A SUSTAINABILITY IMPROVEMENT ROADMAP FOR TROPICAL SURIMI FISHERIES

CERTIFICATION AND RATINGS
COLLABORATION

APRIL 2022

In 2021, the Certification and Ratings Collaboration released The Production of Surimi and Surimi Seafood From Tropical Fish – A Landscape View of the Industry. This first-of-its-kind analysis offers a comprehensive look at the sustainability challenges facing multispecies and single-species fisheries as well as aquaculture interests supplying the tropical surimi market. At the same time, the Collaboration released Tropical Surimi Supply at Risk, an executive overview of the landscape report's key findings for surimi businesses.

This roadmap is a companion to those documents. Because the landscape report and the executive overview focus extensively on the sustainability challenges facing tropical surimi fisheries, this roadmap does not. Instead, the roadmap aims to give businesses and other stakeholders who share our concern about the industry's future a starting point for sustainability improvements.

We begin at the end, with a description of what good sustainability performance might look like in a multispecies fishery. While every fishery is unique, this general overview outlines the characteristics of a high-performing surimi fishery. The point of this approach is to help stakeholders understand where improvement efforts might lead them.

We then introduce the idea of gap analysis. As detailed below, this means the assessment of a fishery's current sustainability performance against a high level of performance. This is intended to give stakeholders a sense of the type and scope of needed improvements to reach their sustainability goals.

Next up is the roadmap itself — a catalog of recommended interventions responsive to the sustainability challenges outlined in the landscape report and the executive overview:

- Data limitations
- Known environmental performance issues
- Governance shortcomings
- Social issues
- Traceability

It is important to note that we do not consider this list exhaustive. There are other interventions that may contribute to improved performance, and we encourage stakeholders to explore those as well. We

also acknowledge that this roadmap recommends more interventions responsive to some issues than to others. Governance interventions and interventions responsive to social issues are critical, but largely beyond the scope of Collaboration member programs' work.

We encourage surimi businesses to engage their supply chains in an open dialogue about the sustainability of the tropical surimi industry. Encourage suppliers to consider these steps and explore ways you can support them in their work to secure your supply chain for the future.

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That is why we close the roadmap with an invitation to partnership. We hope any tropical surimi fishery stakeholder who wants to make improvements in the performance of the fisheries they depend upon will reach out to us with questions, ideas, and opportunities to work together.

What does good performance look like in a multispecies fishery?

Multispecies fisheries in general provide a variety of sustainability challenges, especially in the tropics where species diversity is high and these challenges are compounded by the capacity constraints and different societal goals common in developing countries. Nevertheless there are some emerging views about what good performance could look like for the main fisheries involved in surimi production. The main attributes are:

1. Focusing on Multispecies MSY and not single species – this incorporates ecosystem needs (especially predation) into the generation of advice about potential catches.
2. An "aggregate yield" estimate, which accounts for interactions between species, produces more accurate assessments for multispecies fisheries than do single-species assessments. There are several recognized methods for estimating aggregate yield, some of which are detailed in the landscape report. Aggregate yield assessments should be supplemented by assessments of a reasonable number of carefully-selected indicator species. This approach can make the monitoring, assessments, and other scientific analysis more manageable and provide more useful information on which to base management decisions.
3. Identifying and monitoring an agreed set of indicator species and linking them to management triggers. This helps cut through the assessment and reporting challenges of having far too many species involved.
4. Clarity around objectives – in the past the fisheries involved have been thought to be inexhaustible and potentially able to support a wide variety of sectors and people. This is not the case. In fact, managing multispecies fisheries to optimize outcomes for certain species or stakeholder sectors necessarily requires tradeoffs for others. Managers must work toward clear objectives set in consultation with stakeholders and government;
5. Capacity controls – many of the fisheries have been developed under open access conditions which, globally, have a poor record for controlling catches. Excess capacity has had a number of

consequences including driving illegal fishing and problematic cost cutting practices (e.g. slave labour). For many of the fisheries there is a need for a reform process that matches capacity to sustainable yields.

6. Collect accurate and timely harvest data critical for effective management. Indonesia and especially Thailand have made significant gains in harvest data collection, by improving the reach and quality of survey efforts. Effective interventions that largely eliminate Illegal, Unreported, and Unregulated (IUU) fishing. Thailand, for example, has made notable gains on IUU fishing, through a suite of coordinated reforms. The Thai government bolstered law enforcement's human and financial resources consistently over several years, while working to reduce the fishing industry's excess capacity.

7. Prioritize Endangered, Threatened, or Protected (ETP) species. The management strategy must account for interactions with ETP species and include initiatives to minimize interactions.

Whilst the issues may seem overwhelming there is a considerable amount of progress already in some key producing countries and the surimi sector has a key role in helping drive further development of sustainability goals and the management processes required to achieve them.

Country overviews

The Collaboration's surimi landscape report identifies characteristics of surimi and surimi seafood production in the world's eight largest source countries. The landscape report provides much more detail than this section, but we aim here to sketch a brief outline of the sustainability issues in each of these countries. We encourage interested readers to consult Chapter 4 (beginning on page 107) of the landscape report for a more comprehensive look at each country and its sustainability challenges.

Surimi is the paste produced from minced fish. Surimi seafood is the end product whereby the surimi is mixed with other products (especially in China) to produce food for human consumption.

The landscape report provides much more detail than this section, but we aim here to sketch a brief outline of the sustainability issues in each of these countries.

China

In just a few decades, China has grown into the world's largest tropical surimi producer, accounting for an estimated 230,000 tonnes of marine surimi, a growing amount of surimi from freshwater (aquaculture) fish and about 1.4 million tonnes of surimi seafood. The industry is largely domestic, with just 35,000 tonnes of estimated imports and 45,000 tonnes of estimated exports.

While timely stock status data is unavailable, 2009 assessments found all of the demersal species commonly associated with surimi production either depleted or overexploited. This aligns with reports of declining landings and catch per unit effort.

Management is complex and largely ineffective. Despite expansions in scope and duration, China's summer fishing moratorium has been in place for nearly 30 years without demonstrating appreciable sustainability gains.

Vietnam

Vietnam produces 180,000 tonnes of surimi and just a few thousand tonnes of surimi seafood. Almost all of Vietnam's surimi production is exported.

Stock depletion is evidenced by the sharp drop in catch per unit of effort in Vietnam from 1 in 1981 to 0.35 in 2002. A 2018 analysis found that inshore fishing areas remained overfished, and that offshore fishing areas had deteriorated. Asia Pacific Fisheries Commission overviews of the status of species complexes in member countries validate concerns that overfishing is widespread in Vietnam. Vietnam has been under an EU "yellow card" since 2017 due to high levels of IUU fishing.

Managers employ a variety of tools, including zoning and licensure but fishery management plans are rare, and management efforts do not appear coordinated.

India

India produces about 110,000 metric tonnes of surimi, the vast majority for export. A 2020 assessment found that excess fishing fleet capacity was driving overexploitation in India's multispecies fisheries.

Management authorities employ a range of tools, including licence requirements, mesh size restrictions, an inshore artisanal zone, and a midyear fishing ban. Indian authorities have not established management plans based on controlling catches and sustainable yield.

Thailand

Contemporary surimi production is about 60,000 tonnes, down from about 150,000 tonnes in the mid-2000s. Thailand's surimi exports are about 28,000 tonnes and its surimi seafood exports are about 33,000 tonnes. Surimi imports are about 50,000 tonnes.

Thai fisheries have been overfished for decades. Catch per unit effort declined from almost 300kg/hour in the 1960's to 20kg per hour in the 1990s but this is improving due to fishing capacity reductions.

While there is little evidence that stocks have yet recovered, Thailand's government has implemented reforms that have proven effective in other jurisdictions. These include a large reduction in the number of trawlers, closed areas and seasons, a significant effort to control IUU fishing, an increase in mesh size, and other measures. Thailand has also put a fisheries management plan in place.

Past rampant illegal fishing and high-profile labour abuse exposés have driven change in the fishery driven by governments and the private sector. Private sector initiatives have brought together Thai and foreign (largely US and EU) companies, trade associations, NGOs and agency staff in a multipronged effort to boost compliance with the law.

Indonesia

Indonesia produces about 30,000 tonnes of surimi and imports about 2,000 additional tonnes. Stock assessments in Indonesian fisheries are inconsistent, but 2018 data suggests that while some species are overfished, demersal species are not.

Regional bodies are growing in importance as governance bodies in Indonesia, though responsibility is shared with provinces and the national government. While Indonesian authorities rely on management tools like licensing and area-based closures, the intermittent nature of gear controls has contributed to excess fishing in surimi fisheries.

China's annexation of part of the Natuna Sea, a key surimi fishing area, is also expected to impact Indonesian landings and increase fishing impact in other areas. Indonesia's fishing industry has also faced challenges with illegal, unregulated, and unreported (IUU) fishing and forced labor.

Malaysia

Some reports peg Malaysia's surimi production at more than 90,000 tonnes as recently as the mid-2000s. While the country still has one of the region's largest trawl fleets, Malaysia currently accounts for about 20,000 tonnes of surimi production. Contemporary trade figures suggest about 6,500 tonnes of exports and 14,000 tonnes of imports.

There are no publicly available stock assessments relevant to surimi fisheries. Management measures applicable to surimi fisheries include fisher registration and vessel licensing, gear regulation, a zoning system based on vessel and gear type, marine protected areas and the establishment of artificial reefs.

IUU fishing remains a major issue in Malaysian waters. While Malaysian vessels have large numbers of foreign crewmembers, there have not been significant reports of labor rights violations.

Gap analysis

The preceding overviews provide a broad sense of the sustainability challenges facing key tropical surimi producing countries. They do not and cannot offer insights into the specific challenges facing particular fisheries in the region. The main reason we produced this roadmap is because we need the partnership of businesses and other stakeholders in the region to understand and address those challenges. This is especially the case since surimi is often one of several end uses from these fisheries. Other uses typically include fish for direct human consumption, value added products like fish sauce, marine ingredients (e.g. fishmeal) and other products (all of which may be of interest to buyers sourcing from these fisheries).

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We also acknowledge that, while stakeholders in the region may understand that something is amiss in the fisheries they depend upon, they may lack the tools and technical reference points required to assess the specific challenges. This section offers a suggested starting point, by recommending several tools designed to help stakeholders evaluate the performance of the fisheries they depend on and compare that performance against generally-recognized performance standards. We see these gap analysis tools as a critical starting point for a journey down the path to environmentally and socially responsible production.

There are several tools that can help identify gaps in how the source fisheries perform in environmental and social terms.

MSC pre-assessment

The Marine Stewardship Council's pre-assessment is often completed by Conformity Assessment Bodies (CABs) or technically proficient consultants. For a pre-assessment (see page 15 of this PDF for more information), the CAB selected by the fishery's stakeholders considers all available data to assess the gap between the fishery's performance and the MSC standard. If adequate data is not available, the CAB may employ MSC's Risk-Based Framework.

The resulting pre-assessment report, and indeed the existence of a report, is considered confidential unless the client stakeholders direct the CAB to make it more widely available. The report details the obstacles or problems that may be a barrier to certification, providing a starting point for improvement efforts.

To learn more about the pre-assessment process, or with questions about timeframe and cost, fishery stakeholders should contact the relevant MSC representative.

MarinTrust assessment

For marine ingredients factories, the assessment embedded in MarinTrust's certification program serves a comparable function to MSC's pre-assessment. Like MSC, MarinTrust employs independent certification bodies (CBs), which compares data on the factory's source fisheries against the MarinTrust standard. If the fisheries are not yet eligible for certification, the client develops a fishery action plan for their improvement via the MarinTrust Improver Programme.

To learn more, or with questions about MarinTrust assessment and certification, contact the MarinTrust Secretariat at standards@marintrust.com. Stakeholders may also contact one of several CBs approved by MarinTrust to complete fishery assessment.

Marin Trust has developed a multispecies fishery assessment module which is being trialled in Thailand and Vietnam. It is based on best-practice fisheries management as specified in international norms and guidance including; The 1995 Food and Agriculture Organisation of the UN Food and Agriculture Organization Code of Conduct for Responsible Fisheries (and its associated Technical Guidelines, among others). It is linked to a tool being developed by the Food and Agriculture Organization of the United Nations which provides guidance for those involved in setting management direction for multispecies fisheries.

Environmental Rapid Assessment Tool (ERA)

The ERA was developed by Ocean Outcomes (O2), World Wildlife Fund, and the Sustainable Fisheries Partnership (SFP), to help fishery stakeholders apply MSC's performance indicators in assessing any fishery — not just those that are near-term candidates for certification. In fact, the tool serves as the needs assessment for basic fishery improvement projects (FIPs) reporting progress data on FisheryProgress.org.

The ERA is not a standard, and completing an assessment using the tool does not require engaging a third-party auditor. But the ERA methodology (Word document) does recommend that assessors complete specific training before completing an ERA assessment. It does not specifically deal with multspecies fisheries.

FishSource

An SFP initiative, FishSource summarizes publicly available information about fisheries' management and environmental performance to help businesses make informed sourcing decisions and prioritize improvement efforts. FishSource distills that information into scores summarizing the effectiveness of a fishery's management and the health of its stock, on a zero-ten scale aligned with MSC's 0-100 performance scale.

If a FishSource profile does not yet exist for the fisheries your work depends upon, you can request that SFP develop one under the FishSource rapid assessment program. While a single stakeholder can request a rapid assessment, it may be advantageous to pool resources among several stakeholders to cover the cost. For questions about RAP or FishSource, stakeholders should contact Patrícia Amorim at SFP.

Framework for Social Responsibility in the Seafood Sector

The Certification and Ratings Collaboration recognized that when it comes to understanding social issues articulated in the Monterey Framework for socially responsible seafood, assessing the risks, and taking preventive or corrective action, many businesses don't know where to start. The Collaboration's Framework for Social Responsibility in the Seafood Sector builds on existing standards and resources to answer critical first questions like:

- Beyond slavery, what "social issues" should we be concerned with?
- For each social issue, what does good – and bad – performance look like?
- What standards or tools can businesses use to assess their risks and improve performance?
- Like environmental issues, social issues are a responsibility and a risk for every seafood business. And like environmental issues, improving performance on social issues builds stronger, more resilient businesses.

The Framework gives businesses a place to start and helps them understand where they need more help to assess their risks and make improvements.

Social Responsibility Assessment (SRA) tool for the seafood sector

The SRA builds on the Collaboration's Framework for Social Responsibility in the Seafood Sector, giving seafood industry stakeholders a way to apply the Monterey Framework for socially responsible seafood in a quantifiable way. It was developed by nearly two-dozen nonprofits led by Conservation International, but it is now accessible through FishWise's Roadmap for Improving Seafood Ethics platform.

The SRA is the framework for FIP social progress reporting on FisheryProgress.org. Interested stakeholders can learn about SRA-qualified assessment consultants on the FisheryProgress site.

Sustainability challenges and interventions

Once you have an understanding of the challenges facing your fishery, the next question is likely how you and other stakeholders can begin addressing those challenges. This section provides an introduction to interventions recommended by Collaboration member organizations. The various interventions are collated by the major challenges identified in the surimi landscape report: data limitations; identified environmental issues; governance; social issues; and traceability.

Data

MarinTrust multispecies pilot

MarinTrust is piloting a multispecies fishery assessment protocol. The pilot will inform the development of a field-tested methodology that will can be used in assessing complex fisheries. The pilot initiative may eventually result in the development of a process that can contribute to MarinTrust certification. Businesses or other stakeholders with an interest in participating in or otherwise supporting the pilot should contact the MarinTrust secretariat at standards@marin-trust.com.

MSC pre-assessment

In addition to identifying certification obstacles, as described above, completing a preassessment is also helpful in understanding where fisheries have data gaps. To learn more about the pre-assessment process, or with questions about timeframe and cost, fishery stakeholders should contact the relevant MSC representative.

MSC also intends to modify its standards for use in assessing mixed and multispecies fisheries. The proposed revisions are expected to be available for stakeholder review later this year. You can learn more and sign up for updates on the MSC website.

FishSource multispecies fishery assessment

As noted, SFP's FishSource resource compiles and summarizes publicly available information about fishery management and stock health. While FishSource can be used to assess risk and guide improvements in multispecies fisheries, SFP is developing a FishSource assessment method for

multispecies fisheries. When complete, this initiative is expected to allow the development of FishSource fishery profiles for surimi fisheries and other multispecies fisheries.

SFP's Seafood Metrics initiative takes FishSource scores to develop a sustainability profile for specific seafood businesses, unique to the company's supply chain mix. Completing the multispecies fishery assessment initiative will allow buyers to map the sustainability performance of their surimi supply chains. This could help to draw buyer investments into FIPs, supply chain roundtables (SRs), or other surimi fishery improvement efforts.

While developing the methodology is complex and potentially expensive, SFP can pool resources from a wide range of stakeholders with a shared interest in the accurate assessment of multispecies fisheries. Stakeholders interested in learning more should contact Patrícia Amorim at SFP.

Tools for addressing issues identified in the gap analyses

Fishery improvement projects (FIPs)

FIPs bring businesses that work in or source from a fishery together with NGO and governmental stakeholders to identify environmental and social challenges and make improvements. For FIPs reporting on FisheryProgress.org, environmental performance is gauged against the MSC standard. Because no two fisheries face

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exactly the same challenges, no two FIPs are identical, but high-performing FIPs adhere to guidelines established by the Conservation Alliance for Seafood Solutions and report their progress on FisheryProgress.org.

MarinTrust recommends that interested businesses begin exploring the establishment of a FIP by contacting an approved and trained FIP implementer such as those listed on their website or other experts including NGOs with experience facilitating FIPs. UMITO Partners welcomes questions about starting a new FIP, and interested businesses can contact info@umitopartners.com.

SFP has developed a FIP toolkit for businesses, which includes guidance on launching a FIP and implementation resources. MSC and SFP are among the NGOs that collaborated on an online training program aimed at building stakeholders' capacity to successfully implement a FIP.

MSC offers a number of pathway tools including an improvement action plan template for a fishery to design an improvement plan to address gaps identified in pre-assessment. Resources for FIP implementers include a benchmarking and tracking tool and progress verification reporting template.

Global roundtable on marine ingredients

Surimi businesses don't have to tackle sustainability issues alone. A new global marine ingredients supply chain roundtable (SR) — developed jointly by SFP and IFFO The Marine Ingredients Organization — offers an opportunity to learn from and share with other stakeholders facing similar challenges.

Through SRs, businesses use their combined leverage to support improvements in fisheries within a region of the world or, as is the case with the marine ingredients SR, in a specific sector.

Companies like Olvea, Biomar, Cargill, Skretting, and NGOs like MarinTrust and the Aquaculture Stewardship Council have already signed up to participate. Membership costs about $10,000 US, and interested businesses can contact SFP's Dave Martin at dave.martin@sustainablefish.org.

Target 75

SFP's Target 75 initiative helps seafood buyers look beyond their individualized supply chains at the sustainability performance of key seafood industry sectors. Among the Target 75 sectors are whitefish and reduction fisheries sectors that include the breams and lizardfishes common to tropical surimi fishery catches.

Interested surimi businesses can learn more about how their supply chains fit into Target 75, and about how they can support and demand improvement efforts. To get started, businesses should contact SFP's Dave Martin at dave.martin@sustainablefish.org.

Governance

FIPs

While FIPs leverage the market's power to improve fishing practices, the model has always looked "to make these changes endure through policy change." And FIPs reporting on FisheryProgress.org track progress toward "effective management," as well as environmental improvements and stock health. Contact any of the FIP implementers referenced above to learn more about FIPs.

Ocean to Table Blockchain Traceability

Traceability is critical to mitigate IUU fishing, a critical threat to effective governance. UMITO Partners recommends blockchain-based ocean-to-table traceability systems that tracks fishing data at the vessel level and makes that information available to seafood buyers and, ultimately, consumers. The distinctive nature of blockchain technology facilitates continuous tracking, making it harder to hide illegal fishing from regulatory authorities.

To learn more, or with questions about blockchain traceability, contact UMITO Partners at info@umitopartners.com.

Social issues

FIPs

As detailed above, high-performing FIPs address both social and environmental issues. The 2021 release of FisheryProgress.org's social policy provides a consistent and credible structure for reporting social improvements. Every FIP reporting on FisheryProgress.org will eventually have to report social, as well as environmental, progress. Though the policy is new, more than two dozen FIPs have already begun

reporting under the site's Early Adopter Program, which offers intensive support, peer learning, and other benefits.

SFP has also published industry-facing guidance on incorporating a range of social issues in FIPs.

Contact any of the FIP implementers referenced above to learn more about FIPs.

Ocean to Table Blockchain Traceability

As noted above, traceability is critical to mitigate IUU fishing, which often correlates with labor abuses and other social issues. To learn more, or with questions about blockchain traceability, contact UMITO Partners at info@umitopartners.com.

Traceability

Ocean Disclosure Project

Supply chain actors voluntarily disclose sourcing information through SFP's Ocean Disclosure Project (ODP), to increase accountability and as an incentive to achieve sustainability goals. Major retailers have created ODP profiles and encourage their suppliers to do so.

Interested businesses should contact ODP at info@oceandisclosureproject.org, with questions or to begin creating a profile.

Ocean to Table Blockchain Traceability

As detailed above, an advantage of blockchain technology is that it facilitates continuous tracking. This offers buyers and regulatory authorities increased assurances that the product in the package was caught and processed using the sustainable practices on the label. To learn more, or with questions about blockchain traceability, contact UMITO Partners at info@umitopartners.com.

Thanks and next steps

We appreciate the interest of surimi producers in improving the sustainability of this culturally and economically significant industry. We acknowledge that the steps outlined above are a starting point, not a complete solution. The organizations contributing to this roadmap want to walk alongside committed businesses on their sustainability journey. We invite you to connect with us using the contact information above, or through the Certification and Ratings Collaboration at info@certificationandratings.org.

The Collaboration and its partner organizations would also like to thank the individuals without whom this roadmap would not have been possible:

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