creates a risk of the different species of squid not being exported correctly. It is for this reason a traceability system is needed, as it is impossible to identify IUU sourced catch from legally sourced catch.

222. Dr Miyahara summarized by making three specific points:

- Fishing vessels are moving from one fishing ground to another, seeking squid and other pelagic species;
- We need to collect data on fishing activities globally and share information among RFMOs and key coastal States; and
- We also need to work jointly and take actions simultaneously against IUU fishing.

He concluded by saying that the IMCSNET is a very effective tool to share information and to think about general MCS topics.

223. Ms Smith thanked Dr Miyahara and she welcomed his insights on the issue. She noted that what he described is commonly called a balloon problem. When there is an increase in the regulations in one area, the fleet moves to another area where the regulations may not be as strict. She welcomed his comments, particularly the discussion around collaboration and joint efforts, which, as he pointed out, is certainly what the IMCSNET is all about.

224. Ms Smith then introduced the second panelist, Mr Osvaldo Urrutia. Mr Urrutia commenced his presentation by providing an overview about the framework in place under SPRFMO regulating the squid fishery, but also indicated that while he is the legal advisor of the Secretary for Fisheries in the Government of Chile, his views are his

own, and do not necessarily represent the government of Chile. He shared a picture to provide some context for those not familiar with the SPRFMO Convention Area. He also shared a diagram released by Global Fishing Watch depicting the movement of the squid jigging fleet in the eastern South Pacific which exemplified how this fleet behaves, or where they come from, and where they move.

225. Mr Urrutia indicated that before going into the regulation on the legal and the policy framework of SPRFMO, having just watched the previous presentation offered by Dr Miyahara, he wanted to make it very clear that this is a very different scenario regarding squid in this region of the globe. It is a very different setup with very different contexts from what was described in the previous presentation on the northwest Pacific. As such, Mr Urrutia wanted to focus on what is in place in SPRFMO and what SPRFMO has worked on and set up and implemented so far concerning the squid fishery. Rather than going measure by measure or to offer numbers of the relevant conservation and management measures, he wanted to just offer an overview of the main aspects of the regulation that SPRFMO has in place.

226. Mr Urrutia indicated that first, he wanted to emphasize that SPRFMO has been working on the squid fishery and much progress has been made over the last two to three years.

227. What does SPRFMO have in place? First, they have a record of vessels for both catchers and reefers, which means that as in many other RFMOs in the world, non-members and uncooperating members that flag vessels to operate in the SPRFMO area will suffer the consequences of IUU listing, eventually. In the SPRFMO area, he indicated they do not have unregulated activities in the sense of paragraph 3.3 of the definition of unregulated fishing of the IPOA-IUU, which means that all fishing in the SPRFMO area is undertaken by SPRFMO members or cooperating non-contracted parties. Second, SPRFMO has a VMS program in place with very good reporting, required every four hours. He indicated that most of the fleet reports every hour and some of the vessels report every half an hour.

228. The consistent and good VMS reporting does present a burden for the SPRFMO Secretariat, as it is a huge amount of information that the Secretariat must process. They also have fishing activities data, information on catches and location, and effort by vessel and by day as well. The information is critical to understand the fishery and SPRFMO has collected these data according to their data standards for quite a few years.

229. SPRFMO also receives transshipment information and reporting. According to SPRFMO, there is an obligation to submit prior notification before a transshipment and then also another full report after the event occurs. That said, the obligation of sending a full report is not fully in place for the squid fishery as all requirements have yet to be fully implemented. However, in practice, despite that exception in the measure, the fleets still report, they still submit notification reports most of the time, SPRFMO is therefore getting good information on transshipments in general, and this obligation applies to both the catcher vessel and the reefer vessel. Mr Urrutia reiterated that both vessels must be registered under the record of vessels.

230. He also indicated that SPRFMO has monthly catch reporting requirements. While there is an obligation to submit an annual report, in the case of the squid fishery, that information must be also desegregated monthly. As such, SPRFMO has a decent amount of catch data which it receives monthly. Finally, SPRFMO also has a list of

active vessels. Every flag State must submit in January each year information about the vessels that were active in the fishery in the previous year. Mr Urrutia reiterated that fishing for squid in SPRFMO is not an unregulated fishery.

231. The situation in the eastern South Pacific, under the framework of SPRFMO is quite different from the one that has been described in other parts of the Pacific. Mr Urrutia noted the implementation of a SPRFMO management scheme on the squid fishery is still a work in progress and SPRFMO must make improvements in the forthcoming years.

232. Mr Urrutia indicated SPRFMO has been working on this and wanted to highlight a few things before ending his presentation. The first one is that SPRFMO has been working on Observer coverage and Observer accreditation programs. New Zealand, Chile, and Australia have submitted their domestic programs for accreditation. Secondly, Mr Urrutia noted other flag States will soon have their domestic Observer programs go through the same accreditation program this year. While this hasn't taken place yet, it will happen very soon. In terms of the coverage, SPRFMO specifically has a CMM which says that there must be five percent Observer coverage as a minimum.

233. He went on to say that SPRFMO members have different interpretations as to exactly what this coverage means; however, this effort is a work in progress, and that the coverage will likely need to be discussed at future meetings to clarify the standard SPRFMO already has in place. So, the coverage will probably have to be discussed at the next meeting and over the next meetings as well.

234. As a final point, Mr Urrutia reiterated that any conversation or discussion about the squid fishery in the eastern South Pacific must include concerns about effort or catch limitations. There is no effort or catch limitation in place in SPRFMO for squid. However, as the scientific committee is looking at this important issue, Mr Urrutia's own personal view is to allow the scientists to work and depending on the scientific advice, then SPRFMO should act accordingly – reiterating this is a work in progress.

235. As moderator, Ms Smith thanked Mr Urrutia for his presentation and his points were very well noted, especially following on from Dr Miyahara's presentation, as understanding the context of the fishery or the ocean basin of interest is very important. It is a very different situation to the fishing activity in the northwest Pacific. Ms Smith made the point clearly that the fishery in the SPRFMO area is not unregulated. Mr Urrutia clearly made the point that the vessels are authorized, they're clearly monitored, and reporting is required. Therefore, the key elements for any sort of fisheries management, monitoring, and enforcement exist within the SPRFMO squid management scheme. However, Ms Smith also noted the importance of timely, reliable, and verifiable data to help enhance and improve those management arrangements.

236. Ms Smith then moved on to the next panelist, Mr Duncan Currie, known by many as a well-respected international lawyer. Mr Currie would be providing insights into some of the legal issues around unregulated fishing for squid. Mr Currie thanked Ms Smith and reiterated how helpful it was to follow both Dr Miyahara and Mr Urrutia and their presentations as they provided some helpful context. Firstly, he opened with some diagrams on global observer coverage and pointed out a couple of things. There is a wide swath between SPRFMO and the North Pacific where there is a wide area which was essentially unregulated. As one moves to the Indian Ocean side of it, an extensive squid fishing can be seen both to the northwest and east. Finally, on the east coast of South America, there is no applicable RFMO regulating squid on the

high seas. As well, Mr Currie pointed out a graph from an article in 2013 that pointed out that squid do migrate, and in this case there's a significant migration up and down the coast of South America, so this be kept in mind.

237. Mr Currie then made some comments on the value of marine protected areas (MPAs). He noted that MPAs and time area closures are widely recognized as a successful form of management to mitigate localized human impacts on marine species and ecosystems, and provide an important opportunity for population recovery, allowing these species within the MPAs to propagate outside the closure and they support ecosystem resilience and provide scientific reference points as well. He provided a few references on a few different types of MPAs with fixed MPAs and then more attention has been given lately to dynamic MPAs, including seasonal closures or closures that move with time. Mr Currie also indicated that with SPRFMO, Article 20 allows the determination and CMMs of general and specific locations in which fishing may or may not occur as well as appear in which type of fishing may or may not occur. Therefore, those types of closures are permitted within the SPRFMO Convention text.

238. Mr Currie, then turned specifically to SPRFMO regarding details of some of the applicable measures in place by SPRFMO. He provided some numbers drawn from a Secretariat paper which indicated the number of vessels has gone up considerably over the years, but the catch hasn't. There was a very significant catch, for example, in 2018, where China caught over 346 000 tonnes of squid, Peru caught 317 000 tonnes within its exclusive economic zone, and then Korea and Chinese Taipei took about 3 500 tonnes each. This belies a story inside of the Committee report and the notes available in the report which indicated the Parties could not reach consensus on advice. Some Parties pointed to the need for more research. However, there was a decreasing trend of catch per unit of effort (CPUE) in the Convention Area which is concerning as the number of vessels have been increasing while the catch hasn't. Peru agreed that something needed to be done to limit the fishing effort in the convention area. Notably though, there were also concerns about not closing the waters of coastal States that have established fisheries in domestic waters that could expand into the high seas.

239. Mr Currie further indicated that China noted the lack of increase in CPUE could be due to other reasons and noted that SPRFMO measures should be considered actions that apply both on the high seas and within EEZs. Mr Currie emphasized this comment because of the difficulties in achieving compatible measures within and outside the EEZ. Additionally, he wanted to note the interest by Peru with expanding fisheries to the high seas and the complexities that brings into play both in terms of science as well as establishing measures for the high seas.

240. Further, in referring to a SPRFMO meeting earlier in 2021, Ecuador proposed a ban on transshipment at sea on jumbo flying and to limit transshipments to port. That proposal did not reach agreement, but it was interesting that it was placed on the table in the first place as the Secretariat had not received any reports on IUU fishing from Ecuador. Some Members suggested that there was no legal basis to ban transshipments at sea and the 1995 Fish Stock Agreement requires RFMOs regulate rather than prohibit at-sea transshipment. They also noted that at-sea transshipments are generally allowed in most RFMOs and that the general approach in other RFMOs was to introduce more monitoring tools rather than to totally prohibit at sea transshipments. These Members added that banning transshipment at sea would make the fishery uneconomic, restrict the rights of fishing vessels to make economic decisions on where to transship, increase the risk of COVID-19 transmission, and that banning legal transshipment does not help to prevent IUU fishing.

241. However, there were other Members that supported the proposal from Ecuador and noted that there were no procedural obstacles to progressing the proposal, as SPRFMO does not require scientific advice to consider a proposal, and SPRFMO can consider changes to management measures at any time even if there is a review clause in the measure. These Members indicated that prohibition of transshipment is a type of MCS regulation, so the proposal was not inconsistent with the UN Fish Stocks Agreement.

242. Mr Currie indicated that in reaction to the inability to get the transshipment ban measure passed, Ecuador made a statement calling for better regulations on squid and reducing fishing effort. They also proposed a gradual increase to hundred percent Observer coverage and the European Union, for their part, did propose effort limitations which were also not accepted. Australia talked about the need for more science as well.

243. Mr Currie inquired as to how to move forward and referenced back to Dr Miyahara's presentation and the graphic showing the movement of squid fleets between the North Pacific, the South Pacific, the Indian Ocean and the Southwest Atlantic and indicated this was a problem. Do we wait for SPRFMO to agree, for example, on effort and catch limitation measures? Do we wait for Southern Indian Ocean Fisheries Agreement (SIOFA) to expand its own coverage to address the gap in the north of the SIOFA area in the Indian Ocean? That change would need consensus of all SIOFA Parties, including China, which joined just this year. Can this kind of incrementalistic approach work when you have the science showing the need for action? Negotiations in the case of SIOFA as well as in the Pacific will take too much time, as will putting into place both the specific measures to control catch and effort as well as the MCS measures that are needed.

244. Mr Currie wondered whether there was a need to look at this issue as a more global problem. In the United Nations General Assembly, for example, is there scope under the BBNJ negotiations on marine biodiversity in areas beyond national jurisdiction, such as squid fisheries taking place in unregulated waters. What would be the scope under BBNJ to require environmental impacts assessments prior to engaging in fisheries in unregulated fisheries? Mr Currie concluded by indicating this is a complex area still under negotiation when negotiations have not been able to move forward in a substantive way. There have been some discussions because of COVID-19, but another important topic to discuss is how issues such as environmental impact assessments, MPAs and unregulated fisheries in the high seas are going to have an impact on squid fisheries.

245. The moderator thanked Mr Currie, and indicated she liked the way that his presentation stressed the importance of understanding the science behind the squid fisheries. She stressed that often we compartmentalize science and enforcement activities, and indicated there is typically greater collaboration at the inter-agency level, but as pointed out by Dr Miyahara and Mr Urrutia, collaboration at the international level is important to help target some of those solutions. As pointed out in her opening remarks, unregulated fishing, or even these fisheries that are global in nature, do present an opportunity to think of solutions beyond enforcement and prosecution. She indicated Mr Currie's points were well-made in that global efforts need to be part of the conversation. She also highlighted the importance of information sharing, understanding varying perspectives on the issues, and how to develop solutions.

246. Ms Smith then introduced Mr Peter Horn, Project Director with The Pew Charitable Trusts who would bring his insights into policy, technological, and enforcement initiatives and how they can come together in the fight against IUU fishing. Mr Horn indicated he would be looking at slightly different elements of the topic on the potential for destabilizing fisheries compliance and governance. He reiterated saying “potential” as he was thinking about this presentation and reflecting on Wez Norris’ words from his keynote speech when he talked about how unreported and misreported fishing is a plague on legitimate fishing, that non-regulated fishing points to a failure in government and governance, and that those are two of the biggest risks with the current scale of squid fisheries and how they may destabilize fisheries compliance and governance.

247. Mr Horn continued, as Mr Currie had shown just before, the squid fleets and fishing effort have increased by more than 800 percent in recent years. These fleets are large and stay at sea for long periods of time. On the high seas, there is limited oversight which has implications both for fish and the fishers. He showed several slides sourced from Global Fishing Watch’s Carrier Vessel Portal (CVP) to highlight the cumulative impact of the carrier vessel fleets. The CVP uses AIS data to show carrier vessel activity, highlighting potential transshipments as either encounters with fishing vessels, or loitering events – where there is only AIS data for the carrier vessel and no fishing vessel is seen on AIS, but the carrier is displaying vessel movements consistent with transshipment. Mr Horn showed an example of activity detected on the high seas in the Inter-American Tropical Tuna Commission (IATTC) Convention Area waters that overlap with other RFMOs – WCPFC and SPRFMO – meaning these events occurred in an area governed by multiple fisheries bodies.

248. Mr Horn pointed out a band of likely transshipment activity in the western region of the southeast Pacific that was most likely related to tuna or tuna-like species. Whereas, as one moved closer to the shores of Central and South America, there is much more activity likely related to SPRFMO managed species including squid coming up through the Humboldt current upwelling system. He pointed out the distribution and how it points to an interconnectedness and a continuum when looking at huge fleets that are authorized to fish in multiple jurisdictions for multiple species. Where these vessels may be permitted to be either a fishing vessel or a receiving vessel, oversight is obviously very challenging. Therefore, strong information sharing, and verification of data is vital.

249. He then showed a slide of loitering events and a squid fleet estimated at approximately 300 vessels. The fishing effort of this vast fleet is bound to have an impact on the ecological balance of those waters and impact the food chain or the ecosystem of that ocean basin. Even if these vessels were only capturing squid, the volumes of extraction would impact the ecosystem balance and Mr Horn indicated that it was good to hear Mr Currie and Mr Urrutia both talk about the need to get this information to the scientific communities as the squid provide nutrition for the apex predators.

250. Mr Horn indicated there is enough evidence of the impact of these vessels around the Galapagos Islands where several of them have been interdicted with shark fins or other species onboard which they did not have a license to have. As such, he pointed out this is likely evidence that other species have been impacted. Mr Horn pointed back to Mr Urrutia’s points about how the fleets need to be managed and while it is good to see SPRFMO are working on managing squid fleets, in the transshipment CMM there are some exemptions. The requirement for only five percent observer coverage for a fleet of this size is a risk because it

suggests limited oversight. Mr Horn continued by indicating there is an increased opportunity for unreported catch and bycatch or potential obscuring of IUU fishing activity by vessels in the fleet. As Mr Asgeirsson indicated in his discussion, hiding behind the chaos of all that vessel activity, it's hard to uncover potential illegal fishing. Therefore, a lack of strict oversight, reporting mechanisms, and robust information exchange, means there is a risk of destabilization of fisheries governance in this area.

251. Mr Horn then displayed a graphic that showed how the squid jigging fleet moved from the Pacific across into the Atlantic Ocean which represented the second largest squid fishery in the world, made up of about 800 vessels. He suggested the risk of destabilization here is both environmental and security based. Firstly, in the hunt for the Argentine shortfin squid, this effort is based in the Southwest Atlantic, largely removed from other commercial fisheries and therefore the activity can be seen. However, Mr Horn indicated the stock is transboundary and the fishing grounds include the EEZs of three sovereign nations - Argentina, Brazil, Uruguay, and the surrounding high seas. As has been outlined by both Dr Miyahara and Mr Urrutia, one of the recommended management measures are considerations to control squid fisheries by effort limitation and restricting the operation of the fishing fleet.

252. Mr Horn indicated this is a challenge for these countries as they seek to meet their UNCLOS obligations, which involves the coastal State's consideration of the best scientific evidence available to it to prevent overexploitation of resources in its EEZ. In this case, there are up to 800 vessels operating in the boundary of several EEZs over whom there is no real exercise of control. There is limited knowledge of the catch being taken and the question is - how do you obtain a scientific assessment? Going back to Mr Norris' opening remarks as keynote speaker for the GFETW, an unregulated fishery points to a failure in government and of course that leads to a failure in governance.

253. This huge fishery operating on the edge of the EEZs is a well-documented concern for these nations. In one of the reports provided as background reading for this panel, Oceana highlighted issues associated with this fishery including incursions that have been made into the EEZs, vessels switching off AIS, fishing at night, and reports of sinking, of collisions, and weapons being fired. These issues, while rare, places a heavy burden on those whose EEZs this big, huge fishery sits on the boundary of, and those who have spent quite a few days at sea in challenging conditions, well know the pressure that this creates, the risks of misunderstanding or escalation of any incident occurring far from shore by tired people in marginal conditions. There's clearly a huge potential risk here for governance and international relations.

254. Mr Horn concluded that the sheer scale of the squid fishing operations makes it a destabilizing influence, unless it is closely overseen and regulated, and unless information is shared across scientific committees and relevant RFMOs. The scale of the fleet means that it's quite easy for other vessels to mask IUU fishing with ease. So, just the presence of these large fleets transiting across the globe, operating semi-autonomously at the extremes of oversight and jurisdiction, is a destabilizing influence and needs to be managed closely.

255. The moderator thanked Mr Horn and a recurring theme across all presentations was that of information sharing. Obviously, there is information sharing at the RFMO level, information sharing between sub-regional organizations, as well as information sharing at the national level, including between scientists and MCS practitioners and managers. So, information sharing continues to be critical. A key point is the

perceptions of fleets moving across Oceans to areas where governance arrangements are not as strong as in other areas. The moderator noted that there are some complexities associated with squid, especially as they are short lived, and they do require some consideration of how they are affected by environmental changes. However, it is also how fishing activity is dynamic and diverse and bringing those two aspects together is certainly a significant management challenge.

256. Ms Smith then relayed questions submitted by participants through the discussion forum. She asked an initial question of Dr Miyahara regarding stock assessments and whether stock assessments have been done for the squid stocks that occur in the Sea of Japan. Dr Miyahara indicated that the Japanese Fishery Research Institute itself is conducting a stock assessment as Japan has spawning grounds that exist in their waters. Unfortunately, he continued, China did not provide catch data, but Japan estimated their catch data by use of the Global Fishing Watch platform and other such public data. Japan then figured out acceptable catch data and the catch in 2020 far exceeded that level, unfortunately. Fortunately, because of Chinese control efforts, many boats left Democratic People's Republic of Korea waters and fishing pressure was reduced very dramatically at the end of last year. Unfortunately, this fishing effort shifted to other areas where there are also minimal controls.

257. The moderator then asked Mr Urrutia several questions related to SPRFMO and SPRFMO management controls. The first was whether it was illegal for non-member or non-listed vessels to fish in the SPRFMO fishery and the second referred to information sharing relating to VMS data. He responded indicating that it was illegal for non-member vessels or vessels not authorized by SPRFMO to fish in the fishery, so non-member activities are covered in the IUU fishing expression. This is not unique to SPRFMO as it happens in every single RFMO. For any vessel to fish in the SPRFMO Convention Area for SPRFMO managed species, the vessel must be flagged to a member State or to a Cooperating Non-Contracting Party, otherwise it becomes IUU fishing and punitive measures and sanctions will apply.

258. As to the second question on VMS coverage, Mr Urrutia indicated this was a difficult question as the sharing of VMS data is always a sensitive issue. It is difficult to predict any outcome for the question of sharing of VMS data, but personally, he indicated it is unlikely that VMS data would be shared with people outside the flag State authorities. However, there is a process for SPRFMO members to access VMS data for the purposes of enforcement activities. This is still limited and in many RFMOs, member States are quite protective of this kind of sensitive information. So, while it can be requested for enforcement purposes, it is unlikely that VMS data will be publicly available anytime soon.

259. Mr Urrutia continued as to whether the SPRFMO framework is robust enough to avoid any unregulated or unreported fishing activity. Again, he indicated that this is a difficult question to answer, but there are two issues to be considered. First, the measures in place are enough now to collect the data and information needed to understand the fishery and to contribute to the information that the scientists need to work on the fishery and to come up with recommendations to manage the species. Of course, this information is never perfect and there may be gaps. Mr Urrutia indicated his view is that until the time when there is a proper certified Observer program in place with appropriate coverage, then that will probably be the best tool, the best mechanism to avoid any kind of unreported or unregulated activity.

260. He was then asked whether there was potential that SPRFMO Observers in the future might also be formally tasked with compliance duties. Mr Urrutia responded here that he did not believe so at this time. This is not to mean that the report of an individual Observers might not be relevant for compliance and enforcement purposes. In practice they are relevant, as the practice in many RFMOs confirms. Like in other RFMOs, in SPRFMO it appears the States will resist giving Observers a formal role in compliance. This does not mean that some information that Observers document could still be relevant to potentially initiate some compliance complaint or some compliance procedure.

261. Ms Smith then shifted focus to the wealth of information found on open data platforms such as Global Fishing Watch. She posed the question to the panel whether better cooperation and real time information exchange between RFMOs jointly governing an ocean basin would be a positive first step for sustainable management and deserve greater attention by governments, NGOs, and industry.

262. Mr Currie replied and indicated this was an excellent question as this would bolster better cooperation from both a data and science perspective. Getting good science is a real challenge and getting the data together is also a real challenge. For instance, SIOFA is investigating cooperation with CCAMLR although the two organizations manage different species. There is a lot of value added for different RFMOs cooperating. Squid is a good example of the importance of real time reporting on catches because of the short life span. It would be a challenge to extend real time exchange between RFMOs, but this can certainly be looked at.

263. Mr Currie continued that VMS exchange would also be another thing to look at, and although there are strict confidentiality issues to get over, they must be dealt with. Another important one is also joint scientific meetings which would be a positive step forward. Good cooperation by the RFMO Secretariats on data collection, and the ability to have data exchanges would all be helpful because of the global nature of this problem. Mr Currie indicated it causes real problems to segregate RFMOs by RFMO; however, without a doubt it will take many, many years to develop the kind of measures needed to control this and we are already seeing problems in the catching vessels through the decreasing CPUEs.

264. Mr Horn agreed with Mr Currie and indicated that it would be a welcome first step. However, he also indicated that another thing to bear in mind is that the data that would need to be shared is likely to be unstructured data, which is going to have some inconsistencies in it. The real power is getting that data, sorting it, sifting it, correlating it, and then assessing what it is and interpreting what it is showing. He continued by highlighting the wealth of data that exists and reiterated a statement he had heard at a similar conference that indicated “...*data, data everywhere and not a drop to sync...*”. What is valuable is drawing that data together; that is what is really important and that is what needs to be done and investing time and effort in doing that.

265. Ms Smith thanked Mr Horn for the response and then asked a question around the term IUU, particularly the term unregulated. She reiterated that the term IUU was born out of discussions around industrial fishing. It has been argued that the term doesn't necessarily consider small scale fisheries and their circumstances. For example, understanding how customary rules that may not actually be enacted or given credence within a government framework may mean that the fishery is unregulated. However, the fishery continues to deliver some important objectives around artisanal livelihoods and food security. She asked a last quick question of the panel about how the term IUU

is used as a catch-all term and how the term may have both helped and hindered MCS practitioners. Dr Miyahara concluded the discussion by responding and indicating cooperation beyond RFMO areas or beyond one coastal EEZ is important, and, for that purpose, information needs to be shared and synced together through a network.

266. The IMCSNET Executive Director thanked the moderator and all the panelists for the very informative and engaging discussion on a topic that was clearly becoming an emerging management and enforcement challenge in several regions around the world. He then introduced the next speaker for a special session on coastal fisheries. He welcomed Mr Ian Freeman, Coastal Fisheries and Aquaculture Monitoring and Surveillance Specialist with the Secretariat of the Pacific Community.

SPOTLIGHT ON COASTAL FISHERIES AND AQUACULTURE MCS

Coastal fisheries MCS and enforcement in the Western and Central Pacific Ocean region in times of COVID-19

266. Mr Freeman commenced his presentation by providing a summary of his discussion which included the importance of coastal fisheries and aquaculture to Pacific Island Countries, snapshots of the region, direct impacts of COVID-19 on coastal fisheries and aquaculture IUU fishing, what has changed in COVID-19 times, how have we adapted to this change, how has MCS training changed in a COVID-19 world, and challenges for the future.

267. He provided a snapshot of coastal fisheries in the Pacific by highlighting there are several thousand islands and communities scattered across the Pacific Ocean which are home to over ten million people. Coastal fisheries production amounts to approximately 160 000 tonnes valued at between USD 320 – 500 million annually which include over 4 000 different types of finfish and invertebrate species. The per capita consumption of coastal fisheries products is 13 to 150 kilograms per annum which represents 50 to 90 percent of the dietary protein coming from coastal fisheries. 88 percent of the households consume fish or seafood weekly.

268. He provided a slide showing the amount of fish consumed in rural areas in 2016 which ranged upwards to greater than 150 kilograms per person per year in Tokelau.

269. Mr Freeman then spoke about the direct impacts of COVID-19 on IUU fishing activity in coastal fisheries and aquaculture. He indicated that the migration of people from main cities back to villages and coastal communities resulted in increased subsistence and artisanal fishing pressure on coastal marine resources. Employment losses due to reduced tourism meant less money to buy fish so they resorted to catching their own. This has increased the incidence of IUU fishing in no-take zones or customary waters. However, fisheries officers were seconded to other areas of government to address COVID-19 related issues and MCS training and capacity building programs were suspended or deferred.

270. He further indicated that coastal fisheries and aquaculture MCS and enforcement changed in COVID-19 times. Initially, there were fewer inspections and MCS and enforcement activities as officers were seconded to support government COVID-19 activities. In several cases, some staff stood down as governments redirected funds to COVID-19 related work. Once the governments realized COVID-19 was not going away in the short term, there was an increase in coastal fisheries and aquaculture activities to deal with increased fishing pressure, both legal and illegal. There were

increases in staff numbers for this work, but this did not necessarily translate into supporting budgets.

271. There were calls for some coastal fisheries regulations to be relaxed or revised as priorities shifted due to the health emergency. The pandemic resulted in geographical isolation due to decreases in tourism and trade, loss of jobs, and in some cases localized lockdowns including no fishing. Add to this some strict coastal fisheries regulations such as a ban on harvesting of sea cucumber. These strict regulations resulted in breaches of laws to sustain livelihoods and new rules implemented in consultation with communities. For instance, in Fiji in June 2020, the seasonal closure for groupers which was shortened by 50 percent due to the consequences of COVID-19 restrictions.

272. Mr Freeman indicated the Coastal Fisheries MCS and Aquaculture program at the Pacific Community (SPC) needed to adapt to these changes. They commenced virtual training via Zoom which replaced face to face training. However, this was much harder as it was important to have a relationship with participants prior to virtual training. Connectivity in the Pacific is a major issue with unreliable sound and video problems and even complete dropouts of regular events. In addition, getting participants to focus on the training rather than other work is a big issue when the participants attend training from the office. Despite these challenges, they did have some great success stories.

273. Zoom training meant less time in the classroom and participants doing more field work and practical inspections. This has produced great results with several offences detected and it gave trainee's an immediate confidence boost. SPC developed an Incident Book as a new approach as well. The Incident Book provided a pre-formatted template to record a basic Incident (Offence). The book brought together the information required to satisfy legal requirements and ensured all information could be easily captured. The books also included a template for a simple Question and Answer interview, and it facilitated collection of compliance information to add to management considerations. Finally, the book also includes a checklist to ensure everything is done correctly.

274. Mr Freeman concluded his presentation by highlighting some of the coastal fisheries and aquaculture MCS and enforcement challenges occurring both now and in the future. He indicated fishing is important to people and 'offending' is often not viewed as a crime. It can be hard to get the community interested when fish are available. Mr Freeman highlighted that changing views and traditional ways is often difficult and requires awareness and education. He also indicated that political support was important as sometimes changes could equal more votes but often is also not the case. He summarized by indicating this is a lengthy and drawn-out process that is ongoing regardless of the status of COVID-19.

275. The IMCSNET Executive Director thanked Mr Freeman for his presentation which highlighted the importance of MCS and enforcement from a coastal fisheries perspective. Too often we think of fisheries MCS from an industrial deep-water perspective and miss out on the importance of needed frameworks for MCS in coastal fisheries as well, which was aptly demonstrated in the western and central Pacific Ocean region, just one region in the world. The Executive Director then introduced the IMCSNET Chair, Mr Gary Orr, to provide his final thoughts for the virtual workshop.

276. Mr Orr thanked the range of speakers that provided presentations and spoke of the high quality of the three panel discussions held over the last three days. He indicated that while countries may be party to many of the international fisheries instruments

such as the PSMA, it was also equally important to ensure that domestic legislation is also updated or revised to reflect the obligations outlined within these international treaties. He highlighted the importance of regional agreements such as the Niue Treaty Subsidiary Agreement and how these agreements expanded the scope of capabilities for MCS officers in combating IUU fishing. He highlighted the importance of trust and confidence between countries, especially for information sharing to take place as well as the importance of the security of data so that it is accessed and used only by those entrusted to its use.

277. Mr Orr spoke about how countries have collected such enormous amounts of fisheries data, that new or emerging technologies are needed to use or analyze them. It is important to conduct effective data analysis to inform strategies and operational responses to identified risks. In the absence of such technology, what remains is what some call “data chaos”. Importantly, the concept of MCS information sharing should not be seen as a one-way street. It is important that MCS officers can work with others in executing our jobs. This could be industry, NGOs, or environmental NGOs and this is not necessarily an easy concept for many MCS officers to embrace. It requires the development of a relationship of trust and confidence which will not happen overnight in a manner described by Mr Martin Exel as a “courageous collaboration”.

278. He then spoke of the various private organizations that have recently become Observer organizations to the IMCSNET and how these organizations and the resources and technology platforms they have developed could be used to support greater maritime domain awareness, especially for developing countries with few resources or capacity to field patrol vessels or aircraft to monitor their waters. Mr Orr highlighted the importance of working with these organizations to tap into their technologies to help efforts to fight IUU fishing. He referred to the New Zealand model of the government agencies working with the public in what is called a “Guardianship” - as enforcement officers cannot do their job totally on their own and rely on the eyes and ears of the public who have a real interest in the long-term sustainability of fisheries.

279. Mr Orr highlighted that transparency is critical. He reiterated the concept of “transparency of information breeds self-correcting behavior” and concluded by indicating that MCS efforts need to be collaborative and coordinated to have a positive impact. Otherwise, what is created is just displacement of IUU fishing activity in what is known as the “balloon” effect. He reiterated a common theme throughout the workshop - we cannot do this alone - we must work with each other as well as with organizations we may have not previously looked at to work with as partners in fighting IUU fishing.

CLOSING STATEMENT

Looking forward to Halifax

280. Mr Orr then introduced Ms Heather McCready, Director General of Conservation and Protection for the Department of Fisheries and Oceans in Canada to provide a closing statement. Ms McCready began by indicating that Canada has 600 federal fisheries officers across the country who enforce Canada’s fishing laws. Canada uses many technologies such as VMS, video monitoring and satellite surveillance and they have a Catch Certification Audit that audits expert certificates to ensure that fish was taken legally to support global efforts to combat IUU fishing.

281. She indicated she had only been with the program for about six months but has been incredibly impressed by the work of their officers at home and abroad. While participants are working around the world as well to combat IUU fishing, she thanked them for their attention over the two days of the workshop, which she found really fascinating, although she noted it can be difficult sometimes to pay attention at virtual workshops.

282. Ms McCready further indicated it would have been a lot better if everyone could have been together in person, but she hoped they were still able to learn a lot that can be applied in their own enforcement work at home going forward. These workshops are incredibly important, they help increase cooperation between partners, help build trust together, and help everyone learn and share best practices with each other. All of this works together to help everyone combat IUU fishing around the world.

283. She concluded by saying that in Canada, the fishing industry is incredibly important to both their economy and their way of life. The Canadian fishing industry employs approximately 72 000 people in harvesting, processing, and agriculture. Canada is committed to fighting IUU fishing, both at home and abroad. Looking ahead, Canada is delighted to invite everyone to Halifax in August of 2022. She hoped that this could be an in-person workshop and they are all really looking forward to welcoming everyone to Canada. She thanked everyone for their attention over the past two days, but more importantly for the work that everyone is doing each and every day, all around the world, working together to combat IUU fishing.

POSTED MONITORING, CONTROL AND SURVEILLANCE PAPERS

284. The following papers, presentations, and videos were submitted for inclusion in the virtual GFETW program and vetted by the IMCSNET Executive Director and several members of the virtual GFETW Steering Committee. The submissions were divided into one of the four major themes of the workshop: (1) cooperation and partnerships; (2) risk assessment and analysis; (3) technology as an enabler; and (4) transparency. Copies of the papers, presentations, and videos can be provided through specific requests made to the IMCSNET Executive Director, Mr Mark Young, at either myoung@imcsnet.org or mcs.network@imcsnet.org.

285. *Cooperation and partnerships*

a. **Virtual Expert Workshop based on Best Practices in Compliance in RFMOs (Pew Charitable Trust and the International Seafood Sustainability Foundation):** This paper included three documents which all relate to dealing with strengthening RFMOs through compliance. One document explained the best practices in compliance in RFMOs and the other dealt with utilizing transparency in improving RFMO compliance. The papers describe the ways in which building on ongoing work to analyze and support better RFMO compliance mechanisms, The Pew Charitable Trusts, in collaboration with the International Seafood Sustainability Foundation (ISSF) and other stakeholders, have convened a series of Expert Workshops on Best Practices in Compliance in RFMOs to help identify the challenges in RFMO compliance review mechanisms and suggest solutions for addressing these challenges. The documents represent the Expert Workshops by outlining key takeaways, both on challenges in RFMO compliance review mechanisms and on options for addressing these challenges. The challenges include a lack of clarity in the design and drafting of RFMO CMMs that can make obligations ambiguous, high volumes of information

provided to RFMO secretariats and limited time in compliance committees to review the large amounts of data and information related to numerous and complex measures and requirements, insufficient data quality, including limited opportunities to independently verify national reporting and/or data from MCS tools, inconsistencies in data, non-standardized reporting requirements or formats, lack of timely and full reporting from members, and insufficient information-sharing among RFMOs. Capacity building has not kept pace with the needs of both members and Secretariats and has not been used to its potential - by either members or RFMOs - to effectively address issues or build capabilities that would promote greater compliance, a lack of transparency in compliance processes, both in documentation and access, as well as with regard to reporting and follow up on member actions, and finally political dynamics among RFMO members that can complicate assessments and transparency

b. **The PSMA as a tool to combat illegal fishing (FAO):** This was a video produced by the Food and Agriculture Organization of the United Nations that detailed how IUU fishing is one of the biggest threats to fishing sustainability and negatively impacts livelihoods of communities that depend on fishing as well as the overall health of the environment. Although IUU fishing is extremely dangerous, the video explained how the FAO is implementing the Port State Measures Agreement, which has been enforced since 2016 and blocks foreign vessels conducting IUU fishing from using ports. The agreement provides robust provisions for States that need help combating IUU fishing from occurring in their region as national legislation is important to implement the world's first binding international agreement specifically targeting IUU fishing. The FAO's role in the Port State Measures Agreement is to provide technical assistance to strengthen legal frameworks, institutional capacity, and operational procedures. The video concluded by encouraging all States to implement the agreement to stop being part of the problem with IUU fishing, and instead lead to its extinction.

c. **Taking IUU investigations to the next level: unmasking ultimate beneficial ownership and networks behind IUU vessels (NOAA Fisheries Office of Law Enforcement):** This presentation included information from NOAA OLE on its investigations into the fishing vessels Ocean Star No. 2 and Mario 11, which led to both vessels being adopted on the IUU Vessel list of International Commission for the Conservation of Atlantic Tunas (ICCAT). In the case of the Ocean Star No. 2, it was alleged that the European Union Yellow Carding of Vanuatu led to the owners of the vessel requesting deletion from the Vanuatu Registry with claims of re-flagging in another nation. However, the owner did not re-flag the vessel and instead the vessel appeared to be operating without national registry since 2016. Whereas the Mario 11 was sighted with approximately 250 shark fins strung about its decks but was authorized to ICCAT as a long line harvest vessel. In this case, the flag State reported that its authorization had been revoked four months earlier and was in process of being deregistered. The identified activities and the challenges of combating such activities are presented, including how the vessels are believed to have operated and their relationships to other identified vessels engaged in IUU fishing and support activities. The overall threats and challenges of countering these activities required broad international collaboration to expose hidden beneficial owners and networks directing IUU fishing activities on a global scale.

d. **Sustainable fishing starts with us (FAO):** This was a YouTube video that showed the process of how fish ends up on your plate, with a focus on how illegal, unreported, and unregulated fishing is dangerous for our planet. The video listed several facts about the fishing industry, such as one in five of the world's

catches are IUU and is depleting all bodies of water on earth of resources needed for survival and sustainability. The video ended by informing viewers that stopping IUU fishing starts with consumer knowledge and education about where the fish you eat comes from and paying attention to the source of the fish we buy, its traceability and environmental sustainability.

e. **Sustainable Fisheries Management - Pacific Tuna (FFA):** This was a YouTube video, which describes the efforts of the FFA as they work to continue sustainability efforts for tuna in the Pacific regions. The video details the main governing organizations that contribute to an industry that supports crucial national income and employment opportunities for Pacific people, as well as the sustainability of the ocean. The only place in the world where all four key tuna species (skipjack, bigeye, yellowfin, and albacore) exist in a healthy environment not being overfished is the Western and Central Pacific Ocean. Because of the successful sustainability of these tuna, Pacific regions often rely on the tuna stock for national income and employment opportunities. The FFA supports its Pacific members by taking collective and government action for their offshore fishing resources and ensures the sustainability of fishing. By delivering legal advice and innovative fisheries management to Pacific countries, the FFA successfully combats IUU fishing and manages tuna stocks.

f. **Regulating, controlling, and monitoring transshipment (FAO):** This was a YouTube video which described how transshipment allows fishers to transfer their catch at sea or in a foreign port to continue fishing. The video provided a description of transshipment and why it is important and essential in the fishing industry. For transshipment to be conducted properly it must be monitored and regulated in order to prevent transshipment from allowing catches from illegal, unreported, and unregulated fishing to enter the market. The video illustrated the fact that IUU fishing can threaten the conservation of the ocean's ecosystem, global food system, and the livelihood of fishers. The video ended by providing a call to action for addressing the negative practices in transshipment through international regulations.

g. **UNODC GMCP and Skylight: Partnering on MDA Technology and Capacity Building (UNODC and Artificial Intelligence for MCS Professionals [AI2]):** This was a presentation which was comprised of an explanation of Skylight and its partnership with the UNODC Global Maritime Crime Program. Skylight is a maritime tool used for identifying suspicious behavior that may be illegal or non-compliant with fisheries and other maritime regulations. The presentation outlined the ways in which UNODC is using Skylight to focus on countering fisheries crime and securing MPAs as well as other maritime threats. There are several case studies included in the document showing "dark rendezvous" events. These events are defined as an event where a vessel is transmitting AIS and has a meeting with a non-AIS vessel. One study included dark detection, which are vessels conducting illegal activity who often turn off their AIS or do not carry AIS at all. In Ghana, Skylight collected data before anti-IUUF operations to inform the Navy on the hotspots of the dark activity. The case study concluded by mentioning that the discovery prompted the Navy to enter the general area and find at least five vessels with varying levels of infractions.

h. **Ocean Wardens: Inspection with the Monitoring, Control, Surveillance & Enforcement Team (Secretariat of the Pacific Community):** This was an awareness and training video on Monitoring Control and Surveillance (MCS) that highlighted the role of MCS Officers and detailed proper protocols when enforcing coastal fisheries regulations. It provided a basic introduction to inspection concepts and to the new Incident Book that SPC coastal fisheries are promoting for national coastal fisheries

MCS officers and authorized community officers. The new Incident Book is a step-by-step guide to acquiring the information fisheries officers need to collect to start building a sound case file, an area that is not done properly in many Pacific member countries. The video is aimed at being used during Fisheries Officers and Assistants Training Workshops as a pre-learning tool and was produced by the Pacific Community thanks to funding provided by the Government of New Zealand and the PEUMP Program.

i. **Fisheries in the Czech Republic with Respect to Harvest Reporting and Rules Enforcement (Dr Roman Lyach):** This paper explained how fishing in the Czech Republic works with respect to reporting of fishing trips and harvested fish, setting and enforcing of angling rules and restrictions, and cooperation between private and public subjects. Firstly, the Czech Fishing Union created a system of angling rules that are regularly communicated to anglers via local angling clubs. Secondly, the Union created a system of mandatory angling logbooks that anglers are obliged to fill in. Thirdly, the Union cooperated with angling guards and the Police on rules enforcement in the field. Intensive cooperation with anglers is critical, especially by explaining the reasons behind angling restrictions and reporting of harvested fish. If anglers understand the rules and believe they can help to conserve fish populations, their compliance with the rules rises. That leads to partial eliminations of misreporting and underreporting of harvested fish.

j. **Completing the Enforcement Chain (Exulans):** This was a presentation on improving interdiction of illegal, unreported unregulated fishing. It provided imagery on how information on IUU fishing flows between satellites and vessel monitoring systems, which is then analyzed by field and patrol officers to determine whether action is taken or not. There is also information about how to put assets in place to maximize potential for an interdiction of IUU fishing, which is by decentralizing command and control as well as using the same intelligence products for more effective patrol planning. Decentralizing command and control included autonomous field assets, patrol assets to detect targets, surface assets with proper technology by finding vessels at night, monitoring AIS, and accurate positional information. The presentation also detailed how to improve an agency's ability to respond to a report of IUU fishing by employing the idea of enforcement and management under one roof. This would result in a seamless integration of resources where fisheries enforcement personnel must have sufficient legal authority. According to the presentation, the ways to improve on following up and supporting the investigation reports for IUU fishing include forming an investigative specialty unit, which would assign specially trained personnel to investigate potential violations and increase investigative capacity, which will improve effective patrol planning.

287. *Risk assessment and analysis*

a. **Role of Risk Assessments and Analysis in Compliance (OceanMind):** This document explained how OceanMind utilized risk assessments with an emphasis on how enforcement authorities can better interpret data into intelligence and action for successful prosecution for illegal activities. OceanMind works with government, civil society, and industry to tackle IUU fishing and maritime domain awareness. There is a description of the Port State Measures analysis tool, which OceanMind has designed with the Royal Thai Government and Seafood Task Force in Thailand. This tool enabled identification of unreported port calls without declaration, pre-arrival risk assessment, analysis and training, and risk mitigations and port inspection support. Overall, the document addressed the different approaches to risk assessments, their core

themes of understanding risk, cost-effective interventions, and the appropriate use of innovative technology.

b. **Proactive Data Analysis to Monitor Compliance and Detect IUU Fishing in CCAMLR:** This presentation included a list of the current species that are fished in Antarctica as well as an explanation of what the Fisheries Monitoring and Compliance role is in implementing conservation measures that are affecting fisheries. The document outlined some challenges being distance of fisheries, cost of operating over distance, complexity of monitoring control and surveillance, and advances in technology. There is also a description of the primary compliance monitoring tools being used by CCAMLR which are, vessel monitoring systems, inspections, and catch documentation schemes. An evaluation and comparison of data is provided in the document, which detailed the fact that a summary compliance report and supporting analysis of all identified non-compliance within the past year is provided to the CCAMLR Standing Committee on Implementation and Compliance (SCIC).

c. **Catch Documentation Scheme, Science Data and Unreported Catches (CCAMLR):** This presentation included a list of the 26 Members of the Commission, 11 acceding States, and 3 Cooperating Non-Contracting Parties. It detailed what catch documentation schemes are, which are systems that track and trace fish from the point of capture through unloading and throughout the supply chain. This system has a goal of combating IUU fishing by limiting access of IUU fishery products to markets. Included in the presentation is reconciled catch documentation scheme data from CCAMLR from 2018 and 2019 with fine scale catch and effort data, showing that the majority met a ten percent threshold and did not require strategic engagement. The data gives light to the fact that this is occurring across CCAMLR toothfish fisheries and requires an investigation by the flag State into industry practices.

288. *Technology as an enabler*

a. **Florida International University (FIU) - Security Research Hub (Jack D. Gordon Institute for Public Policy):** This presentation and paper discussed the Security Research Hub produced by the FIU Jack D. Gordon Institute for Public Policy. They provided in-depth information about the Security Research Hub (SRH), which is a multidisciplinary, virtual security research platform and community that enables the United States of America and partners, academia, civil society, and NGOs, and other public and private sectors to access and exchange publicly available information and collaborate on projects of mutual interest with stakeholders around the world, including IUU fishing. The SRH will advance information sharing and complement traditional engagement and capacity building efforts between nations to address the most critical security challenges they face. The documents detail specific research conducted which includes over 39 000 documents on illegal fishing and more than 600 academic institutions contributing research products. The presentation included an outline of the SRH's features, its data hub, and how it overall works.

b. **An Investigation of Options for the use of Hook Type Crane Scales for the Standardization of Transshipment Monitoring in the WCPO Purse Seine Fishery (Francisco Blaha, Beau Bigler, Malo Hosken, and Ferral Lasi):** This paper provided a background of information about how monitoring activities for in port transshipments are generally operated currently. The document detailed how monitoring volumes transshipped involves either a designated boarding officer or officers or by fisheries observers contracted as free agents. Monitoring personnel that board vessels include activities such as estimating catch volume and composition and

comparing it with what is reported, recording the presence of species of interest, and providing the data and information collected to the compliance unit. This can lead to inaccuracies since the operation consists of a lot of estimations rather than factual data. The paper gave evidence and data that supported the viable option to use a hook type crane scale as a technological advancement that can replace the current operation of monitoring. This new technology includes the use of hanging crane type scales (called dynamometers) with wireless remote weight display attached to the hooks of the cranes used during the operation, which can substantially improve the rate accuracy. The document includes a study in which the hook was put into use by a team of Republic of Marshall Islands Ministry of Marine Resource Authority (MIMRA) transshipment monitoring staff who assessed the various models in terms of ease of use, durability, accuracy, and cost-effectiveness.

c. **Artificial Intelligence for MCS Professionals (AI2):** This paper outlined the potential uses that artificial intelligence (AI) can have for the field of monitoring, control, and surveillance. It discussed what AI is and how it can be used as support for analyzing in decision making processes. The paper outlined how AI can be used for behavior identification, vessel detection, fleet identification, and logbook digitalization. Two case studies are included, both on a system called “Dark Rendezvous.” This AI system collected satellite radar and allowed the Cabo San Lucas Coast Guard and US Navy to use the outputs during anti-narcotic and anti-IUU fishing operations, as well as alerted and identified certain suspicious vessels operating in the Western Indian Ocean.

289. *Transparency*

a. **Triton: A Fisheries Transparency Portal (C4ADS):** This presentation provided an overview of Triton, which is a collaborative platform for regulators, enforcement, and civil society to explore beneficial ownership data behind the world’s industrial fishing fleets. Triton provides ownership data and analytical products to help users explore vessel ownership, including corporate ownership mapping, which explores connections between fishing companies across jurisdictions, including the global refrigerated cargo fleet; large-scale industrial longline vessels flagged to Republic of Korea, Japan, Spain, China, and Taiwan Province of China; and RFMO blacklisted vessels. It also explores vessel ownership databases, which discovers connections between seemingly disparate fishing fleets via an interactive database, and finally provides analytical support. The document provided a visual for explaining who Triton is, for what Triton is, why it should be used, and finally a visual demonstration.

b. **Trade Measures to Deter Entry of Illegally Caught Fisheries Products into Markets in United Republic of Tanzania (United Republic of Tanzania Ministry of Livestock and Fisheries - Ms Jovice Mkuchu):** This paper detailed how IUU fishing is a huge problem in United Republic of Tanzania in regards to the health of fish stocks with negative impacts on food security for countries that depend on fish resources, and specifically how operators of IUU fishing are increasing their illgotten revenue by ‘laundering’ their catches through the market in United Republic of Tanzania. It provided an overview of the current trade and market-place measures that are being implemented in United Republic of Tanzania to reinforce international fisheries conservation and management provisions with the objective of thwarting IUU fishing activities to attain sustainable fisheries management. Information for this study was collected through review of numerous reports from both government and non-governmental agencies responsible for fisheries, environmental conservation, standards, revenue, and trade. The information gleaned was corroborated and validated with interviews with key informants. The findings revealed the existence of policies

and practices to monitor and track fish and fishery products from the time they are harvested to when they reach final consumers.

c. **The Norwegian Experience - Catch ID (Norwegian Directorate of Fisheries):** This document was a brochure produced in 2021 regarding Catch ID, which included why compliance strategies should be improved, what approaches should be used, and four areas of focus in the Catch ID program. The Catch ID program was created by the Norwegian Directorate of Fisheries as a new initiative after Norwegian authorities identified the main risks for not achieving compliance to be reporting requirements based on self-reporting. This fact, together with an increased demand for documentation of legal and sustainable fisheries by consumers, market states and authorities, led to the decision of working towards development and implementation of new technological solutions on board fishing vessels. These solutions represent an independent third party, and report to the relevant authorities automatically. This approach can best be described as compliance by design and contribute to various documentation requirements. Seafood is Norway's second largest export commodity, with the Norwegian fishing fleet landing fish with a firsthand value of more than USD 2.6 billion in 2020. Norway's natural conditions allow catches at this level year after year; however, the situation could have been very different without proper management. The main lesson learned over the last decades, is that a comprehensive management regime is required to achieve compliance, with the most efficient way of achievement being through preventing the unwanted or illegal activities from occurring in the first place.

d. **Carrier Vessel Portal (Global Fishing Watch):** This paper illustrated how Global Fishing Watch has been working to develop and use the Carrier Vessel Portal. Global Fishing Watch partnered with The Pew Charitable Trusts to improve the understanding and management of transshipment. The Carrier Vessel Portal is an innovative portal that allows policymakers and fisheries managers to increase their knowledge on transshipment, which allows them to better comprehend the activities of carrier vessels that take on catch from commercial fishing vessels and deliver it to ports worldwide for processing. It included information about the portal, which uses 2017-19 publicly available AIS data to inform users on vessel encounters. The portal updates every month with current data and in turn creates a picture of potential authorizations for both carrier and fishing vessels involved in transshipment activity. Also included is a video, which included the purpose of Global Fishing Watch, an explanation of their efforts to increase transparency through data accessibility, and the different approaches they use to accomplish this goal. The video is a visual representation and demonstration of Global Fishing Watch's Carrier Vessel Portal and includes an in-depth explanation on its use.

e. **Are IUU Lists Useful - A User Analysis of the Combined IUU List (Trygg Mat Tracking):** This paper outlined what the Trygg Mat Tracking (TMT) Combined IUU Vessel List is, why it exists, how the list is populated, and an analysis of the users accessing the TMT Combined IUU Vessel List. The Combined IUU Vessel List is a website maintained by Trygg Mat Tracking, which contains all fishing vessels that have been listed as IUU Vessels by Regional Fisheries Management Organizations (RFMOs). The list exists in order to prevent IUU vessels from continuing illegal fishing activities by keeping track of their changing identities and operations and creating a platform to make this information publicly available. The process of integrating and matching vessels through thousands of data sources is applied to thousands of vessels, with IUU vessels having an additional layer of data on top of what is provided in the RFMO IUU listing. The paper included a case study, which exemplified the value of IUU listing to enforcement personnel in taking action to deny port entry, a market for

its catch, and logistical support for its operations. It also included data analysis, which showed the top 20 countries that access the Combined IUU Vessel List for the purpose of checking compliance histories of vessels to ensure that they were not fishing in their waters, entering the ports, being provided their services, or allowing their catch to enter supply chains.

f. **Anti-Money Laundering Law as an Added Measure to Counter IUU Fishing in Malaysia (Mr Ganesan Vethia):** This paper discussed the implementation of the Anti-Money Laundering, Anti-Terrorism Financing and Proceeds of Unlawful Activities Act 2001 (AMLA) regarding the mechanisms, strengths, and weaknesses of specific maritime enforcement agencies in applying AMLA 2001 at an infant stage to combat IUU fishing in Malaysia. The document goes into detail about how the anti-money laundering legislation went through a dynamic development process in line with global challenges and international conventions, including main change to widen the scope of AMLA to include “terrorism financing offences.” It discussed how the Department of Fisheries Malaysia (DOFM) is responsible for investigating and authorizing its governmental powers to invoke certain parts of AMLA 2001, which can then result in forfeiture of properties which have been derived from IUU fishing. Overall, the document outlined the ways in which the anti-money laundering law can be used as a viable option to effectively combat illegal fishing in ways beyond traditional fisheries and law enforcement. This law is currently being implemented in Malaysia in response to its efforts to stop IUU fishing. Through training and expert involvement from law enforcement agencies, DOFM should be enforcing AMLA 2001 in the foreseeable future.

POST PLENARY DISCUSSION ROOMS

290. The IMCSNET coordinated a series of post-plenary discussion rooms to provide registered participants the opportunity to engage with a wide range of GFETW speakers, moderators, and panelists, to include the opportunity to have further interactive dialogue and discussion regarding the three panel discussions. As well, the IMCSNET coordinated “Meet the Author” discussion rooms for 16 of the 20 post papers, presentations, and videos included as part of the GFETW program. These “Meet the Author” discussion rooms provided the opportunity for interested participants to interactively engage with the authors of the posted papers, presentations, and videos to ask follow-on questions and gain further insight into the various topics covered. The post plenary discussion rooms were divided into two 30-minute sessions each day following the plenary session and proved to be well attended by the participants.

SEAFOOD AND FISHERIES EMERGING TECHNOLOGIES (SAFET) TECHNOLOGY PROVIDERS

291. The Environmental Defense Fund (EDF) and World Wide Fund for Nature (WWF) co-hosted a discussion room in conjunction with their efforts to coordinate the SAFET conference series which had previously been coordinated in conjunction with the fifth and sixth GFETW in 2016 and 2019. EDF and WWF introduced five technology providers as a component of this post plenary discussion room that provided an opportunity for interested participants to listen to these technology representatives provide overviews and details of the various technologies they represent and how these technologies could be employed to support both national and regional MCS efforts targeting IUU fishing.

a. **Starboard Maritime Intelligence:** This company has developed a global maritime domain awareness platform that incorporates multiple data sources. Starboard is subscription-based software that provides teams with a comprehensive view of maritime activity and powerful tools for analysis. By combining global automatic identification system (AIS) data, multiple layers of satellite data, scientific models, and other information or intelligence, Starboard enables teams to effectively analyze and investigate vessels and areas — all on a secure and intuitive platform.

b. **Vericatch:** This company is committed to building fishery data software that positively impacts the fishing industry and our environment. They work with electronic reporting, fishery management analytics, and supply chain systems that bring the true benefits of responsible fishing back to the fishing industry.

c. **Saildrone:** Saildrone is a world leader in oceangoing autonomous surface vehicles, providing unrivaled payload, range, and reliability from an uncrewed system. Saildrone vehicles collect data that provides unprecedented intelligence for climate, mapping, and maritime security applications and have sailed over 500 000 nautical miles and spent more than 13 000 days at sea.

d. **Teem.Fish Monitoring:** This company is a federally designated fisheries monitoring service provider who combine best-in-class technology with deep fisheries expertise to deliver reliable electronic monitoring systems, round-the-clock service, and accurate, verifiable data.

e. **CAWIL.ai:** This company is an industry-agnostic artificial intelligence solution that provides AI driven business solutions integrated to web, mobile application, and industry automation. They focus on computer vision artificial intelligence to impact decision making for businesses, and to create an inclusive society.

POST EVENT SURVEYS

292. The IMCSNET Secretariat created two post event surveys to provide the opportunity for registered participants to provide feedback on the planning and execution of the virtual GFETW to provide feedback that will improve planning and execution efforts for the seventh GFETW scheduled in August 2022. One post event survey was developed for use by participants that were not affiliated with the fisheries administration or stakeholder of an IMCSNET member. The other post event survey was developed specifically for use by participants that were affiliated with the fisheries administration or stakeholder of an IMCSNET member. This survey had additional questions included that related directly to activities and initiatives of the IMCSNET and to elicit feedback on whether the IMCSNET continued to meet the needs of its members.

293. *Post event survey for registrants*

a. Which two presentations/panels contributed best to your country/agency/organization's expectations?

- 1) Session 1a: Cooperation/partnerships – Cooperation in East and West Africa
- 2) Session 1b: Cooperation/partnerships – MCS capacity development needs
- 3) Session 2: Risk assessment and analysis – “Translating risk assessment and analysis into effective operational responses”

- 4) Panel discussion 1: The emerging complexities of containers related to transshipment
 - 5) Session 3: Technology as an enabler – FAO Global Record and PSMA Information Exchange
 - 6) Panel discussion 2: What are the real barriers to information sharing?
 - 7) Session 4a: Transparency – The new United States of America Coast Guard Strategy on IUU fishing
 - 8) Session 4b: Transparency – The Chile experience
 - 9) Panel discussion 3: Squid – How an unregulated fishery destabilizes fisheries, compliance, and governance
- b. Which two presentations/panels were least useful to your country/agency/organization's interest?
- 1) Session 1a: Cooperation/partnerships – Cooperation in East and West Africa
 - 2) Session 1b: Cooperation/partnerships – MCS capacity development needs
 - 3) Session 2: Risk assessment and analysis – “Translating risk assessment and analysis into effective operational responses”
 - 4) Panel discussion 1: The emerging complexities of containers related to transshipment
 - 5) Session 3: Technology as an enabler – FAO Global Record and PSMA Information Exchange
 - 6) Panel discussion 2: What are the real barriers to information sharing?
 - 7) Session 4a: Transparency – The new United States of America Coast Guard Strategy on IUU fishing
 - 8) Session 4b: Transparency – The Chile experience
 - 9) Panel discussion 3: Squid – How an unregulated fishery destabilizes fisheries, compliance, and governance
- c. Which two presentations/panels did you personally LIKE the most?
- 1) Session 1a: Cooperation/partnerships – Cooperation in East and West Africa
 - 2) Session 1b: Cooperation/partnerships – MCS capacity development needs
 - 3) Session 2: Risk Assessment & Analysis – “Translating Risk Assessment and Analysis into Effective Operational Responses”
 - 4) Panel discussion 1: The emerging complexities of containers related to transshipment
 - 5) Session 3: Technology as an enabler – FAO Global Record and PSMA Information Exchange
 - 6) Panel discussion 2: What are the real barriers to information sharing?
 - 7) Session 4a: Transparency – The new United States of America Coast Guard Strategy on IUU fishing
 - 8) Session 4b: Transparency – The Chile experience
 - 9) Panel discussion 3: Squid – How an unregulated fishery destabilizes fisheries, compliance, and governance

d. What is your opinion on the overall content (quality/format) of the presentations/panels?

1) Poor to Excellent (1 to 5 rating)

e. Did you find the posted papers/presentations useful and informative?

1) Yes

2) No – If no, please provide more details

f. Did the virtual GFETW meet your overall expectations?

1) Yes

2) No – If no, please provide more details

g. What is your opinion of the structure/format of the virtual GFETW?

h. Do you have suggestions for improving the value of the GFETW to participants?

i. Were there any relevant topics of MCS and IUU fishing missing from the agenda of the virtual GFETW that should be included in the next meeting?

j. Did you establish any new contacts among the participants of the virtual GFETW that will continue in your work?

1) Yes

2) No

294. *Post event survey for members*

a. Which two presentations/panels contributed best to your country/agency/organization's expectations?

- 1) Session 1a: Cooperation/Partnerships – Cooperation in East and West Africa
- 2) Session 1b: Cooperation/Partnerships – MCS capacity development needs
- 3) Session 2: Risk assessment and analysis – “Translating risk assessment and analysis into effective operational responses”
- 4) Panel discussion 1: The emerging complexities of containers related to transshipment
- 5) Session 3: Technology as an enabler – FAO Global Record and PSMA Information Exchange
- 6) Panel discussion 2: What are the real barriers to information sharing?
- 7) Session 4a: Transparency – The new United States of America Coast Guard Strategy on IUU fishing
- 8) Session 4b: Transparency – The Chile Experience
- 9) Panel discussion 3: Squid – How an unregulated fishery destabilizes fisheries, compliance, and governance

b. Which two presentations/panels were least useful to your country/agency/organization's interest?

- 1) Session 1a: Cooperation/Partnerships – Cooperation in East and West Africa
- 2) Session 1b: Cooperation/Partnerships – MCS capacity development needs

- 3) Session 2: Risk assessment and analysis – “Translating risk assessment and analysis into effective operational responses”
 - 4) Panel discussion 1: The emerging complexities of containers related to transshipment
 - 5) Session 3: Technology as an enabler – FAO Global Record and PSMA Information Exchange
 - 6) Panel discussion 2: What are the real barriers to information sharing?
 - 7) Session 4a: Transparency – The new United States of America Coast Guard Strategy on IUU fishing
 - 8) Session 4b: Transparency – The Chile experience
 - 9) Panel discussion 3: Squid – How an Unregulated Fishery Destabilizes Fisheries, Compliance, and Governance
- c. Which two presentations/panels did you personally LIKE the most?
- 1) Session 1a: Cooperation/partnerships – Cooperation in East and West Africa
 - 2) Session 1b: Cooperation/partnerships – MCS capacity development needs
 - 3) Session 2: Risk assessment and analysis – “Translating risk assessment and analysis into effective operational responses”
 - 4) Panel discussion 1: The emerging complexities of containers related to transshipment
 - 5) Session 3: Technology as an enabler – FAO Global Record and PSMA Information Exchange
 - 6) Panel discussion 2: What are the real barriers to information sharing?
 - 7) Session 4a: Transparency – The new United States of America Coast Guard Strategy on IUU fishing
 - 8) Session 4b: Transparency – The Chile experience
 - 9) Panel discussion 3: Squid – How an unregulated fishery destabilizes fisheries, compliance, and governance
- d. What is your opinion on the overall content (quality/format) of the presentations/panels?
- 1) Poor to Excellent (1 to 5 rating)
- e. Did you find the posted papers/presentations useful and informative?
- 1) Yes
 - 2) No – If no, please provide more details
- f. Did the virtual GFETW meet your overall expectations?
- 1) Yes
 - 2) No – If no, please provide more details
- g. What is your opinion of the structure/format of the virtual GFETW?
- h. Do you have suggestions for improving the value of the GFETW to participants?
- i. Were there any relevant topics of MCS and IUU fishing missing from the agenda of the virtual GFETW that should be included in the next meeting?

j. Did you establish any new contacts among the participants of the virtual GFETW that will continue in your work?

- 1) Yes
- 2) No

k. Is the work and activities of the IMCSNET meeting your expectations?

- 1) Yes
- 2) No

Please provide more details

l. Does the current IMCSNET Strategic Plan still reflect the priorities of our members?

- 1) Yes
- 2) No

Please provide more details

m. Are the strategic goals and activities of the Network still appropriate? If not, what changes would you wish to see so that they more closely align Members' vision of the role of the Network?

- 1) Yes
- 2) No

n. How can the Network best facilitate the outcomes Members want to see?

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Appendix 1 Agenda

DAY ONE

i. OPENING SESSION

WELCOME TO PARTICIPANTS

- (a) Mr Claudio Baez Beltran, National Director of the National Fisheries and Aquaculture Service (SERNAPESCA) of Chile

ii. KEYNOTE ADDRESS

ADDRESSING THE U'S IN IUU FISHING

- (a) Mr Wez Norris, Chief Executive Officer, Australia Fisheries Management Authority

iii. SESSION 1A: COOPERATION/PARTNERSHIPS

COOPERATION IN EAST AND WEST AFRICA

- (a) Mr Duncan Copeland, Executive Director, Trygg Mat Tracking
- (b) Mr Seraphin Dedi Nadje, Executive Secretary, Fisheries Committee for the West Central Gulf of Guinea
- (c) Mr Mark Ssemakula, Vice-Chair, Stop Illegal Fishing

iv. SESSION 1B: COOPERATION/PARTNERSHIPS

MCS CAPACITY/DEVELOPMENT NEEDS

- (a) Dr Matthew Camilleri, Team Leader, Fisheries Global and Regional Responses, Food and Agriculture Organization (FAO)

v. SESSION 2: RISK ASSESSMENT & ANALYSIS

RISK TO RESULTS - TRANSLATING RISK ASSESSMENT AND ANALYSIS INTO EFFECTIVE OPERATIONAL RESPONSES

- (a) CDR Robert Lewis, Surveillance Operations Officer, Pacific Islands Forum Fisheries Agency (FFA)

vi. PANEL DISCUSSION 1: THE EMERGING COMPLEXITIES OF CONTAINERS RELATED TO TRANSSHIPMENT

- (a) Moderator: Mr Tony Long, Chief Executive Officer, Global Fishing Watch
- (b) Panelist: Mr Duncan Copeland, Executive Director, Trygg Mat Tracking
- (c) Panelist: Mr Francisco Blaha, MCS Consultant, Republic of the Marshall Islands
- (d) Panelist: Mr Peter Flewwelling, Compliance Manager, North Pacific Fisheries Commission
- (e) Panelist: Ms Kristin Von Kistowski, MCS and Compliance Expert, Fisheries Global and Regional Responses, FAO

vii. SESSION 3: TECHNOLOGY AS AN ENABLER**FAO GLOBAL RECORD AND PSMA INFORMATION EXCHANGE**

- (a) Ms Alicia Mosteiro, Fisheries Officer, Fisheries Global and Regional Responses, FAO

viii. POST PLENARY DISCUSSION ROOMS

- (a) Meet the Presenters – Session 1A
- (b) Meet the Presenters – Session 1B
- (c) Meet the Presenters – Session 2
- (d) Meet the Presenters – Session 3
- (e) Meet the Panelists – Panel discussion 1
- (f) Meet the Author – Partnering on MDA Technology
- (g) Meet the Author – Carrier Vessel Portal
- (h) Meet the Author – AI for MCS Professionals
- (i) Meet the Author – Activity of IUU Fishing Vessels
- (j) Meet the Author – CatchID – The Norwegian Experience
- (k) Meet the Author – Role of Risk Assessment
- (l) Meet the Author – Security Research Hub

ix. SPECIAL SESSION – SAFET TECHNOLOGY PROVIDERS

- (a) Meet the SAFET Tech Provider – Starboard Maritime Intelligence
- (b) Meet the SAFET Tech Provider – Sail Drone
- (c) Meet the SAFET Tech Provider – Teem Fish
- (d) Meet the SAFET Tech Provider – CAWIL.ai
- (e) Meet the SAFET Tech Provider – Vericatch

DAY TWO**i. PANEL DISCUSSION 2: WHAT ARE THE REAL BARRIERS TO MCS INFORMATION SHARING?**

- (a) Moderator: Ms Alicia Mosteiro, Fisheries Officer, Fisheries Global and Regional Responses, FAO
- (b) Panelist: Mr Allan Rahari, Director of Fisheries Operations, Pacific Islands Forum Fisheries Agency (FFA)
- (c) Panelist: Mr Martin Exel, Executive Director, SeaBOS
- (d) Panelist: Mr Hrannar Mar Asgeirsson, MCS Officer, North-East Atlantic Fisheries Commission
- (e) Panelist: Mr Tony Long, Chief Executive Officer, Global Fishing Watch

ii. SESSION 4A: TRANSPARENCY**THE NEW US COAST GUARD STRATEGY ON IUU FISHING**

- (a) RADM Scott Clendenin, Assistant Commandant for Response Policy (CG-5R), US Coast Guard

iii. SESSION 4B: TRANSPARENCY**TRANSPARENCY - THE CHILE EXPERIENCE**

- (a) Ms Alicia Gallardo, Undersecretary for Fisheries and Aquaculture (SUBPESCA) of Chile

iv. PANEL DISCUSSION 3: SQUID - HOW AN UNREGULATED FISHERY DESTABILIZES FISHERIES, COMPLIANCE, AND GOVERNANCE

- (a) Moderator: Ms Kerry Smith, Senior Manager, International Compliance, Australia Fisheries Management Authority
- (b) Panelist: Mr Duncan Currie, International and Environmental Lawyer, GlobeLaw
- (c) Panelist: Dr Masanori Miyahara, Senior Advisor, RWE Renewables Japan
- (d) Panelist: Mr Peter Horn, Project Director, International Fisheries – Ending Illegal Fishing, The Pew Charitable Trusts
- (e) Panelist: Mr Osvaldo Urrutia, Legal Advisor for International Fisheries, Government of Chile

v. SPOTLIGHT ON COASTAL FISHERIES AND AQUACULTURE MCS

COASTAL FISHERIES MCS AND ENFORCEMENT IN THE WESTERN AND CENTRAL PACIFIC IN TIMES OF COVID-19

- (a) Mr Ian Freeman, Coastal Fisheries and Aquaculture MCS and Enforcement Specialist, Secretariat of the Pacific Community (SPC)

vi. CLOSING STATEMENT

LOOKING AHEAD TO HALIFAX IN 2022

- (a) Ms Heather McCready, Director General of Conservation and Protection, Fisheries and Oceans Canada

vii. POST PLENARY DISCUSSION ROOMS

- (a) Meet the Presenters – Session 4A
- (b) Meet the Presenters – Spotlight on Coastal Fisheries
- (c) Meet the Panelists – Panel discussion 2
- (d) Meet the Panelists – Panel discussion 3
- (f) Meet the Author – Triton: Fisheries Transparency Portal
- (g) Meet the Author – CCAMLR – CDS and Science Data
- (h) Meet the Author – Malaysia Counter-IUU Measure
- (i) Meet the Author – Hook Type Crane Scales
- (j) Meet the Author – Trygg Mat Tracking (TMT) Combined IUU Vessel List
- (k) Meet the Author – CCAMLR – Compliance Analytics
- (l) Meet the Author – Completing the Enforcement Chain
- (m) Meet the Author – Czech Police and Educators
- (n) Meet the Author – Compliance Assessment Workshops

POSTED MCS PAPERS, PRESENTATIONS, AND VIDEOS

i. Cooperation and partnerships

- (a) Completing the Enforcement Chain – Exulans
- (b) Fisheries in the Czech Republic – Dr Roman Lyach
- (c) Ocean Wardens – Secretariat of the Pacific Community
- (d) Partnering on MDA Technology and Capacity Building Case Study: Countering Illegal Transshipments in African Developing States – Vulcan, Inc.
- (e) Regulating, Controlling, and Monitoring Transshipment – FAO
- (f) Sustainable Fisheries Management: Pacific Tuna – SPC and FFA
- (g) Sustainable Fishing Starts with Us – FAO
- (h) Taking IUU Investigations to the Next Level: Unmasking Ultimate Beneficial Ownership and Networks Behind IUU Vessels – NOAA OLE
- (i) The PSMA as a Tool to Combat IUU Fishing – FAO

ii. Risk Assessment and analysis

- (a) Catch Documentation Scheme, Science Data and Unreported Catches – CCAMLR
- (b) Proactive Data Analysis to Monitor Compliance and Detect IUU Fishing – CCAMLR
- (c) Role of Risk Assessments and Analysis in Compliance – OceanMind

iii. Technology as an enabler

- (a) AI for MCS Professionals – Vulcan, Inc.
- (b) An Investigation of Options for Hook Type Crane Scales – MIMRA, SPC, FFA, and Mr Francisco Blaha
- (c) Security Research Hub – IUU Fishing Dashboard – Florida International University

iv. Transparency

- (a) Anti-Money Laundering Law as an Added Measure to Counter IUU Fishing in Malaysia – Mr Ganesan Vethia
- (b) Combined IUU Vessel List – Trygg Mat Tracking
- (c) Carrier Vessel Portal: Open Data as a Tool to Monitor Transshipping – Global Fishing Watch
- (d) The Norwegian Experience: CatchID – Norwegian Directorate of Fisheries
- (e) Trade Measures to Deter Entry of Illegally Caught Fisheries Products into Markets in United Republic of Tanzania – Ms Jovice Mkuchu
- (f) Triton: A Fisheries Transparency Portal – C4ADS

Appendix 2 Speakers / Moderators / Panelists

The following is the list of speakers, moderators and panelists that participated in the plenary sessions of the virtual GFETW

Mr Hrannar Már Ásgeirsson, MCS Officer, North-East Atlantic Fisheries Commission: Mr Hrannar Már Ásgeirsson started working for NEAFC as a Monitoring, Control and Surveillance (MCS) Officer in February 2019. Before joining NEAFC, Hrannar worked as a senior MCS expert for the Directorate of Fisheries in Iceland from 2013. As such he has built up expertise when it comes to data processing – utilization of databases and IT systems (VMS, ERS, landing data, logbook data, Port State data etc.), and presentation of information. Hrannar has participated in work of two Permanent Committees under two different Regional Fisheries Management Organizations (Northwest Atlantic Fisheries Organization [NAFO] and NEAFC) and various working groups under these committees. Furthermore, Hrannar controlled the Port State Control of Foreign Fishing Vessels landing in Iceland under NEAFC, NAFO and the Food and Agriculture Organization of the United Nations (FAO) provisions as well as landings of Icelandic vessels in foreign ports. Hrannar has a bachelor's degree in Political Science from the University of Iceland, a master degree in International Relations from Institut Barcelona d'Estudis Internacionals and Diploma from Rhodes Academy of Oceans Law and Policy.

Mr Claudio Baez Beltran, National Director of the National Fisheries and Aquaculture Service of the Government of Chile (SERNAPESCA): Claudio Báez Beltrán is the National Director of the National Fisheries and Aquaculture Service from Chile. He is a veterinarian by profession with a doctor's degree from the University of Concepción of Chile, and has a master's degree in Veterinary Sciences, with mention in Hygiene and Food Technology. Along his career he served as academic at the Faculty of Veterinary Medicine of the San Sebastián University and in the public sector headed the Department of Health Action of the Regional Secretariat of Health of Biobío region. In 2018 he joined the public fishing sector assuming the Regional Directorate of SERNAPESCA Biobío, one of the main fishing regions of the country. As of 01 July 2021, he was appointed as National Director of the National Fisheries and Aquaculture Service.

Mr Francisco Blaha, MCS Consultant: Francisco Blaha is widely experienced in an extensive range of fisheries areas having started out as fishing crew, scientific observer, fisheries researcher, fisheries officer for FAO, trainer, and fisheries consultant. He has worked in over 55 economies and for a wide range of international organizations and government agencies in the development area. He has also consulted for several commercial companies both in fishing and in technology and equipment. Francisco's present work focuses on institutional strengthening and capacity building in the MCS arena, particularly around Port State Measures and Catch Documentation Schemes. For the last 4 years he has worked as the Offshore Fisheries Advisor of the Marshall Islands Marine Resources Authority in Majuro, the busiest transshipment port in the world with over 450 events a year. He has a keen interest in fishermen's labor rights and the

value of data for MCS. He won the 2019 Seafood Champion Award from the Seaweb Summit for his advocacy work. Francisco holds two MSc degrees, one in Food Science (University of Auckland, New Zealand) and one in Fisheries Science (Universidad Nacional de Mar del Plata, Argentina) and a second Mate (Fishing Vessel) qualification (National Fisheries School, Mar del Plata, Argentina). He feels comfortable working in fishing vessels, ports, factories, university classrooms and institutional boardrooms (in that order preferably)

Dr Matthew Camilleri, Team Leader, Fisheries Global and Regional Responses Team, Food and Agriculture Organization of the United Nations (FAO): Dr Matthew Camilleri, graduated in fisheries science and ocean science from the University of Plymouth (UK) where he went on to obtain a Ph.D. in fisheries management. Dr Camilleri served as consultant to the Maltese government on fisheries management and as Head of the Malta Centre for Fisheries Sciences between 1998 and 2007. During that period, he played a key role in developing the Maltese fisheries sector and in building Malta's capacity to monitor and manage its fisheries in line with the European Union's Common Fisheries Policy. He also acted as national focal point for regional scientific projects of the Food and Agriculture Organization of the United Nations (FAO) and for scientific programs of the European Union. Dr Camilleri joined FAO in 2007 and is currently the Team Leader of the Fisheries Global and Regional Processes Team within the Organization. His responsibilities include the promotion and monitoring of the implementation of the FAO Code of Conduct for Responsible Fisheries and other international fisheries instruments, especially those aiming to combat illegal, unreported, and unregulated fishing. Dr Camilleri served as Technical Secretary for the FAO Technical Consultations which adopted the international Voluntary Guidelines for Flag State Performance and Voluntary Guidelines for the Marking of Fishing Gear. He also serves as Technical Secretary to the meetings of the Parties to the 2009 FAO Agreement on Port State Measures and leads FAO's capacity-development program on the implementation of the Agreement and complementary instruments.

Rear Admiral Scott Clendenin, United States of America Coast Guard Assistant Commandant for Response Policy: Rear Admiral Scott Clendenin serves as the US Coast Guard Assistant Commandant for Response Policy. He is responsible for US Coast Guard policy in seven operational mission areas, including emergency management and disaster response, defense operations, law enforcement, search and rescue, maritime security, counterterrorism, and marine environmental response. Previously in his career, he served afloat for fourteen years at sea on Coast Guard cutters conducting multi-mission patrols from Canada to South America in the Atlantic and Pacific, and throughout the Caribbean. In his first two tours at sea on cutters, he served as a Deck Watch Officer on board USCGC HARRIET LANE based in Portsmouth, VA, and as the Operations Officer on board USCGC SENECA based in Boston, MA. He then served as the Commanding Officer of four Coast Guard cutters, including USCGC NUNIVAK based in San Juan, PR, USCGC MONSOON based in San Diego, CA, USCGC CAMPBELL based in Portsmouth, NH, and USCGC HAMILTON based in Charleston, SC. His sea service included multi-ton narcotics seizures, illegal migrant smuggling interdictions, search and rescue, homeland security operations, defense operations, maritime mass migration response, and disaster response. He has also worked extensively with international partner nations in international maritime operations and engagement exercises. In his staff assignments ashore, he served as the Maritime Watch Coordinator at the Drug Enforcement Agency's El Paso Intelligence Center, the Coast Guard Attaché assigned to the US Defense Attaché Office in the Dominican Republic, Fellow to the Director of the National Security Agency, the first Deputy Commander of the

Coast Guard Cryptologic Group, and the Executive Assistant to the Director of Coast Guard Intelligence and Criminal Investigations. In addition, he served as the National Security Council Director for Central America and Caribbean Affairs and as the Executive Assistant to the Coast Guard Deputy Commandant for Operations. In his most recent assignment, he served as the Coast Guard Liaison Officer to the newly established interagency Transnational Organized Crime Strategic Division. His personal awards include two Legion of Merits, two Defense Meritorious Service Medals, seven Coast Guard Meritorious Service Medals, the Distinguished Service Medal of the Dominican Armed Forces, and other personal and unit awards. He holds a Certificate in Public Leadership from the Brookings Institution, a M.A. in National Security and Strategic Studies from the US Naval War College, Newport, RI, a M.S. in Strategic Intelligence from the Joint Military Intelligence College (now the National Intelligence University), and a M.A. in Human Resource Development and Management from Webster University, St. Louis, MO. He is a 1990 graduate of the US Coast Guard Academy.

Mr Duncan Copeland, Executive Director, Trygg Mat Tracking: Duncan Copeland is the Executive Director of Trygg Mat Tracking (TMT), a Norwegian not-for-profit that provides fisheries intelligence, analysis, and capacity support to developing coastal States and other relevant partners. He has worked on development and fisheries issues for nearly 20 years in roles as fisheries management and enforcement adviser to Governments, and as lead on oceans campaigns for NGOs. With a career focus on IUU fishing and fisheries crime in Africa in particular, Duncan's experience in this field has seen him work closely with all relevant stakeholders, from community to Ministerial level, and across all relevant enforcement agencies. Duncan has been with TMT since the organization's establishment in 2013.

Mr Duncan Currie, International and Environmental Lawyer, GLOBELAW: Duncan Currie is a practicing international and environmental lawyer. He holds an LL.B. (Hons.) from the University of Canterbury in New Zealand and LL.M. from the University of Toronto in Canada. He has practiced international law focusing on the ocean for over 30 years, and has advised a number of NGOs, corporations and governments on a wide range of environmental issues focusing on the law of the sea, including marine biodiversity, fisheries, and whales, as well as on climate change, biosafety, nuclear transport, biosafety, toxic and chemical issues, forestry, mining, renewable energy and waste issues. He advises the High Seas Alliance on BBNJ matters and Deep-Sea Conservation Coalition on bottom fishing and deep sea mining matters. He regularly attends meetings of the International Seabed Authority, South Pacific RFMO, SIOFA, and BBNJ negotiations.

Mr Martin Exel, Executive Director, SeaBOS: Martin has been in the seafood sector for 40 years; and with Austral Fisheries (an Australian seafood business) since 1997. He is also the Managing Director of SeaBOS (Seafood Business for Ocean Stewardship) since July 2019, which is a collaborative venture between ten of the world's largest seafood businesses, the Stockholm Resilience Centre in Sweden, as well as Lancaster University (UK) and Stanford University Centre for Ocean Solutions (USA). The aim of that collaboration is to lead a transformation to sustainable seafood production and a healthy ocean, globally. Martin has worked in various roles in seafood including from industry, government, and academia. He holds a Bachelor of Science from Victoria University of Wellington (NZ), a Graduate Diploma in Fisheries Technology from the Australian Maritime College and is a passionate recreational angler.

Mr Ian Freeman, Coastal Fisheries and Aquaculture Monitoring and Surveillance Specialist, Secretariat of the Pacific Community: Ian Freeman has 34 years of experience in various positions in fisheries in Australia and the Pacific. He joined The Pacific Community (SPC) in 2017 as the MCS and Enforcement (MCS&E) Specialist after spending the previous six years at FFA in Honiara, Solomon Islands. He worked at FFA as a Fisheries Management Adviser on offshore tuna fisheries and this involved development and implementation of tuna plans and policies for most of SPC's Pacific Island members. This experience has provided Ian with a fundamental understanding of the cultural importance of fisheries and its critical role in the community. In his role as the MCS&E specialist at the SPC, he is working with team members and regional partners (FFA and New Zealand Ministry of Primary Industries (NZ-MPI) to provide technical support and MCS&E advice to government Fisheries Departments at national and sub-national levels. This work also has a large focus on in-country training of coastal fisheries officers in partnership with fisheries officers from NZ-MPI and has been successfully conducted in Vanuatu, Kiribati, Kiribati, and Marshall Islands (Majuro). In today's COVID-19 impacted world, this training continues to be undertaken using virtual platforms. Ian has been responsible for overseeing the development of the Certificate IV in Coastal Fisheries and Aquaculture Compliance in collaboration with FFA, AFMA and NZ-MPI to complement the training modules they have developed for tuna fisheries. The course features training modules specific for coastal fisheries and aquaculture MCS&E and was accredited by the University of South Pacific in January 2018. Three cohorts of students have successfully completed the course with the fourth cohort commencing in May 2021. Ian is also developing a professional Certificate for Community Compliance Officers for individual countries based on their needs through stakeholder consultations, considering gender, culture and human rights needs in the country.

Ms Alicia Gallardo, Undersecretary of Fisheries and Aquaculture for the Government of Chile: Veterinarian from the University of Chile, with doctoral studies (PhD) in Veterinary Sciences from the same University. With 20 years of experience in public service, since April 2018 she has held the position of National Director of the National Fisheries and Aquaculture Service, SERNAPESCA, Chile. As of January 2021, she has been appointed as Undersecretary of Fisheries and Aquaculture. She leads the control of illegal fishing in Chile, one of the priorities of the government program. In this area, the implementation of reinforced inspection in the pelagic fishery (sardine - anchovy) in the southern zone of Chile with successful results in recent campaigns, as well as the development of surveillance programs based on technology (implementation of on-board cameras, remote monitoring, use of satellite images, among others) and the implementation of the landing certification. She has extensive experience in aquatic animal health, biosecurity in aquaculture production, disease prevention, control and eradication, risk analysis, import regulations and food safety of animal products, including fishing, as well as in microbiology and food science. In his professional management, he has served as an academic in these matters, and has participated in numerous forums and panels of experts at the national and international level. Since 2012 she has been a member of the OIE Aquatic Animals Commission and chair of the OIE ad-hoc group for the evaluation of the performance of veterinary services in aquatic animals, PVS. During 2020 she was appointed Lead Shepherd of the APEC Oceans and Fisheries Working Group (OFWG) for the period 2021-2022. The main challenges in this forum will be related to the fight against illegal fishing and marine waste, promoting the sustainable use of fishing, aquaculture and the resources of marine ecosystems and related goods and services, facilitating free and open trade in the region.

Mr Peter Horn, *Project Director, Ending Illegal Fishing, International Fisheries, The Pew Charitable Trusts*: Peter Horn is a Project Director in Pew's International Fisheries campaign. His team are based in the UK and USA, and seek to improve awareness of, and address, the challenges created by illegal, unreported, and unregulated fishing activity globally. Peter joined Pew in 2015 after serving for more than 30 years in the British Royal Navy, where he reached the rank of commander. He was invested as a Member of the Most Excellent Order of the British Empire in 1998. Peter holds a master's degree in intelligence and security studies from the University of Salford in the United Kingdom.

Ms Kristin Von Kistowski, *MCS and Compliance Expert, Fisheries Global and Regional Responses Team, Food and Agriculture Organization of the United Nations (FAO)*: Kristin has been working as International MCS and Compliance Expert for the UN FAO Fisheries Division since 2018. She is working with the Fisheries Global and Regional Processes Team where she currently focuses on in-country and cross-cutting work under the Global PSMA Capacity Development Programme supporting developing countries and SIDS to effectively implement the FAO Agreement on Port State Measures (PSMA) as well as complementary international instruments and regional mechanisms to combat IUU fishing. She is coordinating FAO's work on the FAO/ILO/IMO Joint Working Group on IUU fishing and related matters, the development of voluntary guidelines on transshipment and is in FAO's core team for the negotiations of a new agreement on Biodiversity in Areas Beyond National Jurisdiction. Before joining the FAO, Kristin managed and led projects on global ocean governance and combatting IUU fishing for WWF, the German development agency GIZ in its Global Program on Sustainable Fisheries and Aquaculture and for the Pew Charitable Trusts. She is one of the founders of FISH-i Africa, a network of eight East African countries sharing information and cooperating to combat IUU fishing in the Western Indian Ocean. Kristin has managed projects at the interface of science and policy for more than 20 years in governmental and intergovernmental organisations, in academia, and in NGOs. She is a biologist and population geneticist by training and holds a doctorate from the University of Kiel, Germany.

Commander Robert Lewis, *Royal Australian Navy, Surveillance Operations Officer, Pacific Islands Forum Fisheries Agency*: Commander Robert Lewis is seconded from the Royal Australian Navy (RAN) to the Pacific Island Forum Fisheries Agency (FFA) to conduct maritime surveillance operations and run the FFA Regional Fisheries Surveillance Centre (RFSC). Lewis joined the RAN in 2001 as a Maritime Warfare Officer and has a Bachelor of Science in Physics and Oceanography from the Australian Defense Force Academy. Lewis has an extensive knowledge of fisheries and surveillance operations from his experience as a Boarding Officer, Executive Officer and Commanding Officer of Australian Navy Patrol Boats and Landing Craft. Lewis also has a thorough experience of the Pacific as the Maritime Surveillance Advisor in Vanuatu and has conducted numerous operations throughout the region.

Mr Tony Long, *Chief Executive Officer, Global Fishing Watch*: Tony Long is Chief Executive Officer of Global Fishing Watch, an international nonprofit organization dedicated to advancing ocean governance through increased transparency of human activity at sea. Before joining Global Fishing Watch in 2017, Mr Long worked for The Pew Charitable Trusts, where he directed their global campaign to end illegal fishing. In this role, Long applied an integrated approach to combating illegal, unreported, and unregulated fishing by combining policy, technology, and enforcement efforts. During his tenure, he worked to promote ratification of the Port State Measures Agreement and pioneered the creation of a maritime monitoring system to provide authorities

with information to identify, sanction and deter illegal fishing. Mr Long joined the nonprofit sector after 27 years with the British Royal Navy where he commanded HMS BLYTH and HMS MONMOUTH. He later taught at the Defense Academy of the United Kingdom and provided planning and policy support to the head of the Navy and government ministers. A specialist in maritime surveillance, Mr Long has spent extensive time at sea, including patrols throughout the Atlantic Ocean, Persian Gulf, Indian Ocean, and the Far East. Mr Long holds a master's degree in defense studies from King's College London.

Ms Heather McCready, Director General of Conservation and Protection, Department of Fisheries and Oceans of Canada: Heather McCready, Director General of Conservation and Protection, joined Fisheries and Oceans Canada in December 2020 from Environment and Climate Change Canada (ECCC). At ECCC, Heather was the Director General of Environmental Enforcement, responsible for leading a team of 250 enforcement officers and staff located across Canada. During her decade of experience with the Enforcement Branch at ECCC, she held various leadership roles, including leading the organizational change and modernization of its Intelligence Program. She is co-chair of the Community of Federal Regulators' Enforcement Community of Practice and a member of the board of INTERPOL's Pollution Crime Working Group. She holds both a master's and bachelor's degree in Political Science, as well as bachelor's degrees in Civil Law and Common Law, from McGill University, and has completed the Strategic Management of Regulatory and Enforcement Agencies course at the Harvard Kennedy School of Government.

Dr Masanori Miyahara, Senior Advisor, RWE Renewables, Japan:

Ms Alicia Mosteiro, Fisheries Officer, Fisheries Global and Regional and Responses Team, Food and Agriculture Organization of the United Nations (FAO): Ms Alicia Mosteiro holds two Masters of Science in Marine Sciences from the University of Vigo, Spain, Marine Biology from the University of Calais, France, and a Master of Research in Fisheries Management from the University of Aberdeen, UK. Ms Mosteiro served as trainee in the European Commission, DG Mare (Brussels), fisheries analyst at the MarineLab Aberdeen, fisheries advisor for the Malta Centre for Fisheries Sciences, and fisheries advisor for the Ministry of Agriculture, Fisheries and Food, Spain. During that period, she played an important role developing and implementing the Malta Fisheries Data Collection Program, and conducting 15 scientific surveys at sea with France, Scotland, Malta, Italy, and Spain, mainly on biomass estimation and species identification through multifrequency acoustics. She has been chief scientist for the surveys conducted in Peru and Mediterranean under the Spanish Ministry. She has also been advisor of several international projects under FAO and AECID. Ms Mosteiro joined FAO in February 2010 where she worked on several areas including the Mediterranean registry of vessels and statistics on aquaculture facilities. In 2012 she joined the IUU fishing team initiating the design and development of the FAO Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels for which she is also the Technical Secretary of the Informal Open-Ended Technical and Advisory Working Group (GRWG) that meets annually. Ms Mosteiro currently coordinates the "Development and implementation of international fisheries instruments" under the Fisheries Global and Regional Processes Team. Under her various responsibilities, she is part of the Secretariat for the Agreement on Port State Measures (PSMA) where she is leading the design and development of the PSMA GIES and Technical Secretary to the PSMA Technical Working Group on Information Exchange (TWG-IE) that meets annually and reports to the Meetings of the Parties (MOP) to the PSMA. She has also coordinated work

for the first and second global studies on Transshipment and is currently coordinating the development of the draft Voluntary Guidelines on Transshipment. She's part of the Secretariat for the FAO/ILO/IMO Joint Working Group on IUU Fishing and Related Matters. Ms Mosteiro contributes to several initiatives under the FAO Global Capacity Development Program to support the implementation of the PSMA and other complementary initiatives and tools to fight IUU fishing, including among others, overall coordination of the program, development of a training program, Technical Guidelines for the Estimation of IUU fishing.

Mr Seraphin Dedi Nadje, Secretary General of the Fisheries Committee for the West Central Gulf of Guinea (FCWC/CPCO): Mr Dedi is a national of Côte d'Ivoire and brings many years of experience in regulation and MCS of fisheries operations in the Western Gulf of Guinea. With a background education in natural resources management and as a former National Director of Fisheries in Cote d'Ivoire, Mr Dedi has built extensive experience in fisheries planning and management, illegal, unreported, and unregulated (IUU) fishing, fisheries MCS, participatory governance, training, fisheries agreements, and negotiations on international instruments. Under his leadership, FCWC has grown into the key regional coordination body, supporting the six Member States to engage in international processes, such as the FAO Agreement on Port State Measures (PSMA), the Cape Town Agreement and information sharing through the Global Record of Fishing, Refrigerated Transport and Supply Vessels. In 2020, Mr Dedi was selected to be part of the peer reviewers of the ICCAT report on the business ecosystem of transshipment operations in the Atlantic.

Mr Wez Norris, Chief Executive Officer, Australia Fisheries Management Authority (AFMA): Wez Norris is the Chief Executive Officer of the Australian Fisheries Management Authority, Australia's fisheries regulator. Wez has been a fisheries regulator for over 20 years and has worked across numerous fisheries within Australia, as well as serving the FFA for 10 years, including five years as the Deputy Director-General delivering multilateral outcomes for the Pacific region. He has worked on a number of significant fisheries reform projects and is an avid supporter of continual improvement in Monitoring, Control and Surveillance, particularly through the adoption of new technologies and enhanced regional and international collaboration. Wez holds a bachelor of Applied Science in Natural Systems and Wildlife Management from the University of Queensland.

Mr Gary Orr, Chair IMCSNET and Director of Compliance at the New Zealand Ministry for Primary Industries: Gary is the Director of Compliance at the Ministry for Primary Industries (MPI) in New Zealand. He has been in the role since May 2019. He previously held the role of National Manager Compliance Investigations at MPI. He leads a team of almost 400 enforcement officers that have responsibility for the enforcement of all legislation relating to primary industries such as fisheries, forestry, food safety and biosecurity. The 150 staff dedicated to fisheries enforcement are responsible for all enforcement work within the New Zealand EEZ as well as adjacent high seas areas and provide support to capability development programs with Pacific fisheries enforcement personnel. Gary started in fisheries enforcement 20 years ago and specialized in investigations and international fisheries enforcement. He was a member of the Board of the Interpol Fisheries Crime Working Group for many years and was recently elected as Chair of the International Monitoring, Control and Surveillance Network for a period of four years. Prior to starting his fisheries enforcement career, Gary was a New Zealand Police Officer for 23 years.

Mr Allan Rahari, Director of Fisheries Operations (DFO), Pacific Islands Forum Fisheries Agency (FFA): Allan Rahari is the Director of Fisheries Operations with the FFA. He leads the FFA's program of work to combat Illegal Unreported and Unregulated (IUU) fishing in the Pacific region through implementation and delivery of robust Monitoring, Control and Surveillance (MCS) programs at regional and national level. Prior to taking up this current role, he previously held three FFA positions as Surveillance Operations Assistant, Monitoring Control and Surveillance Specialist and Surveillance Operations Officer. Before joining FFA, he was a Commanding Officer on Solomon Islands Patrol Boats and later became Chief of Staff for the Royal Solomon Islands Police Force. Allan had vast knowledge and experiences in maritime law enforcement and fisheries compliance and policy and holds a degree in Masters of Fisheries Policy from University of Wollongong and seagoing certificate of competency from the Australian Maritime College. He is from Solomon Islands and have worked for the FFA for over ten years.

Ms Kerry Smith, Senior Manager, International Compliance, Australia Fisheries Management Authority (AFMA): Kerry has almost two decades of experience working in fisheries, across intelligence, licensing, compliance, and operational policy roles at the Australian Fisheries Management Authority. Kerry has led diverse teams, tasked with delivering Australian government objectives relating to detecting and deterring illegal, unreported, and unregulated fishing in Australian waters and the adjacent high seas. She has experience in multilateral roles representing Australia at various regional fisheries management organizations on a range of fisheries matters, leading development of compliance monitoring schemes and electronic reporting and electronic monitoring. Kerry holds a bachelor of Science (Zoology and Ecology) from the University of Melbourne and a Post Graduate Diploma in Fisheries Management from the Australian Maritime College.

Mr Mark Ssemakula, Vice-Chair, Stop Illegal Fishing (SIF): Mark plays a lead role in representing the work of SIF in international fora as well as in supporting SIF behind the scenes. Mark has a background in fisheries science and environmental management and has experience in both fisheries compliance and policy development.

Mr Osvaldo Urrutia, Legal Advisor, International Fisheries, Government of Chile: Osvaldo Urrutia. Legal adviser on ocean and fisheries affairs, Government of Chile. Lecturer, international law at PUCV (Chile). Currently based in Wellington, doing research at VUW.

Mr Mark Young, Executive Director of the IMCSNET: Mark Young is currently the Executive Director of the International, Monitoring, Control, and Surveillance (MCS) Network. He has over 30 years of experience working in fisheries compliance and enforcement and a broad interdisciplinary background in international relations and maritime law enforcement including twenty-three years in the United States of America Coast Guard. He holds a master's degree in Marine Policy from the University of Washington and previously spent three years as the Director of Fisheries Operations at the FFA and over five years as a Senior Manager with The Pew Charitable Trusts on their Ending Illegal Fishing Project. Mark brings to the table extensive expertise in international and domestic fisheries compliance and enforcement mechanisms and their intersection with fisheries management and policy development including wide exposure to facilitating bilateral and multilateral cooperation to combat Illegal, Unreported and Unregulated (IUU) fishing and the use of MCS tools such as VMS, fisheries observer programs, aerial and surface monitoring and surveillance and electronic monitoring and reporting.

Appendix 3 Registered participants

The participants have been filtered by which country their organization is based or otherwise affiliated.

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First virtual Global Fisheries Enforcement Training Workshop

Held online, 13–14 July 2021

This document contains the proceedings of the IMCSNET's first ever virtual GFETW, which took place online on 13–14 July 2021. Nearly 600 Monitoring, Control, and Surveillance (MCS) practitioners from around the world, as well as other fisheries stakeholders and organizations, registered to participate in the online conference, which consisted of a schedule of speakers, presentations, panel discussions, and interactive discussion rooms. In addition, the virtual platform software utilized for the GFETW facilitated the ability for participants to create and use private meeting rooms for networking sessions, as well as an online chatting function.

One of the primary focuses of the IMCSNET is to increase fisheries MCS cooperation and collaboration between Member countries, especially with and between developing country Members. The virtual conference included participants from both developing and developed nations as well as stakeholder organizations involved in fisheries MCS. The overall theme of the virtual GFETW was *"Illuminating the unknowns – Global cooperation to eliminate the "U's" from Illegal, Unreported, and Unregulated (IUU) fishing"*. The GFETW focused on an interactive format highlighting three interactive panel discussions on emerging MCS areas of interest or challenges. The event also included MCS papers, presentations, and short videos relevant to one of the following four GFETW themes: cooperation and partnerships, risk assessment and analysis, technology as an enabler, and transparency.

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