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EMPOWERING WOMEN IN SMALL-SCALE FISHERIES FOR SUSTAINABLE FOOD SYSTEMS IN ASIA AND THE PACIFIC ........... 8
By Joe Zelasney, Jariya Sornkliang, Lena Westlund, and Alyssa Thomas

Gender equity and equality are fundamental guiding principles in FAO’s Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty-Eradication (SSF Guidelines), ideals which are also closely aligned with the overarching objectives and approach in the 2030 Agenda for Sustainable Development. Women comprise almost half of the workforce in small-scale fisheries; however, their contribution to food security, income generation and community resilience is under-valued. To redress this deficit, gender perspectives need to be mainstreamed into fisheries and aquaculture programmes and policies at the local, national, and international level.

“GLASS CEILING” IN THE SEAFOOD INDUSTRY? WHAT SHOULD BE DONE? ...................................................... 57
By Marie Christine Monfort

There has been an increase in the representation of women at the top levels of the seafood industry, but progress has been slow due to, among other factors, entrenched mindsets and the tendency of companies to pay more attention to issues such as the environment and sustainability. The message must go out that gender inequality is not only unfair, it also affects the profitability of businesses. Highlighting the gender gap, making the invisible visible, and raising the consciousness of leaders that their business is based on gender inequalities, represent the first move to address the challenges and make changes happen.

MARINE PLASTIC POLLUTION IN INDONESIA ........................................................................................................ 65
By Filthriyyah, Yoga Pratama I Tobing, and Garry Marpahiko

With a population of 250 million, Indonesia produces 3.2 million tonnes of unmanaged plastic wastes a year. 1.29 million tonnes of which ends up in the sea. These wastes have a deleterious effect on the vast marine biodiversity in the seas, impacting upon the sustainability of marine life in the country’s waters. The government is taking steps to deal with marine plastic pollution through several strategies such as the 2017-2025 Plan of Action on Marine Plastic Debris which aims to reduce marine plastic waste by up to 70% by 2025. However, inter-sectional collaboration between the government and other stakeholders in the country is required to solve the marine plastic pollution, starting from its source.

FISHING//
HILSA FISHERY IN BANGLADESH: A TRIUMPH OF INCENTIVE-BASED MANAGEMENT ........................................... 27
By Masud Ara Mome and Sujit Krishna Das

Stocks of hilsa shad, often called the national fish of Bangladesh, experienced a decline in the early 1990s due to overfishing (particularly of juveniles and gravid fish), and disruption of migration routes, among others. Through the Hilsa Fisheries Management Action Plan, the Government has successfully reversed the decline, from 0.298 million tonnes in 2008-2009 to 0.533 million tonnes in 2018-2019. Some interesting aspects in the Plan are the creation of fish sanctuaries and fishing bans on one side, while at the same time providing incentives to the fishers whose lives are impacted by the bans.

SOCIAL ACCOUNTABILITY AT SEA................................................................. 34
By Katherine Short

In recent times with the success of the sustainable seafood movement, attention has necessarily turned to addressing social accountability at sea. The clear message must be that labour abuses are not acceptable in the seafood supply chain, and one way to demonstrate this is to benchmark against internationally accepted guidelines such as those developed by the not-for-profit organisation, On-board Social Accountability (OSA) International Ltd. OSA’s constantly updated benchmark tool encompasses criteria from all global schemes, guidelines and criteria. It has been successfully trialed in Austral Fisheries and Frabelle Fishing and is now being deployed in RD Fishing, both the latter being members of the Papua New Guinea Fishing Industry Association.

PAPUA NEW GUINEA: CERTIFIED TUNA FISHERY DEVELOPS A RESPONSIBLE SOURCING POLICY ............................................. 52
By Marcelo Hidalgo

Since 2016, the Fishing Industry Association of Papua New Guinea (FIA PNG), in collaboration with the National Fisheries Authority (NFA), the Marine Stewardship Council (MSC) and others, has focused successfully on elevating responsible management of the country’s tuna fisheries. Its activities are based on four main pillars: Marine Stewardship Council certification (MSC), Catch traceability in the supply chain; Marine litter and fishing gear management practices; and Social accountability. The Association feels that in maintaining this focus, seafood supply chains can become more environmentally sustainable and socially responsible over time.

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UN Secretary-General’s Special Envoy for the Ocean; and Co-Chair, Friends of Ocean Action

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Vice-President of the Nadeshiko Sushi restaurant; Principal and CEO of the Nadeshiko Sushi School; first female sushi chef in Japan.

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Cover image: Tuna is a favourite ingredient in sushi and sashimi dishes.
Credit: Yuki Chidui/Nadeshiko Sushi
The functionality of a Swiss army knife

A lot of ingenuity is needed to solve the technical problems of our technological society. In the early 20th century, the Swiss army presented Karl Elsener with a challenge that seemed impossible at that time: To create a multi-purpose, small, versatile, tough and functional tool. The inventor shut himself in his workshop at the foot of the Alps and invented one of the most highly valued utensils in history. Today it is a brand that represents values such as quality, functionality and adaptation to the market. In Hermasa we see the story of the Swiss army knife as an example to follow: behind its simple handling, you can find continuous innovation and functionality. Over the years, Hermasa has also become an example to follow. Because it solves the problems of companies and its “turnkey” service enables us to deliver complete customised production lines and factories anywhere in the world. This is why we say “You supply the fish and we will supply you with the factory”.

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It’s been three years since the last INFOFISH World Tuna Trade Conference & Exhibition and so much has changed since then. COVID-19 has upended all of our lives and businesses since early last year, and although vaccination programmes are rolling out more or less successfully in many countries, the light at the end of the tunnel continues to seem distant: we may be at the end of the beginning, not the beginning of the end. We still cannot know what post-COVID “normal” will be, or how a “new normal” will look. It seems unlikely that we will simply revert to the status quo ante. Much of our industry has been at the frontlines of the crisis, but in spite of the many difficulties and risks, the industry’s wheels have continued to turn — and very effectively too, during times when retail demand increased significantly even if food service was very hard hit. It’s a huge credit to all the workers around the world in fishing and transport vessels, processing plants, distribution centres and retailers, who didn’t fail to keep the tuna wheel turning. They are amongst the heroes of this pandemic. Meanwhile our tuna world continues to evolve, despite COVID’s disruptions. Social accountability, and in particular the working conditions of employees at sea and ashore has quite rightly become a critical focus for us. Resource sustainability continues to be a concern in some oceans and for some species. We also see a growing demand for products sourced from certified fisheries, and a matching growth in the movement of fisheries towards certification. The tuna RFMOs in each ocean area are key to effective management of tuna stocks. We should all give those RFMOs our full support, including, where appropriate, our own market-based actions, to help them take prompt and necessary action to manage tuna stocks effectively.

We also see the rise of plant-based protein products. Considered to be niche or specialty items only a few years ago, these products are becoming mainstream as prices fall and they gain consumer acceptance. We should welcome the addition of alternative proteins to the market, knowing that these products are unlikely to be as good as wild tuna, but we should also insist that they are not labelled as “tuna” — because they are not. We also hope that these products can be marketed positively, not simply by attacking the seafood industry or by spreading misinformation and propaganda.

One of the many lessons of COVID is the value of strong, sustainable supply chains, and the people that make them work. COVID may (we hope) be a “once in a century” event, and as we emerge from it, we must build on our strengths, and push on at full speed with the many sustainability initiatives that are already underway. If we look back fifteen years, we can see that the sustainability landscape/seascape is very different from today. We have made much progress in many areas and we continue to move in the right direction, but there is still much more to be done, and much of it requires us to work together.

The World Tuna Trade Conference is the world’s premier tuna event, and this year, TUNA 2021 will be online from 19th to 21st May. Many of us have learned to use video conferencing programmes over the past year – crash courses for some of us! We are truly fortunate that technology allows us to meet online, something impossible until quite recently. We have a large panel of excellent speakers, many of them leaders in their respective spheres, and I’ve no doubt that they will have much of interest to tell us. Our online experience this year will be good, but just as tuna swim in schools, tuna people are gregarious, and nothing will replace the value and pleasure of in-person meetings. We therefore look forward to meeting again in 2022 in the great city of Bangkok!

Mr. Phil Roberts
Managing Director
Tri Marine International Pte Ltd
Singapore
Resúmenes de los principales artículos

Empoderar a las mujeres en la pesca en pequeña escala para los sistemas alimentarios sostenibles en Asia y el Pacífico ................................................................. 8

Por Joe Zelasney, Jariya Sornkliang, Alyssa Thomas, y Lena Westlund

La equidad y la igualdad de género son principios rectores fundamentales de las “Directrices voluntarias de la FAO para lograr la sostenibilidad de la pesca en pequeña escala en el contexto de la seguridad alimentaria y la erradicación de la pobreza” (Directrices PPE), ideales que también están estrechamente alineados con los objetivos y el enfoque de la Agenda 2030 para el Desarrollo Sostenible. Sin embargo, aunque las mujeres representan casi la mitad de la fuerza laboral en la pesca en pequeña escala, su contribución a la seguridad alimentaria, la generación de ingresos y la resiliencia de la comunidad todavía está infravalorada. Para corregir este déficit, las perspectivas de género deben integrarse por completo en más programas y políticas de pesca y acuicultura a nivel local, nacional e internacional.

La pesquería de sábalo hilsa en Bangladesh: un triunfo de la gestión basada en incentivos ................................................................. 27

Por Masud Ara Mome y Sujit Krishna Das

Las poblaciones de sábalo hilsa, a menudo llamado el pez nacional de Bangladesh, experimentaron una disminución a principios de la década de 1990 debido a la sobrepesca (particularmente de juveniles y peces grávidos) y a la interrupción de las rutas migratorias, entre otros factores. A través del Plan de Acción de Gestión Pesquera del Sábalo Hilsa, el Gobierno ha revertido con éxito esta caída, de 0,298 millones de toneladas en 2008-2009 a 0,533 millones de toneladas en 2018-2019. Algunos aspectos interesantes del plan son la creación de santuarios marinos y la implementación de vedas pesqueras, como también los incentivos a los pescadores cuyas vidas se ven afectadas por dichas vedas.

Responsabilidad social en el mar ......................................................................................................................................................... 34

Por Katherine Short

En los últimos tiempos, con el éxito de los productos pesqueros sostenibles, la atención se ha centrado necesariamente en el abordaje de la responsabilidad social en el mar. El mensaje debe ser claro, los abusos laborales no son aceptables en la cadena de suministro de los productos pesqueros, y una forma de demostrarlo es hacer la comparación con las directrices aceptadas internacionalmente, como las desarrolladas por la organización sin fines de lucro On-board Social Accountability (OSA) International Ltd. La herramienta de referencia de OSA, que se actualiza constantemente, abarca criterios de todos los esquemas y directrices globales. Se ha probado con éxito en Austral Fisheries y Frabelle Fishing, y ahora se está implementando en RD Fishing.

Papúa Nueva Guinea: la pesquería de atún certificada desarrolla una política de abastecimiento responsable ..........52

Por Marcelo Hidalgo

Desde 2016, la Asociación de la Industria Pesquera de Papúa Nueva Guinea (FIA PNG), en colaboración con la Autoridad Nacional de Pesca (NFA), el Marine Stewardship Council (MSC) y otros organismos, se ha centrado con éxito en mejorar la gestión responsable de las pesquerías de atún del país. Sus actividades se basan en cuatro pilares fundamentales: certificación del Marine Stewardship Council (MSC); trazabilidad de la captura en la cadena de suministro; prácticas de manejo de basura marina y artes de pesca; y responsabilidad social. La asociación considera que al mantener este enfoque, las cadenas de suministro de los productos pesqueros pueden volverse más ambientalmente sostenibles y socialmente responsables con el tiempo.

¿“Techo de cristal” en la industria pesquera? ¿Qué debe hacerse? ......................................................................................................................................................... 57

Por Marie Christine Montfort

Se ha observado un incremento de la representación de las mujeres en los niveles más altos de la industria pesquera, pero el progreso ha sido lento debido, entre otros factores, a una mentalidad cerrada y a la tendencia de las empresas a prestar más atención a cuestiones como el medio ambiente y la sostenibilidad. Se debe difundir el mensaje de que la desigualdad de género no solo es injusta, sino que también afecta la rentabilidad de los negocios. Resaltar la brecha de género, hacer visible lo invisible y concientizar a los líderes de que su negocio presenta desigualdades de género, representa el primer paso para abordar los desafíos y hacer que los cambios se produzcan.

Contaminación marina por plástico en Indonesia ................................................................. 65

Por Fithriyyah, Yoga Pratama L Tobing y Garry Marpahiko

Con una población de 250 millones, Indonesia produce 3,2 millones de toneladas de desechos plásticos mal gestionados al año, de los cuales 1,29 millones de toneladas terminan en el mar. Estos desechos tienen un efecto nocivo sobre la vasta diversidad biológica marina, lo que repercute en la sostenibilidad de las aguas del país. El gobierno está tomando medidas para hacer frente a la contaminación marina por plástico a través de varias estrategias, como el “Plan de Acción 2017-2025 sobre Desechos Plásticos Marinos”, cuyo objetivo es reducir este tipo de desechos hasta en un 70% para 2025. Sin embargo, se requiere de la colaboración intersectorial entre el gobierno y otras partes interesadas en el país para que resuelvan el problema de la contaminación marina por plástico, comenzando desde su procedencia.
Résumés des articles de fond

L’autonomisation des femmes des pêches artisanales dans le cadre du système de durabilité alimentaire en Asie et dans le Pacifique .................................................................8
Par Joe Zelasny, Jariya Sornkiat, Alyssa Thomas et Lena Westlund

L’équité et l’égalité du genre sont des principes directeurs fondamentaux des Directives Volontaires de la FAO pour la Sécurisation de la Pêche Artisanale Durable dans le contexte de la Sécurité Alimentaire et de l’éradication de la pauvreté (Directives SSF), idéaux qui sont également étroitement alignés sur les objectifs et l’approche globale du Programme de Développement Durable à l’horizon 2030 de l’agence du Développement Durable. Cependant, en réalité, bien que les femmes représentent près de la moitié de la main-d’œuvre dans la pêche artisanale, leur contribution à la sécurité alimentaire, à la génération de revenus et à la résilience des communautés est encore sous-estimée. Pour combler ce déficit, les perspectives du genre doivent être largement intégrées dans beaucoup de programmes et de politiques de pêche et d’aquaculture aux niveaux local, national et international.

La pêche de Hilsa au Bangladesh : Un triomphe de la gestion incitative .................................................................27
Par Masud Ara Mome et Sujiit Krishna Das

Les stocks d’alose hilsa, souvent appelé poisson national du Bangladesh, ont connu un déclin au début des années 1990 en raison de la surpêche (en particulier des juvéniles et des poissons gravides) et de la perturbation des voies de migration, entre autres. Grâce au plan d’action de gestion des pêches de Hilsa, le gouvernement a réussi à inverser la tendance, passant de 0,298 million de tonnes en 2008-2009 à 0,533 million de tonnes en 2018-2019. Certains aspects intéressants du plan sont entre autres, la création de sanctuaires de poisson et les interdictions de pêche d’un côté, tout en offrant des mesures d’incitation aux pêcheurs dont la vie est affectée par les interdictions.

Responsabilité sociale en mer ........................................................................................................................................34
Par Katherine Short

Ces derniers temps, avec le succès du mouvement des produits de la mer durables, l’attention s’est nécessairement tournée vers la responsabilité sociale en mer. Le message clair doit être que les abus au travail ne sont pas acceptables dans la chaîne d’approvisionnement des fruits de mer, et une façon de le démontrer est de se conformer aux directives internationalement acceptées telles que celles développées par l’organisation à but non lucratif, On-board Social Accountability (Responsabilité Sociale à bord des navires) (OSA) International Ltd. L’outil de référence constamment mis à jour d’OSA englobe les critères de tous les programmes, directives et critères mondiaux. Il a été testé avec succès dans Austral Fisheries et Frabelle Fishing et est actuellement déployé dans RD Fishing, ce dernier étant tous deux membres de l’Association de la Pêche de Papouasie-Nouvelle-Guinée.

Papousaie Nouvelle Guinée : La pêche thonière certifiée développe une politique d’approvisionnement responsable ..................................................................................................................52
Par Marcelo Hidalgo

Depuis 2016, l’Association de l’Industrie de la Pêche de Papouasie-Nouvelle-Guinée (FIA PNG), en collaboration avec l’Autorité Nationale des pêches (NFA), le Marine Stewardship Council (MSC) et d’autres, s’est focalisée avec succès sur l’amélioration de la gestion responsable des pêcheries thonières du pays. Ses activités reposent sur quatre piliers principaux : la certification Marine Stewardship Council (MSC) ; la traçabilité des captures dans la chaîne d’approvisionnement ; les pratiques de gestion des déchets marins et des engins de pêche ; et la responsabilité sociale. L’Association estime qu’en maintenant cette orientation, les chaînes d’approvisionnement des fruits de mer peuvent devenir plus durables sur le plan environnemental et socialement responsables au fil du temps.

“Plafond en verre” dans l’industrie des fruits de mer ? Qu’est-ce qui devrait être fait? .................................................................57
Par Marie Christine Monfort

Il y a eu une augmentation de la représentation des femmes aux plus hauts niveaux de l’industrie des fruits de mer, mais les progrès ont été lents en raison, entre autres facteurs, de mentalités bien ancrées et de la tendance des entreprises à accorder plus d’attention à des questions telles que l’environnement et la durabilité. Le message doit être diffusé que l’inégalité entre les sexes n’est pas seulement injuste, elle affecte également la rentabilité des entreprises. Mettre en évidence l’écart entre les sexes, rendre visible l’invisible et il faut sensibiliser les dirigeants sur le fait que leur entreprise est basée sur les inégalités entre les sexes, représente la première étape à prendre en compte pour relever les défis et apporter des changements.

La pollution marine par les objets en plastique en Indonésie ...............................................................................................................65
Par Fithriyyah, Yoga Pratama I Tobing et Garry Marpahiko

Avec une population de 250 millions d’habitants, l’Indonésie produit 3,2 millions de tonnes de déchets plastiques non gérés par an, dont 1,29 million de tonnes finissent dans la mer. Ces déchets ont un effet néfaste sur la vaste biodiversité marine, ce qui a un impact sur la durabilité de la vie marine dans les eaux du pays. Le gouvernement prend des mesures pour lutter contre la pollution marine par les objets en plastique à travers plusieurs stratégies telles que le Plan d’Action 2017-2025 sur les débris en plastique en mer qui vise à réduire les déchets marins en plastique jusqu’à 70 % d’ici 2025. Cependant, une collaboration intersectorielle entre le gouvernement et les autres parties prenantes du pays sont tenus de résoudre la pollution marine par les objets en plastique, à partir de sa source.
**Article Abstracts**

**Empowering Women in Small-Scale Fisheries to Promote Sustainable Food Systems in Asia and the Pacific**

*Gu Yuanyuan*

Gender equality and fairness are fundamental principles in the UN Food and Agriculture Organization's *Voluntary Guidelines for Responsible Small-Scale Fisheries* (SSF Guidelines), which are closely related to the overall goals and actions of the *2030 Agenda for Sustainable Development.* Although women make up nearly half of the small-scale fisheries workforce, their contributions to food security, revenue generation, and overcoming challenges are often underestimated. To address this, it is essential to incorporate gender perspectives into more fisheries and aquaculture plans and policies at local, national, and international levels.

**The Cat_allocation of Hilsa Fisheries: Success in Incentive-based Management**

*Masud Ara Mome & Sujit Krishna Das*

Due to overfishing (especially culling of young individuals) and the disruption of migration routes, the hilsa fishery in Bangladesh experienced a decline in the early 2000s. Through the *Hilsa Fisheries Management Action Plan*, the government successfully扭转了跌势, hilsa fish populations increased from 29.8 million tonnes in 2008-2009 to 53.3 million tonnes in 2018-2019. The plan's novelty was in establishing fish reserves and implementing seasonal closures while providing incentives for the fishermen affected.

**Maritime Responsibility**

*By Katherine Short*

In recent years, efforts to ensure sustainable seafood production have been gaining momentum, with a significant focus on addressing maritime responsibility. It is clear that abuse of labor in the seafood supply chain is not tolerated, and this is reflected in the global implementation of international standards, such as the OSA International Company's标杆工具, which encompasses all global plans, guidelines, and standards. It has been successfully tested in *Austral Fisheries* and *Frabelle Fishing*, and is now being used by *RD Fishing*, a member of the *Papua New Guinea Fishing Industry Association*.

**Papua New Guinea: The Golden Stage of Yellowfin Tuna Fisheries Established Responsible Procurement Policies**

*By Marcelo Hidalgo*

Since 2016, the *Papua New Guinea Fishing Industry Association* (FIA PNG) and the *National Fisheries Authority* (NFA) have been working with the *Marine Stewardship Council* (MSC) to ensure the responsible management of the country's yellowfin tuna fisheries. Its activities are based on four main pillars: *Marine Stewardship Council* certification, supply chain traceability, waste management, and social responsibility. The association believes that maintaining this focus will help the seafood supply chain be more sustainable and responsible.

**Is the Seafood Industry’s “Glass Ceiling”? What Should Be Done?**

*By Marie Christine Monfort*

Women’s representation in the seafood industry’s highest echelons is increasing, but progress is slow, primarily due to deeply rooted perceptions and companies focusing more on environmental and sustainability issues. It is crucial to convey the message that gender inequality is not only unfair, but also affects business profitability. Emphasizing gender gaps can raise awareness among leaders of the seafood industry, who can take steps to address the issue.

**Indonesia’s Marine Plastic Pollution**

*Fithriyyah, Yoga Pratama L Tobing, and Garry Marpahiko*

Indonesia, with its 2.5 billion population, produces 320 million tons of unmanaged plastic waste annually. Of this, 129 million tons end up in the ocean, posing a threat to marine biodiversity and ecosystem sustainability. Indonesia has established strategies to address this issue, such as the *2017-2025 Marine Plastic Debris Action Plan*, which aims to reduce marine plastic waste by 70% by 2025. This requires the government and other stakeholders to take decisive action to combat marine plastic pollution.
خلاصة لأهم المقالات

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مكين المنزل الت페이지 التوجه من النظام الغذائي المحتوي في أمين والمحيط الهادئ

Lena Westlund و Alyssa Thomas و Jariya Sornklang و Joe Zelasney

اهمية الترويج الاجتماعي للاستراتيجيات من النظام الغذائي المحتوي على الأطعمة المعدة للتصدق من التوجهات الاجتماعية والثراء لعدد الأم المتعة (افاناء) ملتزمًا، و باعتبارها مثل تراتيس أيضا بشكل وقلي مع الأطعمة والبهارات. و يتم ذلك في قضايا مثل التوجهات الاجتماعية والثروة على قضايا مثل التوجهات الاجتماعية والثروة على قضايا مثل التوجهات الاجتماعية والثروة.

2017 للفترة الممتدة من من خلال عدة استراتيجيات مثل خطة العمل البلاستيكية للتعامل مع التلوث البحري و فضول الدخول و قدرة المجتمع على الصعود. تركز هذه النصوص على تعليم الممارسات بين الجنسين على نطاق واسع من خلال راهجها ضمن المزيد من برامج وسياسات شهرات الأسماك استنادا إلى المستوى المحلي والوطني والدولي.

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صدام السمك في بنغالور: ناجحة الإدارة القائمة على الفرص

Sujit Das و Masud Ara Mome

و بلد حذر، والذي غالبا ما تكون على البلدان المعنية بنجاحات، انخفاضًا في أوائل التسعينيات بسبب الصيد المفرط (إذا ما صغار الأسماك و أساسيات البحري) ، و تعطيل طرق الهجرة، من بين أمور أخرى. و من خلال خطة عمل إدارة مصرى الأسماك في هيلسا، نجحت الحكومة في رفع الانتشار للمؤتمر. واحتضنت منازل المخزون من الأسماك، و باقتراح حلول بديلة، مثل "Frappelle Fishing" و "Austral Fisheries".

مساحة المجتمعية في المجال البحري

Katherine Short

هاكية تطبيق ارتفاع الأسماك مع استمرار وجود مجموعة متنوعة من الأسماك في العالم، و ذلك ليس بسبب النقص بين الجنسين في مشاكل من خلال خطة عمل لتطوير الأسماك في بلدان معينة. و تتضمن الأدوار الرئيسية من خلال تطبيق هذه النصوص على نطاق واسع من خلال راهجها ضمن المزيد من برامج وسياسات شهرات الأسماك استنادا إلى المستوى المحلي والوطني والدولي.

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بابوا غينيا الجديدة: تطور صناعة الصيد في عام 2016

Marcello Hidalgo

ركزت راحة مناصب الأسماك في بابوا غينيا الجديدة خلال عام 2016، بفضل اللحاء، نجاح رفع مستوى الأسماك في العالم. و في الصحافة، بل أن الهدف من خلال ذلك، هو إقامة صناعة الأسماك في مجال مستدام للجهود في مجال المستدام للجهود. و بمثل "Frappelle Fishing" و "Austral Fisheries".

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أوا غينيا الجديدة: تطور صناعة الأسماك في العالم

Joe Zelasney

ركزت راحة مناصب الأسماك في بابوا غينيا الجديدة خلال عام 2016، بفضل اللحاء، نجاح رفع مستوى الأسماك في العالم. و في الصحافة، بل أن الهدف من خلال ذلك، هو إقامة صناعة الأسماك في مجال مستدام للجهود في مجال المستدام للجهود. و بمثل "Frappelle Fishing" و "Austral Fisheries".

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النجم البحري في منطقة التوجهات الاجتماعية

Marie Christine Monfort

هناك ارتفاع الأسماك في منطقة التوجهات الاجتماعية، إلا أن ذلك كان ليسما غير متوقع. و بناءً على ما لاحظناه من خلال التوجهات الاجتماعية، نحن نستند إلى تجربة دردشة ببابوا غينيا الجديدة، و ذلك ليس بسبب النقص بين الجنسين في مشاكل من خلال خطة عمل لتطوير الأسماك في بلدان معينة. و تتضمن الأدوار الرئيسية من خلال تطبيق هذه النصوص على نطاق واسع من خلال راهجها ضمن المزيد من برامج وسياسات شهرات الأسماك استنادا إلى المستوى المحلي والوطني والدولي.

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وثيقة البحري في إنديانوي

Garry Marpahiko و Yoga Pratama L Tobing و Fitriyeh

.Blغ عدد سكان إنديانوي 250 مليون نسمة، و تقع في الصيد في منطقة رأس الخيمة المحيطية و نزلة. و معها 129 مليون طن من الأسماك واللافتة، و منها 6.2 مليون طن يتمهم مصيدة في البحر. و هذه القبائل تثير ضرا على النظم التوجيهية البحري كبير في البحر، بما يدور على توجهات التوجهات الاجتماعية في جهة البلد. و تحتوي الحكومة على عدد إجراءات معناة بالأسماك في البلد الرئيسية من خلال عدة استراتيجيات مثل خطة العمل للمنطقة المدمرة من 2017 إلى 2025. أن النظم التوجيهية البحري التي تهدف إلى تقليل من الأسماك البحرية بنسبة تصل إلى 70% بحلول سنة 2025 و بالرغم من ذلك، فإن التوقعات أن مثل خطط التوجيهية و ما يذكرون في هذه الدراسات بخصوص استخدام الأسماك في سلسلة ضمن العمل الأعلى من البداية، و لا يمكن أن يتفوق بشكل واضح توجيه البيئية للأسماك البحرية، و امتلاك الأسماك في البحر.

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EMPOWERING WOMEN IN SMALL-SCALE FISHERIES FOR SUSTAINABLE FOOD SYSTEMS IN ASIA AND THE PACIFIC

By Joe Zelasney, Jariya Sornkliang, Lena Westlund, and Alyssa Thomas

Gender equity and equality are fundamental guiding principles in FAO’s Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines), ideals which are also closely aligned with the overarching objectives and approach in the 2030 Agenda for Sustainable Development. Women comprise almost half of the workforce in small-scale fisheries; however, their contribution to food security, income generation and community resilience is under-valued. To redress this deficit, gender perspectives need to be mainstreamed into fisheries and aquaculture programmes and policies at the local, national, and international level.

Small-scale fisheries (SSFs) encompass all activities along the value chain in both marine and inland waters, play an important role in food security and nutrition, and offer development pathways for poverty eradication and equitable development (FAO 2015). According to estimations, SSFs contribute about half of fish catches in developing countries and employ more than 90 percent of the approximately 120 million people employed in fisheries. An estimated 97 percent of these fishworkers live in developing countries, and almost half of these workers are women¹.

Women play an important role along the entire fisheries value-chain, contributing to pre-harvest activities such as making and mending nets, as well as catching, harvesting, and gleaning fish, invertebrates, and seaweeds. Women in small-scale fisheries also play a dominant role in processing and marketing fish, referred to as post-harvest activities. Women’s work in fisheries contributes to food security and poverty alleviation, often in a direct way at the household level and with regard to the well-being of children².

In spite of playing a critical role in fisheries and aquaculture value-chains, women’s work is often informal, unrecognised, and undervalued. In many instances, women do not have a say in decisions that affect their livelihoods, have limited access to finance, to technology that could make their work more...
efficient, and to services such as finance and education. As a result, they may have little choice but to accept unfavourable contracts, or unfair conditions and practices in fish sales and markets.

**Gender equality and women’s empowerment**

When women have opportunities to earn and control income, their spending is more likely to benefit the household’s nutrition, health and education – all of which promote economic growth in the long term.

Women’s empowerment is a critical aspect of achieving gender equality. Gender equality means women and men, girls and boys, have equal access to resources and opportunities, including economic participation and decision-making.

Women’s empowerment is the process of enhancing women’s ability to determine their own choices, and their right and ability to organise, influence, and participate in change through decision-making for themselves and others. This may be done through training and education, and facilitating access to usable assets, technology, finance, and services.

Progress toward gender equality and women’s empowerment are thus critical levers for achieving development outcomes. Specifically, in terms of food and nutrition security, poverty reduction and environmental sustainability:

- **Women gaining equal access to inputs, technology, financial services, education and markets in rural areas could lead to increases in agricultural production that could reduce the number of hungry people in the world by 100–150 million.**

- **Women’s involvement in small-scale aquaculture production has been observed to help increase productivity and offers opportunities to increase fish consumption within the household through women’s increased access to nutrient-rich fish.**

- **Women have been documented to focus their spending on food, education and other family well-being investments, whereas men tend to focus more on their personal spending. Enhancements to women’s control over production and income can thus be potent levers to strengthen food security and family well-being.**

- **Reducing gender gaps in entrepreneurship and employment in fish value chains equates to greater income for women and their families. This dovetails with findings that ‘gender equality is a key contributor to growing and strengthening national, regional and global economies.**

- **Equitable engagement of women and men in natural resource governance has been shown to enhance environmental outcomes.**

**Small-scale fisheries in the Asia-Pacific region**

Small-scale fisheries are an important source of food and income and an integral element of cultural identity for nations across the Asia-Pacific region. It is estimated that about three-quarters of the world’s small-scale fishers and fish workers live in Asia. In Asia small-scale fisheries are prevalent along the coasts, but also provide critical livelihoods opportunities in inland environments such as rivers, lakes and even alongside and within agricultural landscapes. Small-scale fisheries in Asia are typically characterised by open access, low levels of empowerment and a general lack of organisational structures and formal representation in decision-making processes. They also typically involve complex livelihood strategies combining fishing and other activities.

In addition to the productive activities of women in SSFs in Asia, they also perform reproductive work such as caring for children, food preparation, collecting water and fuel wood, and caring of sick persons. A study has found that in the same fishing community, women work longer hours than men.

In the Pacific, small-scale fisheries, also referred to as ‘coastal fisheries’ play an indispensable role in the fight against a “triple burden of malnutrition” – undernutrition, micronutrient deficiency and obesity. However, this role is being undermined because fishery resources are often in decline and ineffectively managed. Fish has traditionally formed a cornerstone of a healthy and balanced diet in the region - its importance is reflected in the consumption patterns of the people who, on average, consume two to four times the global per capita average of fish per year.

Coastal fisheries in the Pacific region are the major source of fish consumed domestically and women play an essential role in the sector that is a primary contributor to nutrition, food security, culture, employment and recreation. In Fiji, the Solomon Islands and Vanatu alone, women reportedly provide around 80 percent of the seafood catch for their communities’ annual subsistence needs.
### The SSF Guidelines

The Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines) are the first internationally negotiated instrument dedicated specifically to the small-scale fisheries sector. The Guidelines represent a global consensus on principles and guidance for small-scale fisheries governance and development (FAO, 2015).

The SSF Guidelines’ mandate is to enhance the contribution of small-scale fisheries to global food security and nutrition, to contribute to the equitable development of small-scale fishing communities, and to achieve sustainable utilisation of fisheries resources. These objectives are to be achieved through the promotion of a human-rights based approach including by (i) empowering SSF communities to participate in decision-making processes; and (ii) assuming responsibilities for sustainable use of fishery resources, with an emphasis on the needs of developing countries.

Notably, gender equity and equality are upheld as fundamental guiding principles in the SSF Guidelines, and they also include specific provisions for achieving gender equality. This represents an opportunity for governments to advance women’s empowerment and to meet important goals related to social and economic equity and equality, environmental sustainability, and local food security, including relevant Sustainable Development Goals (SDGs).

### 2030 Agenda for Sustainable Development

The 2030 Agenda for Sustainable Development, adopted by all United Nations member states in 2015, provides a shared...
blueprint for peace and prosperity for people and the planet, now and into the future. It provides a holistic framework, with the vision of eradicating poverty and deprivation, growing economies, protecting the environment, advancing peace and promoting good governance. At its heart are the 17 Sustainable Development Goals (SDGs), which in themselves are an urgent call for action by all countries – developed and developing – in a global partnership.

There is an evident connection between the challenges faced by SSF communities and the objectives of the SDGs, and perhaps none is more pressing or have a more positive impact on sustainable development than SDG 5 - Achieve gender equality and empower all women and girls. Gender equality is not only a fundamental human right, but a necessary foundation for a peaceful, prosperous and sustainable world. Providing women and girls with equal access to education, health care, decent work, and representation in political and economic decision-making processes will fuel sustainable economies and benefit societies and humanity at large.

Hence, the objectives of the SSF Guidelines, and the manner in which they are to be achieved, are closely aligned with the overarching objectives and approach in the 2030 Agenda for Sustainable Development and are an important tool for achieving the 2030 agenda in SSF communities.

Both the SSF Guidelines and the 2030 Agenda are contributing to growing recognition of women’s roles in small-scale fisheries and the need to achieve gender equality in fisheries. What follows are a series of brief examples of some of the work that is being undertaken within the above policy framework by different organisations concerned with fisheries to empower women and achieve gender equality.

**Tools to support gender equality in the region**

In order for gender perspectives to be widely mainstreamed into fisheries and aquaculture programmes/projects at the regional, national, and local levels, it is necessary for appropriate methods and tools to be developed to support small-scale fisheries and aquaculture sectors.

*Pacific Handbook for Gender Equity and Social Inclusion in Coastal Fisheries and Aquaculture*

The Pacific handbook for gender equity and social inclusion in coastal fisheries and aquaculture is a tailored guide to assist fisheries practitioners and managers to integrate gender and social inclusion into their daily work cycles. In addition, the handbook provides basic tools for gender and social inclusion analysis as well as additional tools for policy formation, project design, planning and implementation.

The handbook is designed to give practical guidance on improving gender and social inclusion in coastal fisheries and aquaculture for staff working in fisheries agencies in Pacific Island countries and territories. It focuses on the responsibilities of Pacific Island governments to help promote sustainable development outcomes for all people relying on coastal fisheries and aquaculture for their food security and livelihoods.


The modules are structured around the tasks involved in government work on coastal fisheries and aquaculture, that is, the planning and implementation of projects and programmes, including social analysis, monitoring and evaluation, policy development, community engagement, fisheries management, and livelihood projects.

Illustrative case studies, practical tips, checklists, and links to overarching international and regional commitments are integral part of the handbook to enable gender and social inclusion mainstreaming in coastal fisheries and aquaculture.

*Practical Guide for Gender Analysis in Small-scale Fisheries and Aquaculture in Southeast Asia*

A “Practical Guide for Gender Analysis in Small-scale Fisheries and Aquaculture in Southeast Asia” (henceforth the “Practical
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The development of the “Practical Guide for Gender Analysis in Small-scale Fisheries and Aquaculture in Southeast Asia” actively involved Gender Focal Points from the AMSs, SEAFDEC Gender Focal Persons, gender experts, and partner organisations during a series of expert consultation workshops.

With a view of obtaining successful gender mainstreaming in programmes and projects concerning small-scale fisheries and aquaculture in the Southeast Asian region, this Practical Guide aims to facilitate the conduct of gender analysis. It is intended to be used by programme/project managers, researchers, and fishery officers of the ASEAN Member States (AMSS) and fisheries-related organisations including SEAFDEC. It could also be used to assist the countries that still do not have a framework on gender in place, in conducting gender analysis to support in the development, implementation, and monitoring and evaluation of programmes/projects that are gender-sensitive and gender-responsive, as appropriate.

A questionnaire was used to interview aquaculture farmers in the seven districts of Surat Thani province, namely: Muang, Kanchanadit, Donsak, Thachana, Chaiya, Thachang, and Punpin. The total number of respondents was 93 persons comprising 64 men and 29 women.

With regard to gender, men worked on the aquaculture operations through to selling, as well as other tasks requiring labour such as house repairs. Women were also involved in some of the aquaculture tasks such as preparing the ponds, harvesting, selling, and accounting; as well as doing housework like cooking, taking care of children and the elderly, and backyard gardening. However, the survey found that women had a chance to attend community activities the same as men. Also, although the men took on the leading roles in aquaculture and women worked mainly in the household, they helped together in both household duties and aquaculture. Furthermore, the results from the survey found that men and women engage in decision-making together for the important activities.

Overall, the analysis revealed that the gender differentiated roles are based on a strong stereotype of gender division.
of labour, i.e. that men must work on hard and heavy tasks while women’s work is in households. The study suggests that because of the household duties, women have a heavier workload than men, and so it would help if there was a better understanding of the gender roles so that attitudes may improve with regard to assisting each other.

**Wildlife Conservation Society**

A Pacific Community report from 2018 noted that despite substantial research on women fishers, some knowledge gaps still remain on women’s roles in both subsistence and commercial fisheries.

In response to these knowledge gaps, scientists from the Wildlife Conservation Society, Conservation International, Vatuvara Foundation, University of the South Pacific, and University of the Sunshine Coast, surveyed fisheries-dependent communities across Fiji with the aim of better understanding and quantifying the evolving role of Indigenous (*iTaukei*) women fishers in the SSF sector, which includes both freshwater and marine fisheries.

The study, “Why they must be counted: Significant contributions of Fijian women fishers to food security and livelihoods,” reinforced several traditional views, such as *iTaukei* women preferentially fishing closer to their villages, but challenged other assumptions – for example, women fished a wider range of habitats (from inland rivers to the open ocean) and species than previously described.

Interestingly, an increasing number of women used a boat and fished with men. In addition to gleaning for invertebrates and seaweed, women also caught over a hundred species of fish. Women stated they fished primarily to feed their families, emphasising their significant contribution to household food security. Although almost half of the women sold part of their catch to supplement household incomes, they also engaged in other income earning livelihoods, and therefore were not solely dependent on fisheries. The authors raised concerns that women fishers targeted a number of fish species in nursery areas that were in sharp decline in Fiji. The study concluded that given the level of engagement in, and contributions to fisheries, the inclusion of *iTaukei* women fishers in fisheries planning and management is critical for ensuring the sustainability of small-scale fisheries in Fiji.

**WorldFish**

Information and communication technologies (ICTs) such as smartphones hold enormous potential for transformative gain and are instrumental in scaling women’s employment model in fishing communities. They increasingly allow us to automate and augment the collection, collation, communication and analysis of more and better data to inform targeted interventions. Yet the pace of their development and uptake is at the same time often a deterrent for people to engage due to indecision and “too much information.” Furthermore, there are significant risks of increasing gender inequalities and marginalising the poor due to digital divides, such as access to technology and digital literacy.

In fisher communities of coastal Bangladesh, fishing for hilsa shad (*Tenualosa ilisha*) is a key livelihood activity. Recent management measures have closed the fishery for three months a year, so women from these communities are engaged in various enterprise development and income generating activities to build their livelihood resilience.
during hilsa fishing closures. In collaboration with a social business enterprise, one such activity is making hand-knitted/crocheted toys and clothes for export markets under the branded name Pebbles. ICTs play an important role in bridging the communication gap between the participating women living in remote areas and the social enterprise operating from the country’s capital. Mobile video technology has allowed women to access new designs and attain better prices. The project also taps into an existing mobile banking service called bKash, which works to financially include the unbanked people of Bangladesh. With the help of mobile phone banking technology, these women have gained financial inclusion and control of their money.

**Summary and conclusion**

There is a need for more accurate, visible and accessible information on women in the fisheries sector. Their unique perspectives are not routinely incorporated into fisheries management and policy decisions, which is needed to ensure sustainable and equitable small-scale fisheries.

In order for gender perspectives to be widely mainstreamed into fisheries and aquaculture programmes/projects at the regional, national, and local levels, it is necessary for appropriate methods and tools to be developed and applied to support the conduct of gender analysis specifically for the small-scale fisheries and aquaculture sectors.

Furthermore, fisheries managers and practitioners need to build strategic partnerships with gender and development organisations in the region, which have decades of experience in gender inclusion and can help fisheries to raise their gender equality benchmark.

There are a number of organisations that fisheries managers and practitioners could call on, including regional bodies such as the Pacific Community (SPC), the Pacific Islands Forum Secretariat, Secretariat of the Pacific Regional Environment Programme, Pacific Islands Development Forum, the University of the South Pacific; the Southeast Asian Fisheries Development Center, international and local as well as international aid organisations, UN agencies like the FAO, and international organisations such as WorldFish.

The support they provide could include sharing practical steps or best practices to promote gender inclusion, such as having a male and a female facilitator when going into the field; or breaking into groups so women can talk more freely, but then also creating a space to bring women and men together and where they can share each other’s ideas.

The United Nations General Assembly declared 2022 the International Year of Artisanal Fisheries and Aquaculture (IYFA 2022) in recognition of the millions of small-scale fishers, fish farmers and fish workers who provide healthy and nutritious food to billions of people and contribute to achieving Zero Hunger.

The objective of celebrating IYFA 2022 is twofold: The Year aims to focus world attention on the role that small-scale fishers, fish farmers and fish workers play in food security and nutrition, poverty eradication and sustainable natural resource use – thereby increasing global understanding and action to support them.

FAO is the lead agency for celebrating the year in collaboration with other relevant organisations and bodies of the United Nations system. For further details: http://www.fao.org/artisanal-fisheries-aquaculture-2022/en/
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Market Trends

SHRIMP

Supply

In India, shrimp production has been exceptionally low in the first quarter of 2021 due to low stocking density and the implementation of measures to minimise production cost. In addition to problems encountered from the outbreak of white spot syndrome virus (WSSV), flooding and logistical problems, there is a lower demand in the US due to higher inventory left over from 2020 and in China because of strict imported food inspection measures.

Indonesian shrimp processors have been targeting the retail sector in the US. However, these processors are selling larger sizes whereas many US buyers currently prefer smaller sizes.

Most of the supply of Vietnamese *vannamei* to the international markets has been produced by Best Aquaculture Practices and Aquaculture Stewardship Council certified farms. This will help meet rising global demand for ecolabel-certified raw peeled and cooked peeled products.

**Japan:** The second state of COVID-19 emergency in Japan ended on 21st March and the country’s economy is expected to suffer a contraction in the current quarter as renewed curbs introduced in January to prevent the spread of COVID-19 weighed on consumption. Seafood restaurants continue to be affected with the implementation of new control measures whereby all restaurants in densely populated areas are to be closed by 8pm. People continue to limit their outdoor activities, following advice by the Japan government. Delivery services, either by restaurants or supermarkets, have continued to thrive during this period. Cooked and value-added shrimp products are in high demand in the retail segment.

During January – February 2021, Japanese shrimp imports decreased by 1.87% at 30 496 MT compared to the same period in 2020. The low demand for shrimp is reflected in the continuous decline in imports for all product types except for prepared and preserved shrimp and sushi (with rice) shrimp which recorded an increase of 1.23% and 15.48% respectively.

**USA:** Trade operations have moved from foodservice to retail, to cater for the market demand. This explains the increased imports from Indonesia, Ecuador, Vietnam and Thailand with product forms comprising unpeeled and headless shrimp, including easy peel, cooked and breaded. The US has become an important target market for unpeeled and tail-on shrimp from Ecuador after the latter diversified its markets due to limited demand from China.

The latest trade data shows that US shrimp imports during January-February 2020 increased by 5.1% at 122 712 MT compared to the same period in 2020. Among the main suppliers Indonesia, Ecuador, Vietnam and Thailand, exports increased against last year, while those from India decreased. The upward trend of supply from Ecuador by 30% in February made it the second top exporter of shrimp products to the US during the month, surpassing Indonesia. Ecuador’s big advantage over other major suppliers to the US is the cheaper price of its *vannamei* by comparison.

**Europe:** The slowdown of demand in the European shrimp market is somewhat balanced by the lack of supply of Argentine shrimp, particularly onboard frozen products. However, there are significant quantities of land-frozen shrimp available, and prices have started to drop.

Meanwhile in Spain, imports of shrimp have declined due to the ongoing effects of the pandemic. In 2020, the import value decreased by 11.4% compared to the previous year. The lower Argentine shrimp supply to the Spanish market is being compensated by an increase from Ecuador. However, the price of Ecuadorian shrimp was down from 2019 levels, indicating that the hike in volumes was due to market diversification at the expense of profitability. Overall, the unit value of Ecuadorian shrimp declined from US$ 6.25/kg to US$ 5.40/kg, while Argentine shrimp remained at US$ 6.50/kg.

TUNA

Fishing in the Western and Central Pacific (WCP) has slowed to poor-to-moderate while raw material
inventories in Thai canneries remain unchanged at healthy levels for now. The Bangkok port situation has improved as COVID-19 measures are being scaled back. Skipjack prices have rebounded sharply.

Catches in the Indian Ocean have improved to moderate-to-good, but those in the Atlantic Ocean continue to be very poor. Fishing in the Eastern Pacific Ocean is reported to be moderate-to-good and fishing effort has intensified with about 75% of the fleet out at sea.

**Thailand:** Foodnews reported that the price for skipjack tuna raw material landings in Bangkok is in an uptrend since the end of February, from US$ 1 300 to 1 350/MT cfr. According to industry sources in Bangkok, the current price is firming up rather than weakening, not because canned tuna is selling well but because canneries have to buy raw material and traders have been adamant on holding to their firm prices. Raw material prices have been falling since August 2020, reaching US$ 1 200/MT in late January 2021 in the context of flat retail canned tuna demand due to COVID-19 stockpiling in 2020.

**Philippines:** Exports of canned tuna reached 88 636 MT in volume and US$ 345 million in value in 2020. This represents an increase of 13.93% in volume and 7.41% in value as compared to 2019. Among the top market destinations, exports to Germany and the UK dropped by 9.39% and 18.92% respectively while exports to the US showed a slight increase of 4.48% in 2020 compared to 2019. Exports to Japan reached 9 388 MT, becoming the second top destination for Philippine canned tuna last year.

**TILAPIA**

According to FAO-Globefish, the global tilapia sector is set to resume growth in 2021, increasing output by some 5% to reach 7.3 million MT. Returning demand (assuming re-opening of the food service in most countries with the roll out of vaccines) should prevent any significant price declines in 2021. The market is well-supplied and there is not likely to be much upward price pressure either. China’s growth will continue to be slow relative to competing producers in Latin America, Africa and Southern Asia. Brazil, in particular, is expected to play a more prominent role in tilapia international trade, with authorities forecasting a 100-150% increase in the country’s exports in 2021.

**USA:** Annual trade data shows that the US imported 8% more frozen tilapia at 155 757 MT worth US$ 445 million in 2020. Tilapia fillets continue to dominate the frozen category with a 8.7% increase in imports. The removal of duties on Chinese imports has facilitated growth from China, particularly in the frozen fillet category. The increase in supplies from China was the main reason for the overall increased import volume for frozen tilapia; meanwhile, imports from most other sources declined.

**China:** In Hainan Province, China’s key region for tilapia production, exports of tilapia increased in 2020 by 16.2% in volume at 145 000 MT and 7.2% in value at US$ 360 million. Despite the decrease in China’s overall exports of tilapia (processed and fillets) in 2020, the product remains sought-after globally and the country produces a quarter of the world’s tilapia. Recently there has been a push to increase domestic consumption of tilapia, and the fish is now in demand by a new wave of informal dining chains serving traditional favourites like sour fish soup and hot pots.

**PANGASIUS**

**Vietnam:** According to the Vietnam Association of Seafood Exporters and Producers (VASEP), exports of pangasius increased in March this year, following a decline in February. These exports were valued at US$ 137 million in that month, up by 11% year-on-year, which contributed to the increase in Vietnam’s pangasius export value by 0.6% to US$ 336 million in the first quarter of the year.

In 2020, Vietnam had produced 1.56 million MT of pangasius, a growth of 2.6% year-on-year. However, the export value was US$ 1.49 billion, down by 25.5% from 2019. Overall, Vietnamese exported seafood in March 2020 increased by 1.6% at US$ 640 million compared to March 2019, bringing the total export value of seafood products to US$ 1.64 billion in the first quarter, up 3% year-on-year.

Source: FAO Globefish
Price Trends

FROZEN SHRIMP, C&F JAPAN (US$/Kg)

FROZEN SHRIMP, WHOLESALE TOKYO, JAPAN (¥ 1000/kg)

FROZEN SHRIMP, cfr USA

FROZEN SHRIMP, USA (ex-warehouse NY, US$/lb)

FROZEN SHRIMP, EUROPE (CFR, US$/kg)

FROZEN TUNA (US$/MT)
Price Trends • Cold storage holdings • import trends

FROZEN WHITEFISH

FISHMEAL/FISHOIL (US$/MT)

JAPAN COLD STORAGE HOLDING: SELECTED PRODUCTS (MT)

JAPAN COLD STORAGE HOLDINGS TUNAS (MT)

JAPAN: MONTHLY IMPORTS OF SHRIMP & TUNA (MT)

USA: Monthly SHRIMP Imports
TUNA

Strong global trade for canned tuna persisted throughout 2020.

Consumption of inexpensive and shelf-stable canned tuna increased worldwide in 2020, generating brisk international trade. Demand for frozen raw materials from the large production bases in Asia and Europe also increased to meet growing demand. The non-canned tuna market, however, remained suppressed along with restricted catering trade due to the COVID-19 crisis.

Supply

Fishing logistics were disturbed due to the pandemic crisis while tuna canneries worldwide needed more raw material to match increased market demand. During the last quarter of 2020, catches in the major oceans were low to moderate, keeping raw material prices stable.

Raw material imports

Supported by the positive consumption trend for canned tuna worldwide, demand for raw tuna and semi-processed cooked loins increased in 2020 from tuna canners in Southeast Asia and Europe. During the first nine months of 2020, frozen skipjack, yellowfin, albacore, and tongol imports in Thailand increased by 12.7% to 460 720 MT while cooked loin imports for reprocessing increased by 17.5% to 32 320 MT. Spanish tuna canners procured more semi-processed raw material (+8.6% at 87 790 MT) and less raw frozen tuna (-5% at 121 860 MT) during this period. Tuna processors in the Philippines also imported 30% more skipjack (89 000 MT) for processing cooked loins and canned tuna. However, there was a 28% decline in frozen yellowfin imports (32 000 MT) because of falling demand for non canned tuna, particularly for carbon monoxide (CO) treated fillets and steaks by the US market. Total imports of frozen tuna in the Philippines during the review period were 123 330 MT (+1%).

Fresh and frozen tuna market (non-canned)

Unlike the canned tuna sector, the pandemic wiped out consumer demand for high value non-canned tuna in 2020, particularly in the hotel, restaurant and catering (HORECA) sector. In comparison, retail demand for ready-to-eat and ready-to-cook products (frozen sashimi/sushi platers, frozen tuna fillets/steaks) in Japan, North America and Europe was less affected.

Japan

The impact of the coronavirus pandemic has been severe on Japan’s sashimi tuna trade. Cancellations and postponement of ceremonies, business dinners, and social gatherings affected sales volume in the wholesale and catering trade. The Japanese restaurant industry reported a 60-70% drop in revenue. There has been some improvement in home consumption but not sufficient to make up for losses in the foodservice sector. Sashimi tuna imports into Japan declined by 16.6% during January-September 2020 in comparison with the same period of 2019. Air-flown fresh tuna imports dropped significantly (-31%). For frozen tuna, whole/dressed fish imports were 18% lower, while frozen fillet imports declined by 11% during this period. During the year-end, normally a high consumption period, catering sales were lacklustre in 2020 as many Japanese avoided dining out. To improve sales, some restaurateurs began offering frozen sashimi/sushi ‘tuna boxes for take-away and for on-line purchases.

United States of America

Tuna traders in the US reported falling demand for non-canned tuna during 2020 mainly due to large drops in the restaurant sector. The COVID-19 crisis wiped out overall restaurant sales by 60-70% in 2020. Home consumption in the US has also been affected by the shrinking disposable personal income (DPI) linked with rising unemployment. US imports of non-canned tuna during the first nine months of 2020 were 37 754 MT, a decrease of 25% compared to the corresponding period of 2019. In the group the most affected were fresh tuna imports, which fell by 31% to 12 365 MT. Frozen tuna fillets continued to dominate imports but registered a 20% fall to 25 231 MT. Fillet supplies declined from the top suppliers: Indonesia (-20% to 11 295 MT), Vietnam (-12% to 7 365 MT), and the Philippines (-27% to 1 850 MT). Imports, however, increased significantly from Thailand (+54% to 1 280 MT), Maldives (+52% to 201 MT) and Fiji (+57.7% to 128 MT) during the review period.

Other markets

The popularity of frozen tuna fillets/steaks persisted in the EU market during 2020. Compared with the US, imports remained relatively stable at nearly 19 000 MT (-1%) during the first nine months of 2020. Supplies declined from the top exporters: Vietnam (-13%), Republic of Korea (-10%), and Ecuador (-29%); however there were higher imports from Mexico (+42% to 2 590 MT), the Maldives (+60% to 975 MT) and Sri Lanka (+107% to 340 MT) during this period. Consumer demand for tuna fillets weakened in Canada, Switzerland, the
Russian Federation, and Australia due to the falling restaurant trade.

In Southeast Asia, demand for frozen seafood generally increased in large cities during the COVID-19 crisis, boosting sales of frozen tuna fillets/steaks, particularly the carbon monoxide (CO) treated products. These items are now available in retail packs (250g vacuum packed) in upscale grocery stores at a retail price of US$ 20/kg.

Canned tuna trade

Household demand for canned tuna was good in large and small markets worldwide, generating a brisk international trade climate in 2020.

There were increased exports from Thailand, Ecuador, China, and Spain, while the Philippines replaced Indonesia as the fifth largest exporter during the first nine months of 2020.

Exports from Thailand mostly consisted of ready-to-eat products. Supplies to the top market, the US, increased significantly (+47%) and the same trend was seen for the EU (+25%).

Increased supplies of canned tuna to Japan and the Middle East markets boosted exports from the Philippines by 25% during the review period, although exports declined to the top two markets, namely the EU (-3.5%) and the US (-3%).

Imports

Strong demand for processed tuna persisted in the North and South American markets. In the US, the largest market supplies were dominated by Thailand (53%).

The positive demand trend for processed/canned tuna persisted in the EU market during the first nine months of 2020. Total imports (extra and intra EU trade) during this period were 629 810 MT (+8.8%) including 144 470 MT of cooked loins (+11.3%). Imports from the extra-EU sources were 429 100 MT (+4.3%).

Good demand and strong imports for canned tuna in the Middle East and North Africa (MENA) region persisted during the first nine months of 2020. Among the top regional markets of Saudi Arabia, Libya, Egypt, and the United Arab Emirates (UAE), imports of canned tuna ranged from 35 000-40 000 MT, posting increased imports compared with the same period in 2019. The trend was similar in medium and small sized markets, namely Yemen, Syria, Jordan, Kuwait, and Qatar.

In East Asia there were increased imports in Japan, Singapore, Malaysia, and Taiwan. In the Pacific, imports increased moderately in Australia, New Zealand and other smaller island nations where consumer preference for canned black meat of tuna remains good.

Prices

Compared with 2019, overall raw material prices increased in 2020. The average import price of frozen skipjack in Bangkok, the price setting market, was 15% higher at US$ 1 355/MT in 2020 compared with US$ 1 160/MT in 2019.

Outlook

During the first quarter of 2021, tuna raw material prices are likely to stay firm as catches in the major fishing regions continue at low to moderate rates, while demand may improve from tuna canners.

In the Western and Central Pacific (WCP) region, catches remained low during October-November and started to improve from December 2020. The Western Central Pacific Fisheries Commission (WCPFC) reported suspension of fisheries observers in the WCP region until February 2021 because of COVID-19 related issues. During this period of suspension, the vessel monitoring scheme (VMS) that applies to purse-seine vessels during Fish Aggregating Device (FAD) closure periods will also apply to purse-seine vessels that are not carrying observers.

In the Eastern Pacific, the second IATTC ‘veda’ fishing closure led to lower landings. This closure ended on 19 January 2021 and supply increases are likely. Overall supplies from the Indian Ocean region may decline in the coming months due to exhaustion of the yellowfin catch quota.

Import demand for canned tuna may strengthen again worldwide during the first quarter of 2021 following extended COVID-19 lockdown measures in many countries. Hence prices of raw material and end products will remain firm.

In Japan, the sashimi market is unlikely to recover in 2021. A second state of emergency was declared in early January 2021 in the capital Tokyo and three surrounding prefectures, restricting restaurant activity and sashimi tuna trade in the coming months. Meanwhile, catering industry prospects for the 2021 Tokyo Olympics remain opaque because of the rising health concerns in Japan.

Source: FAO Globefish
Ambassador Thomson, the United Nations Decade of Ocean Science for Sustainable Development (2021-2030) has been termed “a once in a lifetime opportunity for nations to work together to generate the global ocean science needed to support the sustainable development of our shared ocean”. During the Preparatory Phase between 2018 and 2020, the Intergovernmental Oceanographic Commission (IOC) of UNESCO - which has been tasked with preparing and coordinating the development of an Implementation Plan for the Decade – was to have worked on, among things, a Science Plan for sustainable development; (ii) A Capacity Development Plan to improve the scientific knowledge; (iii) A Resource Mobilisation Plan to define the necessary financial mechanisms; and (iv) A Communications & Engagement Plan to involve key stakeholders. We are now in the first quarter of 2021 – with the significant delays caused by the pandemic, how far has the IOC been able to complete what it had set out to do?

As I’m sure you are aware, after extensive regional consultations around the world, IOC-UNESCO prepared the Implementation Plan for the Ocean Decade. It was then accepted by the United Nations General Assembly in December 2020. The Implementation Plan sets out the strategic framework for the Decade and includes all of the elements you mention in your question. The plan contains a Decade Action Framework that documents the ten Ocean Decade Challenges and the Decade objectives that will guide the design of scientific actions. It also contains principles and approaches for capacity development, resource mobilisation and communications. The Implementation Plan can be found here: https://www.oceandecade.org/resource/108/Version-20-of-the-Ocean-Decade-Implementation-Plan-

Assuming that the world gets back to ‘business as usual’ by June this year, what will be the main areas of focus for the IOC in the latter half of 2021?

In its designated role as coordinator of the Decade, IOC-UNESCO has been proceeding with the roll-out of the Decade. The COVID-19 pandemic has of course led to an adaption of communications, especially to ensure that no one is left behind in this vital first year of action. I understand that key areas of focus over the latter half of 2021 will include the endorsement of the first set of Decade Actions and preparing for future Calls for Decade Actions. Focus will also be on facilitating engagement with stakeholders, including National Decade Committees, and raising awareness and visibility of the Decade, including with resource providers. I’m advised that there are also a number of high-level virtual events in preparation, including the launch of a major communications campaign on World Oceans Day, June 8 2021.

And the third question related to the UN Decade of Ocean Science is: how can stakeholders (policy makers, donors, businesses, communities, and civil society) contribute to its goals?

This is a fundamental point: stakeholder engagement is crucial to the success of the Decade. There are a number of ways that stakeholders can contribute to the goals of the Decade. They can submit Decade Actions for endorsement in response to Calls for Decade Actions; they can join or establish a National Decade Committee or regional group; they can...
participate in upcoming events including the Ocean Decade Virtual Series and a series of “Ocean Decade Laboratories”; and/or they can submit an event or meeting to be recognised as a Decade activity. I encourage readers to visit the Decade website (www.oceandecade.org) for more information on the different ways that people can engage. Most importantly, I encourage readers to engage positively with the Decade. The Global Stakeholder Forum will be rolled out during 2021, and it will provide an online space for collaboration, exchange and engagement.

At the World Ocean Summit held very recently from 1-5 March, there were over 170 speakers who presented on themes of governance, finance, ocean and fisheries management, offshore energy, subsidies, responsible supply chains, and the wellbeing of coastal communities. There must have been many salient points that arose from the Summit, but if you were to highlight three, what would they be, and why?

This year’s World Ocean Summit saw the launch of an exciting new initiative of The Economist Group and The Nippon Foundation, called Back to Blue. It’s a multi-year initiative on pollution and Ocean health, and I’m encouraged by its alignment with post-pandemic refocus on Ocean sustainability and its recognition of the need for engagement from consumers, businesses and governments to address Ocean issues. I was also encouraged to see that United Nations Environment Programme Finance Initiative (UNEP FI) launched its blue guidance at the summit, aiming to help investors finance sustainable Ocean activities, as I’ve been involved and will continue to be involved in this work. For me, universal engagement and partnership are the way forward, thus my third summit highlight was witnessing collaboration as a key theme going through many of the summit’s sessions. There was a strong theme of collaboration required within industries (often between competitors), across industries, between countries, and between public-private sectors; likewise in engaging with local communities on such issues as blue carbon projects.

The three-year “Back to Blue” initiative was launched at the 8th Annual World Ocean Summit very recently.

One very important category of stakeholders is the global finance system where major global players are banks such as the World Bank and the Asian Development Bank, as well as insurers and investors. What are some key ‘blue finance’ guidelines that should be built into the decision-making processes of these financiers so that they will consider more investments into sectors such as shipping, fishing and coastal tourism and renewable marine energy?

The Sustainable Blue Economy Finance Principles provide a global guiding framework and standards for sustainable investments in the Ocean economy. Launched in 2018, they were developed by the European Commission, WWF, the World Resources Institute and EIB, and are hosted by UNEP FI. In answer to your question, I’m pleased to note that both the World Bank and the Asian Development Bank, along with many major banks, asset managers, insurance companies and investment houses are signatories of the Sustainable Blue Economy Finance Principles.

Focusing on the Asia–Pacific, would you agree that the main issues of concern for ocean health are climate change, overfishing and marine pollution?

I agree with the general drift of the question, but to be more specific, instead of “climate change”, I’d identify the burning of fossil fuels as the first concern. The second concern of “overfishing” is correct, but I would expand it to include IUU fishing and harmful fisheries practices. “Marine pollution” is also accurate, and on this subject our minds usually turn to plastic pollution; but let’s not forget discarded fishing gear and the proliferating marine “dead zones” caused by nutrient pollution coming from our terrestrial activities.

On climate change, a 2013 report by the Intergovernmental Panel on Climate Change (IPCC) predicted that there is likely to be an increase in mean global ocean temperatures of 1-4°C by 2100. What are some mitigation measures that can be taken by coastal communities and island nations?

I have had the honour over the last two years of being a supporting member of the High-Level Panel for a Sustainable Ocean Economy. One of the many expert reports the Ocean Panel has issued demonstrates that Ocean-based mitigation options could reduce the “emissions gap” by up to 21% by 2050. The report considers five areas of Ocean-based climate action to mitigate Greenhouse Gas (GHG) emissions: Ocean-based renewable energy; Ocean-based transport; coastal and marine ecosystems; the Ocean-based food system (wild capture fisheries, aquaculture, and shifting human diets towards food from the sea); and carbon storage in the seabed. Ocean-based renewable energy production currently offers the greatest potential for delivering clean energy and reducing GHG emissions, with the expansion of floating wind and solar facilities being exciting frontiers. When wider impacts on the environment and social well-being are considered, nature-based interventions—especially...
industry profile //

Regarding overfishing, there are of course many aspects that could be discussed (IUU fishing, for example), but for now perhaps we could focus only on subsidies. In your opinion, has ‘subsidy’ become a dirty word? Under what circumstances can you see a need for subsidies to be maintained?

The negotiations on fisheries subsidies at the WTO are proceeding well, with the new Director-General at WTO having pronounced on taking office that it’s time to get the job done on ending harmful fisheries subsidies. I am very hopeful that 2021 will be the year we achieve the universally agreed goal of SDG14.6 to end subsidies that contribute to overfishing, overcapacity, and IUU fishing. These are what are described as harmful subsidies and it is ridiculous, for example, that we continue to subsidise industrial operations engaged in illegal fishing. But not all subsidies are harmful and there is a good case, for instance, for the continuation and introduction of subsidies that assist small scale artisanal fishers and the development of sustainable aquaculture.

Marine pollution is reaching alarming levels. As much of the oceanic pollution comes from land-based sources (microplastics, sewage, pesticides, etc), how can international organisations and world financing institutions employ gentle pressure on nations to implement circular waste disposal systems and ‘zero plastic waste’ policies? Also, do you think it is true that developing nations do not rank marine pollution as a top priority?

Whether you’re from a developed or developing country, marine pollution is an afront to our sensibilities and our health. I’m happy to note that the world’s biggest beach clean-up exercise has been in India, supervised by my Friends of Ocean Action colleague Afroz Shah. The Secretary-General of the United Nations, Antonio Guterres, recently said that we have been at war with Nature and that we must now make peace. Part of the peace process must surely be solutions for ending the plastic plague that we have unleashed upon the planet. The seminal report “Breaking the Plastic Wave” stated that only a smart combination of policy, technology, funding and consumer engagement can address system-level challenges. They concluded that there is no single solution to end Ocean plastic pollution, that upstream and downstream solutions should be deployed together, and that the “leakage” of plastic into the Ocean demands significant innovation across the entire plastics value chain. The report makes it clear that the system changes required involve different implementation priorities in different geographies and for different plastic categories. It calls upon high income countries to prioritise decreasing overall plastic consumption, eliminate microplastic leakage, improve product design and increase recycling rates. Medium to low income countries are called upon to prioritise expanding formal collection, maximise reduction and substitution, invest in sorting and recycling infrastructure, and cut post-collection leakage. Let’s face it, we have much work to do on this, and that means everyone; so let’s get on with it.

In your opinion, what are the priority areas in the Asia-Pacific region with regard to realising the objectives of SDG14? Which of these is most achievable before 2030? Conversely, in which area do you expect progress to lag, and why?

We are working towards achievement of all of SDG14’s targets by 2030 and I firmly believe that by the end of the decade we will have begun reversing the cycle of decline in which the Ocean’s health has been caught. This will be achieved through increasing our scientific knowledge of the Ocean, curbing of pollution, better management of ecosystems, and ending overfishing and harmful fisheries practices, all of which are inherent in SDG14. But even if we do everything right under the Paris Agreement, science has warned that the processes of acidification, deoxygenation and warming, set in motion through the accumulating proliferation of anthropogenic greenhouse gases, will continue well into the next century and more. Thus, regardless of our success in getting to a net zero carbon economy by 2050, we will still be required to address the effects of global warming, such as rising sea levels, and undertake the innovations and investments in the necessary adaptation solutions.

And on a final (and lighter) note, Your Excellency, if you were the producer of a Netflix or Amazon Prime series, what would be the theme of the series, who would be the target audience, and what would the messages be?

The Ocean’s well-being is everyone’s business, but it is especially that of our children and their children. Therefore, the target audience of my series would be four to twelve-year old kids. I’ve watched the way my grandchildren love the movie “Moana” and I know lots of adults (including me) are captivated by the film. The series I produce would also be animated and would have the Ocean’s health as its central theme. The good guys would be people around the world working to bring our relationship with the Ocean back to one of love, respect and balance. The bad guys would be those who think it’s still okay to use the Ocean as a dumping ground and continue over-exploiting its finite natural resources purely in pursuit of profit.
When you joined Nadeshiko Sushi in 2010, did you have a clear vision in your mind that you wanted to make your mark as the first female sushi chef in Japan in a male-dominated industry? Did you ever think of quitting?

I knew from the beginning that I was going to be the manager, and my clear vision for the Nadeshiko Sushi restaurant was complete when I joined the company. There were many difficulties along the way but I’ve never wanted to quit.

For non-Japanese people, it’s hard to imagine why the sight of a woman (especially a young person) as a sushi chef would be so revolutionary. You must have run into quite a bit of hostility from male sushi chefs. Help us to understand why women have not been allowed, nor encouraged, to work as sushi chefs before this.

From my experience when I was working with sushi chefs and male staff around me, it is difficult for women to do long-term physical labour due to the ingrained attitudes related to male dominance and hierarchy in the field. The training and instruction on the job is strict, almost brutal at times. There is also no system or arrangement that allows women with families to continue working, such as childcare leave, long-term care leave, and maternity leave, so only young single women are able to work. Above all, male chefs are not willing to change their attitudes or make changes to the environment because the existing rules are so comfortable for them. As a result, many women soon retire from the industry.

How have first-time Japanese male customers reacted to seeing you prepare the sushi, and also seeing your all-women staff?

For a long time, many customers came to the store thinking that it was part of Japanese pop culture especially as we are located in the Akihabara area of Tokyo. We never admitted that we were full-fledged sushi chefs.

What led you to set up the Nadeshiko Sushi Academy? What do students learn at the Academy and do they easily find employment in Japan after they graduate?

By setting up the Nadeshiko Sushi Academy, my aim was to enhance the employability of female sushi chefs. I also have plans for a franchise. The Academy teaches not only sushi preparation but also customer service, business administration, and management—it is a curriculum not found in other sushi schools. As for job prospects after graduating from the Academy, it is not easy for sushi school students, not just my students, to get a job in Japan as employment is tough now. However, most of my students successfully obtain jobs at overseas sushi restaurants, so I’m satisfied with the quality of our graduates.

How do you counter the argument that to become a sushi chef takes many years of practical experience under master chefs, and not just through an intensive course of a few months?

We can teach the technology in a few months but what is important for sushi chefs is having sushi skills as well as customer service ability based on life experience. So yes, that cannot be achieved in a few months. However in my school, we do teach important points beyond just sushi preparation.

Sushi consumption in Japan is linked to tradition and culture, where the food resembles works of art and people take their time to savour the delicate flavours. Sushi, after all, has been so much a part of Japanese history for hundreds of years. However, according to Fuji Keizai Co.’s Food Service Industry
Marketing Handbook 2017, the top five sushi chains in Japan in 2017 – Akindo Sushiro, Kura Corporation, Hama Zushi, Kappa Zushi, and Genki Zushi - were the casual conveyor belt type (kaiten) and some of these outlets even serve non-sushi items such as burgers to attract families with children. Do you see a need to adapt Nadeshiko Sushi’s food service to suit this rising customer trend?

Nadeshiko Sushi’s food service pledge, and my motto as a sushi chef, is combining the best of the old and the new. There is a Japanese saying called onko-chisin which calls for changing with the times, but also preserving old traditions. That balance is very important. However, instead of always following the trends of the times, I have a motto that I want to lead the times.

Thinking about new sushi without being locked into stereotypes. Ensuring permanent female employment. Creating a new profession. Education for children who bear the future

Focusing on the sushi itself, what are the main fishery species that you use in your creations? Are they from local sources or do you use imported raw materials such as salmon from Norway? And for anyone visiting Nadeshiko Sushi, what are some items on the menu that they should try?

The main fish are those that in a sense, honour the seasons of Japan. It’s spring right now, so I often use sayori (Japanese halfbeak), sirauo (whitebait), and hotaruika (firefly squid). And I value the information in the market every day. I also bring in imported species because I believe in using fish from all over the world to get people to eat sushi. My recommended restaurant menu item is yakuzen sushi which incorporates Chinese traditional medicinal herbs. This is a healthy sushi dish which can be eaten every day. And my omakase menu, where the customer leaves the food composition up to the imagination of the chef, is the only sushi dish in the world that is different for each customer.

How has the coronavirus pandemic affected your business?

Last year we were forced to temporarily close the school and restaurant. It was the first such experience in my long sushi life. However, now I have begun to think again about sushi, and preparing healthy fish diets.

What is your vision for the future? Do you have any long term plans to set up more sushi outlets in Japan, or perhaps overseas?

In the future, we will improve the status of sushi chefs and spread the environment-friendly fish food culture. More specifically, it is to achieve the philosophy of the Next Generation Sushi Association that I have established, where we aim to develop new ingredients and techniques for sushi, and revitalise traditional (forgotten) ingredients so that they can be updated for modern consumption trends. My aim is to promote healthy and safe fish consumption all over the world. And of course I want to establish more branches of my sushi school all over the world and franchise my sushi restaurant. The plan is to expand and stabilise employment opportunities for sushi chefs.

And finally, do you have any messages that you’d like to share with young women who may be considering a career in the sushi business?

First of all, value your dreams and inspiration, and maintain a love for fish and sushi. Then you will know what you should do and never give up!
HILSA FISHERY IN BANGLADESH: A TRIUMPH OF INCENTIVE-BASED MANAGEMENT

By Masud Ara Mome and Sujit Krishna Das

Stocks of hilsa shad, often called the national fish of Bangladesh, experienced a decline in the early 1990s due to overfishing (particularly of juveniles and gravid fish), and disruption of migration routes, among others. Through the Hilsa Fisheries Management Action Plan, the Government has successfully reversed the decline, from 0.298 million tonnes in 2008-2009 to 0.533 million tonnes in 2018-2019. Some interesting aspects in the Plan are the creation of fish sanctuaries and fishing bans on one side, while at the same time providing incentives to the fishers whose lives are impacted by the bans.

Moreover, Bangladesh occupies 8th and 12th place in coastal and marine crustacean and finfish production respectively. It is important to mention here that Bangladesh is first among the 11 hilsa shad producing countries of the world and 4th in tilapia production (DoF 2019).

Five important facts about the Bangladesh fisheries sector in global terms:

- 1st in hilsa shad production
- 2nd in freshwater fish production increase rate
- 3rd in inland freshwater fish production
- 4th in tilapia production
- 5th in closed water fish production

Contribution of the fisheries sector to the national GDP (2018-2019) is about 3.5%, and nearly 25.72% of the national agricultural income comes from the fisheries sector. Fish alone supplies 60% of the animal protein in the country. Per capita fish intake is almost 62.58g per day against the demand of 60.0g, which indicates that Bangladesh is self-reliant in fisheries production (BBS, 2016). The country earns a considerable amount of foreign currency by exporting fish, shrimp, and other fisheries products. Some 19.5 million people (12% of the total population) are fully engaged in the sector, of whom 1.4 million are women (0.85% of the total population and 7.17% of the total fisheries manpower).

Hilsa – the king of fishes

Hilsa (hilsa shad), the iconic fish of Bangladesh, locally known as *ilish*, scientific name *Tenualosa ilisha* (Hamilton, 1822) belongs to the Clupeidae family. It is globally known as Indian Shad (herring) and the popular name ‘hilsa’ has been used for more than a century. It is an ideal food source, being composed of easily digestible proteins (amino acids); vitamins like vitamin D, vitamin A and some members of the vitamin B family; and minerals like selenium, zinc, phosphorus, calcium, and iron. Also, like salmon, hilsa is a rich source of omega-3.

Bangladesh, a riverine country, and the world’s largest deltaic region, is home to a bounty of fisheries resources broadly covering four categories: (i) inland capture (open water); (ii) inland culture (closed water); (iii) marine industrial (trawl fishing); and (iv) marine artisanal (small-scale fishing). From time immemorial, Bangalies (the predominant ethnic group in the country) have been well-known as a fish loving people, and it is no surprise that fish form part of the culinary heritage of the country. Fish is considered as the ‘Silver Crop’ in Bangladesh, where people enjoy a range of species such as small mola carpets or large Indian major carps in their daily meals. Not surprisingly, there is a popular saying: ‘*Machh-e-Bhath-e-Bangali*’, which loosely translates as “fish and rice make a Bengali”.

Bangladesh is also the 7th most populous country (164.7 million) in the world and the population is expected to increase to 220 million by 2050. Due to abundant agricultural resources, the country has transitioned from being undeveloped to developing, with the fisheries sector playing a key role in this process. According to Sofía 2020, Bangladesh has recorded increases in fishery production over the past ten years, and in the global rankings, the country is now 3rd in inland freshwater fish production and 2nd in global freshwater fish production increase rate. It is also 5th in closed water fish culture for the last six consecutive years.

Photo Credit: WorldFish, Bangladesh
fatty acids DHA and EPA, although the PUFA content is lower as compared to salmon. The highly nutritive and culinary properties of hilsa amply justify the adage ‘macher raja ilish’ (The King of Fishes) (Alam et al., 2012)⁶ and in centuries-long Bengali tradition, it is believed that Pohela Boishakh (start of the Bengali New Year) cannot be observed without any cooked hilsa dish.

Hilsa is one of the most commercially important fish species in the Bay of Bengal and comprises a common resource for Bangladesh, India and Myanmar. Hilsa shad is registered as a geographical indication (GI) product of Bangladesh under the World Intellectual Property Organisation (WIPO) since 2017.

Anadromous and migratory in nature, hilsa is available throughout the year in almost all the major rivers of Bangladesh. It starts spawning and migrates upstream during the southwest monsoon and consequent flooding of all the rivers (Figure 1). The eggs are deposited in fresh water and hatching takes place within 23 to 26 hours at an average temperature of 23°C. The larvae and juveniles make their way downstream to the sea during a period of 5-6 months, feeding and growing along the way. Within about 6-10 weeks the fry grows about 12-20 cm, at which time they are called jatka (juveniles). At this stage they start their migration to the sea for further growth and maturity. After growing for about a year in the sea, the mature hilsa undertake their spawning migration towards inland rivers, and thus the cycle continues (Haroon 1998). Hilsa is relatively fecund, and numbers of eggs are found to be 0.14 million (28 cm length) up to 2.3 million (44.5 cm length). The peak breeding period for hilsa is during the full moon in the month of October (Halder 2004)⁶.

The fish is found in the Persian Gulf, Red Sea, the Arabian Sea, the Bay of Bengal, Vietnam Sea and China Sea. The riverine habitat covers the Shatt Al-Arab and the Tigris and Euphrates of Iran and Iraq; the Indus in Pakistan; the Irrawaddy in Myanmar; the rivers of eastern and western India viz., the Ganga, Bhagirathi, Hooghly, Rupnarayan, Brahmaputra, Godavari, Narmada, Tapti; as well as the Padma, Jamuna, Meghna, Karnafuly, and other coastal rivers of Bangladesh (IUCN, 2014)⁵. About 86% of the global hilsa catch comes from Bangladesh (Figure 2) while the other hilsa producers are India (10%), Myanmar (3%) and others 1% (Iran, Iraq, Kuwait and Pakistan etc).

![Fig 1: Migratory life cycle for hilsa](image)

**Table 1: Species of hilsa, their global distribution and present status**

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Name of species</th>
<th>Global distribution</th>
<th>Present status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tenualosa ilisha</td>
<td>Myanmar to Arabian (Persian) Gulf, mainly in the Bay of Bengal, Bangladesh.</td>
<td>Widespread and best-studied species. Production appears to be static in the region, except for increases in Bangladesh.</td>
</tr>
<tr>
<td>2</td>
<td>T. toli</td>
<td>Bay of Bengal, Bangladesh (Chandana ilish), Malaysia (Sarawak); Indonesia.</td>
<td>Now rare in Bangladesh; catches declining in Malaysia and Indonesia.</td>
</tr>
<tr>
<td>3</td>
<td>T. macrura</td>
<td>Coastal waters of Indonesia and Malaysia (Sarawak).</td>
<td>Catches declining in Malaysia and Indonesia.</td>
</tr>
<tr>
<td>4</td>
<td>T. reevesii</td>
<td>South China Sea</td>
<td>Very rare, detailed status report not available.</td>
</tr>
<tr>
<td>5</td>
<td>T. thibaudeaui</td>
<td>Mekong River of Vietnam and Laos (South China Sea).</td>
<td>Very rare, detailed status report not available.</td>
</tr>
</tbody>
</table>

As a single species, hilsa is the most easily renewable fishery resource. The average growth rate for hilsa production in the last decade was about 5.26% due to timely and effective
measures taken by the government under the Department of Fisheries (DoF). During the 2008-2009 fiscal year, output of the species in Bangladesh was some 0.313 million tonnes, increasing to 0.533 million tonnes in 2019-19 (Figure 3) which represented 12.37% of the nation’s fisheries production and presenting a market value of about US$2357.37 million (US$4.71/kg). The contribution of hilsa to the national GDP is about 1%.

Hilsa plays a pivotal role in the national economy of Bangladesh by generating employment. Nearly 0.6 million fishermen are directly involved in hilsa fishing along the Padma-Meghna river tributaries and a total of about 2.5 million fishermen are engaged directly or indirectly with the hilsa value chains. Clearly, the livelihoods of the small-scale fishing communities are greatly dependent upon the harvesting and marketing of this important fishery resource. Thus, hilsa plays a key role in the poverty reduction, employment generation and meeting food and nutritional demand of the small-scale fishermen in Bangladesh.

Government initiatives in managing the hilsa fishery

In the 1980s the hilsa fishery contributed 20% of Bangladesh’s total fish production but the trend started to decline in the early nineties and by the 2002-2003 FY, this contribution was down to only 8%. Several reasons such as heavy siltation, indiscriminate exploitation of juveniles, disruption of their migration routes, loss of breeding, feeding and nursery grounds, and increased fishing pressure were behind the decline of catch per unit effort in both the marine and river hilsa fishery.

To revive the dwindling fishery stocks and conserve the heritage of this national fish, the Government of Bangladesh, through the Department of Fisheries (DoF), compiled the ‘Hilsa Fisheries Management Action Plan (HFMAP)’ in 2002. Following successful implementation of the key objectives of the HFMAP since 2005, hilsa production started increasing in 2004-2005, from 0.298 million tonnes (3.5% of the national fisheries production) in 2008-2009 and reaching 0.533 million tonnes (12.37%) in 2018-2019 (Figure 3). Under the HFMAP, the DoF has launched various useful measures including incentive-based approaches for the hilsa fisherfolks considering the sustainability of the hilsa fishery and economic importance. Some of them are:

Amendment of legislation

- ‘The Protection and Conservation of Fish Act 1950’ was amended and revised in 2011 to protect gravid hilsa and promote uninterrupted spawning of hilsa. Previously,
the main breeding season of hilsa was considered as 11 days from the 1st day of the full moon of the Bengali month Ashwin. The gravid hilsa fishing ban period was subsequently extended from 11 days to 14 days after consultation with the respective stakeholders including hilsa fishers and considering field experiences;

Meanwhile, the Juvenile Hilsa Conservation Act has also been revised (in 2014) as ‘The Protection and Conservation of Fish (Amendment) Act 2002’. The revised act states that fishing, transport, sales, and storage of juvenile hilsa of less than 25 cm or 10 inches will be considered as punishable offences during 1st November to 30th June of the following year.

Establishment of six hilsa sanctuaries

Sanctuaries were set up to provide refuge to the fish, the main purpose being to protect the hilsa from exploitation during their breeding, nursing, or grazing periods. Following amendment of ‘The Protection and Conservation of Fish Rules 1985’, Bangladesh has established six hilsa sanctuaries in the Administrative Districts of Barishal, Bhola, Patuakhali, Lakshimpur, Chandpur and Shariatpur. The sanctuaries cover about 432 km in river length, comprising 100 km in the lower part of the River Meghna, 90 km of the Shahbazpur tributaries of the River Meghna, 100 km along the River Tetulia, 40 km of the Andarmanik River in the Kalapara Upazila (sub-district) of Patuakhali, 20 km of the River Padma, and 82 km of Gajaria and the River Meghna.

Crackdown on illegal fishing

Special ‘combing operations’ against illegal hilsa fishing, especially the catching of juvenile and gravid hilsa during the fishing ban periods, is a common practice now (Table 2). Every year the DoF organises a special 15-day joint combing operation with the help of local law enforcing agencies including the Navy, Coast Guard and River Police to cease the use of illegal nets like monofilament gill nets, nylon nets and Set Bag Nets (SBN), and seine nets etc having a mesh size of less than 6.5 cm (2.6 inches). Awareness campaigns have also been strengthened to increase mass participation in order to prevent juvenile and gravid hilsa catches.

Demarcation of major hilsa breeding grounds

The Government has demarcated a 7,000 km² area as a major hilsa breeding ground in order to create a safe environment for successful spawning and subsequent natural recruitment. Fish harvest, transport, storage, and marketing of hilsa have been prohibited completely in these areas. The boundary points are: (i) Shaherkhali of Mirsarai Upazila to Haitkandi Point (Miani Point); (ii) North Tojumuddin of Tojumuddin Upazila to West Syed Awlia Point; (iii) Lata Chapali Point of Kalapara Upazila; and (iv) North Kutubdia of Kutubdia Upazila to Gondamara point.

VGF programme during hilsa ban periods

It is estimated that about 0.6 million people are directly involved in the hilsa fishery, and during the ban periods they face severe hurdles to sustain their families. Through the Vulnerable Group Feeding (VGF) programme, the Government provides food incentives for eight months to communities during the juvenile hilsa catch ban period and for 22 days during the gravid hilsa ban period. From the 2007-08 to 2018-2019 financial years, the Government has provided food incentives to an increased number of fishermen families (145,335 to 301,288, respectively) with a corresponding rise in quantity (10 kg to 40 kg). The VGF programme has an indirect influence on the natural recruitment of juvenile hilsa as well as smooth spawning of gravid hilsa, the benefits of which are reflected in the enhanced hilsa production during this period. It is expected that the DoF will strengthen the VGF programme in future by including more fishermen under this scheme.

Table 2: Results of combing operations to prevent juvenile hilsa catch, to cease the use of illegal hilsa nets and to protect gravid hilsa during 2016-2020 and 2016-2019 are summarised here respectively.

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>No of operations</th>
<th>Mobile court</th>
<th>Seized hilsa juveniles (MT)</th>
<th>Seized nets (lakh metre)</th>
<th>No of cases</th>
<th>Fine (lakh BDT)</th>
<th>No of fishermen imprisoned</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-2020</td>
<td>43,657</td>
<td>6,828</td>
<td>1,114.88</td>
<td>4,483.74</td>
<td>4,496</td>
<td>313.49</td>
<td>2,813</td>
</tr>
<tr>
<td>2016-2020</td>
<td>4,646</td>
<td>1,642</td>
<td>80.52</td>
<td>910.14</td>
<td>-</td>
<td>27.31</td>
<td>127</td>
</tr>
<tr>
<td>2016-2019</td>
<td>53,618</td>
<td>10,321</td>
<td>246.45</td>
<td>2,217.7</td>
<td>16,022</td>
<td>283.05</td>
<td>13,315</td>
</tr>
</tbody>
</table>
Alternative livelihood materials

In addition to the VGF programme, the Government provides training on alternative livelihoods and materials to sustain the hilsa fishers during the ban period such as aquaculture, cattle and poultry farming, and small-scale businesses like shop keeping, sewing and rickshaw van transport, etc. A total of 52,760 fishermen have received this assistance so far. This initiative should be expanded, and additional fishermen should be included in order to further support the hilsa fishery.

(1) Aquaculture extension training; (2) Shop keeping; (3 & 4) Distribution of livestock to hilsa fisher folk; and (4) distribution of sewing machines.

Challenges in hilsa fishery management

- Indiscriminate harvesting of juvenile and gravid hilsa through the use of illegal nets like gill nets, set bag nets, seine nets etc
- Overfishing of juvenile and gravid hilsa leads to lack of recruitment
- Destruction of hilsa habitats due to water pollution
- Complications in hilsa migration due to reduced river navigability
- The mesh sizes of juvenile and gravid hilsa harvesting nets were not specified earlier
- Large fishing community dependent on this important fishery
- Lack of logistic and manpower support to prevent illegal hilsa fishing
- Insufficient rehabilitation, vocational training, and contingency support for the hilsa fishers
- Lack of initiatives in transboundary and regional hilsa management projects

The way forward

- As a single species hilsa provides an ample opportunity for both the inland and marine artisanal fishery. Success in fishery management not only increases total hilsa production, the individual size of the fish, household incomes, and the position of women, it also helps to achieve the objectives of SDG 14 and opens the door for regional initiatives.

- According to the Technical Guidelines of the FAO Code of Conduct for Responsible Fisheries (Clause 7.1.3) regarding transboundary fish stocks, straddling fish stocks, highly migratory fish stocks and high seas fish stocks, where these are exploited by two or more States, the States concerned, including the relevant coastal States in the case of straddling and highly migratory stocks, should cooperate to ensure effective conservation and management of the resources. This should be achieved, where appropriate, through the establishment of a bilateral, subregional, or regional fisheries organisation or arrangement.
A collaborative, multilateral, transboundary hilsa management programme is extremely important not only to contribute to the sustainability of small-scale fisheries management but also with regard to regional nutrition and food security as well.

Countries with a hilsa fishery and/or dwindling hilsa stocks can adopt the effective management and conservation practices learnt by Bangladesh.

Management and conservation of fishery stocks is a continuous process. FAO and other regional/international fishery bodies should come forward and work with the competent authorities to maintain a sustainable hilsa stock nationally and regionally.

Concluding remarks

Sustainable hilsa production depends on the environment being pollution-free, good fertility rate, juvenile survival rate, unimpeded hilsa migration routes for uninterrupted breeding, scope of growth and amount of harvest. The major reasons behind the earlier decline of the hilsa fishery in Bangladesh were due to the indiscriminate juvenile hilsa catch using illegal nets, and frequent violations of fishing bans. It has been observed that if one-tenth of the juvenile hilsa catch can be prevented, an additional 0.1 million tonnes of hilsa will be produced per year.

Pragmatic hilsa management tools e.g., the VGF programme, distribution of alternative livelihood materials, and firm action against illegal fishing during hilsa ban periods have helped greatly to increase the juvenile hilsa stock. Likewise, policy reform, establishment of hilsa sanctuaries, demarcation of major hilsa breeding grounds, continuous monitoring and a long term hilsa fishery management action plan, have been instrumental in the restoration of natural habitats and smooth migration of hilsa in Bangladesh, as well as in reviving this unique regional and national important fishery. It is expected that other countries facing the challenge of dwindling stocks and lacking an inland fisheries conservation and management scheme can adopt a similar ‘incentive-based fishery management’ system.

References


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SOCIAL ACCOUNTABILITY AT SEA

By Katherine Short

In recent times with the success of the sustainable seafood movement, attention has necessarily turned to addressing social accountability at sea. The clear message must be that labour abuses are not acceptable in the seafood supply chain, and one way to demonstrate this is to benchmark against internationally accepted guidelines such as those developed by the not-for-profit organisation, On-board Social Accountability (OSA) International Ltd. OSA’s constantly updated benchmark tool encompasses criteria from all global schemes, guidances and criteria. It has been successfully trialed in Austral Fisheries and Frabelle Fishing and is now being deployed in RD Fishing, both the latter being members of the Papua New Guinea Fishing Industry Association.

Social accountability issues in the supply-chains of commercial seafood production are becoming increasingly important, with growing awareness about workers and their working conditions, whether in processing operations, aquaculture or at-sea harvest operations (labour on board).

In the last decade, there have been numerous investigations and reports on modern slavery at sea, labour abuses, human trafficking and forced labour that gravely affect the lives of workers and their families. More recently, there has been concern amongst governments and the supply chain that these injustices may involve illegal, unregulated and unreported (IUU) activities. Some operational practices and laws in major seafood importing markets (EU, UK, US) and exporting countries (e.g. NZ and Australia) are being tightened; these include the Trade Facilitation and Trade Enforcement Act (US) and the Modern-Day Slavery Act (UK, Australia, etc.).

As reports have continued to emerge about such abuses in the supply chains of major brands, companies are under mounting pressure from consumers, investors, media, and governments to demonstrate and maintain responsible and transparent supply chains. Seafood suppliers, including retailers, are responsible for ensuring their supply chains are free of, and condemn such practices, by proving that they avoid and prohibit labour abuses in their own supply chains. These may include policies, procedures, and management practices to minimise the risk and occurrence of human rights abuses. At the producer level, fisheries and farms must therefore prove that they do not operate this way and thus they need the support, capability building, evidence and impartial, independent assessment which are provided for, under programmes run by organisations such as On-board Social Accountability International Ltd (OSA). Others in the industry are also responding with notable recent commitments to address these issues, such as SeaBOS and the Global Tuna Alliance.

The scale of the problem

There are not yet any definitive studies summarising the scale of these issues. According to the International Labour Organization (ILO) and the United Nations Food and Agricultural Organization (FAO) we do know that the fishing and aquaculture sectors employ some 59.6 million people worldwide, including an estimated 43 million people who work in capture fisheries. The vast majority live in developing countries (Asia 83%, Africa 9% and South America 2.5%), with the rest in fish exporting countries in North America, Europe and the former Soviet Union. ILO estimates that there are approximately 24.9 million victims of forced labour associated with harvesting activities (farming, fisheries, and aquaculture) globally, generating illegal profits of US$150 billion per year.
Many, but not all, are associated with Illegal, Unregulated and Unreported (IUU) fishing operations.

It is estimated, from the range of available reports, that close to 40,000 fatalities occur worldwide annually in fisheries. Taking a regional view, the prevalence of modern slavery was highest in Africa with 7.6 victims for every 1,000 people in the region. This was followed by Asia and the Pacific (6.1 victims) and Europe and Central Asia (3.9 victims). There are no published estimates for the Asia Pacific region, where modern slavery is of grave concern.

Countries with the highest risk of modern slavery are highly dependent on distant water fishing, often beyond the reach of domestic enforcement. This latter characteristic is worrying given that with coastal fisheries depleted, the average distance to fishing grounds has increased to 1,250 km, or 260% since 1950.

<table>
<thead>
<tr>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 2016, 59.6 m people involved in fishing or aquaculture (FAO)</td>
</tr>
<tr>
<td>40.3 m working in capture fisheries (FAO)</td>
</tr>
<tr>
<td>At least 40,000 fatalities occur annually in fisheries (ILO)</td>
</tr>
<tr>
<td>~4.6 m fishing vessels operating globally</td>
</tr>
<tr>
<td>Fish is one of the most traded commodities (UNCTAD, FAO)</td>
</tr>
<tr>
<td>35% of all fish products enter the international trade (UNCTAD, FAO)</td>
</tr>
<tr>
<td>660 - 880 m people depend on seafood sector (FAO, 2016)</td>
</tr>
<tr>
<td>Fisheries is one of the riskiest jobs worldwide, at par with mining and logging (UNCTAD)</td>
</tr>
<tr>
<td>Fisheries fatality rates are 3.5x (Canada) – 15x (Republic of Korea) above national averages. Likely to be much higher in developing countries where data are less available (Teh et al, 2019)</td>
</tr>
<tr>
<td>Average distance to fishing grounds has increased to 1,250km, or 260% since 1950 (FAO)</td>
</tr>
<tr>
<td>24.9 m forced labour victims globally generating US$150 bn profits annually (ILO)</td>
</tr>
<tr>
<td>IUU fishing accounts for up to 30% of catches in some regions (EJF)</td>
</tr>
<tr>
<td>Global cost of IUU fishing estimated at US$15.5 - 36.4 bn annually, for 11 to 26 m tonnes of seafood (Global Financial Integrity (2017) and the Developing World)</td>
</tr>
<tr>
<td>Teenagers and adults are abused, sometimes sexually, forced to work in appalling conditions, may be under debt bondage, are expected to eat little more than bait and rice, and are often at sea for months, if not years on end (various sources)</td>
</tr>
</tbody>
</table>

Purse seine tuna fishing - OSA is working with members of the Papua New Guinea Fishing Industry Association to develop and implement better social accountability.

**Addressing on-board social accountability**

There are now more than 40 initiatives globally addressing modern slavery, including in the seafood sector. On-board Social Accountability (OSA) International Ltd was established in April 2020 as a not-for-profit limited liability company to support the seafood sector to improve working conditions and the well-being and livelihoods of global seafood workers.

OSA is committed to seafood sector capability building and therefore not designed to expose bad behaviour; but it uses thorough, confidential, careful client work to enable change from within. OSA is aware of the long-term challenges facing some fisheries and the careful, multi-cultural and full supply chain work that must be done to bring about change. OSA is predicated on recognising that people who are treated better are far more likely to treat the product, the environment, each other, and wildlife better. Social accountability work is about managing people which is never easy!
The OSA Technical Framework (shown above) has two integrated components beginning with Risk Assessment, and then diving deeper with the Benchmark Assessment. The Risk Assessment applies major international risk indices to understand the country, fishery and company context. It can be used by retail, fishery association, NGO and government clients to understand the risk profile of a given product or species.

The Benchmark Tool is an in-depth assessment of company and vessel operations. The Technical Framework factors all Conventions, standards, criteria and guidances, including from NGOs but which are mostly based on ILO C188. No single standard for on-board social accountability exists yet.

Both the Risk and Benchmark Assessments are living frameworks; they are updated with any new guidance and adapted to seafood operations across vessels, aquaculture and processing. OSA has distilled 18 indicators and over 100 criteria for the Benchmark Tool. The OSA Model provides performance data back to the client to improve workforce productivity, efficiency, effectiveness, and well-being. It also improves the transparency of companies, fleets, retailers, governments, and civil society, especially when OSA reports are made public by the company as in the case of Austral Fisheries which published their second review report.

The challenges of social accountability

In 2012 when the OSA tool was created, only ILO C188 and six guidance or regulation frameworks for on-board social accountability existed. Since 2016, a “boom” has resulted in over 30 codes of conducts, draft standards, regulations, and guidances that are fundamentally based on ILO C188 and anti-IUU fishing and UN declarations. It can be a confusing unproductive space for retailers, NGOs and fishing companies to navigate. There was a similar proliferation issue in the 90s for HACCP control systems and latterly for sustainable seafood consumer recommendations and ecolabels. OSA monitors the many frameworks for social accountability and integrates the best elements into its assessment frameworks and can thus prepare clients to be audited against the framework they need for their target markets.

Other common challenges include:

- It can be difficult to secure agreement about audit timing as vessels must be in port.
- Methods to assess fishing trip time, length, working hours are still emerging.
• Multiple recruitment agencies between crew and the fishing company and control is difficult.
• Vessel Captains, crew and company personnel must all be available to participate in assessments.
• Overcoming language barriers must be planned for in assessment and audit processes and independent translators are required.
• There is a direct relationship between the size of the fishing company and crew benefits i.e. the bigger the company, the better the conditions often are.

Poor or lacking:
• Internal communications regarding health and safety, human rights and crew access to communication channels i.e. Wifi.
• Management systems and supporting documentation.
• Capability for verification and internal control.
• Common area hygiene.
• Baselines for living wages and bonuses.

Building a fishing fleet social responsibility management system

Remarkably, across the guidance frameworks globally, including in ILO C188 there is little emphasis on management systems. However, SA8000 and the Marine Stewardship Council’s v2.1 Standard are underpinned by them. In both the assessment framework and capability building approaches that OSA uses, there is a strong focus on management systems so seafood companies can integrate social accountability into daily business. The Progress Pyramid below describes the journey a seafood company can take to do this.

Case studies

The following case studies conducted by OSA personnel resulted in tangible implementation projects in both tuna and toothfish fleets that improved the crew working conditions and welfare. These went beyond setting regulations or guidance; and included second- and third-party auditing on-board.

Case Study 1: tuna

In 2015, OSA conducted social accountability assessment of five tuna seiners. This involved 21 crew across five nationalities and countries, four brokers/crew agents and operations in Indian Ocean waters. The diagram on the next page shows how performance improved between the two assessments.
Social accountability tool monitoring & verification

In 2016-2019, Austral Fisheries contracted OSA to review their social accountability. This involved three multi-purpose vessels (longline and trawl), 28 crew per fishing vessel and two observers, six nationalities and countries, one agent and operations in Antarctic and Australian waters.

The diagrams below show how performance improved between the two assessments.

Social Indicators (2016)

OSA found that the fleet had a high degree of compliance with international regulations and market requirements and that establishing a formal management system allowed them to go to the next level of transparency and public reporting.

These two case studies illustrate how social accountability improvements can be assessed and complement law enforcement. Practices improved in port and in relation to implementing coastal and flag state requirements. However, OSA found that: crew communication channels were limited, there was no reference to living wage(s), supplier control was missing, and agents and brokers were beyond company control. Key remedies included developing management systems which OSA recommends as a “must-do” starting point. Furthermore, developing electronic tools may assist crew on-board.

Living and working conditions on-board

A range of crew living and working conditions on-board are presented below including the comfortable, modern conditions on-board tuna purse seiners in the Philippines and Papua New Guinea (Photos A), Spain (Photos B) and the sadly infamous conditions on a tuna longliner (Photos C).

Photos A: Philippine and PNG tuna vessel crew area conditions

Credit: Marcelo Hidalgo
Katherine Short (katherine@osainternational.global) is General Manager of On-Board Social Accountability (OSA) International Ltd. She is a well known international sustainable seafood professional having served with WWF for nearly seventeen years, including seven based at the WWF global headquarters in Geneva, Switzerland. She is a Partner in Terra Moana Ltd, a sustainability advisory company based in Wellington, New Zealand and which supports the largest Māori owned seafood company, Moana New Zealand, on its sustainability journey. She has a Masters in Conservation Science from Imperial College London.

Quantitative modelling

The spider diagrams shown previously are the product of how the OSA assessment tool can calculate overall scores for social accountability management system improvement. OSA also has quantitative modelling capability, enabling clients to understand their social accountability performance across a range of approaches, as described below.

**Return on Investment (ROI)**

For many in the seafood sector adopting a certification scheme, showing consumers and markets worldwide that one’s operations are both sustainable and that workers are treated fairly, may be seen as a necessary evil. The OSA assessment tool, through using a bottom up approach, can support companies to analyse their operational data and to design tools, systems and analysis to identify tangible return on their investment (ROI) by improving their social accountability management. A range of tangible bottom-line ROI opportunities can be the outcomes of assessment and certification:

**Social ROI**

Social impacts have been considered “soft measures” and are often harder to measure. OSA has developed metrics to quantify crew conditions that can be augmented with assessing attitudes and behaviours (social indicators). These can be reassessed after implementing a social responsibility management system. Furthermore, they can be analysed relative to vessel performance to show how treating people better often results in improved vessel performance and catch. Such social indicator measures include wellbeing, work output and performance rates, as well as crew recruitment and retention rates, and can be compared versus vessel inputs (fuel, bait, gear etc) and outputs (catch, reduced bycatch). These can also be compared across companies, fleets, countries, and regions.

**Direct economic ROI**

Direct economic impacts are those that can be easily measured using a baseline starting point and analysing the trajectory from that baseline to current usage levels such as what the costs and benefits are of the changes that occur as a direct result of the associated initiative or action. These can relate to fuel usage, waste management, catch performance, bycatch, processing efficiency and product quality through to market returns.

**Summary**

There are still too many incidences of a range of labour abuses and human rights violations happening on vessels, not only to the fishing crew but also observers on-board. Clearly, the need for a sense of social responsibility in fisheries has never been greater. While the FAO is working on guidelines on this issue, there is as yet, no single, globally accepted standard except for the common elements in the social responsibility benchmark developed by On-Board Social Accountability (OSA). By assessing themselves against a benchmark such as this, companies are better able to implement social accountability, improve worker conditions and demonstrate responsibility and transparency in their supply chains.
INFOFISH TUNA 2021
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19 – 21 MAY 2021

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Also not to be missed will be a skilful demonstration on sushi and sashimi presentation by Yuki Chidui, the first female sushi chef in Japan.

Come share your thoughts and engage virtually with the who’s who of the tuna industry. Listen to pandemic survival experiences, trade wars, frontliners’ inspiring stories, revolution in retail marketing, e-commerce, technological innovations, sustainable tuna management and certification.

Register early to reserve your space! Closing date for registration is 17 May 2021. Visit www.tuna2021.vfairs.com for more information.

Message from Chairman, INFOFISH TUNA 2021

Since our last Bangkok Tuna Conference, COVID-19 has changed all of our lives. We still don’t know what post-COVID life will be like. Nonetheless, our industry’s wheels have continued to turn, despite all the difficulties. Credit to all the workers around the world in fishing and transport vessels, processing plants, distribution centres and retailers, who enabled the tuna wheel to continue turning. They are the heroes of this pandemic.

Our tuna world continues to evolve and challenge us. Social sustainability, particularly the working conditions of employees at sea and ashore has become a critical focus for us. Resource sustainability continues to be a concern in some oceans. We have much work to do.

Tuna is the premier global tuna event. We are truly fortunate that technology allows us to meet online. Our large panel of excellent speakers, many of them leaders in their respective spheres, will have much of interest to tell us. Nothing will replace the value and pleasure of in-person meetings, but I’m confident that our online experience this year will be good, and a return to a physical conference in 2022 will be even better!

GUESTS/KEYNOTE SPEAKERS

Ms Maria Helena Semedo
FAO Deputy Director-General
Italy

Hon. Semi Koroilavesau
Minister for Fisheries
Fiji

HE Ambassador Peter Thomson
UN Secretary-General’s Special Envoy for the Ocean
SESSION 1: INDUSTRY UPDATES: SURVIVING THE PANDEMIC AND TRADE WARS

Marcio Castro De Souza  
Senior Fishery Officer,  
Food and Agriculture Organization of the United Nations (FAO)  
Italy

Dr. Chanintr Chalisarapong  
President  
Thai Tuna Industry Association  
Thailand

Ms. Jan Tharp  
CEO and President  
The Bumble Bee Seafood Co.  
USA

Dr. Julio Moron  
Director General  
Organization of Producers of Frozen Tuna  
Spain

SESSION 2: SUSTAINABILITY AND SOCIAL ACCOUNTABILITY: FRONTLINERS TO THE FORE

Mr. Phil Roberts (Moderator)  
Tri Marine International Pte Ltd  
Singapore

Ms. Susan Jackson  
President  
International Seafood Sustainability Foundation  
USA

Dr. Darian McBain  
Global Director  
Sustainable Development  
Thai Union Group PCL  
Thailand

Mr. Luciano Pirovano  
Global Sustainable Development Director  
of Bolton Group Food Business Unit  
Italy

Mr. Mikel Hancock  
Senior Director  
Sustainability  
Walmart  
USA

Mr. Iain Pollard  
Director  
Key Traceability Ltd  
England

Mr. Brandt Wagner  
Unit Head  
Transport and Water International Labour Organization (ILO)  
Thailand

Mr. Martin Thurley  
Executive Director,  
Seafood Task Force  
UK

MEET OUR SPEAKERS
MEET OUR SPEAKERS

SESSION 3 (i): RETAIL MARKETING: NOT BUSINESS AS USUAL?

Ms. Estela Cuesta (Moderator)
News Analyst
IHS Markit
United Kingdom

Mr. David Vivas
Legal Officer
UNCTAD
Geneva, Switzerland

Mr. Henk Brus
Managing Director
Pacifical c.v.
The Netherlands

Mr. John Connelly
President
National Fisheries Institute
USA

Mr. Arnab Sengupta
Consultant

SESSION 3(ii): E-COMMERCE & LOGISTICS: REVOLUTIONIZING RETAIL GROWTH

Dr Audun Lem (Moderator)
Deputy Director
Fisheries and Aquaculture Department
Food and Agriculture Organization (FAO) of the United Nations
Italy

SESSION 3(ii): E-COMMERCE & LOGISTICS: REVOLUTIONIZING RETAIL GROWTH

Mr. Vaughan Ryan
Managing Director- Asia Consumer Intelligence
NeilsenIQ.com
Singapore

Mr. Thue Barfod
Global Head of the Fish & Seafood Segment
Maersk Asia
Hong Kong

Mr. Bubba Cook
Tuna Programme Manager
World Wide Fund for Nature (WWF)
New Zealand

Mr Martin Barbaresi
Director of Marketing
Grupo Calvo
Spain

SESSION 4: TECHNOLOGICAL INNOVATIONS

Mr. Henk Brus (Moderator)
Managing Director
Pacifical c.v.
The Netherlands

Mr. Gabriel Gomez
Managing Director
Marine Instruments
Spain

Mr. Adrian Carril
Commercial Director
Hermasa
Spain

Mr. Kazuhiro Shimura
Creative Director
Dentsu Inc. (TUNASCOPE)
Japan

Mr. Bradley Soule
Director of Intelligence
OceanMind
UK

Mr. Gonzalo Campos
Fish and Convenience/Ready Meals, Senior Marketing Manager-EMEA
Sealed Air Food Care
Spain

Co-presenter:
Mr. Soni Surendra
Marketing Director – Asia Pacific, Sealed Air Corporation

Ms. Kathryn Gavira O’Neil
Scientific Advisor
Satlink
Spain
SESSION 5 (i): SUSTAINABLE TUNA MANAGEMENT

MEET OUR SPEAKERS

Helga Josupeit (Moderator)
Senior Adviser, INFOPESCA
Uruguay

Mr. Guillermo Compean
Director
Inter-American Tropical Tuna Commission
USA

Mr. Francisco Tiu Laurel Jr
Chairman
World Tuna Purse Seine Organization

SESSION 5 (ii): SOCIAL ACCOUNTABILITY AND CERTIFICATION DURING THE PANDEMIC PERIOD

Ms. Yemi Oloruntuyi
Marine Stewardship Council

Mr. Paolo Bray
Friend of the Sea

Mr. Marcelo Hidalgo
On-board Social Accountability International

Ms. Tashryn Mohd Shahrin
Greenpeace Southeast Asia

Mr. David Hammond
Human Rights at Sea

SESSION 6: PARTNERS IN DEVELOPMENT

Ms. Merce Boix
BioSystems
Spain

Ms. Shama Shareef
Ensis
Maldives

DEMONSTRATION ON SUSHI AND SASHIMI TUNA PREPARATION

Ms. Yuki Chidui
Owner of Nadeshiko Sushi
Japan

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TRADE PROMOTION OFFICER

Working under the overall supervision of the Director, INFOFISH, the Trade Promotion Officer shall be responsible for the following:

- Monitor and review fishery trade in the Asia Pacific region and beyond;
- Collect and analyse price and market information on specific fishery products for the ‘INFOFISH Trade News’, a fortnightly bulletin;
- Attend to queries on supply, marketing and trade of fishery products worldwide;
- Work on identification and export promotion of fishery products from the region;
- Maintain regular contact with institutions, market news correspondents and organisations relevant to the fish marketing information network;
- Write and review articles pertaining to marketing and international trade of fishery products for the INFOFISH International magazine and other publications;
- Undertake other activities as assigned by the Supervisor or the Acting Director/Director.

• Post graduate degree from a reputable university in Fisheries / Fisheries Economics / Economics / Marketing / Trade/Business Management or related fields;
• Experience in international trade and marketing;
• Excellent writing and communication skills in English;
• National of a Member Country* of INFOFISH

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The Director
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Email: info@infofish.org

Closing date: 15 June 2021
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In memoriam

John Henri de Saram

Mr de Saram was also an avid and acclaimed painter of mainly Sri Lankan seascapes and landscapes, donating many of those paintings to cancer homes in the country.

It is with great sadness that we announce the passing of Mr John Henri de Saram on 21 February 2021 at the age of 84 years in Colombo, Sri Lanka.

As Director of INFOFISH from 1987 to 1993, he helped to expand the organisation’s role as a premier source of fisheries marketing information for the Asia-Pacific, steering INFOFISH with his trademark quiet strength, vision and wit. Even after he had retired, he took a keen interest in INFOFISH and its work. His wise counsel and continued support will be dearly missed.
New agri-fund will boost green production

Singapore — A S$60 million Agri-Food Cluster Transformation (ACT) Fund was announced recently, replacing the Agriculture Productivity Fund which expired last year. It will be launched later this year by the Singapore Food Agency (SFA), a unit under the Ministry of Sustainability and the Environment. This fund was unveiled as a part of the Singapore government’s Green Plan 2030 led by the Ministry of Education (MOE), the Ministry of National Development (MND), the Ministry of Sustainability and the Environment (MSE), the Ministry of Trade and Industry (MTI) and the Ministry of Transport (MOT) to map Singapore’s green targets for the next 10 years. Overall, Singapore’s goal is “30 by 30”, which is to produce 30% of the country’s nutritional needs by 2030. Currently, the nation produces less than 10% of its own food.

Under the ACT Fund, aquafarmers looking to set up new sites or retrofit indoor spaces at industrial sites can apply for co-funding of up to $1.5 million to cover infrastructure and building costs, as well as the technology to reduce pollution and waste along the farm-to-fork value chain. It will also cover operating expenses related to the upcoming Clean and Green Standard to be launched later this year, such as the purchase of equipment and certification-related fees.

There are three components under the funding scope - “Technology Upscaling”, which provides co-funding support for the purchase of commercial-scale and advanced farming technology; “Innovation and Test Bedding” which provides co-funding support for farms to prototype or develop innovative farming technology; and “Capability Upgrading”, which provides co-funding support for farms to procure approved equipment and systems. In Parliament, Singapore’s Deputy Prime Minister and Finance Minister, Heng Swee Keat gave Eco-Ark, a high-tech fish farm off the Changi coast with a total capacity of 96 tonnes, as an example of the kind of innovation that the ACT Fund will support.

Collaboration involving genetics and farming

Norway — Benchmark Genetics (BG) has reported that it has entered into a contractual agreement with World Heritage Salmon (WHS), which will produce Atlantic salmon in the discontinued olivine mines in Sunnylsfjorden. BG will supply the genetics adapted to land-based farming and there will also be a mutual exchange of expertise.

WHS plans an annual production of up to 100,000 tonnes of salmon, which equals a yearly demand of 20 – 25 million ova through the year. The contract is initially for five years starting 2023, and with a further option for additional five years. The two partners have agreed to exchange experience and expertise related to land-based farming, including both the project phase and the smolt and grow-out facilities’ operational phase.

New hatchery technology for seabream

India — The Central Marine Fisheries Research Institute (CMFRI) has developed breeding technology for picnic seabream (Acanthopagrus berda), also known as black seabream or gold silk seabream. This species has a high domestic demand and is sold at a price of around US$ 6.19-6.87/kg.

The next step for the Institute is to standardise the farming protocol for the fish, with a view to introducing it in mariculture ventures. According to the CMFRI Director, India has a target of four to five million tonnes of fish production in the next 10 years from mariculture. Part of the plan to achieve this target is to increase species diversification by enhancing the scale of marine cage farming system across the coastal states of India. This is the seventh marine food fish breeding success by the Institute, after the broodstock development of other marine species like cobia, silver pompano, Indian pompano, spotted grouper, pink eared emperor and John’s snapper.

More focus on seaweed

Australia — As part of the launch of ‘Transformations for a Sustainable Ocean Economy’ in December 2020, Australia’s Prime Minister Scott Morrison announced seaweed aquaculture as a priority for the achievement of ambitions set out by its membership in the High Level Panel for a Sustainable Ocean Economy (Ocean Panel). The plan is to “Scale up environmentally responsible commercial farming of seaweed and algae to provide food and create alternatives for products such as fuels, aquaculture and agriculture feedstocks, biotech, and viable and sustainable plastic alternatives.”

Established in September 2018, the Ocean Panel is an initiative by 14 world leaders from Australia, Canada, Chile, Fiji, Ghana, Indonesia, Jamaica, Japan, Kenya, Mexico, Namibia, Norway, Palau and Portugal. The Panel members set out to develop a transformative set of recommendations to deliver a sustainable ocean economy that would benefit people everywhere and effectively protect the ocean. The result is a new ocean action agenda that – if
achieved – could help produce as much as six times more food from the ocean, generate 40 times more renewable energy, lift millions of people out of poverty, and contribute one-fifth of the GHG emissions reductions needed to stay within 1.5°C.

Renewed call to IOTC for urgent reforms

Indian Ocean – At the close of the Indian Ocean Tuna Commission (IOTC)’s Special Session held virtually from March 8-12, the International Seafood Sustainability Foundation (ISSF) expressed disappointment that the Commission had failed to agree on a science-based and enforceable rebuilding plan to ensure the long-term sustainable management of the overfished yellowfin tuna stock.

The ISSF said that “delaying action until the June 2021 Commission Meeting risks further stock declines at a time when some nations already have exceeded existing inadequate yellowfin catch limits and other parties are exempted from catch limits altogether”.

Prior to the IOTC Special Session, ISSF had published a position statement ahead of the Indian Ocean Tuna Commission’s (IOTC) virtual March 8-12 Special Session. Specifically, ISSF called on IOTC to:

- Adopt without delay an effective rebuilding plan for yellowfin tuna that gives full effect to the advice of the IOTC Scientific Committee and achieves spawning stock biomass capable of producing MSY (SSBMSY) by 2027 with at least 50% probability, ensuring all gears and/or fleets harvesting yellowfin are taken into account to improve rebuilding potential of Resolution 19/01. If implemented effectively, this would imply a 15%-20% reduction from the 2017 yellowfin catch levels. IOTC must also address over-catches in contravention of Resolution 19/01;
- Ensure Contracting Party and Cooperating Non-Contracting Party (CPC) compliance with the rebuilding plan through the IOTC Compliance Committee;
- Urgently monitor and manage catches of skipjack to ensure catches in 2021 do not exceed the limit set by the adopted Harvest Control Rule in Resolution 16/02.

EU fight against illegal fishing must go digital

EU - Lawyers at ClientEarth have published new research confirming that EU countries urgently need an online, Union-wide system to track and catch
illegal fish imports, which cost the fishing industry billions every year. The research, which looks at a decade of Spain’s fight against illegal fishing, suggests all EU Member States should get on board with the use of recent technology.

The news comes as the European Parliament PECH Committee gave the green light to the mandatory use of ‘CATCH’, an EU-wide online system that would house all the catch certificates for imported fish. This is the first positive step before the final vote in the European Parliament in the coming months under the revision of the EU fisheries control system. However, ClientEarth is calling on all EU countries to quickly step up the fight against IUU fishing by implementing CATCH on a voluntary basis now, instead of waiting for it to become mandatory after the implementation period which could take years.

**Thai Union announces further commitment to transparency**

**Thailand** - Thai Union reported in a March 2021 press release that it has partnered with The Nature Conservancy (TNC) as part of its commitment to full supply-chain transparency in its global tuna supply chains. The company will work with TNC’s sustainable fisheries experts to implement 100% ‘on-the-water’ monitoring of its vast tuna supply chain by 2025. This work includes deploying electronic monitoring on all of its partner vessels in the supply chains including onboard video cameras, GPS, and sensors to automatically track activities onboard and/or human observers.

Through this partnership, Thai Union and TNC will also jointly advocate and engage with governments, regulators, and supply chain actors to drive progress towards 100% monitoring at sea by 2025 within its European wild caught sprat, mackerel, herring and whiting supply chains. In addition, Thai Union will implement a fish aggregating device (FAD) management plan in their wild caught purse seine tuna supply chain that mitigates environmental risks no later than 2025.

**BFAR lifts sardine closed season in Visayan Sea**

**The Philippines** - The Bureau of Fisheries and Aquatic Resources (DA-BFAR) lifted the three-month closed fishing season in the Visayan Sea on 16 February 2021. The fishing ban is instituted annually to ensure the protection and conservation of sardine and herring (Clupeidae) as well as mackerel (Scombridae) during their spawning season. Recent data from the Philippines Statistics Authority show that sardine production in 2020 was 391,175.92 tonnes, of which 4.03% comes from the Visayan Sea.

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The sardine closed fishing season is integrated in the National Sardine Management Plan which the DA-BFAR is already adopting. Under the Plan, the Bureau is working towards the sustainability of the sardine industry, aiming for three main goals: to establish improved science-based indicators for the sustainability of sardine stocks; to improve distribution of benefits among the sardine fisherfolk; and to strengthen science-based management for a sustainable fisheries industry.

**Hilsa fishing ban in force till May**

**Bangladesh** – A two-month ban on the fishing of hilsa is in force within an area of 432 km in six districts starting from midnight of 28 February 2021, said the Department of Fisheries, Bangladesh. Affected by the ban is an area of 100 km from Shatnal Point in Chandpur to Char Alexander in Lakshmipur, 90 km from Charilisha to Charpial in Bhola, 100 km from Charveduria in Bhola to Charrustam in Patuakhali, 82 km from Barishal Sadar to Mehendiganj upazila, 20 km from Naria to Bhederganj of Shariatpur, and 40 km area of Andharmanik river in Kalapara of Patuakhali.

During the ban period, no fish can be caught in the rivers of these districts, and neither is selling or transporting hilsa in the areas allowed. Instructions have been passed through the local administrative officers of the concerned areas to make this programme a success. Preparations have also been made to conduct operations locally against violators where needed. The annual bans have been proven to be effective not only to reduce the overfishing of juvenile and gravid hilsa, but also to enhance sustainable hilsa management and conservation.

**WWF calls for 30% protection of the Mediterranean Sea**

**Mediterranean Sea** - Research by the World Wildlife Fund for Nature (WWF) stated that protecting 30% of the Mediterranean Sea could give a massive boost to declining fish species and marine biodiversity. Today, only 9.68% of the Mediterranean Sea has been designated for protection, with only 1.27% effectively protected.

In the Western Mediterranean, for example, the analysis shows the biomass of predator species like sharks could increase by up to 45%, that of commercial species like groupers by 50% and that of European hake could double. Even the bluefin tuna would potentially recover its biomass to a record-high increase of up to 140%.

In 2020, the EU had launched a Biodiversity Strategy, which states that at least 30% of EU seas must be legally protected and properly managed and monitored by 2030. WWF said that this commitment must be matched with concrete actions to reverse negative trends in the Mediterranean such as declining fish stocks due to unsustainable fishing. It is also crucial to tackle the impacts of climate change, which put the livelihoods of millions who depend on the sea basin’s health at risk. In late 2021, world leaders are expected to adopt a new Post-2020 Global Biodiversity Framework to halt and reverse the loss of nature and more than 50 countries are already calling for a commitment to protect 30% of the planet by 2030.

**MARKETING**

**TESCO adopts a Seascape approach for tuna sourcing**

**UK** - A March 2021 press release by the giant retail chain Tesco announced that the company is advocating for a Seascape approach to marine sustainability, which is designed to ensure whole marine ecosystems are maintained in a healthy, productive way. The retailer will first adopt the Seascape approach for its tuna sourcing and has set out a roadmap to transition to ecosystem-based fisheries management by 2030.

The new approach will see Tesco work in partnership with its own brand suppliers from this year to introduce new due diligence processes within its tuna supply chain, helping them to achieve its goal of 100% MSC certification across its tuna ranges by 2025. The supermarket will also continue to support Fishery Improvement Projects (FIPs), initiatives that aim to help fisheries work towards MSC certification.

Tesco will also encourage the industry-wide adoption of the SSB40 metric to report on the health of fish stocks. The metric will allow Tesco and its suppliers to know if their fish is being sourced from a marine environment in which the
amount of breeding fish present is at least 40% of the amount in the original populations.

The new approach was developed by Tesco and WWF in consultation with tuna experts and suppliers, and has been specifically designed to align with and build on existing tools and guidelines already widely used by the industry. This includes the guidelines of the Global Tuna Alliance (GTA) and the NGO Tuna Forum, and existing certifications and ratings from trusted bodies such as the Marine Stewardship Council (MSC) and the Marine Conservation Society’s Good Fish Guide.

Drop in export value during January – February

Norway – According to the Norwegian Seafood Council (NSC), seafood export value in February 2021 was NOK 8.7 billion (NOK 5.4 billion accounted for by salmon). This represented a decline of 5% in value compared to February last year, continuing the downward trend that started in January.

China and Italy, which were hit hard by the COVID pandemic last year, registered the biggest increases for salmon purchases by value this past February. In China, the demand was driven by the Lunar New Year festivities and extended holiday periods; while for Italy, the reasons for the rise were the lifting of the coronavirus curfew, the longer restaurant operating hours, and the lower prices of salmon at that time. Other major markets for salmon in February were Poland, France, and the US.

In February 2021 compared to the same month last year, export value declines were also seen for trout (-20%), for which the biggest markets were USA, Belarus, and Japan. Mackerel was down by 20% in value, with South Korea, Vietnam and Japan being the biggest markets.

FDA to issue labelling guidelines for cell-based seafood

USA – In October last year, the Food and Drug Administration issued a Request for Information entitled “Labelling of Foods Comprised of or Containing Cultured Seafood Cells,” to help the agency to determine what next steps may be needed to ensure that these foods are labeled properly. The questions asked of the industry included:

- Do we need to explain to consumers how these products are produced?
- What should we call cell-based seafood products?
- How do we distinguish cell-based products from conventional seafood products?

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• Do we need to create new categories for describing the cell-based seafood products?

• What characteristics (such as taste, nutritional profile, texture, aroma) are material to consumers when comparing conventional seafood to cell-based products?

The comment period ended on 8th March 2021, and the labelling guidelines are currently being formulated. In the meantime, the Alliance for Meat Poultry and Seafood Innovation (a coalition representing makers of cell-cultured protein products) and the National Fisheries Institute (NFI) have jointly called on the FDA to support requirements for labelling these new products “descriptively, accurately and consistently regarding what the products actually are and how they are made”.

According to a report from The Good Food Institute (GFI), last year a record $3.1 billion (€2.6 billion) was invested in companies creating alternative proteins such as plant-based and cell-cultured meat, seafood and other products.

The new McD's fish rice burger

Japan - Over the years, the McDonald's chain in Japan is noted for adapting its menu to local tastes, which explains items such as tsukimi moon-viewing burgers and matcha green tea dessert drinks. In February, it joined some of its food rivals in selling variations of rice burgers, including, for the first time ever, a fish rice burger.

The Gohan Fish Wafu Kurokosho (“Rice Fish Japanese-Style Black Pepper”) includes the usual McDonald’s Filet-O-Fish, rice, a slice of melted cheese, a special sauce enhanced with coarse ground pepper, roasted garlic powder, and soy sauce. The new burgers will be available until mid-May as part of the chain’s “Yoru Mac” (“Night Mac”) range, a special dinnertime menu first introduced in March 2018 in Japan. They are accompanied by the slogan: “Gohan dekita yo”, which literally translates to “The rice is ready” but is also used to mean “The meal is ready”.

Mislabelling still a big problem

An analysis by The Guardian newspaper of 44 recent studies said that of more than 9,000 seafood samples from restaurants, fishmongers and supermarkets in more than 30 countries, 36% were mislabelled, exposing seafood fraud on a vast global scale.

In one comparison of sales of fish labelled “snapper” by fishmongers, supermarkets and restaurants in Canada, the US, the UK, Singapore, Australia and New Zealand, researchers found mislabelling in about 40% of fish tested. The UK and Canada had the highest rates of mislabelling in that study, followed by the US. Sometimes the fish were labelled as different species in the same family; for example in Germany (Japanese scallop sold as king scallop) and Italy (fillets from less popular species of shark sold as from more coveted species). Some substitutes were of endangered or vulnerable species, and other samples proved to be not entirely of aquatic species.

However, the Guardian report continued, the studies in question sometimes target species known to be problematic, meaning it is inaccurate to conclude that 36% of all global seafood is necessarily mislabelled. The studies also use different methodologies and samples. Nor are fish always deliberately mislabelled – although the huge majority of substitutions involved lower-priced fish replacing higher-priced ones, indicating fraud rather than carelessness.

#TraceabilityPrinciples

Use data to inform decision-making
Create a program that is electronic, interoperable, and data secure
Be inclusive and collaborative with stakeholders
Build a lasting and scalable program
Maximize ecological, social, and economic benefits
Address data and certification needs across fisheries and supply chains
Interactive map on oceanic plastic waste

World Wildlife Fund for Nature (WWF) has developed an interactive map called the Global Plastic Navigator, which continuously shows the most current global data on marine plastic pollution from mismanaged waste on land, emission of rivers into the oceans and floating plastic concentration in the oceans. As and when new scientific data becomes available, the details are updated on the map. The visualised data is designed to assist decision-makers in developing the best possible strategies to stop the discharge of plastic into the world’s oceans. The sources of the data used are shown explicitly in the layer descriptions with references and if possible, links to the publications.

On the website, users can open different levels of a world map. The first shows where the concentration of floating plastic at the sea surface (by weight) is particularly high. The data is based on measurements from a total of 24 different scientific expeditions. On two further levels, the map shows where the plastic waste that collects in the sea comes from. On one level, the map shows the amount of poorly disposed of plastic waste per square kilometre that can potentially end up in the environment. WWF uses population data and the GDP of the respective countries to work this out. The second level shows the amount of plastic that flows from rivers into the sea each year, also measured by weight. The focus here is on the 122 most polluted rivers worldwide. Wind and rain cause large amounts of plastic waste to accumulate in rivers, which is then ultimately released into the ocean.
PAPUA NEW GUINEA: CERTIFIED TUNA FISHERY DEVELOPS A RESPONSIBLE SOURCING POLICY

By Marcelo Hidalgo

Since 2016, the Fishing Industry Association of Papua New Guinea (FIA PNG), in collaboration with the National Fisheries Authority (NFA), the Marine Stewardship Council (MSC) and others, has focused successfully on elevating responsible management of the country’s tuna fisheries. Its activities are based on four main pillars: Marine Stewardship Council certification (MSC); Catch traceability in the supply chain; Marine litter and fishing gear management practices; and Social accountability. The Association feels that in maintaining this focus, seafood supply chains can become more environmentally sustainable and socially responsible over time.

Fisheries are vital for food security, livelihood and sustainable development through businesses worldwide and at the same time they are also linked to the health of our oceans. Over the years, the global tuna industry has made tremendous progress and heightened collaboration with governments, non-governmental organisations and other stakeholders in addressing sustainability and ethical concerns related to societies, economies and environmental practices. In doing so, the industry remains in tandem with at least 12 of the UN’s Sustainable Development Goals.

In 2016, the Fishing Industry Association of Papua New Guinea (FIA PNG), in coordination with the National Fisheries Authority (NFA), embarked on a journey toward responsible management of the country’s tuna fisheries, with the aim of obtaining Marine Stewardship Council (MSC) fishery certification for the domestic fleet. This was based on the outcome of a FIA-NFA joint fisheries trade lobby committee that had recommended immediate work and implementation of a national MSC fishery certification for Papua New Guinea.
Since then, much progress has been made, aligning the country’s tuna industry with the Tuna 2020 Traceability Declaration, which is a non-legally binding declaration on the implementation of SDG 14, and which was announced at the United Nations’ The Ocean Conference in June 2017.

Focus on responsible management

The Fishing Industry Association is a non-profit organisation founded in 1991, with membership consisting of the fishing companies and seafood processors of Papua New Guinea, all of whom are working to promote responsible management of the fisheries industry. For instance, the FIA PNG members are encouraged to implement practices that drive social responsibility practices related to labour conditions; to mitigate and minimise the impact of marine litter and fishing gear; as well as manage their fishing operations in a responsible manner by preserving biodiversity and conforming to the conservation measures included in the terms of the Marine Stewardship Council (MSC) certification.

The tuna members of the Association are involved in all aspects of the tuna supply chain – fishing, trading, logistics, processing, sales and marketing. These member companies are as follows:

- Frabelle Processing PNG Limited
- Frabelle Fishing Corporation
- RD tuna Canners Ltd PNG
- RD Fishing
- International Food Corporation (IFC)
- Majestic Seafood Corporation Limited
- Nambawan Seafood Corporation limited
- South Seas Tuna Corporation Limited (SSTC)
- Fair Well Fishery
- Trans Pacific Journey Fishing (TPJ)
- TPS marine fishing

The core business of the FIA PNG fishing and processing comprises selling whole round frozen tuna, pre-cooked frozen tuna loins, raw packed canned tuna, and canned tuna. The processors are mainly foreign investors who also have other processing sites in the Philippines and Thailand producing tuna in glass jars and pouches, among others.

The Association’s mission is to drive domestic fisheries industrialisation to create and enable maximum long term economic benefits from the sustainable use of the country’s fishery resources. The Association also promotes and supports initiatives that guide certain activities associated with its members’ fishing operations, as outlined below:

- minimise incidental mortality of non-target species and impacts on marine ecosystems;
- manage and prevent abandoned, lost or otherwise discarded fishing gear in the marine environment; and
- manage and mitigate marine pollution and its impacts on ocean and coastal environments, wildlife, economies and ecosystems, including the sustainable management of fishing aggregating devices.

FIA PNG tuna purse seiners

- 86 tuna purse seiners 2,268 Crew (onboard)
- 100% observer coverage (NFA)
- MSC fishery certified (skipjack, yellowfin and big eye*)

Tuna processing

- Six tuna processing factories
- 15,000 PNG local worker force
- MSC Chain of Custody certified
- Installed processing capacity 980 MT/day

*Scope extension to be included October 2021
being able to track and trace all catches from fishing ground to point of transhipment and/or unloading, processed into finished product for entry into the market, manage and cares not only the health of the fishery but also the human factor, when it comes to crew welfare and living on-board conditions in order to eliminate forced labor, and risk against human rights at the sea that are direct related to IUU.

**The Responsible Sourcing Policy**

The FIA PNG recognises that national fisheries management will be improved and enhanced only through vigorous compliance and enforcement during fishing operations, which will assist in its drive to meet certification requirements and standards.

In 2017 the Association undertook to develop and implement the Responsible Sourcing Policy (RSP) to increase the level of transparency in fishing operation and thereby to enhance fishery management. The RSP was launched officially in 2018 together with the announcement of the FIA PNG tuna fishery entering for the full MSC fishery assessment. Amongst other things, the Policy and procedures are meant to help protect marine ecosystems, sensitive habitats and biodiversity, control the use of fishing gear and mitigate marine litter and labour conditions.

The Responsible Sourcing Policy consists of four pillars: (i) Marine Stewardship Council certification (MSC); (ii) Catch traceability in the supply chain; (iii) Marine litter and fishing gear management practices; and (iv) Social accountability (labour welfare policy). These pillars, the most rigorous in the tuna industry, drive improvements across a range of fishing operations and help to safeguard the social rights, crew welfare, and safety of those who work on board as well as the communities depending on the resources. Implementation of the RSP started in 2019 with the setting up of a baseline after carrying out gap analysis for crew welfare and labour conditions onboard, as well as marine litter and fishing gear.

Through the Responsible Sourcing Policy, FIA PNG aims to be the world’s best industry advocate for fisheries management and reputable business, social welfare and sustainable resources. Its members are encouraged to have a strong governance and management system; adopt and promote sustainable fishing practices; minimise environmental impact; develop their employees’ wellbeing and create a positive social impact along the supply chain; and produce high quality products for healthy nutrition.

**Marine Stewardship Council (MSC) certification**

The FIA PNG fishery operates in the Exclusive Economic Zone and archipelagic waters, consisting of associated tuna sets (FADs) and unassociated tuna sets (free school), and including 86 tuna purse seiners. Between 2013 and 2017, 74% of the catches were sets done on free schools, but according to data on landings from June to December 2020, 91% of the catches were sets done on free schools (Table 1). This improvement is due to several factors like increased use of technology in fishing and understanding of current oceanic conditions. Meanwhile, it is worth noting that the stocks of the three tuna species *Thunnus obesus*, *Thunnus albacares* and *Katsuwonus pelamis* are considered to be healthy, according to the Western and Central Pacific Commission’s Kobe Process.

**Table 1: Production of MSC-certified tuna catches and canned tuna for global markets, July-December 2020**

<table>
<thead>
<tr>
<th>Tuna Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skipjack tuna (SJT)</td>
<td>51 793 MT</td>
</tr>
<tr>
<td>Yellowfin tuna (YFT)</td>
<td>22 129 MT</td>
</tr>
<tr>
<td>Total catches (YFT &amp; SJT)</td>
<td>73 922 MT</td>
</tr>
<tr>
<td>FCL (units)</td>
<td>2 737 (1 787 boxes)</td>
</tr>
<tr>
<td>Canned tuna (units)</td>
<td>234 768 900 tuna cans</td>
</tr>
</tbody>
</table>

Source: Data Integrated Fisheries Information System – iFIMs. 91% unassociated sets / catches (Free school) and 9% associated sets / catches (aFAD & dFAD)

Being the first tuna fishery certified in the Western and Central Pacific Ocean (WCPO) including all types of sets (free school and FADs), FIA PNG MSC fishery certification demonstrates comprehensive and responsible management of the fishery including for all species, gear and geographical areas. However, the MSC-certified tuna fisheries are mostly certified partially - for instance, only free school sets are certified, which do not assess the real and full impact of the fleet on the biodiversity of the target and non-target species, and overall marine environment of the fishery. Partial fishery assessment only shows 50% of the reality of the fishery.

**Table 2: Top largest MSC-certified tuna fisheries**

<table>
<thead>
<tr>
<th>#</th>
<th>MSC-certified tuna fishery</th>
<th>MT (allowed)</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PNA</td>
<td>735 000</td>
<td>SJT/YFT</td>
</tr>
<tr>
<td>2</td>
<td>Dongwon</td>
<td>161 700</td>
<td>SJT/YFT</td>
</tr>
<tr>
<td>3</td>
<td>FIA PNG</td>
<td>129 000</td>
<td>SJT/YFT/BET (all tuna industrial fishing gear)</td>
</tr>
<tr>
<td>4</td>
<td>TMI / Solomon I.</td>
<td>105 000</td>
<td>SJT/YFT</td>
</tr>
<tr>
<td>5</td>
<td>Alianza Pacifico</td>
<td>98 400</td>
<td>YFT</td>
</tr>
</tbody>
</table>

Source: www.msc.org
After NFA observer coverage at sea, tuna landings at port are sampled by NFA officers and inspected by FIA officers and fishing companies representatives.

The role of the National Fishery Authority (NFA) should be mentioned here, in that it has been improving the PNG fishery management plan since 2003 and in September 2015, a regulation and law was set up to monitor, control, assess and report FADs (PNG FAD management plan).

**Fishery traceability**

The fishery traceability pillar aims to promote and profile PNG FIA’s Responsible Sourcing Policy in view of the current traceability systems required by global markets. Such traceability systems are the best method to prevent fraud and illegal products from entering the supply chain as certified products. They are key in delivering the MSC’s vision of healthy oceans and providing consumers with sustainable seafood that they can trust. Currently, the MSC programme is the only scheme of its kind to offer ocean-to-plate traceability through supply chain certification. Its Chain of Custody Standard requires that MSC-certified seafood is kept separate from other seafood, and can be traced through the entire supply chain, thereby ensuring its certified sustainable origin.

The FIA PNG tuna fleet is aligned with the National Fishery Authority’s track, monitor, control, and record online system (Fishery Integrated Management System – FIMs) which ensure high transparency in real-time for fishing operation.

**Marine litter and fishing gear**

This pillar’s purpose is to mitigate the catastrophic impact of ghost gear such as derelict FAD and fishing materials on natural marine resources and the environment, besides reducing ocean pollution. It aims to define, support, and promote comprehensive and science-based approaches to mitigation in gear use, with emphasis on FAD and fishing gear management. FIA PNG will continue to assess the risks of different types of fishing gear when lost or abandoned and to support the development of policies and strategies to prevent and remedy the problem throughout the supply chain, as well as conserve the health of the country’s marine ecosystem.

The FIA PNG marine litter and fishing gear procedure and the audit tool is collecting data from vessels and also fishing companies at port. This procedure and tool is guided by policies relating to the International Convention for the Prevention of Pollution from Ships (MARPOL), EU single use...
plastic, FADs best management practices, FAO, the NFA FAD management plan and 12 other public guidance, regulations, and standards. The FIA PNG marine litter and fishing gear audit tool (Figure 1) assesses seven principles and 41 performance indicators. To date, the FIA PNG office has started to assess some fishing companies’ members on marine litter and fishing gear, a process which will be done on an annual basis.

Fig 1: FIA PNG marine litter and fishing gear assessment tool

Crew welfare and labour conditions

In alignment with the SDGs and the Tuna 2020 Declaration, and acknowledging the growing expectation of social accountability compliance, PNG FIA is ensuring that all its members in the tuna industry, both those in fishing operations and shore-based processing operations in Papua New Guinea, have implemented social accountability assessment processes (Figure 2). The Association is conducting an independent initial assessment of industry performance against ILO Convention 188 and the SA8000 Standard for social accountability (which is applicable for fishing operations) and building local capacity to undertake self-assessment following gap identification by the independent assessment.

During the assessment process onboard, wherever it is apparent that the FIA members’ operations lacked documentation of systems and procedures in place against ILO Convention 188 and the SA8000 Standard, then the FIA follows up with programmes/activities to document systems, produce manuals and develop compliance and monitoring strategies to achieve and adhere to these guidance and standards. The FIA PNG crew welfare and labour conditions onboard procedure and audit tool has assessed 45% of the FIA members’ fleet. This procedure and tool is rooted in ILO Convention 188, FFA FFC106 on crew employment conditions, SA8000 for at-sea operations and 30 additional related public guidance, regulations and standards.

In 2019, the crew welfare and labour onboard assessment and fishing vessel audit started, following the onboard social accountability methodology developed by On-board Social Accountability International Limited (OSA International). The FIA PNG has stated that it will audit its tuna fishing members on an annual basis.

Fig 2: FIA PNG crew welfare and labour conditions on-board

Looking toward the future

The Fishing Industry Association (FIA PNG) has come a long way from its humble beginnings in 1987 to where it is today. In 2018 the FIA PNG signed a Memorandum of Understanding with the National Fisheries Authority (NFA); in 2021 it became a member of Conservation Alliance for Seafood Solutions (CASS) and the Global Seafood Sustainable Initiative (GSSI) through its membership in the Alliance Global Hub. Its focus throughout has been on leading in innovation, conservation, and also looking at human rights in the tuna supply chain.

Looking to the future, FIA PNG will seek to network with more stakeholders in the tuna supply chain, labour and social programmes, and environmental organisations. The Association’s stance is that by working together, seafood supply chains become more environmentally sustainable and socially responsible.

Marcelo Hidalgo is Sustainability Director of the Fishing Industry Association of Papua New Guinea, and Founder and Director of Seafoodmatter, based in the Netherlands. He is also the co-Founder of On-board Social Accountability International (OSA).
“GLASS CEILING” IN THE SEAFOOD INDUSTRY? WHAT SHOULD BE DONE?

By Marie Christine Monfort

There has been an increase in the representation of women at the top levels of the seafood industry, but progress has been slow due to, among other factors, entrenched mindsets and the tendency of companies to pay more attention to issues such as the environment and sustainability. The message must go out that gender inequality is not only unfair, it also affects the profitability of businesses. Highlighting the gender gap, making the invisible visible, and raising the consciousness of leaders that their business is based on gender inequalities, represent the first move to address the challenges and make changes happen.

Tables 1, 2 and 3 demonstrate the current trends. Across 80 companies, comprising 1 042 Board Directors, a mere 150 are women, i.e. 14.4%. This however still reflects progress compared to the 2016 (that sample analysed 71 companies) rate of 9.1%. To mark another improvement, the percentage of companies with less than 20% female representation on the Board has declined from 81% in 2016 to 64% in 2019. That said, there seems to be a remarkable resistance to the notion of equality between men and women: over a third of all seafood companies analysed (28 out of 80) have an exclusive male Board of Directors. No more than 5% of the companies recorded over 40% women in Boards, exactly the same ratio as 2019. If we were to place a magnifying lens on executive positions, the rate of women sadly falls down to 9%.

Table 1: Percentage of women holding Corporate Board seats in 2020, compared to 2016

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>54%</td>
<td>35%</td>
</tr>
<tr>
<td>&lt; 20%</td>
<td>27%</td>
<td>29%</td>
</tr>
<tr>
<td>21% to 40%</td>
<td>15%</td>
<td>31%</td>
</tr>
<tr>
<td>41% to 50%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>&gt; 50%</td>
<td>0%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Source: WSI 2020

WSI calls on stakeholders and leaders to appropriate IUU with the same strength, concern, and budget resources that have been given to IUU.

For the third time in a row, the International Organization for Women in the Seafood Industry (WSI) has analysed the gender composition of Boards of the 100 top seafood companies; here it opens the conversation about the position that women occupy in seafood corporates, reasons for the imbalance and routes to follow to reduce gender prejudices. Clear understanding of the situation and genuine intentions may transform our archaic industry.

Based on the world’s 100 largest seafood companies (as listed by Undercurrent News in 2019), the top CEO positions are held by women in just 4% of the cases. Companies run by women include Bumble Bee Foods and American Seafoods Group from the USA, Marusen Chiyoda Suisan from Japan and Vinh Hoan from Vietnam. In contrast, here’s how the seafood industry compares with other industries at the rear end of this metric: mining industry 4%; Science, Technology, Engineering, and Mathematics (STEM) 3% and Oil & Gas 1%.

Vinh Hoan, a Vietnamese seafood company, is the only shining light with a greater than 50% women representation at management positions. It is run by Ms. Nguyen Ngo Vi Tam, supported by 10 women and two men on the Board of Directors.

Table 2: Highest female participation in Boards in 2020: Top seafood companies

<table>
<thead>
<tr>
<th>Company</th>
<th>% women in boards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vinh Hoan (Vietnam)</td>
<td>83%</td>
</tr>
<tr>
<td>Zhanjiang Guolian Aquatic Products (China)</td>
<td>47%</td>
</tr>
<tr>
<td>Austevoll Seafood (Norway)</td>
<td>40%</td>
</tr>
<tr>
<td>Bumble Bee Foods (USA)</td>
<td>40%</td>
</tr>
<tr>
<td>SalMar (Norway)</td>
<td>38%</td>
</tr>
<tr>
<td>Labeyrie Fine Foods (France)</td>
<td>38%</td>
</tr>
<tr>
<td>Sanford (New Zealand)</td>
<td>36%</td>
</tr>
<tr>
<td>Sirena Group (Denmark)</td>
<td>35%</td>
</tr>
<tr>
<td>Grieg Seafood (Norway)</td>
<td>33%</td>
</tr>
</tbody>
</table>

Source: WSI 2020

Table 3: Percentage of women in Executive Boards, by country (2020)

<table>
<thead>
<tr>
<th>Country</th>
<th>Total Board Directors</th>
<th>Number of women</th>
<th>% women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan (18)</td>
<td>381</td>
<td>18</td>
<td>5%</td>
</tr>
<tr>
<td>Chile (6)</td>
<td>99</td>
<td>8</td>
<td>8%</td>
</tr>
<tr>
<td>Norway (9)</td>
<td>91</td>
<td>25</td>
<td>27%</td>
</tr>
<tr>
<td>China (5)</td>
<td>63</td>
<td>18</td>
<td>29%</td>
</tr>
<tr>
<td>Canada (2)</td>
<td>56</td>
<td>15</td>
<td>27%</td>
</tr>
<tr>
<td>Spain (7)</td>
<td>50</td>
<td>7</td>
<td>14%</td>
</tr>
<tr>
<td>Thailand (3)</td>
<td>47</td>
<td>4</td>
<td>9%</td>
</tr>
<tr>
<td>USA (9)</td>
<td>43</td>
<td>6</td>
<td>14%</td>
</tr>
<tr>
<td>UK (4)</td>
<td>41</td>
<td>5</td>
<td>12%</td>
</tr>
<tr>
<td>Denmark (6)</td>
<td>36</td>
<td>9</td>
<td>25%</td>
</tr>
<tr>
<td>Vietnam (2)</td>
<td>22</td>
<td>11</td>
<td>50%</td>
</tr>
</tbody>
</table>

Number of companies observed in parenthesis

Source: WSI 2020 based on Undercurrent News Top 100 seafood companies 2019

Based on our results, the trend for ‘women at the top position’ is moving in the right direction, but at a very slow pace. These preliminary results tell us that compared to 2016, the year 2020 shows a slightly progressive landscape in terms of gender diversity in top positions in seafood corporates. But we are far from being gender equal on corporate Boards, with only 5% of companies having >40% females. These results also call for further research, digging into the capital structure and sources. Many companies for instance are family companies; therefore, integration of women in top positions is a matter of kinship and not necessarily one of merit. The topic of corporate cultures deserves to be further explored to better understand the barriers and opportunities that women experience to access top positions.

Why so few women at the top?

The statistics on women in Boards reflects the so-called “glass ceiling”, picturing the low representation of women in top executive positions in the industry.

There is not one reason, but an array of explanations which all conclude that women are not to blame but that the inequality issue is ingrained in the system. As a Norwegian Minister of Fisheries expressed, “three-quarters of recruitment is down to informal networks: men recruit men. Men recruit CEOs that look like themselves. We need to challenge these attitudes.”

Without dismissing cultural influence, the seafood industry’s incentive and advancement practices worldwide give priority to males. The informal setting (relationship, network, information flow, mentoring, etc) where the career is made, also favours men. Consequently, women are scarcely to be seen in rising through the hierarchy and this makes it more difficult to promote women to the top. We see from this scenario that the seafood industry originates from, and maintains the patriarchal system, where rules are made by men for men. In the seafood business the “off” is more powerful than the “official”.

![Female Board Members in Seafood Corporations by Continent](source)

![Seafood Companies Boards: Composition by Gender](source)
Why is progress on the route of gender equality so slow?

It all starts at school. Why wouldn’t a woman work in the seafood industry? What would make a young female disinterested in having a career in fish farming, fishing or engineering in a maritime environment? Strong gender norms and stereotypes prevent educational advisers from orienting potential female candidates towards either fishing, fish farming or engineering.

The same is seen within private companies, where leaders don’t pay attention to this issue. Undoubtedly this lack of interest by leaders induces a status quo with no progress in sight, but saying that is somehow encouraging as we suggest that if leaders did pay attention, the problem would be solved or at least addressed.

It has been evidenced in multiple studies that the recruitment process is influenced by an unconscious bias that reflects a difference in perceptions and ratings of men and women. Out of every two candidates comprising a woman and a man offering exactly the same education, experience and competence, men will be chosen. The same bias slows down the advancement and progression of women up the hierarchy ladder.

In the seafood industry in particular, certain issues have received more attention, such as environmental problems. Nowadays it is unusual to find a seafood company which doesn’t have a Social Corporate Responsibility policy that addresses marine environment protection through a range of precautionary or compensatory measures. Therefore in practice, environmental concerns eclipse social issues like gender inequality. Amongst other elements that could explain why gender has not been seen as a priority, we also identified a perception of incompatibility between making a profit and addressing gender inequality. Some of these comments refute the widespread and multi-evidenced idea that gender diversity increases company profits [Catalyst 2007, Mc Kinsey 2010].

Another element that reinforces misunderstandings on this issue is that talking about gender in the seafood industry is still widely perceived as a woman’s issue, i.e. that only women would be concerned in improving equality conditions, with men being excluded from the discussion. The resultant lack of concern by men makes them pay little attention to the issue, and puts them off understanding their role in business organisational structure. Men are part of this social issue, they have the power to make things happen or not, yet they have a very different perception of the situation compared to women. This is not a women’s issue but a shared (across gender) societal concern, where balancing relationships between the two genders in a progressive environment is at play. We know that women are not the problem, but the system is.
What can be done?

Inequality is not an irremediable curse. Gender inequality won’t be able to resist progressive laws, positive dedicated mainstream programmes in public and private sectors, and an evolution process of seafood leaders’ mindsets.

We have seen that national legal frameworks have helped raise consciousness on (in)equality and have reduced it. Some binding rules such as quotas make the difference. In many regards, Norway leads the way in gender equality in the professional sphere. Thanks to a mandatory quota law introduced in 2003, the Boards of public limited companies (listed on the Oslo Stock Exchange) must have at least 40% female non-executive directors.

In the private sector, understanding and action by leaders make the difference. Ian D. Smith, CEO of Clearwater Seafoods Limited Partnership, expressed it clearly: “We want to win and we are not going to win unless we address diversity, in particular gender diversity. Stands are clear: diversity brings vision, strengthens capabilities, enhances innovation, drives customers’ innovation and boosts our brand reputation. How do we address this? We have a clear policy and importantly we have developed metrics. We measure how we recruit, how we train, how we make succession planning, how we compensate. To make sure this happens requires the mindset of the leader. During my time at Clearwater Seafood and Mc Duff shellfish we have seen an increase of women in various positions across the company. Two of our nine Board of Directors are female. Three of eight of our Executive team are female. At Clearwater we continue to support the removal of systemic barriers to employment and the advancement of women in occupations or positions where they are under-represented.” (WSI WATCH 2019).

Highlighting the gender gap, making the invisible visible, and raising the consciousness of leaders that their business is based on gender inequalities, represent the first move to address the challenges and make changes happen.

Under the combined pressure of calls for progress from intergovernmental institutions, justifiable requests from a growing number of women, the pressure of dedicated NGOs, and last but not least the positive influence of gender sensitive and responsible companies, the seafood industry can no longer ignore the issue. WSI is convinced that dialogue between these multi stakeholders would help the industry and many of its segments to move towards more inclusiveness and gender equality.

Gender inequality is an unfair fact and we hope that it will not be able to resist progressive laws, positive dedicated mainstream programmes in public and private sectors, and the evolution of seafood leaders’ mindsets. We, at WSI, are working at it with no respite.

References

1. Undercurrent News December 2019: World’s 100 Largest Seafood Companies 2019
3. Financial Times: Enlightened Norway’s gender paradox at the top of business

Glass ceiling

Marilyn Loeden: although this name may not ring a bell, most people would have heard of the “glass ceiling”, the expression she first used in the late 70s to express the invisible barrier that prevents women from climbing the hierarchy ladder and succeeding. The introduction of this concept helped the realisation that women’s deficiencies were not always responsible for their absence at top management positions; i.e. cultural, not personal explanations were to blame.

“Numerous research sheds light on some of the areas of the “glass ceiling”, consequence of the weight of organisational norms and practices shaping the exercise of these professions that women must confront in these real “male bastions”. Thus all of this research brings us closer to the situation of women in management […], confronted by formally “neutral” processes [recruitment on the basis of a diploma or competitive examinations, promotion and performance criteria, demands of mobility] but in fact having to submit to masculine or virile cultural “work norms” (total availability, ideal model of manager, […] and/or “informal practices” of recruitment and promotion (co-opting process, belonging to networks, support of mentors) which tend in most cases to favour men. The minority situation of some very visible “exceptional women” allows organisations involved to put forward this feminisation -and to pride themselves on it -without at the same time threatening the masculine “balance” of the organisation.”[Laufer 2013].

Marie Christine Monfort is a former international seafood market analyst and since 2017, co-Founder and President of the International Organisation for Women in Seafood Industry (WSI).
The global ornamental fish industry met virtually for the first time at the 3rd International Ornamental Fish Trade and Technical Virtual Conference which took place from 25-26 February 2021. The Conference was jointly organised by INFOFISH and Ornamental Fish International (OFI) with the support of the Department of Fisheries, Thailand, and the Sri Lanka Export Development Board. About 110 attendees out of the 170 participants registered were from across 22 countries throughout the world, regional fisheries organisations, government officials, NGOs and the private sector.

With the Conference theme: “SUSTAINABILITY AND THE FUTURE OF THE ORNAMENTAL FISH INDUSTRY”, the event was graced by the Hon. Kanchana Wijesekera, Sri Lanka’s State Minister of Ornamental Fish, Inland Fish and Shrimp Farming, Fishery Harbour Development, Multiday Fishing and Fish Exports. His Excellency highlighted the importance of technology advancement for the future of the ornamental industry in overcoming its challenges, and called for international organisations to focus more on providing opportunities to share information among producing countries through technology advancement activities.

Participants were able to interact virtually with experts in several sessions on trade and markets, market access and barriers, farming and fish health, as well as marine ornamental fish breeding and rearing.

In his keynote address, Shane Willis, President of the OFI, highlighted the challenges to the industry, including the impact of the COVID-19 pandemic. He said however, that there was a positive side in that there has been a resurgence of the hobby with many industry operators reporting significant growth and sales. While it was the consensus that the industry is facing increasing expectations from stakeholders and governments, Mr Willis indicated that awareness, education and communication is key to encouraging support and moving forward into this new era.

Session 1: Ornamental industry status, supply, trade and markets

The Conference began with presentations on the main international markets for ornamental fish trade. Mike Tuccinardi, Senior Editor/Associate Publisher of Reef to Rainforest Media, stated that the US market is undergoing major upheaval. The COVID-19 pandemic did not create new trends but accelerated trends that already existed pre-2020. In the US, the trend is towards smaller aquariums, specifically freshwater aquariums. It is anticipated that e-commerce is likely to impact the US market over the next decade.

Paul Bakuwel, Secretary General of the OFI, spoke on the EU market trends for ornamental fishes. The EU has always been the largest market for ornamental fish and imports have been relatively static since 2015. In 2018, the top three importers within the EU were the UK, Germany and the Netherlands. The status of the ornamental fish industry in the Philippines was presented by Dr Maria Mutia, chief science research specialist from the National Fisheries Research and Development Institute (NFRDI) in the Philippines. In her presentation, she highlighted that since 2003, the government, in collaboration with the private sector, has promoted the breeding and production of freshwater ornamental fishes locally. The NFRDI conducts national trainings for local communities, organises ornamental fish exhibitions, and has established pilot projects throughout the country.

Chrishantha Alexander, President of the Association of Live Tropical Fish Exporters of Sri Lanka, alluded to the fact that freshwater ornamental fish farming in Sri Lanka has rapidly evolved since the 1950s. Meanwhile the marine ornamental fish industry is growing due to support from the government, and the production of aquatic plants for aquarium purposes is another upcoming industry. India has a huge domestic ornamental fish market with high demand for colorful exotic species, stated by Dr Mini Sekharan, Assistant Professor, School of Industrial Fisheries, Cochin University of
Science and Technology, when giving her presentation on the overview of the Indian ornamental fish industry. On the other hand, the export industry is slow paced as it is dependent on wild caught indigenous ornamental fishes.

Session II: Market Access and Barriers

Svein Fossa, OFI Vice President, began the session by giving a brief overview of the current main challenges in international trade, and what possible future developments we should be looking out for. The international trade in ornamental aquatics is, in most importing countries, regulated ever more by non-tariff measures pertaining particularly to nature conservation (thereunder invasive alien species and CITES), animal health and welfare issues. Sri Lanka’s importing rules and regulations for ornamental fish species was presented by Dr Jayasinghe Asoka from the National Aquaculture Development Authority of Sri Lanka. In her presentation, she mentioned that there are various national legislation and policies which deal with the prevention of diseases and unwanted species coming into the country which are relevant to the importation of ornamental fish species. Dr Timothy Miller-Morgan in his presentation, said that the proper use of biosecurity measures to prevent introduction of infectious disease into a fish facility is very important. Veterinarians should be called upon to assist ornamental fish facilities in planning and implementing biosecurity programmes.

Session III: Farming and Fish Health

The second day of the conference commenced with an industry update on discus fish by Martin Ng, the founder president of the Discus Society in Malaysia. He mentioned that discus is in great demand and highly priced due to its many colour variations and pattern markings. There has been much confusion about the varieties among the trade sector because of the lack of proper systematic classifications. Kapila Tissera, an independent consultant in Sri Lanka, spoke on the genetic and genomic tools in the ornamental fish industry. He said that the genetic health of a hatchery breeding population is an essential factor in achieving sustainability in the ornamental fish industry. In addition, maintaining strain lines and intraspecific cross-breeding, improving strain values and infusing hybrid vigour in commercial strains is very crucial. The topic on IATA and the aquarium trade was presented by an Attorney from the US, Marshall Meyers. He emphasised that a working group from the ornamental fish industry needs to be established to periodically review IATA’s aquatic transport guidelines and regulations, submit proposed amendments and increase the industry’s engagement in the IATA process.

Shane Willis mentioned that the production systems used for ornamental fish farming have undergone significant changes over recent years due to many factors. Land use pressures, water scarcity and extreme weather events are just some of the factors forcing industry to intensify production by introducing technological innovations. The last speaker in this Session was Dr Richmond Loh, Aquatic Veterinarian/Veterinary Pathologist, who explained the importance of maintaining optimal fish health and the clinical signs to look out for with regards to the early detection of disease.

Session IV: Marine Ornamental Fish Breeding and Rearing

Dr Paul Anderson, Founder of the Coral Reef Aquarium Fisheries Campaign, said that he was committed to empowering marine aquarium fisheries that support biodiversity, healthy coral reefs and the livelihoods of fishers, traders and others who depend on the sector. The Campaign does this through working with the government to develop aquarium fisheries policies, changing the model of the value chain trading of marine aquarium fish from volume to value-driven; and lastly, to educate fishers and traders about marketing, husbandry and business operations practices. Gayatri Reksodihardjo-Lilley, Founder/Director of the Indonesian Nature Foundation, expressed that community-based efforts such as coral reef management, habitat restoration, community-based coral farming and reef fish aquaculture are the highlights in Indonesia’s marine aquarium industry. The purpose of these efforts is to promote sustainable livelihoods for coastal communities, while conserving coastal ecosystems and maintaining businesses that depend on them as sources of marine aquarium products. Kevin Brian Lee, Managing Director of one of the leading coral exporters in Indonesia known as CV. Vivaria Marine, presented on two methods of farming coral in the country. He said that coral farming is the future of the industry but finding the correct balance while preserving the natural habitat is the main goal. Lastly, Dr Ricardo Calado, Principal Researcher, Centre for Environmental and Marine Studies, Portugal, presented on the status and challenges of marine ornamental fish aquaculture. More than 300 marine ornamental fish species have been cultured to date and research efforts are increasingly targeting highly priced species.
Asia-Pacific Fishery Commission (APFIC) webinars

From February through March 2021, the Asia-Pacific Fishery Commission (APFIC) held three webinars, with technical support provided by INFOFISH. These webinars were part of APFIC’s 9-part webinar programme for 2021 (webinars 1 and 2 were organised in January and early February).

Webinar 3, entitled “Antimicrobial resistance is simple to understand, yet it is often misunderstood”, was held on 24 February 2021. Its aim was to raise awareness, share experiences and knowledge on AMR in aquaculture – where the use of antimicrobials has been increasing – to better understand the challenges therein and to help boost the global effort to lessen the use of these antimicrobials.

Webinar 4 on “Multispecies Stock Assessment for Management” took place on 10th March, attended by 202 participants. The presenters were: Simon Funge-Smith (APFIC/FAO); Beth Fulton (CSIRO); Keith Sainsbury (CSIRO); Nipa Kulanjuree (DOF, Thailand); Derek Staples (Consultant); Rishi Sharma (FAO Fishery and Aquaculture Division, Rome); Duncan Leadbitter (Consultant); and Marcio Castro De Souza (FAO Fishery and Aquaculture Division, Rome).

The purpose of this webinar was to make sense of how stock assessment has been done for Asian countries using some regional examples, particularly in situations where there is limited data in multi-species fisheries as well as multi gear fisheries. The webinar also looked at how countries have used these assessments to develop policy and make management decisions. Importantly, the discussion also focused on the interlinkages between stock assessment and trade with some examples involving trade agreements, SDGs, IUU and WTO. It ended with a discussion on the prospects and need for regional programmes for capacity building.

Link to video: https://www.youtube.com/watch?v=gSHG4WkpG4o
“Pushing the Frontier of Aquaculture Development with Innovation” was the focus of webinar 5, held on 25th March. This webinar summarised the aquaculture innovations recently documented by FAO in six Asian countries. The focus was on the contribution of some of the modern technologies in improving traditional systems and practices, and their impacts (economic, environmental and social), apart from upgrading the aquaculture value chain. The webinar highlighted some of the eco-friendly aquaculture innovations in China, climate-smart and hygienic fish drying innovations from India, sustainable aquaculture innovations from the Philippines, innovations for greener and cleaner aquaculture emerging in Thailand, and the multistage shrimp farming protocols developed in Vietnam. The deliberations at the webinar were expected to be useful for policymakers, potential donors, and entrepreneurs to identify innovative investment domains for large scale adoption and upscaling in the Asia Pacific region.

The presenters at webinar 5 were: Tipparat Pongthanapanich, FAORAP Bangkok; Salin Krishna, Asian Institute of Technology (AIT); Shouqi Xie, Institute of Hydrobiology, Chinese Academy of Sciences, Wuhan; Kuldeep K. Lal, ICAR-National Bureau of Fish Genetic Resources (NBFGR), Lucknow; Irzal Effendi, IPB University, Bogor; Maria Rowena R. Romana-Eguia, SEAFDEC Aquaculture Department, Philippines; Gridsada Deein, Naresuan University, Phitsanulok; and Phan Thi Van, Research Institute for Aquaculture No.1 (RIA-1), Ministry of Agriculture and Rural Development, Hanoi. A total of 242 people were in attendance.

Link to Video: https://www.youtube.com/watch?v=xd9UYI7cEMo

Webinar 6, entitled “Subsidies, WTO and Fisheries” took place on 31 March, attended by 250 participants. The speakers were Simon Funge-Smith (APFIC/FAO); Ambassador Santiago Wills (Colombia), Chair of the Negotiating Group on Rules at WTO; Marcio Castro de Souza, Senior Fishery Officer (International Trade), FAO Headquarters, Rome, Italy; and David Vivas, Legal Officer, Division on International Trade and Commodities, UNCTAD, Geneva-Switzerland.

This webinar sought to enhance the understanding of the negotiation history of fisheries subsidies at the World Trade Organization (WTO), in particular the main pillars and their interconnectivity with existing instruments; the various proposals and main approaches that are being taken; as well as to integrate the history of what has been going on and analyse critical outstanding issues central to the discussion on fisheries subsidies. While discussing the various multilateral trade, oceans and fisheries governance frameworks linked to the subject and how these are integrated into the negotiations, the webinar also aimed to touch on the availability of technical and advisory support to countries on the possible implementation of an agreement on fisheries subsidies. The webinar also intended to highlight the UNCTAD-FAO-UNEP Inter-Agency Plan of Action as a possible vehicle for coherent and timely support for the Asia Pacific region.

Link to video: https://www.youtube.com/watch?v=MW_tM5ngw3s
MARINE PLASTIC POLLUTION IN INDONESIA

By Fithriyyah, Yoga Pratama L Tobing, and Garry Marpahiko

With a population of 250 million, Indonesia produces 3.2 million tonnes of unmanaged plastic wastes a year, 1.29 million tonnes of which ends up in the sea. These wastes have a deleterious effect on the vast marine biodiversity in the seas, impacting upon the sustainability of marine life in the country’s waters. The government is taking steps to deal with marine plastic pollution through several strategies such as the 2017-2025 Plan of Action on Marine Plastic Debris which aims to reduce marine plastic waste by up to 70% by 2025. However, inter-sectional collaboration between the government and other stakeholders in the country is required to solve the marine plastic pollution, starting from its source.

Indonesia is an archipelagic state, recognised by the United Nations Convention on the Law of the Sea (UNCLOS) 1982, later ratified by Act 17 of 1985. Under UNCLOS 1982, its total maritime area is 5.9 million km², with 3.2 million km² of territorial waters and 2.7 km² of Economic Exclusive Zone, excluding the continental shelf. Therefore, Indonesia is the largest archipelagic state in the world. The length of the coastline based on Geospatial Information Agency Missive Number B.3-4/SESMA/IGD/07/2014 is 99 093 km, which makes Indonesia the country with the second longest coastline length after Canada, among the 198 countries and 55 regions of the world. Furthermore, Indonesia has the largest number of islands (approximately 17 504 in number), stretching from its westernmost point Sabang (Aceh province) to the easternmost city of Merauke island (Papua).

As an archipelagic country that has become the epicentre of the world’s marine biodiversity, Indonesia’s ocean comprises the highest species abundance and diversity and lies at the centre of the globally significant Coral Triangle ecoregion. In line with its maritime nation status, the national government released Presidential Regulation No. 16 of 2017 which identifies the oceans as a strategic priority and central to Indonesia’s development. Therefore, the threat of marine pollution is regarded seriously, and one of the biggest sources of such pollution consists of discarded plastics which are estimated to add up to about 8 million tonnes every year, on top of the estimated 150 million tonnes that currently circulate in marine environments.

Marine plastics pollution is in fact, an urgent problem that is affecting many countries, particularly in the Asia-Pacific...
region, and this pollution is mainly generated from land-based sources. Food and drink packages form a large part of these wastes, while other sources include abandoned, lost or discarded fishing gear (‘ghost gear’); and micro- or nano-plastics such as industrial pellets, paint chips, textile particles and cosmetic microbeads. Around five Asian countries (i.e. China, Indonesia, the Philippines, Vietnam and Sri Lanka) have been identified as the largest sources of marine plastic pollution globally, as stated in a 2019 report by the Chinese Journal of Environmental Law.

A threat to all life and ecosystems

Natural sediment often contains plastic debris which contribute toxic contaminants such as polychlorinated biphenyls (PCBs), dichlorodiphenyltrichloroethylenes (DDE), and nonylphenols. It is believed that PCBs was the cause of two mass poisoning accidents in both Japan and Taiwan in the middle of the 20th century. The per capita consumption and also the continued growth of human population have resulted in exploitation of the biological diversity, exacerbated by other anthropogenic environmental impacts. The most serious and direct threats to coastal and marine biodiversity are the conversion of coastal habitats into man-made land uses, where the waste generated easily finds its way to the sea. The UN Environment Programme, in its ‘Plastics and Shallow Water Coral Reefs’ report, said that marine plastic litter pollution is already affecting more than 800 marine and coastal species through ingestion, entanglement and habitat change, while also impacting upon coral reef ecosystems.

Ultraviolet radiation and the high temperature of the ocean play a role in threatening marine biodiversity. It splits plastic structures into small, even microscopic granules under 5 mm in size. These microplastics exert a lot of negative adverse impact, such as the increasing amount of contaminants in the system and ingestion by animals that cause numbers of mortality. Since reported in 2015, microplastics pollution has become a major problem nowadays and is even predicted to beat the natural concentration of planktonic larval fish. Additionally, microfibres often comprise more than 75% of plastic debris.

Microplastics are deposited in marine sediments and the benthic ecosystem. They might be mistaken for food by the animals in the environment and accidently consumed during foraging. Such problems have often been reported around the

Figure 1: Map of Indonesia’s territorial waters and fisheries management areas
world for many animals, such as toothed whales, sea lions, sea cucumbers, sea turtles, and planktivorous fishes\textsuperscript{13}. The ingestion process depends on foraging techniques. Research has found that planktivorous seabirds ingest higher amounts of plastic pellets than piscivores, as the pellets closely resemble their preferred foods. In a 2002 study by Tomas et al, it was found that of 54 illegally captured juvenile Loggerhead sea turtles in the Mediterranean sea, more than three quarters of them had plastic debris in their intestines\textsuperscript{10}. There have been many cases of animals which are physically damaged due to plastic debris, leading to injury or death. What makes microplastics very harmful to be ingested by animals is the chemical compounds they contain. One chemical substance called phenanthrene, which is used to make dyes, plastics and pesticides, explosives and drugs, is potentially carcinogenic; because it is a sub-component of plastic, it can be found in plastic debris. In a study of the effect of phenanthrene on the larvae of a sediment-dwelling invertebrate \textit{Chironomus sancticroari}, it was found to damage larval development within 48 to 72 hours, even in small concentrations.

Thus the threat of plastic pollution must be recognised as a global priority to be addressed under Target 14.1 of the 2030 Sustainable Development Agenda which is to prevent and significantly reduce marine pollution of all kinds by 2025, and with its indicator 14.1.1 having an index on floating plastic debris density.

One of the policies that has been carried out by the Government in upholding the marine debris law is the plastic excise system, which is aimed at reducing the use of plastic in Indonesia. For instance, consumers are required to pay for plastic bags when shopping in a number of cities in Indonesia. Through the imposition of a 200 Rupiah (0.02 USD) tax on single-use plastic carry bags, the amount of plastic bag consumption was reduced by 55\% over a period of three months\textsuperscript{5,16}. This programme was supported by policies from local governments, especially by the Bali and Jakarta Regional Governments which have implemented the rule that consumers who want to go to traditional and modern markets should carry their own shopping bags\textsuperscript{5}.

This plastic carry bag programme was piloted in 2016 as an agreement between the Ministry of Environment and Forestry (KLHK), the National Consumer Protection Agency, the Indonesian Consumers Foundation (YLKI) and the All Indonesian Retail Entrepreneurs Association. However, retailers refused to extend the pilot programme after three months, citing impacts on their business and the weak legal basis for the policy. Critics also pointed out that the charge was not high enough to deter consumers. On the other hand, consumers complained about the lack of clarity over management of proceeds from the sales of plastic bags by the retailers, since the individual retailers themselves managed the funds generated from the paid plastic bags programme.
The Government plans to impose a new tax targeting the producers of plastic bags rather than consumers, i.e. the Extended Producer Responsibility (EPR) approach. The EPR will oblige producers to redesign their product packaging to have a higher proportion of recyclable material, and to take more responsibility for managing the waste from their product packaging, especially for those makers of processed foods and beverages who rely heavily on plastic packaging for their products. Retailers such as supermarkets and convenience stores will also be subject to the EPR requirements in terms of the packaging options they offer to customers, as will food and beverage outlets that currently use plastic utensils, plates and cups. It was found that while an EPR requirement already exists under the Waste Management Act of 2008, the challenge remains as to its implementation and proper enforcement.

Realising the implementation of the Plan of Action on marine debris requires integrated joint efforts in waste management because most of the waste generated from human activities on land will end up in the sea. It takes awareness in every element of society, especially from the individual level, to reduce the generation of wastes, including plastic, from daily activities. One way is by applying the 3R concept (Reuse, Reduce and Recycle) as well as promoting a lifestyle of minimising plastic waste in daily activities for the sake of environmental and marine sustainability for future generations.

Meanwhile, an interesting recent development is the announcement of an action plan, developed through the Global Plastic Action Partnership, an initiative led by the WEF. According to reports, the programme could lead the nation not only to doubling its recycling capacity but also cutting out 1 million tonnes of avoidable plastics and curbing 20 million tonnes of greenhouse gas emissions every year. Public, private, and civil society change-makers in Indonesia will work to implement the plan, as outlined in the strategy document ‘Radically Reducing Plastic Pollution in Indonesia: A Multi-Stakeholder Action Plan’, lays out an evidence-based roadmap to reduce the amount of plastic leakage into Indonesia’s oceans by 70% by 2025, as well as achieving near-zero plastic pollution by 2040 through transitioning to a circular economy for plastics.

References


A notice on the plastic bag reduction programme is prominently displayed at a mini market in Pasar Baru, Central Jakarta, February 21, 2016.


Fithriyyah is currently a medical student at Tanjungpura University, Indonesia. She established the Seangle Indonesia Chapter Pontianak in 2019, a community in the Borneo city of Pontianak working to solve marine debris and waste management issues. She is also a Youth for Climate Action (Y4CA) advocate.

A pharmacist by profession, Yoga Pratama Lumbang Tobing is involved in the Seangle Indonesia Chapter Pontianak as part of the team which carries out awareness programmes on the environment. Much of his research is focused on using waste for medical purposes.

Garry Marpahiko is a civil engineering student in Tanjungpura University. He is President of Seangle Pontianak 2020, and regularly promotes their activities (#fightforcleanocean). He is also a member of the Jeda Iklim group which promotes awareness on renewable energy issues in Indonesia.
Human skin substitute

Kerecis Omega3 is intact fish skin rich in naturally occurring Omega3 polyunsaturated fatty acids. When grafted onto damaged human tissue such as a burn or a diabetic wound, the material recruits the body’s own cells and is ultimately converted into living tissue.

The fish skin derives from wild and sustainable fish stock caught in Icelandic waters and processed with 100% renewable energy in the town of Isafjordur, close to the Arctic Circle. Because there is no risk of a viral-disease transfer from Atlantic cod to humans, the fish skin needs only mild processing for medical use and maintains its natural structure and elements, including Omega3 fatty acids.

According to the company, other tissue-transplant products are based on tissues of human and porcine origin. These are not ideal substitutes because heavy processing is needed to eliminate the risk of disease transmission. The fish skin also has the advantage in that it is accepted by all cultures.

Fast detection of salmon disease

A recently developed on-farm detection kit for piscirickettsiosis (SRS) can confirm the bacteria’s presence within 90 minutes and might help reduce the impact of a disease that costs the Chilean salmon industry US$750 million a year. The company, Newenko, says that compared to lab analysis using techniques such as Elisa and PCR, this kit detects SRS with 91% of sensitivity and specificity, and an accuracy of 90%. It is also able to recognise both LF-89 and EM-90 strains. These portable kits reduce the number of trips from sites to labs for analysis, and can be used by anyone trained to handle them.

Targetting dark vessels

Canadian company exactEarth, a provider of global maritime vessel data for ship tracking and maritime situational awareness solutions, has signed an agreement with space mission partner MDA to provide Satellite-AIS data services as part of the latter’s recently announced dark vessel detection (DVD) programme for the Government of Canada. The CAN$7 million DVD programme is intended to detect and identify vessels that have switched off their AIS transponders (thus known as “dark vessels”) and are engaged in illegal, unreported and unregulated (IUU) fishing which is estimated to cost the industry CAN$23 billion each year.

The programme is a collaboration between Fisheries and Oceans Canada with the Department of National Defence, Defence Research and Development Canada’s Centre for Security Science, Global Affairs. Programme partners also include the Forum Fisheries Agency, and the Ecuadorian Maritime Authority. In December 2020, Canadian and Ecuadorian officials signed a memorandum of understanding to formalise their partnership, and enhance surveillance around the Galapagos Islands.

World’s first 3D printed plant-based salmon

Revo Foods, the Vienna-based startup that has recently rebranded from Legendary Vish, has announced the commercial foodservice launch of its first plant-based ‘seafood’ products on the market in Vienna this summer. The products, which will include plant-based smoked salmon strips and salmon spread, are made from pea protein, citrus fibre, plant oils and algae extract.

While the above products are not made through the same process, Revo Foods is also the developer of what it calls 3D food printing technology which involves combining pea proteins, algae extracts and dietary fibres such that they resemble the texture and appearance of seafood. The company says that using this technology enables the creation of analogues that have complex whole-cut structures such as fillets, something that the startup is still working on developing for salmon and tuna. An automated line is also in the plans.
Portable oxygen and temperature meter

The Handy Polaris hand-held meter makes it easy to measure dissolved oxygen and temperature. Dissolved oxygen values are shown both in mg/l (ppm) and % saturation – the user chooses which parameter is shown in large figures.

Polaris has a memory that can contain 3000 complete sets of data – each with values of mg/l (ppm), % saturation, temperature, time and date. Values can be stored either automatically at preset time intervals, or manually. You can group values according to the place of measurement. Stored values can be transferred to a PC using the Polaris Link, which connects to the PC via a USB cable.

Manufacturer: Oxyguard, Denmark (oxyguard@oxyguard.dk)

Fish cleaning equipment

Hermasa, a company well known for its canning technology, has a complete range of processing equipment. One of its offerings is the TUNIVAC® tuna cooker, which despite its name, has a design control system that is flexible enough for processing different species and fish sizes.

The cooker removes the oxygen existing in the chamber, significantly reducing the oxidation of the fish. A vacuum based on the Venturi effect creates an effective depression in the treatment chamber. During cooking, the humidity in the chamber can be efficiently controlled automatically through the sprayers installed and distributed throughout the chamber.

Manufacturer: Hermasa Canning Technology, Spain (comercial@hermasa.com)

Slurry ice solution for the seafood industry

According to a FAO report, about 35% of fish and seafood is discarded, lost or wasted through various stages in the supply chain. The majority of this loss (around 27%) happens before seafood reaches consumers. Studies also show that reducing storage temperature from 1.5°C to -1.5°C cuts bacterial growth by 50%, slows down spoilage and extends shelf life of seafood.

A continuous cold chain from harvest to processing is therefore essential to keep fishery products in pristine condition throughout the transport and up to the point where the product is ready for distribution. Sunwell’s DeepChilling slurry ice technology promises this kind of cold chain integrity, improved hygienic handling, better HACCP compliance, and maintains the temperature of the ice between 0°C to -1.5°C. The equipment can use both fresh or sea water, and can fit into the operations on a fishing vessel, aquaculture farm or a processing facility.

Manufacturer: Sunwell, Canada (www.sunwell.com)

Automatic packing machine

Marel has announced the launch of its new RoboBatcher Box, which it claims is the world’s leading intelligent robotic solution for fish packing. The equipment automatically packs up to 24 boxes simultaneously, with up to 12 various predefined jobs, into polystyrene and cardboard boxes for retail, catering, and further processing.

Once the fish fillet is weighed and scanned, it enters the RoboBatcher Box. Knowing the fish’s precise measurements, the RoboBatcher’s robotic arms pick up the product and gently place it into one of the boxes, packing according to catch-weight or fixed-weight requirements and a predefined styling pattern. Its grippers are designed for gentle product handling. The fully automated dispatch process ensures that once a box reaches the set target weight, it is immediately conveyed out for final packing. The packing process is completed without any human contact.

Manufacturer: Marel (global-communications@marel.com)
The FISH INFOnetwork (FIN) consists of seven independent partners who cover all aspects of post-harvest fisheries and aquaculture. Fifty national governments have signed international agreements with the different FIN services and are using the expertise of these services to develop the fishery sector worldwide.

The FIN pages are a regular feature in the four network magazines
- INFOFISH International,
- INFOPESCA Internacional,
- EUROFISH Magazine
- INFOSAMAK Magazine

They present the FIN-wide spectrum of activities, showing actions and results.

The FIN has more than 70 full-time staff and works with more than one hundred international experts in all fields of fisheries. Through its link from FAO GLOBEFISH to the FAO Fisheries Department, it also has access to the latest information and knowledge on fisheries policy and management issues worldwide.

The execution of multilateral and bilateral projects is one of the main activities of the network. It is also widely known for its range of publications and periodicals as well as for the organisation of international conferences, workshops and training seminars. All eight services offer different possibilities for co-operation with the private sector, institutes, government offices and donors.

For more information on the FISH INFOnetwork visit the website www.fishinfonet.org.

KICCOF 2021: Latin America and the Republic of Korea commit to fisheries cooperation

INFOPESCA participated in the organisation of the Korea International Cooperation Conference on Oceans and Fisheries (KICCOF 2021: LATIN AMERICA): “The Future Direction of the Development Cooperation on Oceans and Fisheries in the Post Covid-19 Era”. The virtual event took place on 23 February 2021 and was held by the Ministry of Oceans and Fisheries of the Republic of Korea, with the Korea Maritime Institute (KMI) & Korea Institute of Oceans Science & Technology (KIOST) as co-hosts. More than 100 stakeholders from the fishing sector, including fishermen and farmers, researchers and scientists, industrials, traders, consultants and academics, attended the meeting.

The three main issues for discussion were:
» Korean policy and best practice direction for international fisheries cooperation
» Challenges facing the ocean and fisheries sector in Latin America and directions for future cooperation
» Establishment of an alliance between Korea and Latin America on oceans and fisheries in response to climate change

Graciela Pereira, Director, INFOPESCA, presented an overview of the region (aquaculture and fisheries production, trade, etc.), with figures based on FAO data, and a summary of the main challenges facing Latin American countries and their needs. The most important issues facing the sector in Latin America include illegal, unreported and unregulated (IUU) fishing; low per capita fish consumption; dependence on export markets; climate change; the impact of COVID-19 on fisheries and trade; overexploitation of stocks; and the lack of RFMOs. Some of these issues could be addressed with the help of projects, particularly in the areas of cooperation and exchange between fishermen; construction of fishing ports, and fish markets; the network of women in fisheries; fishermen’s and processors’ capacity in hygiene and fish management; improved trade of fishery products between Latin America and the Republic of Korea; direct trade between Latin American fishing communities; and aquaculture.

The Korean authorities expressed satisfaction at the opportunity to learn about the situation in Latin America and about prospects for cooperation. KIOST and KMI are the two most representative entities of the sector and they will continue their cooperation with the Latin American region, said Park Jun-Yong, General Director, KIOST. Joint activities are important, he added, to be able to respond efficiently, for example, to climate change. If Korea and Latin America cooperate in this regard, it will reduce the impact on both regions.

In conclusion, speakers emphasised that the conference should lead to ODA projects. The parties committed to continue working together and agreed that communication should not only be virtual but also through the physical staging of new events, forums, and conferences once the pandemic allows this.
Aina Afanasjeva has passed away

Aina Afanasjeva, 1961-2021, Director, EUROFISH International Organisation

Aina Afanasjeva, Director, EUROFISH International Organisation, passed away on Sunday, 14 March 2021, in Riga, Latvia following a long struggle with illness. Aina, who turned 60 in January this year, is survived by her husband, daughter, son-in-law, and two grandchildren.

She led the organisation for 12 years steering it through the aftermath of the financial and economic crisis of 2008 with a steady hand and working closely with the EUROFISH Governing Council to ensure the continuation of EUROFISH services to its member countries. Hungary, a country with an important inland aquaculture sector, joined the organisation on her watch, and Aina played a crucial role in expanding the EUROFISH project portfolio with multilaterally and bilaterally funded projects. She had a vast network of colleagues, partners, and friends not only across Europe, but in countries around the world.

Aina joined EUROFISH in 2009 from a position in the European Commission, DG Maritime Affairs and Fisheries, where since 2005 she managed the implementation of EU structural funds programmes in the fisheries sector in different Member States. Before that she was Deputy Director of the Latvian fisheries administration for nine years. Aina Afanasjeva had a long record of international relations (WTO, FAO, and the EU) and she was one of the key national representatives contributing to the establishment of EUROFISH. She had a background in commodities and trade in food products, the technology of fish products, and a post graduate degree in food chemistry.
HS CODES FOR FISH AND FISH PRODUCTS
Published by the Food and Agriculture Organization and World Customs Organization, 2021.

The classification of products is a key element in international trade. The Harmonized System (HS) of the World Customs Organization (WCO) provides an internationally recognised product classification system. Governments, industry, international organisations, academia, and market analysts use the HS codes to classify commodities, including fisheries and aquaculture products. The HS codes support international trade regarding trade policies, import duties, statistical analysis, negotiations of trade agreements, and other associated issues directly influencing trade flows of fisheries and aquaculture products. Also, many countries use the HS codes at a national level for taxation, national policies, and other related aspects. In addition, the HS allows countries to implement national control of specific products covered by international conventions or agreements, such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which includes fish species.

Fish is often one of the most complex commodities to classify, with several specificities. There is a multiplicity of species and treatments, which create an intricate set of different layers covering different products and make it especially difficult to classify fisheries and aquaculture products.

The Handbook presents all possible classifications for fisheries and aquaculture products by species, with a full description of each HS code to facilitate its use. The first part of the Handbook presents all the species listed in those chapters, with commodity codes for all possible classifications of their products and treatments. The second part lists all HS codes for fisheries and aquaculture products with an exhaustive description of each code. They are listed in the order they appear in the HS and are particularly useful to search by commodity code.

The Handbook is an auxiliary tool to facilitate classification and enhance greater understanding of the HS from the angle of fisheries and aquaculture products. It does not modify the structure of the HS nor the species grouping. With this publication, FAO is contributing towards disseminating information on an essential tool managed by WCO, and supports a better understanding of fisheries and aquaculture products classification.

The Handbook can be downloaded at no cost from the FAO website. For any additional information, email FAO GLOBE-FISH at: fao-globefish@fao.org

BLUE BIOECONOMY REPORT
Published by the European Market Observatory for Fisheries and Aquaculture (EUMOFA), 2020.

The Blue Bioeconomy Report aims to provide an updated overview of the European Union’s blue bioeconomy sector, focusing on cutting-edge applications of aquatic biomass by examining three topics: (i) Integrated Multi-Trophic Aquaculture (IMTA); (ii) Innovative uses for fish rest raw material (RRM); and (iii) Cell-plant technology and cellular mariculture. It is structured in three sections: the first overviews the past, present and future of IMTA, the second is a case study on the use of fish rest raw materials in Denmark, and the third reports on the emerging technology of cellular mariculture.

The report can be downloaded at no cost at: www.eumofa.eu.

UNDERSTANDING ANTIMICROBIAL RESISTANCE IN AQUACULTURE
Authorised by the Food and Agriculture Organization and published by the Asian Fisheries Society, 2020 (129 pages).

Antimicrobial resistance (AMR) is a global concern and is now recognised as one of the greatest threats to public health worldwide. Since the adoption, in May 2015, of the Global Plan of Action (GAP) on Antimicrobial Resistance (AMR), during the 68th World Health Assembly of the World Health Organization (WHO) and the subsequent adoption by the delegates of the World Organisation for Animal Health (OIE) of the OIE AMR Strategy and the adoption of Resolution 4/2015 by the 39th Conference of the Food and Agriculture Organization of the United Nations (FAO), a political declaration was made during a high-level meeting on AMR at the 71st United Nations General Assembly (UNGA, September 2016).

Through an agreement between FAO and the Asian Fisheries Society (AFS) signed in November 2020, it was mutually
agreed to publish contributed papers contained in this special volume, based on technical presentations that were delivered during the three workshops implemented under the auspices of the above-mentioned project. This volume addresses a wide range of topics to better understand AMR in aquaculture.

This publication can be downloaded at no cost through the website of the Asian Fisheries Society.

DEAD LOSS: THE HIGH COST OF POOR FARMING PRACTICES AND MORTALITIES ON SALMON FARMS

Researched and published by Just Economics (UK), February 2021 (64 pages).

The report focuses on the four big producing countries which account for 96% of farmed salmon production and the top ten producers globally which account for 50% of production. Although they all have ambitious plans for growth, these are endangered by economic, environmental, and regulatory pressures. Governments in these countries are largely uncritical of their salmon farming industries, and official literature tends to promote a positive image. A typical narrative is that of a clean and healthy source of protein that is helping to revive coastal communities. Beneath the marketing discourse, however, transparency and accountability are extremely weak by comparison with land-based farming. Data are often absent on important phenomena such as mortalities, escapes and environmental impacts. The sector lacks robust regulation and proper social, environmental, and economic accounting, which makes it difficult to assess its impacts holistically.

The report has two aims therefore: (i) To highlight the unnecessary costs borne by the salmon industry because of poor fish husbandry and welfare and to estimate potential savings from improved farming practices; and (ii) To estimate the social and environmental costs of the salmon industry and to estimate the value to consumers and wider society of reducing those costs by improving social and environmental performance. The study was commissioned by the Changing Markets Foundation as part of its Fishing the Feed campaign.

This report can be downloaded at no cost at: www.justeconomics.co.uk.

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Tokyo, Japan
worldaquacultureconference.com/

19 - 21 (Virtual)
INFOFISH TUNA 2021
www.tuna.infofish.org

19 - 21
Aquaculture UK
Aviemore, Scotland
https://aquacultureuk.com/

JUNE
8 - 10
International Fair of Fish and Food Products (POLFISH)
Gdansk, Poland
http://polfishfair.pl/

23 - 25
Indo Fisheries
Jakarta, Indonesia
https://indofisheries.id/

JULY
6 - 8
IV Global Fishery Forum & Seafood Expo
Russia
Saint-Petersburg, Russia
https://seafoodexporussia.com/en/

7 - 9
Japan International Seafood
& Technology Expo
Tokyo, Japan
http://www.exhibitiontech.com/seafood/e_index.html

AUGUST
11 - 13
Seafood Expo North America
Boston, USA
https://www.seafoodexpo.com/north-america/

25 - 27
Vietnam Fisheries International Exhibition (VIETFISH)
Ho Chi Minh, Vietnam

SEPTEMBER
7 - 9
Seafood Expo Global
Barcelona, Spain
https://www.seafoodexpo.com/global/seafood-processing-global/

22 - 27
The FAO Global Aquaculture Conference
Shanghai, China
https://aquaculture2020.org/

OCTOBER
5 - 7
Conxemar exhibition 2021
Vigo, Spain

27 - 29
China Fisheries & Seafood Expo
Qingdao, China
http://chinaseafoodexpo.com/

NOVEMBER
5 - 7
Busan International Seafood & Fisheries Expo
Busan, South Korea
http://www.bisfe.com/

10 - 13
SEAFISH SHOW ASIA EXPO
Jakarta - Indonesia
https://seafoodshowasia.com/

26 - 28
Aquaculture Philippines
Pasay, Philippines
https://www.aquafisheriesexpo.com/philippines

DECEMBER
5 - 8
WORLD AQUACULTURE 2020
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<td>Successful hilsa fisheries management in Bangladesh</td>
<td>Malaysia’s first caviar brand</td>
<td>Marine plastic pollution in Indonesia</td>
<td>Women in seafood corporate governance</td>
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<tr>
<td>Deadline: 15 March 2021</td>
<td></td>
<td>Improving labour conditions onboard fishing vessels</td>
<td></td>
<td>An overview of GCC fisheries and aquaculture</td>
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<td>Gender dimensions of value chains in SE Asia</td>
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<td>4/2021 (July/August)</td>
<td>Insurance services for the Asian smallscale fisheries sector</td>
<td>Seafood? Really?</td>
<td>Fish on urban rooftops</td>
<td>Mainstreaming decent work in national development strategies</td>
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<td>Deadline: 15 May 2021</td>
<td></td>
<td>Tuna industry 4.0</td>
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<td>5/2021 (September/October)</td>
<td>Assessing and improving value chains in small-scale fisheries</td>
<td>e-ACDS: an effective tool to improve traceability and combat IUU</td>
<td>Technological innovations and development in aquaculture</td>
<td>The use of fish silage technology to reduce fish waste and provide additional livelihood</td>
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<td>Deadline: 15 July 2021</td>
<td></td>
<td>Building back tuna fisheries better in a post-COVID world</td>
<td>Sea cucumber culture in the Philippines</td>
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<td>6/2021 (November/December)</td>
<td>Illuminating Hidden Harvests: contributions and drivers of change in small-scale fisheries</td>
<td>Innovation in seafood packaging</td>
<td>Intelligent aquaculture</td>
<td>Social issues in sustainable fisheries management</td>
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<td>Deadline: 15 September 2021</td>
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<td>Domestic seafood trading in the Solomon Islands</td>
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17th INFOFISH WORLD TUNA TRADE CONFERENCE & EXHIBITION 2022

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