

CERTIFICATION AND RATINGS
COLLABORATION



Sustainable Seafood: A Global Benchmark



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INTRODUCTION

The Seafood Certification & Ratings Collaboration brings together five global programs – the Aquaculture Stewardship Council (ASC), Fair Trade USA (FT USA), the Marine Stewardship Council (MSC), the Monterey Bay Aquarium Seafood Watch program (SFW), and Sustainable Fisheries Partnership (SFP) – working to help seafood buyers make more sustainable choices and guide seafood producers along a clear path toward environmental sustainability and social responsibility. Through the Collaboration, we aim to increase our impact by coordinating our tools and leveraging our extensive data on the sustainability of fisheries and aquaculture.

Certification and ratings programs play complementary roles to drive improvement and meet a range of market needs. Ratings focus on assessing as many seafood sources as possible in key markets to provide information on the full spectrum from low to high performance. This information can be used to identify opportunities for producers to pursue improvement projects and certifications, as well as help businesses evaluate sourcing options. Certifications directly engage with fisheries and farms and require them to address social and environmental challenges to reach a verified level of performance. Certifications also engage with the supply chain to verify the sustainability and origin of certified products. Governments use ratings and certification data to understand and monitor the current status of fisheries and aquaculture, while NGOs, funders, and the wider ocean sustainability community use the data to inform their market and improvement strategies.

Since the Collaboration launched in 2015, one of our objectives has been to compile our programs' data for the purpose of developing a global analysis of the sustainable seafood landscape. We envision this as a series of regularly updated analyses, giving seafood buyers, mid-chain suppliers, producers, and other stakeholders a means to track progress toward worldwide status of fisheries and aquaculture. This first edition is intended as a benchmark, illustrating the current level of performance and identifying the improvements needed going forward.

This report predominantly focuses on the environmental performance of fisheries and aquaculture. Data from the Aquaculture Stewardship Council and Fair Trade USA cover social performance in addition to environmental performance. We believe that the social aspects of sustainability are essential, and we will aim to expand the information on social issues in fisheries and aquaculture in future versions of this report.

Our analysis begins with an overview of the major components of worldwide seafood production. It then overlays the reach of certification and ratings programs that are members of this Collaboration, describing:

- The share of global production that has already been certified or rated;
- The proportion engaged in assessment or improvement and thus on the path toward sustainability; and
- The remaining proportion representing fisheries and farms not yet engaged in our ratings or certification programs.

This analysis is then broken down for wild capture fisheries and aquaculture, exploring the current status of each production method, followed by additional details on the reach of each Collaboration member organization.

This report also includes snapshots of the current market demand for sustainable seafood, the global livelihoods impacted by the seafood industry, and improvement priorities for wild fisheries and aquaculture. Continuing to build demand for sustainable products, addressing social responsibility, and using the leverage of buyers to support fisheries and aquaculture to improve their performance are three priorities for further action in the sustainable seafood movement.

Finally, the report takes a closer look at efforts to promote sustainability within specific sectors of the global seafood market. These snapshots illustrate progress toward sustainability or priorities for future improvement efforts. In some cases, they illustrate both.

What this analysis finds is that the sustainable seafood movement has made significant progress during its first two decades. Production in regions of the world with more mature and robust management regimes is largely certified, rated green, or engaged along the path toward environmental sustainability and social responsibility. This is no small accomplishment, given that these same regions had no certified or rated fisheries or farms as recently as 2000. It is a credit to the seafood industry at all levels – from producer to end buyer – for making sound but not easy decisions to forego immediate-term revenue in favor of

long-term viability. Credit is also due to the many sustainability NGOs – including but extending far beyond those participating in this Collaboration – who have worked to support businesses committed to improvement and to strong governance based on robust science-based management.

Much of the progress to date has been driven by European and North American market interest. While this demand will sustain continued engagement of some farms and fisheries globally, more work is needed to engage markets in other regions of the world. Accelerating market progress in Asia, Latin America, and Africa is critical, not only because farms and fisheries there account for the largest share of global seafood production, but also because they account for the largest share of seafood industry livelihoods. While critical work has begun in these regions, industry and NGO efforts to promote the demand for sustainable seafood must intensify to improve a greater share of seafood production.

Engaging these and other markets on the path toward environmental sustainability and social responsibility is a significant task. It is one the private sector cannot complete alone, and strengthened governmental management at the fishery or farm, national, and international level is critical to continued progress. Overcoming the challenges ahead will also require continued and expanded engagement by seafood businesses, as well as creativity, tenacity, and collaboration by the many NGOs that share our commitment to a future where all the world's seafood is fished and farmed sustainably.

The Collaboration member organizations provided the data on certification and rating programs and their reach. This analysis focuses on the impact of Collaboration member programs and does not include information on the reach of other certification or rating systems. We are grateful to [MRAG Americas](#) for its work to consolidate this information with the [Food and Agriculture Organization of the United Nations \(FAO\)](#) fishery and aquaculture statistics and for its contribution to this analysis. Additional information on the methodology, data sources, and limitations of this analysis is available in the technical appendix at the end of this report.

Beyond the data itself, this report employs a few key terms in exploring progress toward sustainability:

- **Certified and rated:** The Marine Stewardship Council, the Aquaculture Stewardship Council, and Fair Trade USA operate third-party certification programs for fished and farmed seafood. A certification validates that the product has been produced sustainably and complies with applicable social and chain of custody standards. Seafood Watch rates fished and farmed seafood in key markets to provide information on the full spectrum of low to high performance. Green-rated products are well-managed and caught or farmed responsibly. Yellow-rated products are good alternatives, but they are sourced from fisheries or farms that continue to have management or production concerns. Red-rated products are overfished, lack strong management, or are caught or farmed in ways that harm other marine life or the environment. Sustainable Fisheries Partnership also rates seafood – its Seafood Metrics System enables seafood buyers to measure their progress in sustainable sourcing.
- **Fishery improvement project (FIP) and aquaculture improvement project (AIP):** A FIP brings industry, NGOs, governments, and other stakeholders together to assess the sustainability challenges facing wild capture fisheries, make an improvement plan, and implement that plan. FIPs may be [comprehensive or basic](#). For more information, see the Conservation Alliance for Seafood Solutions' [Guidelines for Supporting Fishery Improvement Projects](#). AIPs are a conceptually similar approach as FIPs but focused on improving sustainability in an aquaculture operation. For more information, see the Sustainable Fisheries Partnership's [AIPs introduction](#).
- **High level of performance:** We consider seafood certified or rated green by members of the Collaboration to demonstrate a high level of performance. There are two important dimensions to performance: social and environmental. Certifications by the Aquaculture Stewardship Council and Fair Trade USA demonstrate high levels of both social and environmental performance. Certifications by the Marine Stewardship Council and green ratings by Seafood Watch demonstrate a high level of environmental performance, but do not currently provide a comprehensive evaluation of social performance.
- **Illegal, unreported, and unregulated (IUU) fishing:** IUU fishing is fishing that occurs in waters not under the jurisdiction of a management authority or that does not comply with applicable management policies. IUU fishing accounts for millions of tons of seafood and billions of dollars in trade every year. It is a major threat to sustainability, because IUU fishing often employs gear and practices banned due to their environmental consequences, and sometimes involves forced labor and other human rights violations. For more information, see the [FAO's introduction](#).

- **Social responsibility:** The economic and social wellbeing of fishing and farming communities is tied to the success of their harvests. We use social responsibility to describe efforts to protect and promote the lives, livelihoods, rights, and health of those communities. For more information, see the Collaboration's [Framework for Social Responsibility in the Seafood Sector](#).
- **Supply chain roundtable:** Supply chain roundtables bring companies (processors, importers, and others) in a seafood sector together to promote improvements throughout their supply chains. Supply chain roundtables invest in and support FIPs and AIPs, monitor their progress, and hold them accountable. Supply chain roundtables also facilitate new improvement projects where needed. For more information, see [the Sustainable Fisheries Partnership's blog post](#).
- **Target 75 Initiative:** Sustainable Fisheries Partnership's [Target 75](#) Initiative aims to ensure that 75 percent or more of world seafood production in key sectors is either sustainable or is making regular, verifiable improvements by 2020. The initiative aims to mobilize improvements in as much of the world's production as quickly as possible by working with industry partners. Existing partners need to continue with their current improvement work, while new partners need to come on board, especially where there may be key sustainability gaps in the seafood industry worldwide.



STATUS OF GLOBAL SEAFOOD

SUSTAINABILITY STATUS OF GLOBAL SEAFOOD PRODUCTION

Globally, approximately 200 million metric tons of seafood was produced in 2016, the most recent year for which data is available. About 45 percent, or 90 million metric tons, is wild caught while 40 percent, or 80 million metric tons, is farmed. The remainder, 15 percent or 30 million metric tons, is seaweed and aquatic plants.

WILD 45%

90,921,223 metric tons



FARMED 40%

80,068,829 metric tons



SEAWEED & AQUATIC PLANTS 15%

30,139,389 metric tons



Annual production has been steadily increasing for the past 65 years. From the 1950s through the 1980s, production growth was driven by increased fishing and processing technology. Wild fisheries have biological and ecological limits to their production. Since the 1990s, wild seafood production has been largely stable with, until recently, an increasing trend in the proportion of overexploited stocks. The dramatic rise in aquaculture production has been sustaining more recent seafood production growth. A fluctuating (20-35 percent) but significant proportion of wild production is used to make fishmeal and fish oil, important feed ingredients for animal and fish farming.

SUSTAINABILITY STATUS OF GLOBAL SEAFOOD PRODUCTION (CONTINUED)

25 percent of global production is certified or green-rated by Collaboration members

Of total global production, one-third is rated or certified by members of the Collaboration. One-quarter of global production is certified or green-rated, indicating a high level of performance.

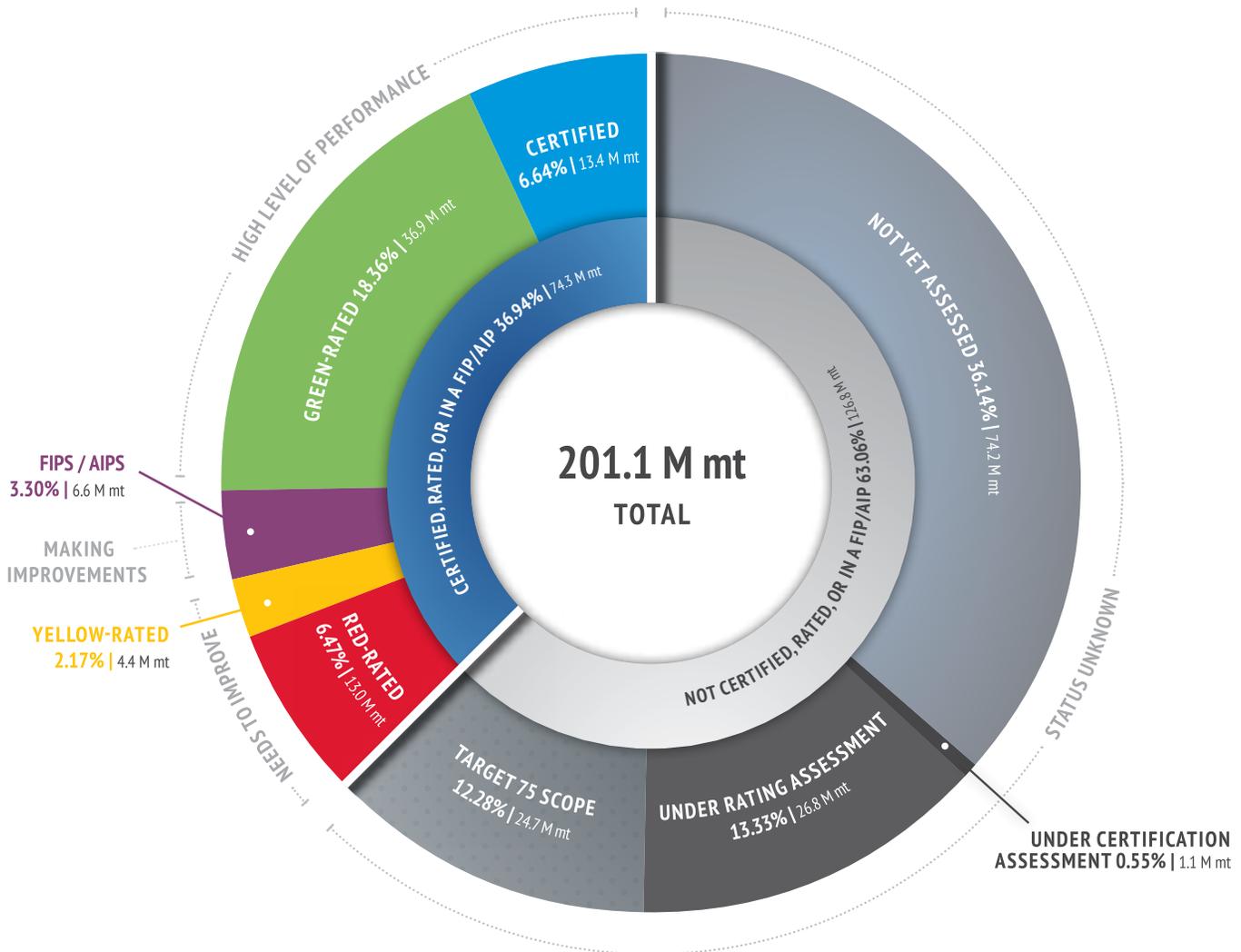
75 percent of global production is improving, needs improvements, or is status unknown

An additional 9 percent of global production is rated red or yellow, indicating that improvements are needed. Three percent of global production is currently engaged in a public fishery improvement project, but 63 percent of global seafood production remains unassessed or not yet engaged in improvements by members of the Collaboration.

Priorities for assessment and improvement

As a Collaboration, we are working to prioritize fisheries and aquaculture in that remaining 63 percent for assessment and improvement based on where there is high environmental or social risk and where there is market support for improvements. Nearly 14 percent of global production is undergoing assessment for ratings by Monterey Bay Aquarium Seafood Watch program or undergoing assessment for certification by the Aquaculture Stewardship Council or Marine Stewardship Council. In addition, 12 percent of global seafood production is within the scope of Sustainable Fisheries Partnership's Target 75 Initiative.

GLOBAL SEAFOOD PRODUCTION



FAO fishery and aquaculture statistics for 2016 from FishStatJ (2018).

Certified and under assessment volumes provided by ASC, MSC and FTUSA; Ratings and under assessment volumes provided by MBA SFW; FIP and T75 scope volumes provided by SFP; Not yet assessed volumes from FishStatJ.

SUSTAINABILITY STATUS OF WILD SEAFOOD

14 percent of wild production is certified or green-rated by Collaboration members

Looking more specifically at wild seafood, 22 percent is rated or certified by members of the Collaboration. Approximately 14 percent of wild production is certified or green-rated, indicating a high level of performance. Tuna and whitefish are the majority of the green-rated wild seafood. Certified seafood includes whitefish (pollock and cod), tuna, and demersal fishes, among others.

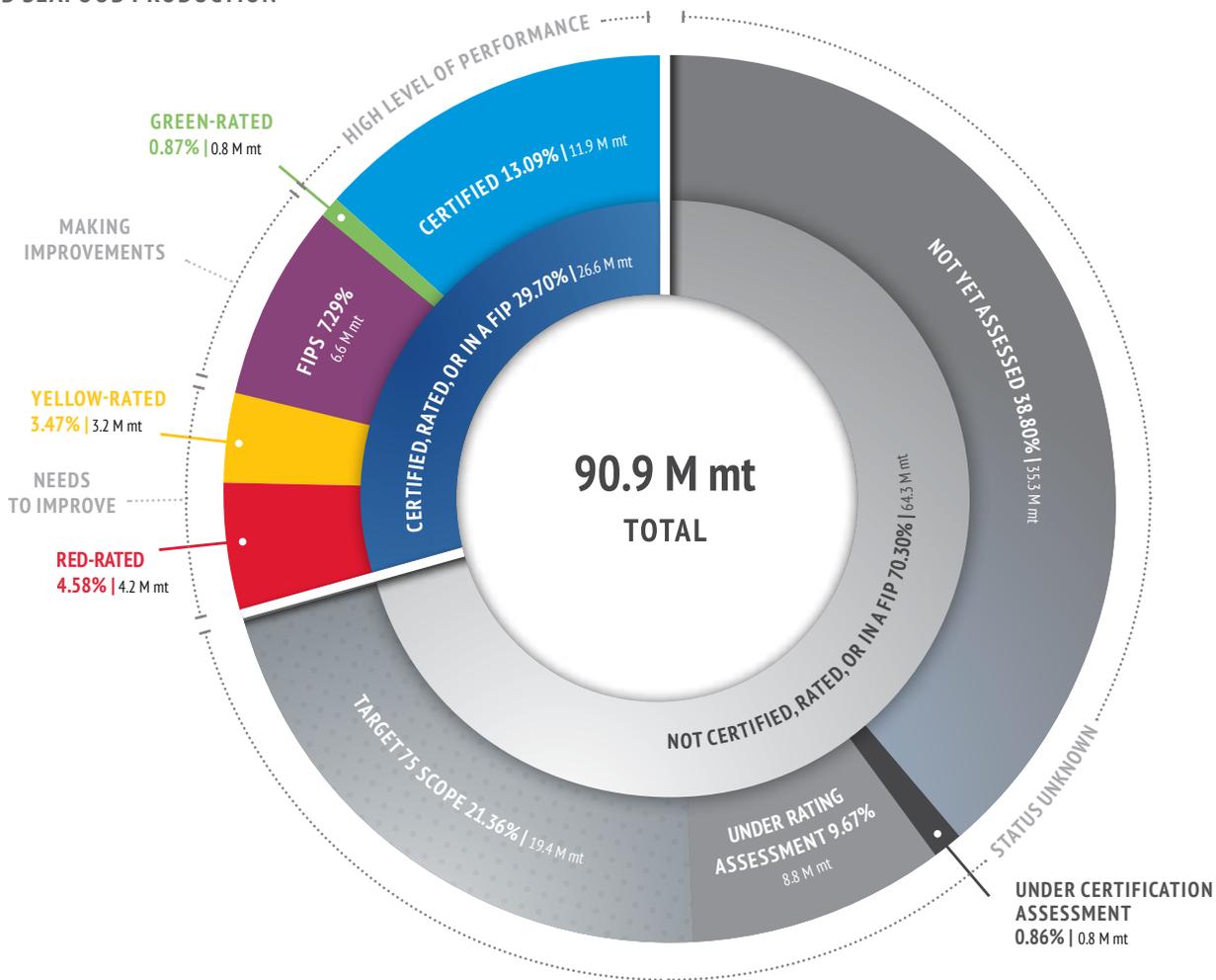
86 percent of wild production is improving, needs improvements, or is status unknown

An additional 8 percent of wild production is rated red or yellow, indicating that improvements are needed. Yellow-rated wild seafood includes some tuna, squid, octopus, and forage fish. Some tuna, squid, and octopus are also red-rated along with whitefish. Seven percent of wild production is currently engaged in a public fishery improvement project, but 71 percent of wild seafood production remains unassessed or not yet engaged in improvements by members of the Collaboration.

Priorities for assessment and improvement

As a Collaboration, we are working to prioritize fisheries in that remaining 71 percent for assessment and improvement based on where there is high environmental or social risk and where there is market support for improvements. Eleven percent of wild production is undergoing assessment for ratings by Seafood Watch or undergoing assessment for certification by the Marine Stewardship Council. In addition, 21 percent of wild seafood production is prioritized for improvement in Sustainable Fisheries Partnership's Target 75 Initiative.

WILD SEAFOOD PRODUCTION



Certified and under assessment volumes provided by MSC and FTUSA; Ratings and under assessment volumes provided by MBA SFW; FIP and T75 scope volumes provided by SFP; Not yet assessed volumes from FishStatJ.

SUSTAINABILITY STATUS OF FARMED SEAFOOD

34 percent of farmed production is certified or green-rated by Collaboration members

Looking more specifically at farmed seafood (including seaweed), 43 percent is rated or certified by members of the Collaboration. Approximately 34 percent of farmed production is certified or green-rated, indicating a high level of performance (and social responsibility for the certified products). Seaweed and bivalves are the majority of the green-rated farmed seafood. Certified seafood includes best-performing salmon, trout, pangasius, and tilapia.

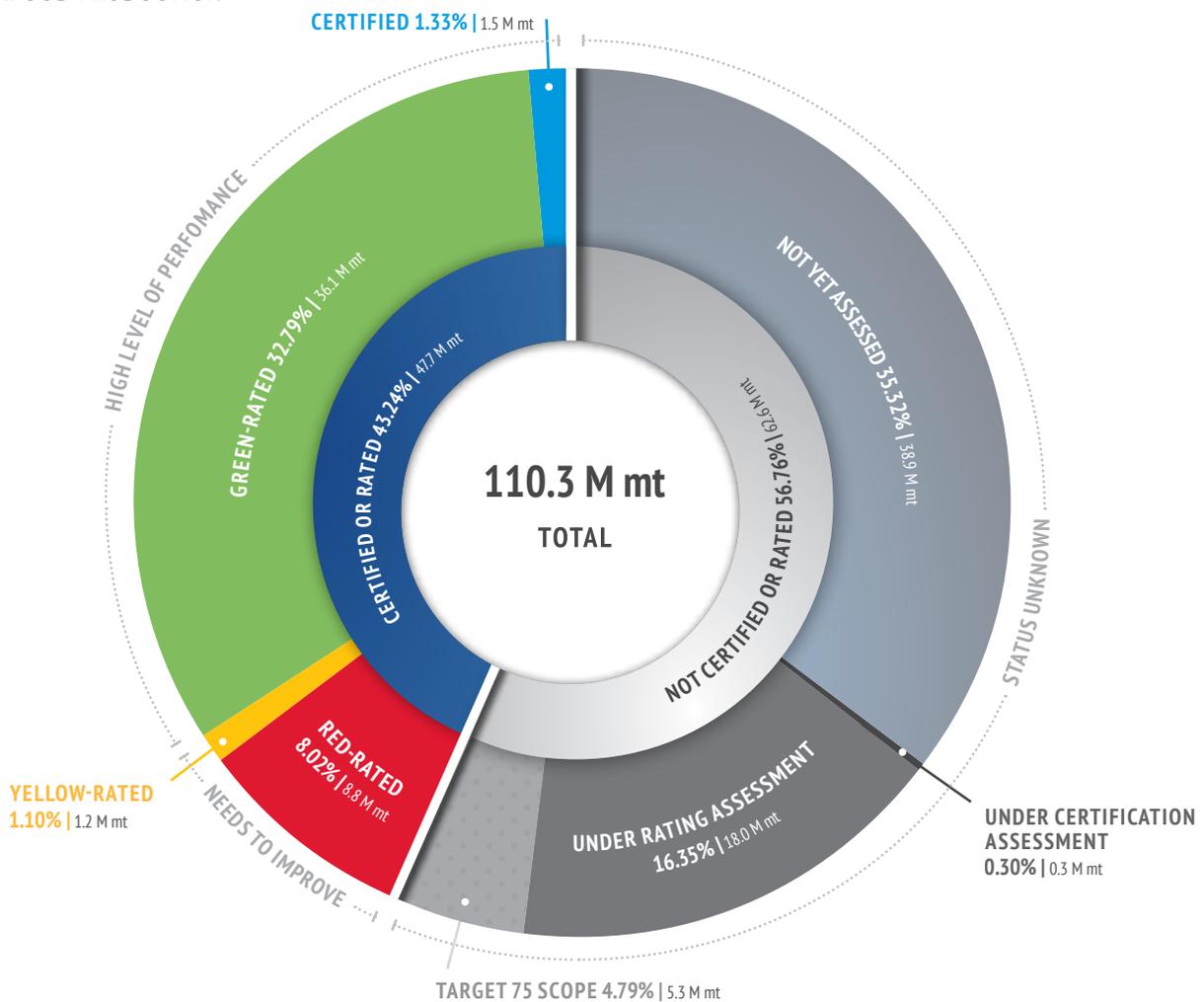
66 percent of farmed production is improving, needs improvements, or is status unknown

An additional 9 percent of farmed production is rated red or yellow, indicating that improvements are needed. Yellow-rated farmed seafood includes some shrimp, crustaceans, salmon, and trout. Some farmed salmon and shrimp are red-rated, along with tilapia. Nearly 57 percent of farmed seafood production remains unassessed or not yet engaged in improvements by members of the Collaboration, including significant volumes of Asian carp and milkfish.

Priorities for assessment and improvement

As a Collaboration, we are working to prioritize fisheries in that remaining 57 percent for assessment and improvement based on where there is high environmental or social risk and where there is market support for improvements. Nearly 17 percent of farmed production is undergoing assessment for ratings by Seafood Watch or undergoing assessment for certification by the Aquaculture Stewardship Council. In addition, nearly 5 percent of farmed seafood production is within the scope of Sustainable Fisheries Partnership's Target 75 Initiative.

FARMED SEAFOOD PRODUCTION



Certified and under assessment volumes provided by ASC; Ratings and under assessment volumes provided by MBA SFW; T75 scope volumes provided by SFP; Not yet assessed volumes from FishStatJ.

CURRENT REACH OF COLLABORATION MEMBER PROGRAMS

As shown above, one-third of global seafood production is currently certified or rated by members of the Certification & Ratings Collaboration. The following infographic provides additional detail on the scope of each program's engagement.



AQUACULTURE STEWARDSHIP COUNCIL

Aquaculture certification, environmental and social issues, certifies individual farms or groups of farms

- > **832 FARM SITES** in 39 countries producing 1.6 M metric tons of certified seafood.
- > More than **16,000 PRODUCTS** carrying the ASC logo in 75 countries.
- > In a recent survey, **49 PERCENT** of ASC-certified farms report that they have improved working conditions and 46 percent report they have reduced their impact on the environment since achieving certification.
- > More than **1,800 BUSINESSES** certified to the chain of custody standard in over 70 countries.



FAIR TRADE USA

Wild capture certification, environmental and social issues, certifies small- to medium-scale fishermen

- > **9 FISHERIES** in five countries producing 5,000 metric tons of certified seafood.
- > Certified fisheries have generated over **\$1.25 M IN COMMUNITY DEVELOPMENT FUNDS** for local environmental, educational, and other community projects.



MARINE STEWARDSHIP COUNCIL

Wild capture certification, environmental and forced/child labor issues, certifies groups defined by stocks, gears, and vessels

- > **470+ FISHERIES** certified in 53 countries producing 12.5 M metric tons of certified seafood.
- > More than **35,000 PRODUCTS** carrying the MSC logo in 112 countries representing more than 900,000 metric tons of labeled products.
- > More than **1,400 IMPROVEMENTS** delivered by MSC-certified fisheries.
- > More than **4,500 BUSINESSES** certified to the chain of custody standard in over 90 countries encompassing 32,000 restaurant outlets and 7,000 wet fish counters.



MONTEREY BAY AQUARIUM SEAFOOD WATCH PROGRAM

Wild capture and aquaculture ratings, environmental issues, rates specific fisheries and regional aquaculture

- > **2,152 FISHERY AND AQUACULTURE RECOMMENDATIONS**, representing 394 species and 67 M metric tons of seafood.
- > More than **25,400 BUSINESS LOCATIONS** worldwide use SFW recommendations to inform purchasing decisions.
- > Recommendations cover **33 PERCENT OF THE VOLUME OF GLOBAL WILD AND FARMED PRODUCTION** and 85 percent of the seafood by volume available on the U.S. and Canadian markets.



SUSTAINABLE FISHERIES PARTNERSHIP FISHSOURCE

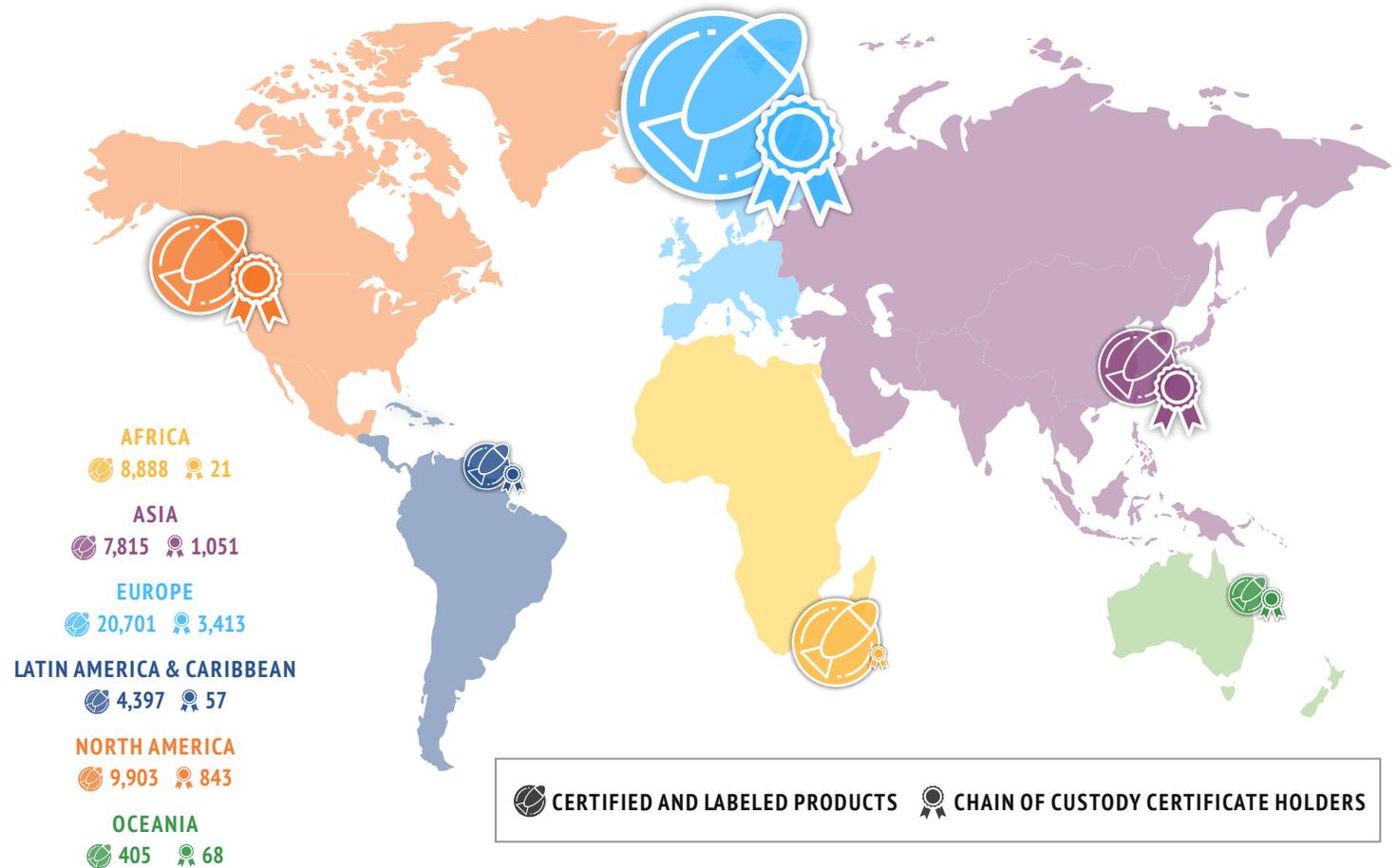
Wild capture and aquaculture ratings, environmental issues, rates specific fisheries and aquaculture zones

- > **3,600 FISHERIES** with profiles in FishSource.
- > **49 AQUACULTURE PROFILES** at the species/province level since being added to FishSource in 2018.

GROWING GLOBAL DEMAND FOR SUSTAINABLE SEAFOOD

Over the past 20 years, demand for sustainable seafood products has grown across the world – creating the incentive for much of the progress toward sustainable practice reflected on the previous pages. Products certified by the Aquaculture Stewardship Council, Marine Stewardship Council, and Fair Trade USA are sold in 147 countries, while more than 5,400 companies around the world hold chain of custody certificates. Europe is home to the biggest concentration of both certified, labeled products and chain of custody certificate holders.

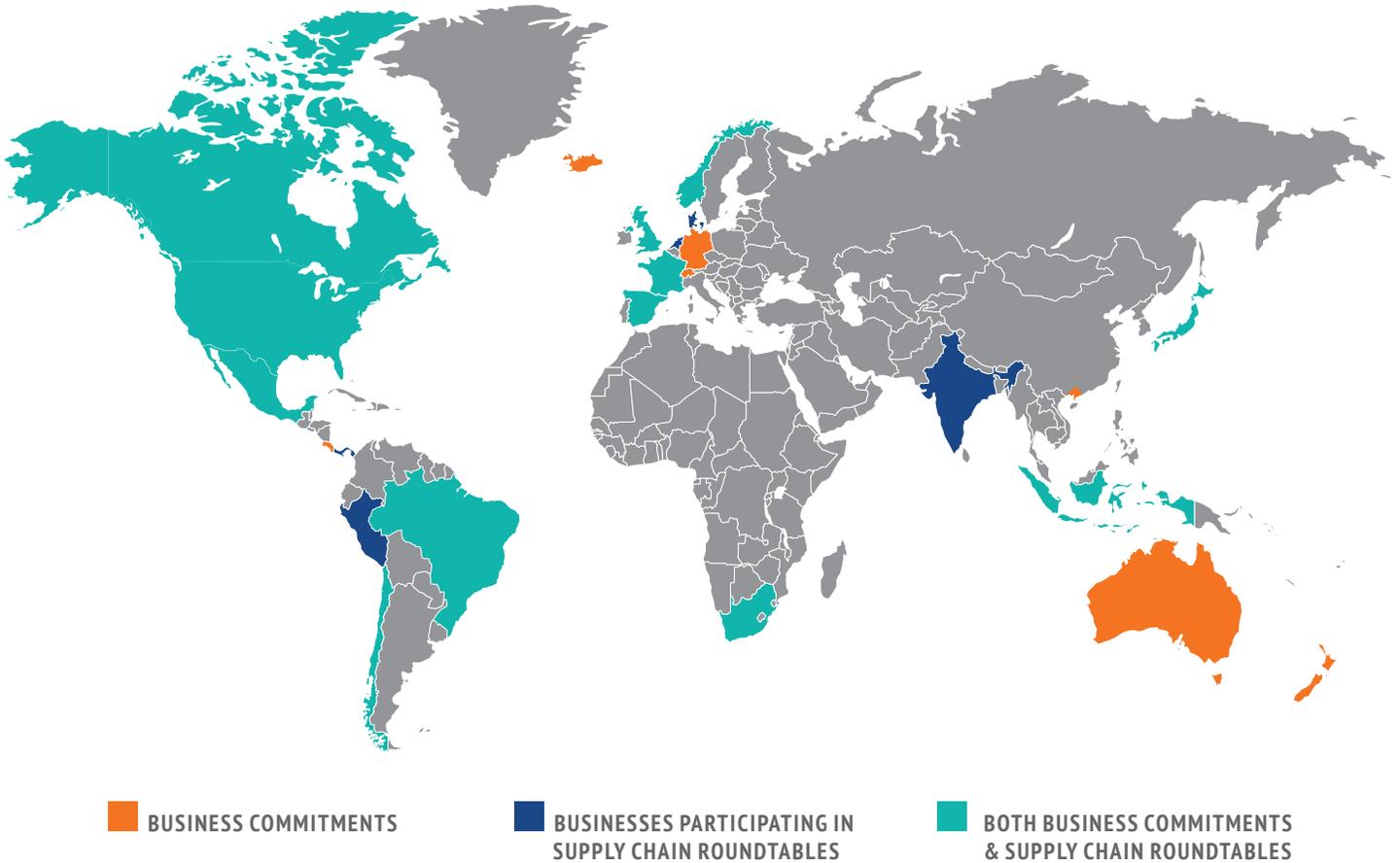
DISTRIBUTION OF CERTIFIED AND LABELED PRODUCTS AND CHAIN OF CUSTODY CERTIFICATE HOLDERS



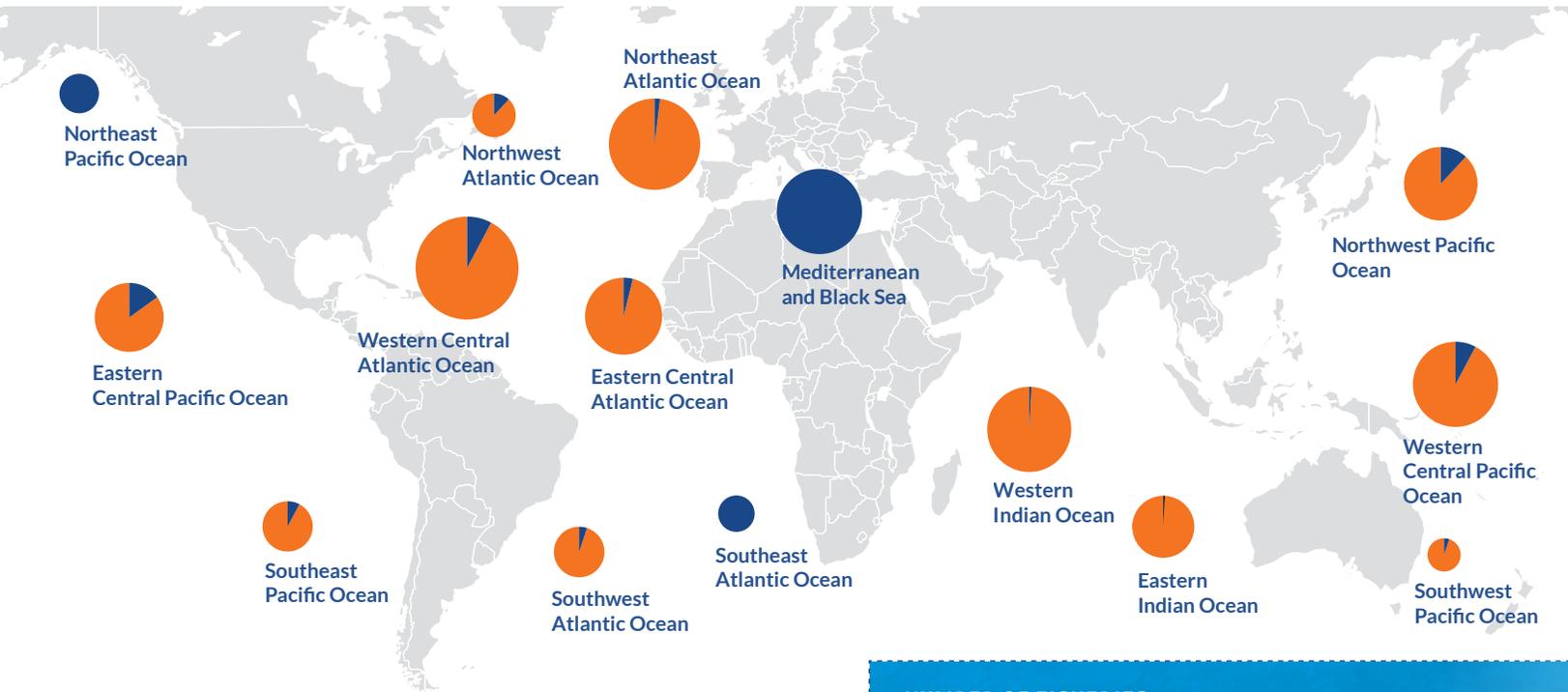
Companies in Northern Europe and North America began making commitments to sustainable seafood in the early 2000s, and these commitments have expanded globally over time. Building on these efforts to increase demand for sustainable seafood by companies in critical markets is essential. Increased demand would provide the support and incentives fisheries and farms supplying these markets need to make improvements. Critical markets that purchase large volumes of key species prioritized for improvement include Japan, China, and South Korea in Asia as well as Latin America, Africa, and Southern Europe.

Seafood supply chains have responded to the demands of their customers to make improvements needed to expand the supply of sustainable seafood. There are currently 134 supply chain companies participating in roundtables focused on fisheries or aquaculture areas that need improvement.

DISTRIBUTION OF BUSINESS COMMITMENTS AND BUSINESSES PARTICIPATING IN SUPPLY CHAIN ROUNDTABLES



FISHERY IMPROVEMENT PRIORITIES

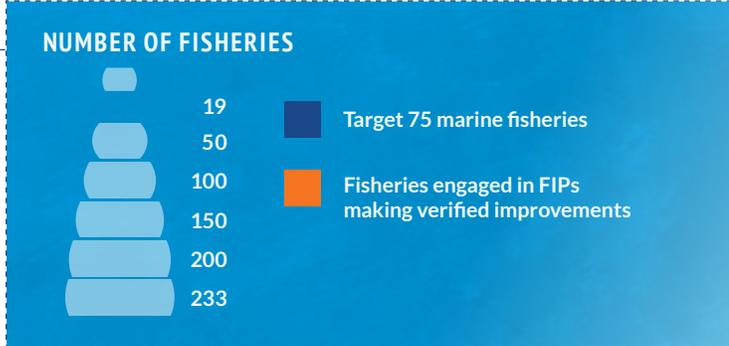


While significant progress has been made by some wild fisheries in improving their sustainability over the past two decades, more work is needed to ensure global fisheries remain healthy and productive for the future. This chart shows the number of marine fisheries in each FAO region that are 1) making verified improvements in a public fishery improvement project; or 2) are within the scope of Sustainable Fisheries Partnership’s Target 75 Initiative, because they are not yet certified by a member of this Collaboration or engaged in a FIP.

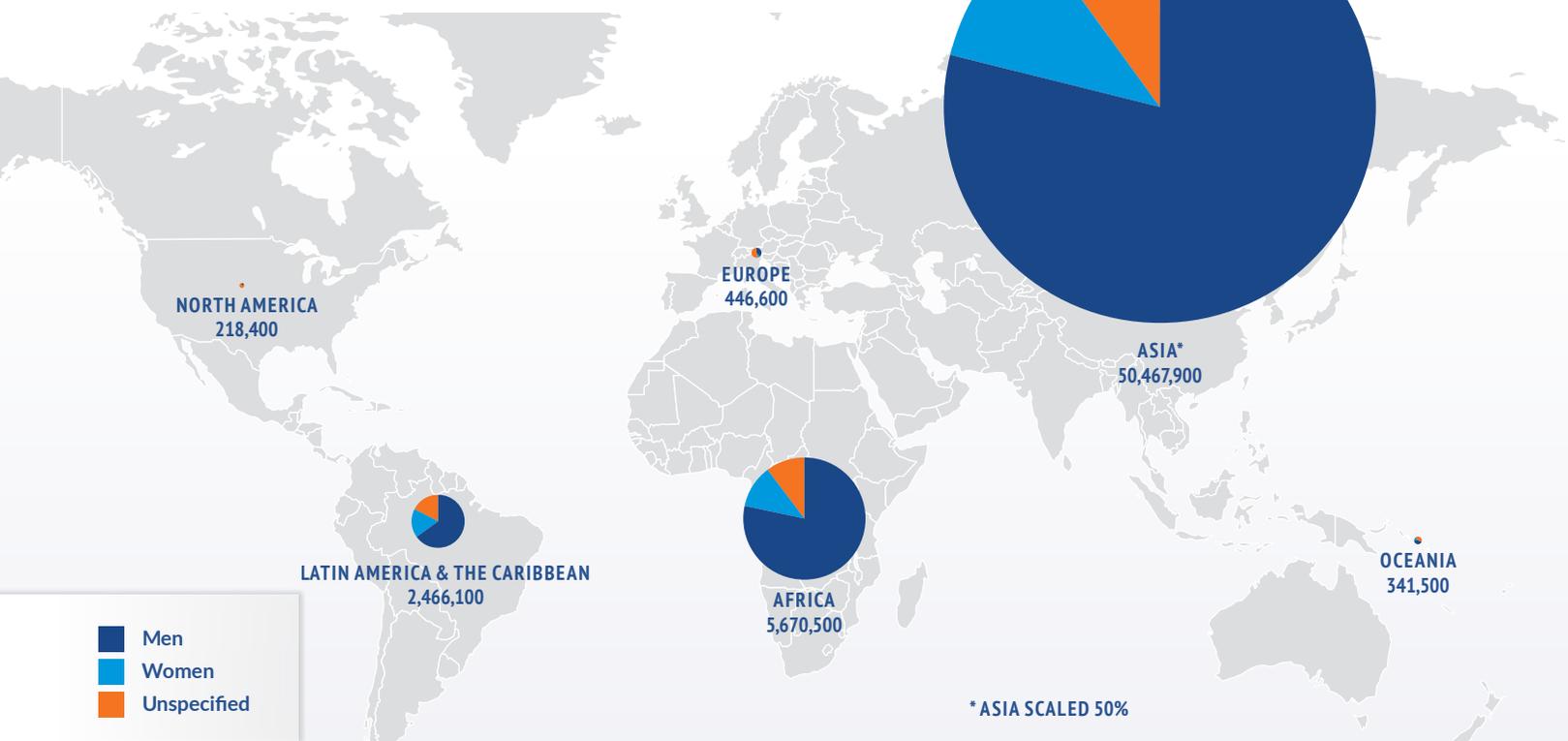
2,380 marine fisheries are within the scope of Sustainable Fisheries Partnership’s Target 75 Initiative. Seven percent of wild fisheries are engaged in public fishery improvement projects. There are currently 101 active fishery improvement projects around the world. Eighty-five of these FIPs, covering 165 fisheries, are making verified improvements.

The seafood industry must use its leverage to get fisheries that are currently red- or yellow-rated by Seafood Watch or Target 75 priorities into credible fishery improvement projects. And they must actively support fisheries already in improvement projects to make regular progress toward their sustainability objectives.

Data on fisheries within the T75 scope and fisheries engaged in FIPs demonstrating improvements provided by SFP.



SOCIAL RESPONSIBILITY IN FISHERIES AND AQUACULTURE: 60 MILLION LIVELIHOODS AT STAKE



Globally, wild and farmed seafood production employs nearly 60 million people – almost 85 percent in Asia alone.

Environmental and social challenges within fisheries and aquaculture are often linked. Addressing environmental challenges can help ensure livelihoods are sustainable over the long term, while maintaining a critical source of food. Addressing social challenges can lead to environmental gains as producers are able to invest in stewardship of the resources they rely on. It is essential for the sustainable seafood movement to address social challenges directly – especially labor and human rights abuses, but also the full range of social issues that impact fisheries and aquaculture, including gender equity.

Within the Certification & Ratings Collaboration, both the Aquaculture Stewardship Council and Fair Trade USA include rigorous social content within their standards and the Marine Stewardship Council requires all MSC-certified fisheries to detail the measures they have in place to mitigate the presence of forced or child labor. Sustainable Fisheries Partnership has added socioeconomic indicators to a few of its FishSource profiles. Sustainable Fisheries Partnership and Monterey Bay Aquarium Seafood Watch contributed to the development of the [Seafood Slavery Risk Tool](#).

FAO 2018 fishery and aquaculture statistics.

SEAFOOD SECTORS: CURRENT STATUS, TRADE, AND CASE STUDIES

Global seafood production is incredibly diverse, defined by a wide range of species, production methods and gear types, management policies, and environmental conditions. A comprehensive look at the sustainability status of all sectors is beyond the scope of this analysis, but it is possible to explore key sectors that illustrate the progress made to date and the work yet to come.

In the following analysis:

- We disaggregated the data into wild capture and farmed production for some sectors, based on where the Collaboration identified areas of progress or of improvement. We defined key sectors as those that represent a substantial amount of commercial seafood production of importance to markets currently demanding sustainability.
- To avoid double-counting within the production data, the analysis took into account the overlap in product that was both certified and rated and represents the preferred procurement option.¹
- All trade data was drawn from the U.N. International Trade Statistics Database (2016). This data was in some cases at a more aggregated level than our sector definitions, and so for several sectors the trade data includes a broader range of species than the production data. The data available specifically track fishery products in the marketplace and are historically grouped according to how they are commonly traded. These data are used to monitor and track fisheries products on a global scale for national customs and allow us to look at the flow of products between countries. Therefore, the data are available as net weight of products and cannot be directly linked to national production; we do not present data for fish that is not traded and consumed within the country of origin.

Additional information about the sector definitions and trade data is included in the technical appendix.

Each sector overview tells a unique story, but they all have four common elements:

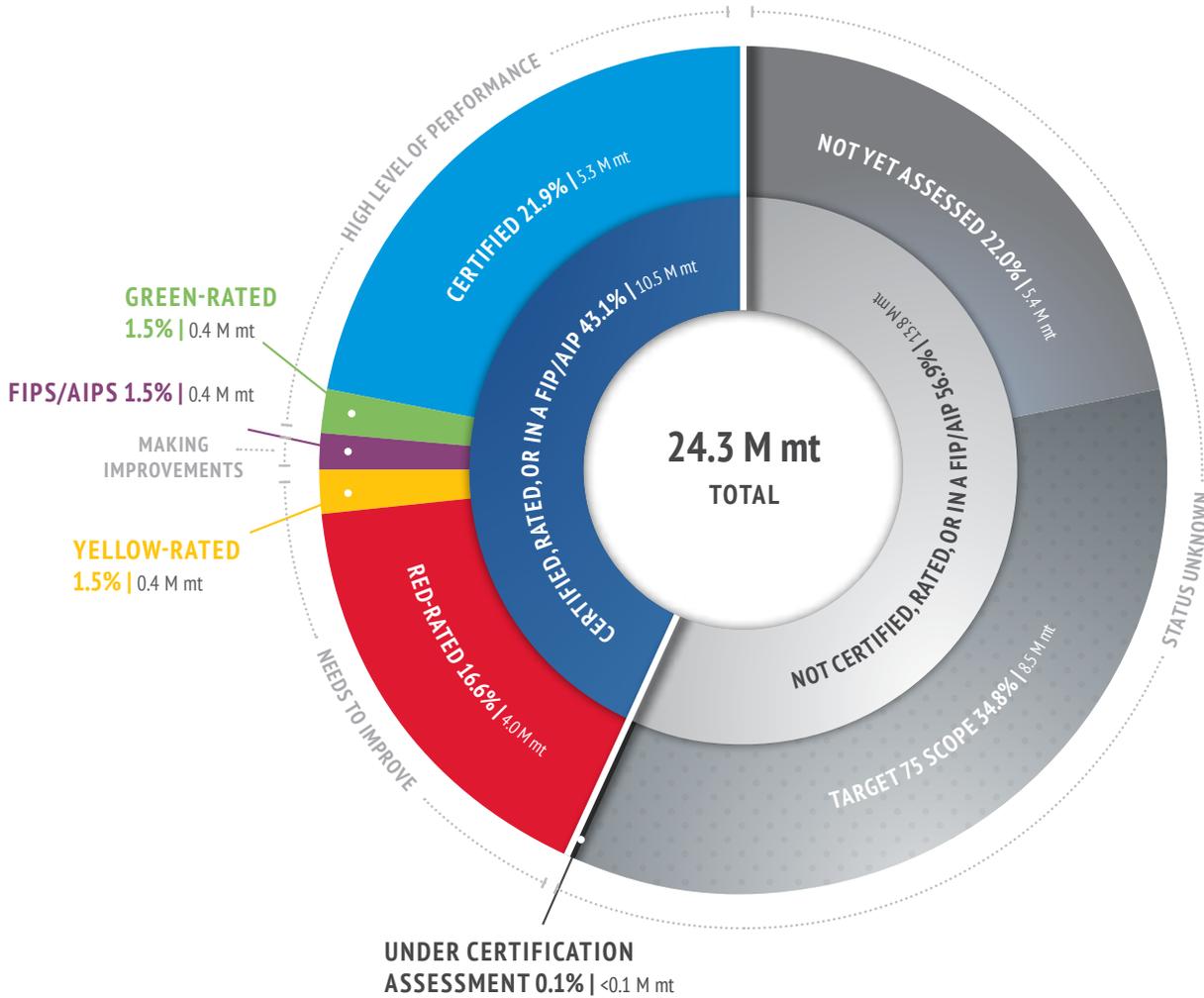
1. A status summary illustrating the share of production in the sector that:
 - Is certified or green-rated, indicating a high level of performance;
 - Is making improvements and engaged in an improvement project;
 - Is yellow- or red-rated, indicating that improvements are needed; and
 - Is status unknown, and is either unassessed or not yet engaged in our ratings or certification programs.
2. Notes on the defining features of the sector's current sustainability status.
3. Information on the nations that lead imports and exports of seafood within the sector. Trade notes are included to identify the countries best positioned to shape the sector's overall sustainability, not as a comprehensive overview of the sector's global trade.
4. A narrative illustrating how the sector has made progress toward sustainability or the challenges we must confront to improve its sustainability going forward.

¹For more information on the benchmarking of assessments between Seafood Watch and certification programs, see: <https://www.seafoodwatch.org/seafood-recommendations/eco-certification>.

WHITEFISH

The whitefish sector looks across both classic whitefish (e.g., cods, haddocks) and other whitefish (pangasius, tilapias, flatfishes, and catfishes) for both farmed and wild production.

WILD AND FARMED WHITEFISH



CURRENT STATUS

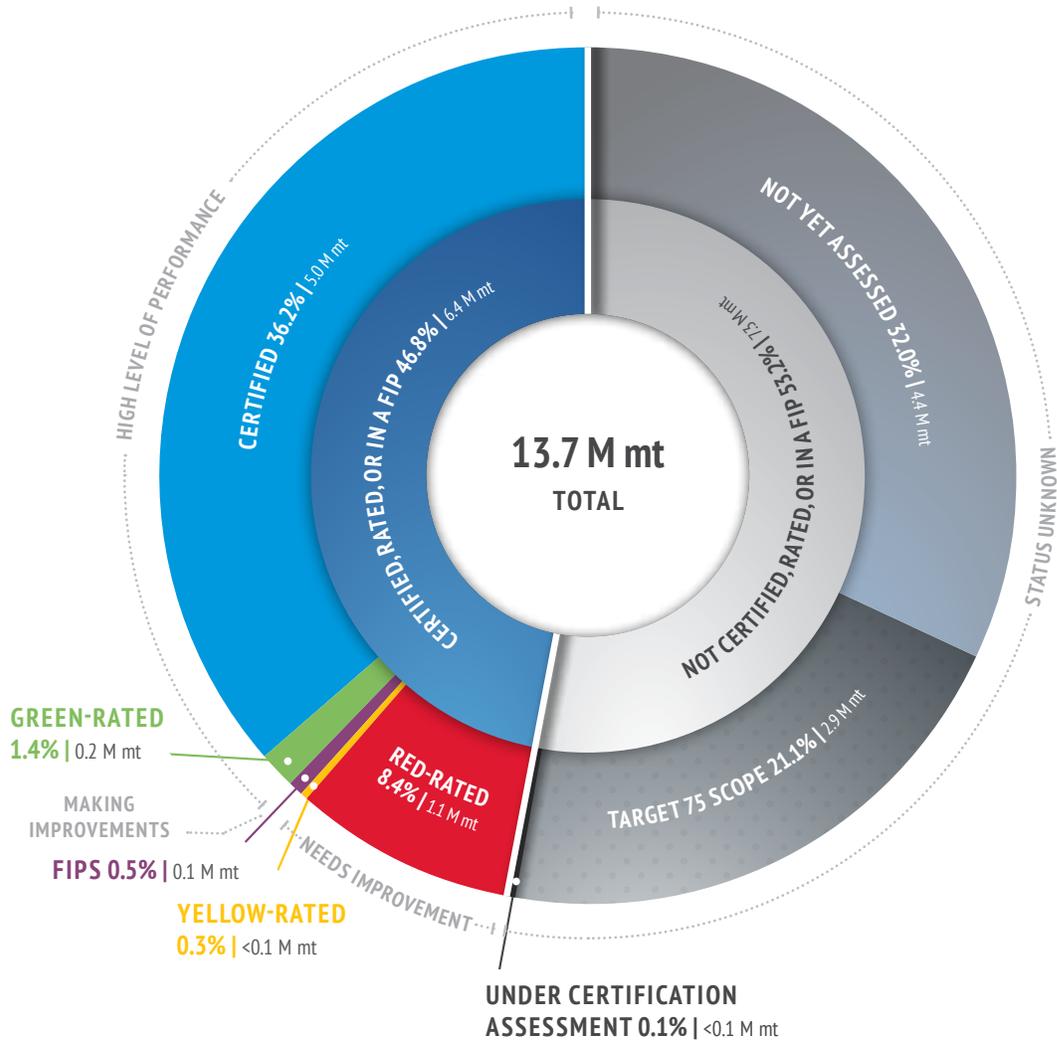
Approximately 23 percent of whitefish production is certified or green-rated, indicating a high level of performance.

Two percent of whitefish production is making improvements and currently engaged in a public FIP or AIP.

Eighteen percent of whitefish production is yellow- or red-rated, indicating that improvements are needed. Almost 2 percent is rated yellow, and 17 percent is rated red.

Fifty-seven percent of whitefish production remains status unknown, and is either unassessed or not yet engaged in improvements by members of the Collaboration. Of that, less than 1 percent is undergoing assessment for certification by the Aquaculture Stewardship Council or Marine Stewardship Council. An additional 35 percent is within the scope of Sustainable Fisheries Partnership’s Target 75 Initiative.

WILD WHITEFISH



Wild Whitefish

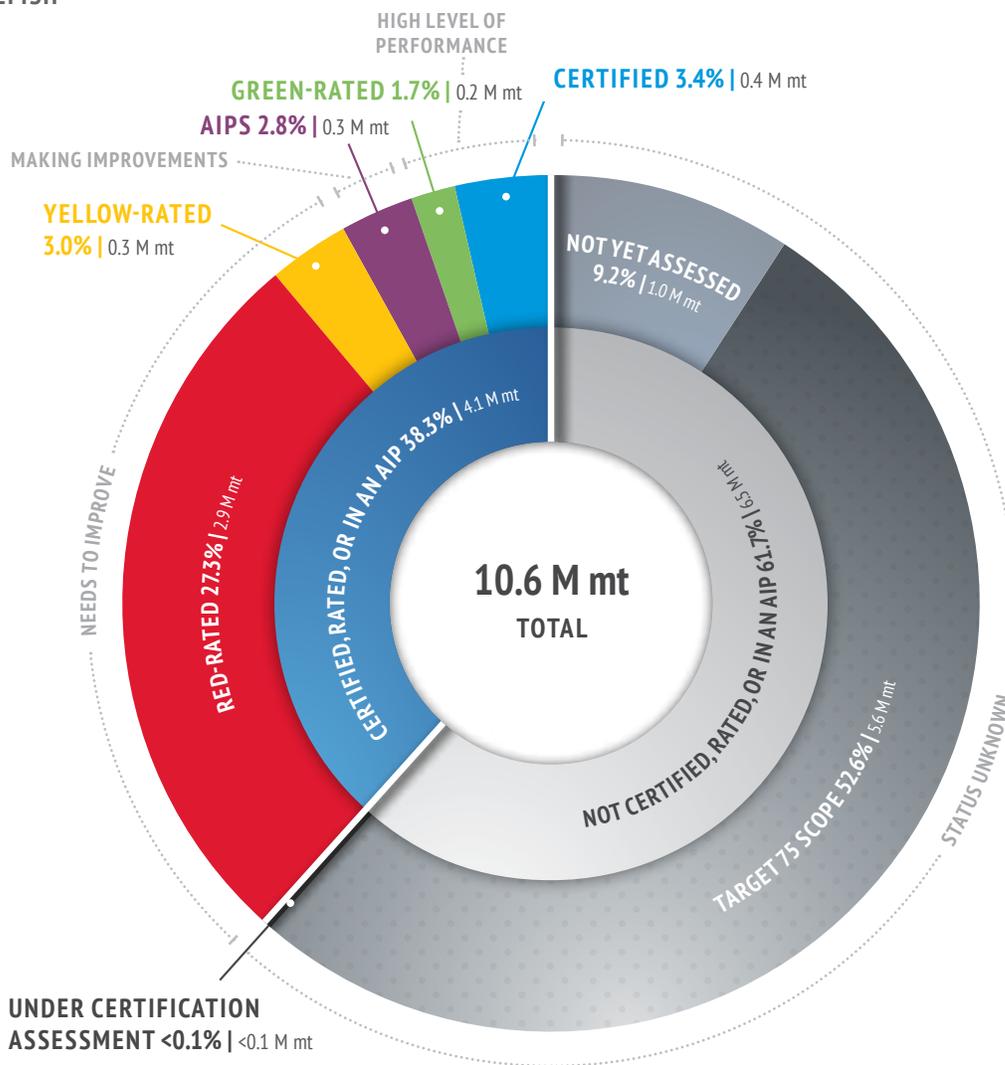
Wild capture accounts for 56 percent of production in this sector. Approximately 38 percent is certified or green-rated, indicating a high level of performance. Certified production is dominated by walleye pollock from the U.S. and Russia and Atlantic cod from Europe. Green-rated production is mostly Pacific cod, Pacific ocean perch, and Pacific sanddab from the U.S.

Less than 1 percent of production is making improvements and currently engaged in a public FIP; FIP production is mostly comprised of Atlantic and Pacific cod from multiple countries; New England silver hake; U.S. Acadian redfish, pollock, and haddock; Indian threadfin bream; and South Pacific hake from Chile which is currently in full assessment to the Marine Stewardship Council Fisheries Standard.

Nine percent is yellow- or red-rated, indicating that improvements are needed. Less than 1 percent is rated yellow; yellow-rated production is comprised mostly of arrowtooth flounder from Canada and American angler from the U.S. Eight percent is rated red; red-rated production is mostly walleye pollock from Russia, largely due to a lack of data availability.

Fifty-three percent remains status unknown, and is either unassessed or not yet engaged in improvements by members of the Collaboration, most of which is produced in China.

FARMED WHITEFISH



Farmed Whitefish

Farmed production accounts for 44 percent of production in this sector. Approximately 5 percent is certified or green-rated, indicating a high level of performance. Certified production is mostly pangasius from Vietnam and Nile tilapia from various countries. Green-rated production is mostly channel catfish from the U.S.

Three percent is making improvements and currently engaged in a public AIP.

Thirty percent is yellow- or red-rated, indicating that improvements are needed. Three percent is rated yellow; yellow-rated production includes European seabass, gilthead seabream, and tilapia species from a range of countries. Twenty-seven percent is rated red; red-rated production is mostly Nile catfish and channel catfish from China, pangas catfish from Vietnam, and Blue Nile tilapia from China.

Sixty-two percent remains status unknown, and is either unassessed or not yet engaged in improvements by members of the Collaboration.

Takeaways

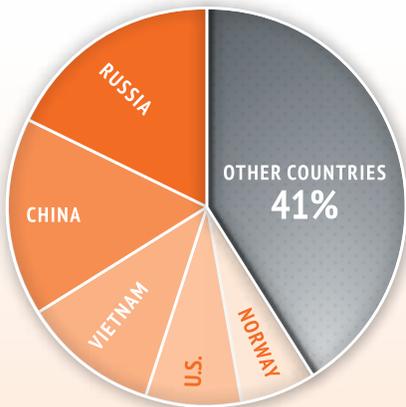
As a Collaboration, we are working to improve the sustainability of the nearly 16 percent of whitefish production that remains rated red. We are also working to engage suppliers in improving the performance of unrated and uncertified fisheries within the Sustainable Fisheries Partnership's Target 75 scope, which account for 35 percent of production worldwide. Rebuilding stocks and effective management offer promise for future gains. Challenges for future efforts include improving stock data, reducing bycatch, and expanding demand for sustainable product.

WHITEFISH TRADE

The countries that lead imports and exports of seafood in the whitefish sector are best-positioned to shape the sector's overall sustainability. This data allows us to understand which products make up the majority of the exports and imports; however, the data do not provide a comprehensive overview of the sector's global trade. Trade data do not distinguish farmed from wild production sources.

Trade data estimates the export volume of whitefish products at around 5.7 million metric tons. This represents a considerable disconnect with the global production of farmed and wild whitefish (24.3 million metrics tons). Of this volume, trade data do not estimate product that remains within a nation for consumption or weight loss due to processing. There is additional potential for produced volumes of whitefish to be traded with other species and product groupings, resulting in a potential underestimation of traded product weight and therefore not represented as whitefish in the trade analysis.

TOP 5 EXPORTERS



RUSSIA 18% OF GLOBAL EXPORTS | 1.0 M mt

Seventy-six percent of whitefish exports from Russia was frozen Alaskan pollock, with 10 percent frozen cod. In 2016, the two largest markets for Alaskan pollock from Russia were China and South Korea.



CHINA 16% OF GLOBAL EXPORTS | 0.9 M mt

China exported the second-highest volume of whitefish, 27 percent of which was frozen Alaskan pollock fillets. The majority of Chinese-processed Alaskan pollock was exported to markets in Germany, South Korea, and the U.S.



VIETNAM 11% OF GLOBAL EXPORTS | 0.6 M mt

Vietnam remained the single largest exporter of pangasius in 2016, 85 percent of which was processed frozen fillets.



UNITED STATES 8% OF GLOBAL EXPORTS | 0.5 M mt

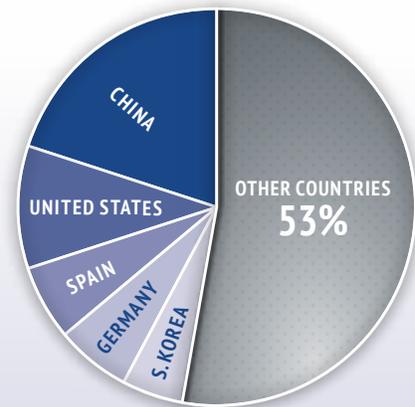
Among U.S. exports of whitefish, 27 percent was frozen Alaskan pollock fillets; 24 percent was various frozen flatfish; and 21 percent was frozen cod. In 2017, the largest U.S. export markets for Alaskan pollock were the Netherlands, Germany, and France.



NORWAY 6% OF GLOBAL EXPORTS | 0.3 M mt

Norway's whitefish exports were largely frozen cod (21 percent), fresh or chilled cod (17 percent), and frozen haddock (14 percent).

TOP 5 IMPORTERS



CHINA 20% OF GLOBAL IMPORTS | 1.1 M mt

China was the biggest importer in 2016, representing 20 percent of global whitefish imports. Fifty-five percent of China's imports was frozen whole Alaskan pollock from Russia, which was processed and then re-exported; followed by 18 percent frozen cod primarily from the United States. Non-classified frozen flatfishes were 12 percent, and 4 percent was frozen whole haddock.



UNITED STATES 10% OF GLOBAL IMPORTS | 0.6 M mt

Twenty-five percent of imports to the U.S. was frozen catfish (including pangasius) from Vietnam, and 23 percent was frozen tilapia fillets. To a lesser extent, cod fillets and frozen whole tilapia were notable imports at 10 percent and 6 percent, respectively.



SPAIN 6% OF GLOBAL IMPORTS | 0.3 M mt

Hake was the largest species group imported by Spain, either as frozen fillets (16 percent), fresh and chilled whole fish (15 percent), or frozen whole fish (8 percent). Frozen cod fillets represented 10 percent of imports followed by frozen pangasius fillets at 8 percent.



GERMANY 6% OF GLOBAL IMPORTS | 0.3 M mt

Sixty percent of Germany's total import volume was frozen Alaskan pollock fillets, and an additional 4 percent was non-filletted Alaskan pollock. Approximately 12 percent was frozen cod fillets and 3 percent was frozen catfish fillets.



SOUTH KOREA 5% OF GLOBAL IMPORTS | 0.3 M mt

Sixty-seven percent of whitefish imported to South Korea was whole frozen Alaskan pollock, followed by 9 percent of non-classified whole frozen flatfish, nearly 7 percent of frozen cod, and 6 percent of frozen Alaskan pollock fillets.

WHITEFISH: DEMONSTRATING THE IMPACT OF MARKET-DRIVEN SUSTAINABILITY APPROACHES

Whitefish is one of the best examples of the progress possible toward sustainability. There is a high level of sustainability throughout the sector – almost 38 percent of wild capture whitefish is certified or green-rated, and 1 percent is improving (including a number of FIPs in Latin America). Additionally, 5 percent of farmed whitefish is certified or green-rated and 3 percent is yellow-rated.

There is a lot of success to point to in wild capture fisheries. Since 1997 when Unilever (then the biggest buyer of whitefish globally) and [World Wildlife Fund](#) founded the Marine Stewardship Council, sustainability has been a key focus for the sector. Many success stories showcase the work of the market in driving demand for sustainable product – for example, Unilever and Lidl were the first two companies to source large volumes of MSC-certified whitefish. [McDonald's](#) has also committed to sourcing all of its wild caught seafood from certified sources by 2020. Today, customers in the U.S., Europe, and Canada are all served MSC-certified fish.

There are also success stories at the fishery level. For example, the U.S. West Coast groundfish (rockfish, flatfish) trawl complex was declared a disaster by the [National Oceanic and Atmospheric Administration \(NOAA\)](#) in 2000, catalyzing a decade of industry and NGOs working together. This work included developing and implementing a catch share program and a 100-percent observer program which led to improvements including rebuilt stocks, effective management, and reductions in bycatch and habitat impacts. These changes allowed the fishery to receive MSC certification in 2014, and the Seafood Watch program recognized the improvement and adjusted the rating.

The [Barents Sea cod and haddock fisheries](#), one of the earliest FIPs, helped demonstrate the improvements that are possible when industry and NGOs work together. More than 20 fisheries have since achieved MSC certification after governments and industry took measures to address management issues, reduce IUU, and protect sensitive benthic habitats. And the [South Africa hake trawl](#), one of South Africa's older commercial fisheries that has been MSC-certified since 2004, has made a number of improvements including reducing habitat impacts and implementing tori lines that have reduced seabird bycatch by 95 percent.

Additionally, some farmed species are showing progress. For example, there's been growth in the amount of certified pangasius. The Aquaculture Stewardship Council released its pangasius standard in 2012, and within three years, 35 producers were ASC-certified. Some of the biggest investments and improvements were reducing use of medicines and chemicals; improving working conditions (such as insurances, health and safety training, and protective equipment); investing in ponds and wastewater management systems; and implementing better management practices which resulted in improved fish survival rates. There's also progress in AIPs, such as the Chinese tilapia AIP – one of Sustainable Fisheries Partnership's first AIPs informing the organization's approach to landscape management – which is connecting local companies to Chinese producers to jointly address challenges including coordinated management, disease control, sustainable sourcing of feed, and limiting cumulative impacts on ecosystems.

While there is a lot of progress to point to, there are still areas for improvement. Growing demand for whitefish in markets not engaged in sustainability is diluting pressure for poorly performing fisheries and farms to improve or get certified. Except for the MSC-certified Russia Sea of Okhotsk pollock fishery, fisheries such as those producing walleye pollock from Russia – which account for the majority of the red-rated wild capture product – continue to face challenges around bycatch, stock data, and management.

And while current market-based approaches have delivered improvements, it's critical to continue to collaborate to address new challenges that arise and ensure past progress is maintained. One example that highlights this need is the East Baltic Sea cod. Widely considered to be the first FIP, it was the first improvement project to gain MSC certification in 2011 after implementing a plan to recover and preserve stock and address IUU fishing. However, it has since lost its certification due to increased scientific understanding, declining stock health, and related management concerns.

In the farmed whitefish sector, tilapia remains a priority – only 2 percent is ASC-certified and much of it is red-rated. There is limited demand or market pull from sustainability-minded markets like Europe, so it is critical to build demand for sustainable product in other markets. It is also necessary to address stalling growth in certified farms for more sustainable products like

pangasius – while the number of products carrying the Aquaculture Stewardship Council logo is growing, the number of certified farms and certified production volume remain stable.

Takeaways from this sector include:

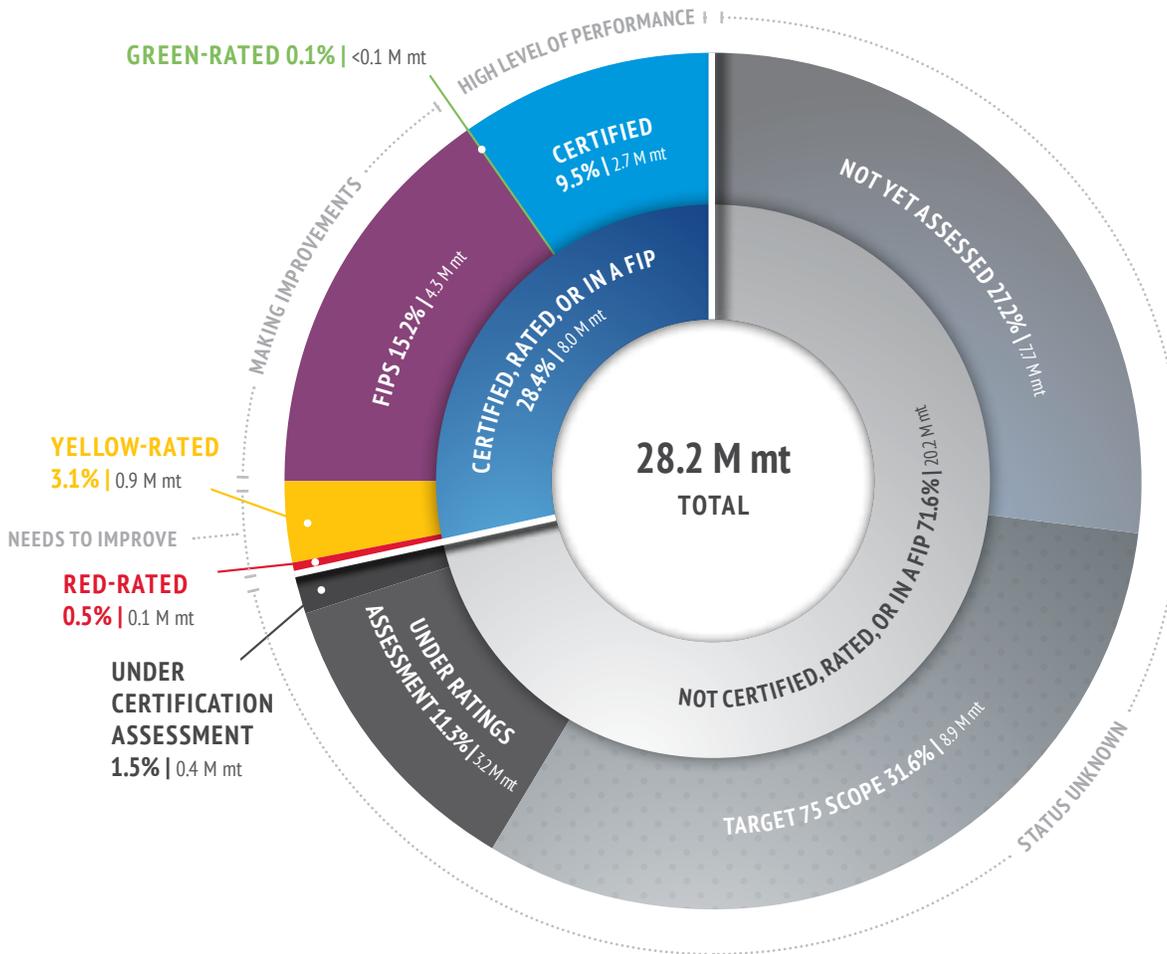
- The progress we've seen in whitefish can serve as an example for other sectors. Whitefish is a more mature and commoditized sector, and a large segment of production is already certified sustainable.
- We must focus on maintaining progress to date and developing demand in markets currently less concerned about sustainability. Continuing to create global demand for responsible product is critical to help get poor-performing fisheries on the path to improvement.
- In some countries, a significant share of whitefish is consumed domestically, reducing the effectiveness of importer demand as an improvement incentive. To the degree that this is the case, continued progress in the sector depends on cultivating demand within the producing countries.
- There are many small producers, particularly aquaculture producers, that will be more challenging to get on the path to sustainability and different leverage points may be necessary, as well as finding ways to link these small producers to sustainability-minded markets.



SMALL PELAGICS

The small pelagics sector includes those species typically caught for reduction fisheries (e.g., pout, sprat, krill); multispecies trawl fisheries from Southeast Asia; other directed small pelagic fisheries (e.g., herring, menhaden); and sardines and anchovy.

WILD AND FARMED SMALL PELAGICS



CURRENT STATUS

Approximately 10 percent of small pelagics production is certified or green-rated, indicating a high level of performance. Certified production is dominated by herring from Europe and Canada, mackerel from Europe, and capelin from Iceland; while green-rated production is mostly Atlantic herring and Atlantic mackerel from Canada.

Fifteen percent of small pelagics production is making improvements and currently engaged in a public FIP; FIP production includes two FIPs of the Northern-central stock of the Peruvian anchovy, one of the largest fisheries in the world.

Three percent of small pelagics production is yellow- or red-rated, indicating that improvements are needed. Three percent is rated yellow; yellow-rated production is mostly Gulf menhaden and Atlantic menhaden from the U.S., which has recently entered full assessment to the Marine Stewardship Council Fisheries Standard. Less than 1 percent is rated red; red-rated production includes Atlantic herring from Canada and Brazilian sardines from Brazil.

Seventy-two percent of small pelagics production remains status unknown, and is either unassessed or not yet engaged in improvements by members of the Collaboration. Of that, almost 13 percent is undergoing assessment for ratings by Seafood Watch or undergoing assessment for certification by the Marine Stewardship Council. An additional 32 percent is within the scope of Sustainable Fisheries Partnership's Target 75 Initiative.

Takeaways

As a Collaboration, we are working to improve the sustainability of the almost 1 percent of small pelagics production that remains rated red. We are also working to engage suppliers in improving the performance of unrated and uncertified fisheries within the Sustainable Fisheries Partnership's Target 75 scope, which account for 32 percent of production worldwide. Market demand for sustainable product, progressing improvement projects, and certification standards that continually improve their relevance for these dynamic species offer promise for future gains. Challenges for future efforts include lack of management and data collection in key regions of Asia and that work for multispecies fisheries.

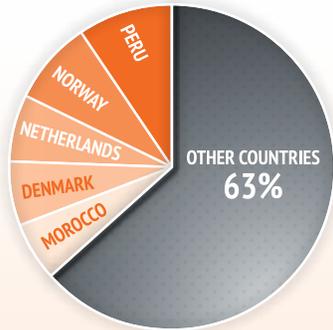


SMALL PELAGICS TRADE

The countries that lead imports and exports of seafood in the small pelagics sector are best-positioned to shape the sector's overall sustainability. This data allows us to understand which products make up the majority of the exports and imports; however, the data do not provide a comprehensive overview of the sector's global trade.

Information presented in the following tables shows total volume of whole fish products for human consumption (e.g., frozen fillets, fresh or chilled) and fishmeal and fish oil. The volume of fishmeal is dry weight and includes a proportion of other unreported fish off-cuts, which vary between each country between 15 and 85 percent² of the total volume.

TOP 5 EXPORTERS



PERU 9% OF GLOBAL EXPORTS | 0.8 M mt

Peru exported the highest volume of small pelagics in 2016. Eighty-four percent of exports was from fishmeal, followed by 12 percent from fish oil, and 3 percent from frozen mackerel. Of the exported fishmeal, 70 percent went to China, 6 percent went to Vietnam, and 5 percent went to Japan. Of the exported fish oil, 19 percent went to Canada, 18 percent to Denmark, and 15 percent to the U.S.



NORWAY 8% OF GLOBAL EXPORTS | 0.7 M mt

Norway exported the second-highest volume of small pelagics in 2016. Forty-four percent of exports was whole frozen mackerel, followed by 15 percent whole frozen herring, 12 percent fish oil, and 11 percent fresh or chilled blue whiting. Of the exported mackerel, 21 percent went to Japan, 17 percent to China, and 13 percent to South Korea; 34 percent of the herring was exported to Ukraine, 21 percent to Denmark, and 12 percent to Egypt.



NETHERLANDS 7% OF GLOBAL EXPORTS | 0.6 M mt

The Netherlands exported the third-highest volume. Thirty-three percent was whole frozen herring and 27 percent was whole frozen mackerel. Blue whiting was the third-largest volume of fish exported at 19 percent of the total volume. The Netherlands supplied several EU-28 countries, including herring to Germany.



DENMARK 7% OF GLOBAL EXPORTS | 0.5 M mt

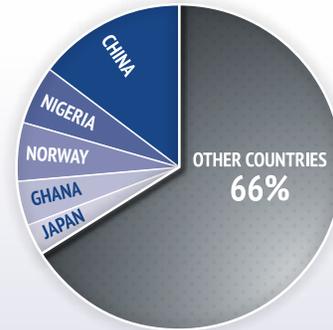
Thirty-four percent of Denmark's exports in 2016 was fishmeal. A further 30 percent was fresh or chilled herring, 20 percent was fish oil, and 4 percent was fresh or chilled mackerel.



MOROCCO 6% OF GLOBAL EXPORTS | 0.5 M mt

Nearly 60 percent of Morocco's exports within this sector was sardines: 33 percent was frozen whole sardines and 27 percent was processed sardines. An additional 28 percent was fishmeal. Of the frozen whole sardine, 31 percent was exported to Brazil, 19 percent to South Africa, and 7 percent to Spain.

TOP 5 IMPORTERS



CHINA 15% OF GLOBAL IMPORTS | 1.1 M mt

China was the top importing country for small pelagic seafood products in 2016; 77 percent was fishmeal, 8 percent whole frozen herrings, and 7 percent whole frozen mackerel. Of the imported fishmeal, 42 percent was imported from Peru, 12 percent from Vietnam, and 11 percent from the U.S.



NIGERIA 6% OF GLOBAL IMPORTS | 0.5 M mt

Nigeria was the second-highest importing country for small pelagic seafood products; 64 percent of its imported volume was whole frozen mackerel, 15 percent was whole frozen herring, 8 percent was whole frozen jack and horse mackerel, and 7 percent was whole frozen blue whiting.



NORWAY 6% OF GLOBAL IMPORTS | 0.5 M mt

Norway imported nearly 37 percent fish oil, 34 percent fishmeal, and 19 percent fresh or chilled mackerel. Of the imported fish oil to Norway, 25 percent was from Denmark and 23 percent was from Peru. Of the imported fishmeal, 30 percent was from Iceland, 23 percent from Denmark, and 21 percent from Peru.



GHANA 4% OF GLOBAL IMPORTS | 0.4 M mt

Ghana imported 28 percent of frozen jack and horse mackerel, 26 percent frozen mackerel, 22 percent frozen herring, and nearly 17 percent frozen sardine. Of the imported jack and horse mackerel to Ghana, 34 percent was from Mauritania, 25 percent was from Belgium, and 13 percent was from Morocco.



JAPAN 3% OF GLOBAL IMPORTS | 0.3 M mt

Japan imported over 52 percent of fishmeal in 2016 and nearly 25 percent of frozen whole mackerel and 7 percent of frozen herring. Of the imported fishmeal into Japan, 15 percent came from Peru, 13 percent from Thailand, and 12 percent from Ecuador. Of the frozen whole mackerel, 92 percent was imported from Norway and 4 percent from Ireland.

² *Seafish 2018. Fishmeal and fish oil facts and figures. March 2018. 35 pp. [accessed online 17.05.2019].*
https://www.seafish.org/media/publications/Seafish_FishmealandFishOil_FactsandFigures2018.pdf

SMALL PELAGICS: NGO AND FIP EFFORTS HELP DIVERSE SECTOR MAKE PROGRESS

The small pelagics sector encompasses many different species that are used for a range of products like fishmeal and fish oil as well as those for human consumption. Despite this and other challenges, there is rapid progress being made sector-wide. Some product is already sustainable – almost 10 percent is certified, an additional 2 percent is under assessment for certification, and 3 percent is rated green or yellow.

The market is responding – there is growing awareness and commitment to sustainable sourcing among buyers for human consumption as well as feed producers and aquaculture farms that require marine feed ingredients. Additionally, there are several FIPs, covering 15 percent of volume for this sector, including the [Mauritanian small pelagics](#), [Morocco sardine - pelagic trawl and seine](#), [Peruvian anchovy - industrial purse-seine](#), and [Peruvian anchovy - small scale purse-seine](#). And Sustainable Fisheries Partnership leads [three supply chain roundtables](#) for key fisheries used for fishmeal and fish oil in Europe, Latin America, and Asia.

NGO efforts are underway to continue to drive improvements in the sector. The Marine Stewardship Council and the Aquaculture Stewardship Council periodically review their fisheries, aquaculture, and traceability standards, and Seafood Watch does the same with its fisheries and aquaculture standards. Reviews currently underway include topics relevant for small pelagic fisheries – including key low trophic level requirements – to ensure the standards are appropriate for these dynamic fisheries. Additionally, the Aquaculture Stewardship Council is developing a feed standard, which requires an increasing proportion of feed for ASC-certified seafood to come from sustainable sources (and for the first time, addressing sourcing and sustainability issues associated with agricultural crops used in feed). Collectively, this will help drive improvements in both marine and land-based resource management.

The Marine Stewardship Council is leading capacity-building workshops in Peru, Morocco, India, Spain, Denmark, Norway, Russia, and other countries. These workshops aim to help small pelagic and reduction fisheries improve towards sustainability by providing training for management authority personnel, scientists, NGOs, management authorities, and local fisheries representatives on the Marine Stewardship Council Standards and tools such as the [Benchmarking and Tracking tool](#).

Other efforts are looking to develop practical approaches to assessment and management advice for multispecies and multi-gear fisheries. Building on previous work supported by [IFFO](#) and NOAA, Sustainable Fisheries Partnership and [Fish Matter](#) are working with the FAO to engage scientists and managers in Thailand and Vietnam and produce a toolbox for assessing these fisheries. Tools include a rapid assessment to assess overall fishing intensity, an aggregate production model to estimate multispecies maximum sustainable yields, and an ecosystem-based method that can estimate yields that meet various management targets for an ecosystem.

While there is progress to note, major improvement is still needed in the sector. Approximately 72 percent is not certified, rated, or in an improvement project, and much of this production has a long way to go before being able to demonstrate sustainability and an ecosystem-based approach. Further, many of those fisheries that are MSC-certified were certified with conditions and must make further improvements to maintain certification – for example, the North Atlantic mackerel fisheries were recently suspended because they didn't have effective stock control measures in place, while simultaneously the stock was perceived as trending below sustainability thresholds.

Additionally, there are a number of challenges in China and Japan, which produce about one-third of the global catch for this sector. Management shortfalls include limited science to inform regulations and spotty enforcement of existing regulations. Transparency and access to data are also challenges, including limited stock and catch data. Labor rights abuses, including forced and child labor, also remain a significant concern in the small pelagics sector.

Finally, multispecies trawl fisheries in particular have sustainability issues that need to be addressed. A successful multispecies ecosystem-based management approach is critical to addressing these and other issues in small pelagic fisheries. In 2018, IFFO RS launched a pilot trial of a multispecies component to its certification standard, creating the first pathway for verified improvements and certification in these complex fisheries.

There are several takeaways to note from work in this sector:

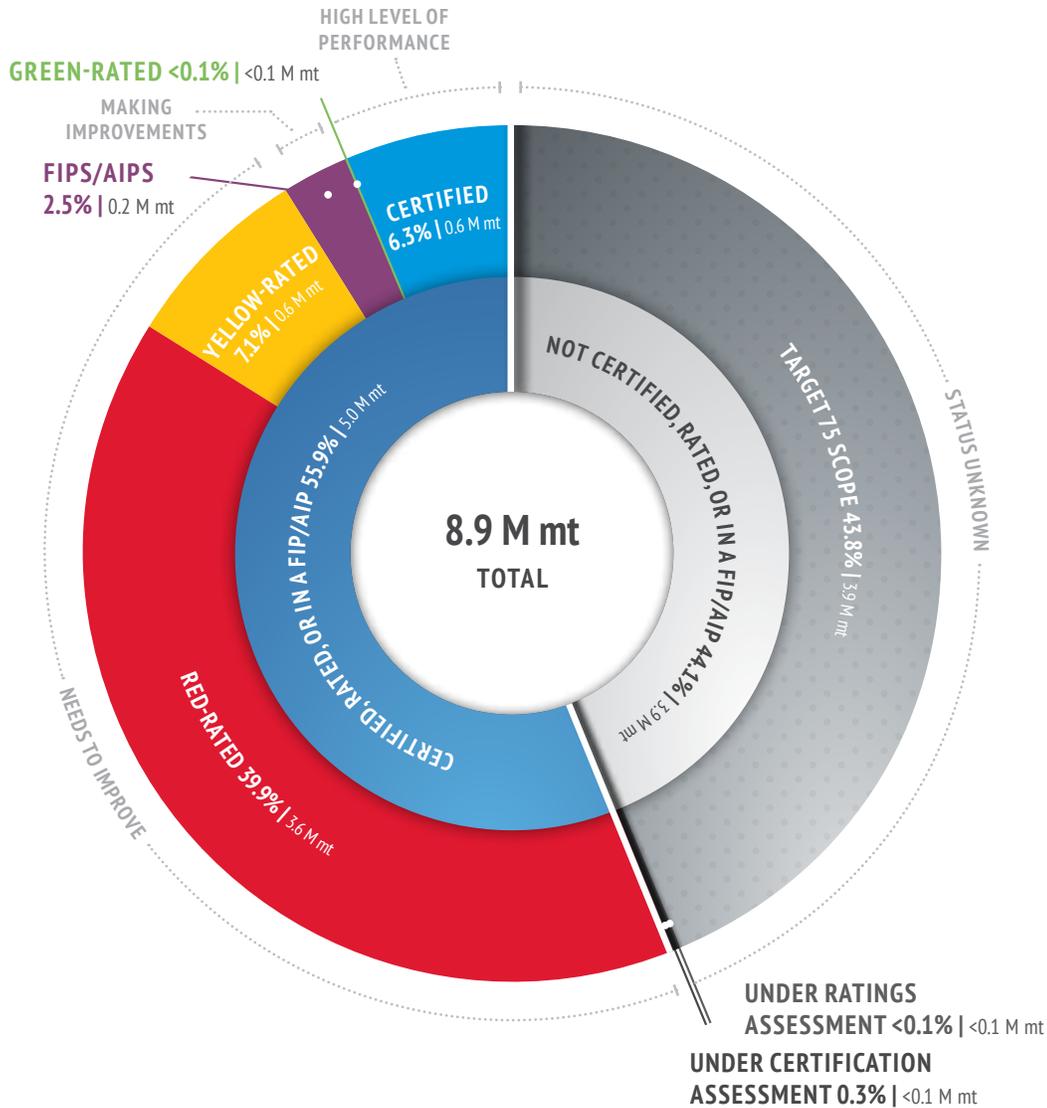
- It is critical to encourage buyers to remain committed to suppliers with an interest in improvement and to invest in improvement efforts while ensuring buyers are not opting out of independent, credible verification of sustainability through means such as certification.
- Stakeholders – including NGOs and commercial actors such as fisheries, processors, retailers, and brands – should be holding management authorities accountable and encouraging collaboration among governments to improve management where appropriate.
- NGOs can collectively point these actors towards solutions. The action plans in FIPs, as well as conditions in MSC certifications, are clear indicators of what regulators and fisheries operators need to deliver.
- Much work remains to increase the efficient use of marine ingredients and feed conversion ratios in aquaculture feeds.



SHRIMP

The shrimp sector includes all farmed and wild warmwater and coldwater shrimp and prawns.

WILD AND FARMED SHRIMP



CURRENT STATUS

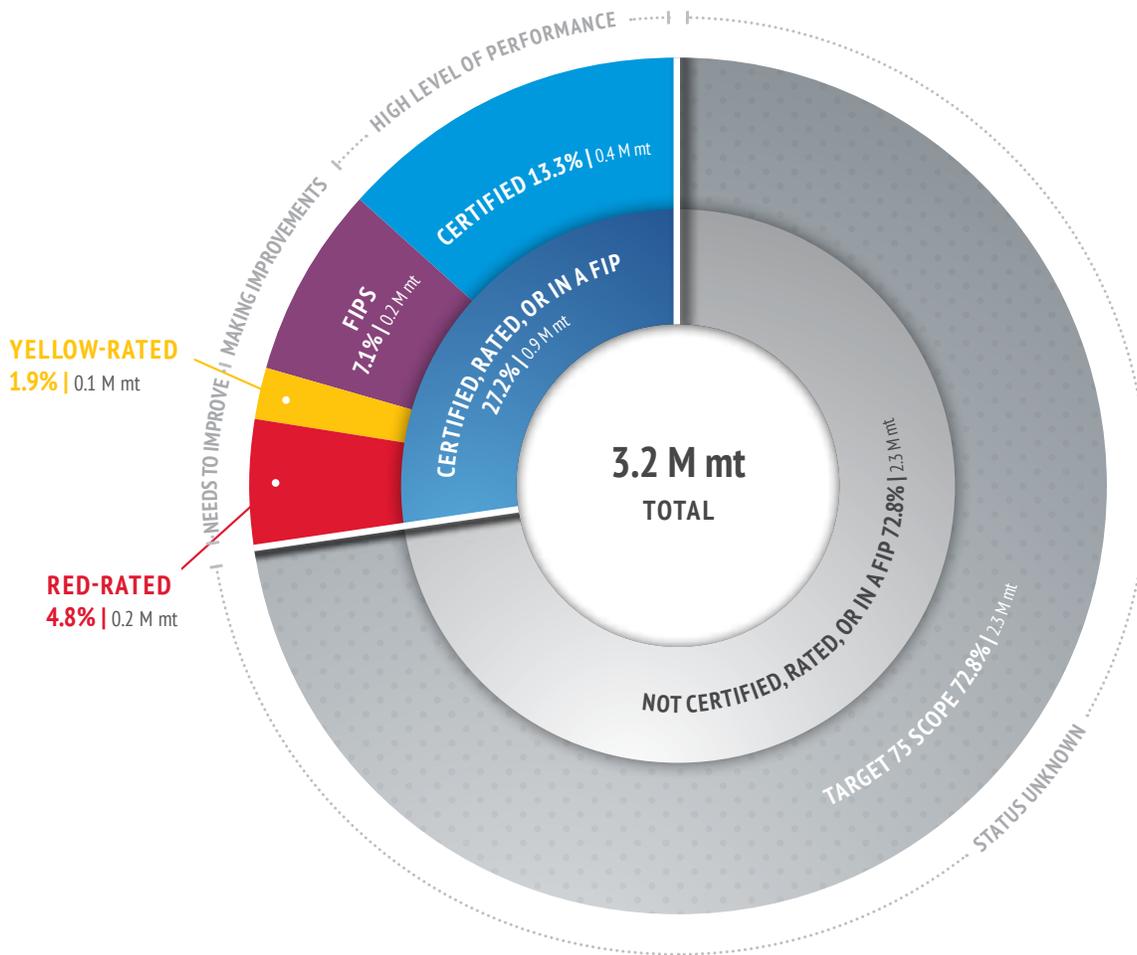
Approximately 6 percent of shrimp production is certified or green-rated, indicating a high level of performance.

Three percent of shrimp production is making improvements and currently engaged in a public FIP.

Forty-seven percent of shrimp production is yellow- or red-rated, indicating that improvements are needed. Seven percent is rated yellow, and 40 percent is rated red.

Forty-four percent of shrimp production remains status unknown, and is either unassessed or not yet engaged in improvements by members of the Collaboration. Of that, less than 1 percent is undergoing assessment for ratings by Seafood Watch or undergoing assessment for certification by the Aquaculture Stewardship Council. Almost 44 percent is within the scope of Sustainable Fisheries Partnership’s Target 75 Initiative.

WILD SHRIMP



Wild Shrimp

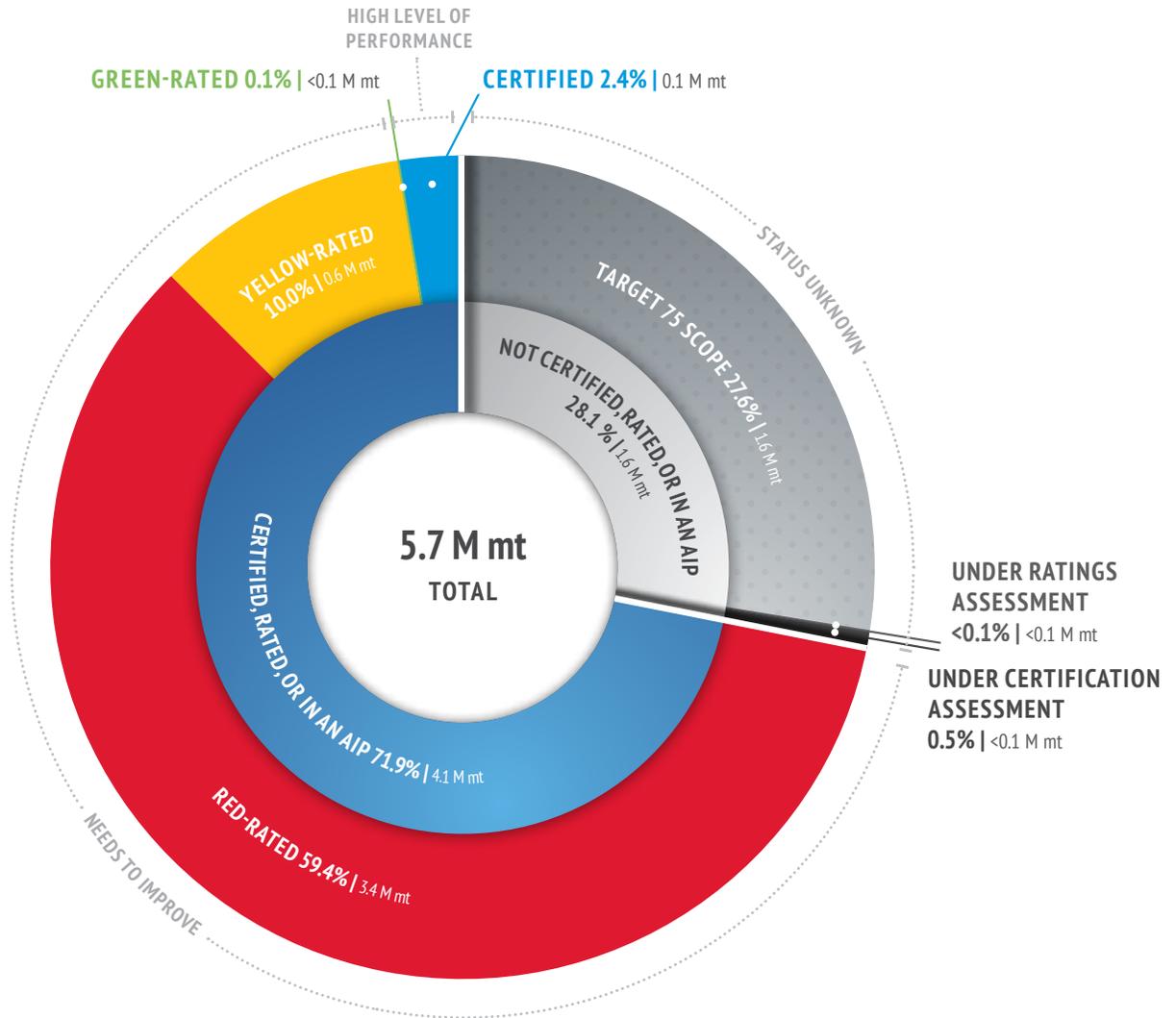
Wild capture accounts for 36 percent of production in this sector. Approximately 13 percent is certified, indicating a high level of performance. Certified production is dominated by northern prawn from Canada and Iceland and Oregon pink shrimp from the U.S.

Seven percent is making improvements and currently engaged in a public FIP; FIP production is predominantly comprised of Argentine red shrimp and northern brown shrimp and white shrimp from the U.S.

Seven percent is yellow- or red-rated, indicating that improvements are needed. Two percent is rated yellow; yellow-rated production is comprised of brown and northern white shrimp from the U.S. and yellowleg shrimp from Mexico. Five percent is rated red; red-rated production is mostly Argentine red shrimp and blue and yellowleg shrimp from Mexico.

Seventy-three percent remains status unknown, and is either unassessed or not yet engaged in improvements by members of the Collaboration – almost half of this is freshwater and marine wild shrimp from China. All production is within the scope of Sustainable Fisheries Partnership’s Target 75 Initiative.

FARMED SHRIMP



Farmed Shrimp

Farmed production accounts for 64 percent of shrimp in this sector. Approximately 3 percent is certified or green-rated, indicating a high level of performance. Certified product is mostly whiteleg shrimp from Ecuador, Vietnam, and Honduras.

Sixty-nine percent is yellow- or red-rated, indicating that improvements are needed. Ten percent is rated yellow; yellow-rated production is dominated by whiteleg shrimp from Ecuador and giant river prawn from China. Fifty-nine percent is rated red; red-rated production is mostly whiteleg shrimp from China and Indonesia or giant tiger prawn.

Twenty-eight percent remains status unknown, and is either unassessed or not yet engaged in improvements by members of the Collaboration – the majority of this production is from China and India. Of that, less than 1 percent is undergoing assessment for ratings by Seafood Watch or undergoing assessment for certification by the Aquaculture Stewardship Council. An additional 28 percent is within the scope of Sustainable Fisheries Partnership’s Target 75 Initiative.

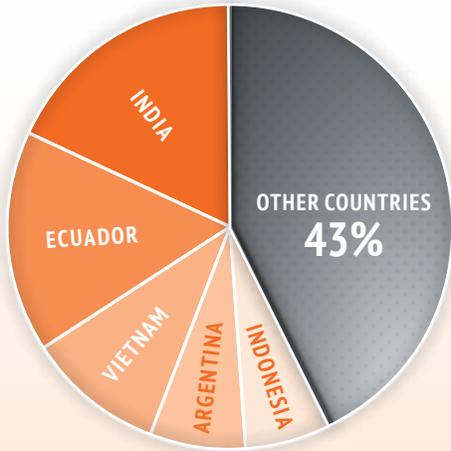
Takeaways

As a Collaboration, we are working to improve the sustainability of the nearly 40 percent of shrimp production that remains rated red. We are also working to engage suppliers in improving the performance of unrated and uncertified fisheries within the Sustainable Fisheries Partnership’s Target 75 scope, which account for almost 44 percent of production worldwide. A growth in improvement projects, improved management and regulation in key exporting countries, and joint efforts to address issues like disease and water quality offer promise for future gains. Challenges for future efforts include reducing bycatch and ending IUU fishing in wild shrimp and implementing improvements at a landscape level to address shared challenges in farmed shrimp.

SHRIMP TRADE

The countries that lead imports and exports of seafood in the shrimp sector are best-positioned to shape the sector's overall sustainability. This data allows us to understand which products make up the majority of the exports and imports; however, the data do not provide a comprehensive overview of the sector's global trade. Trade data do not distinguish farmed from wild production sources.

TOP 5 EXPORTERS



INDIA 18% OF GLOBAL EXPORTS | 0.4 M mt

India was the highest exporter of shrimp and, similar to Ecuador, continued to grow as a result of domestic production. India exported the majority of shrimp to the U.S., Vietnam, and Japan. Ninety-nine percent of India's exports was frozen shrimp products, excluding coldwater varieties.



ECUADOR 16% OF GLOBAL EXPORTS | 0.4 M mt

Ecuador's exports were 87 percent frozen shrimp (excluding coldwater varieties) and 13 percent frozen coldwater prawns.



VIETNAM 10% OF GLOBAL EXPORTS | 0.2 M mt

Ninety-eight percent of Vietnam's exports was frozen shrimp (excluding coldwater varieties), with 1 percent non-frozen shrimp (excluding coldwater varieties) and less than 1 percent frozen shrimp of coldwater varieties. More than half of all Vietnamese exports was originally imported shrimp.



ARGENTINA 7% OF GLOBAL EXPORTS | 0.2 M mt

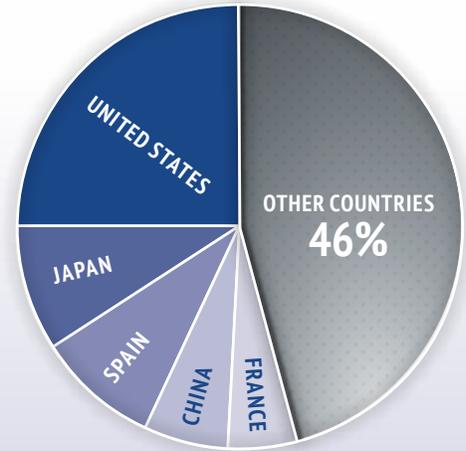
All of Argentina's exports were frozen shrimp of coldwater varieties.



INDONESIA 6% OF GLOBAL EXPORTS | 0.1 M mt

Indonesia's shrimp exports were 93 percent frozen warmwater shrimp, 3 percent non-frozen warmwater shrimp, and 2 percent non-frozen shrimp of coldwater varieties.

TOP 5 IMPORTERS



UNITED STATES 25% OF GLOBAL IMPORTS | 0.5 M mt

Ninety-nine percent of the U.S.'s shrimp imports was frozen warmwater shrimp, with less than 1 percent frozen shrimp of coldwater varieties. About 75 percent of products imported was tropical shrimp. The top three main suppliers to the U.S. were India, Indonesia, and Thailand.



JAPAN 9% OF GLOBAL IMPORTS | 0.2 M mt

Ninety-one percent of Japan's shrimp imports was frozen warmwater shrimp and an additional 8 percent was frozen shrimp of coldwater varieties, mainly from Vietnam and Thailand.



SPAIN 9% OF GLOBAL IMPORTS | 0.2 M mt

Ninety-eight percent of Spain's shrimp imports was frozen warmwater shrimp and 1.5 percent was frozen shrimp of coldwater varieties.



CHINA 6% OF GLOBAL IMPORTS | 0.3 M mt

China imported shrimp products at very different proportions; 57 percent was frozen warmwater shrimp and 35 percent was frozen shrimp of coldwater varieties.



FRANCE 5% OF GLOBAL IMPORTS | 0.3 M mt

Ninety-three percent of France's shrimp imports was frozen warmwater shrimp.

MEXICAN SHRIMP: SOCIAL AND SUSTAINABILITY IMPROVEMENTS

The sustainability of shrimp fisheries globally varies widely, but one place we're seeing progress is Mexican wild shrimp where efforts have focused on both environmental and social improvements.

Mexico's shrimp fisheries export product to the U.S. – the world's largest importer of shrimp – but sustainability concerns made selling to some businesses impossible. In 2009 and 2010, industry came together to launch three FIPs led by Sustainable Fisheries Partnership covering industrial and artisanal segments of the fishery, and in 2014, 17 companies agreed to work together to support these projects through the [Gulf of California Shrimp Supply Chain Roundtable](#).

Industry and NGO stakeholders focused on advocating for the Mexican government to make improvements in its fisheries management. The government responded, implementing changes including providing more public data about issues like bycatch, improving stock status analyses, requiring bycatch reduction devices, launching a new vessel monitoring system, reinstating the on-vessel observer program in the trawl fleet, and banning gears that threatened the critically endangered vaquita. [Numerous importers have also taken steps](#) to help protect the vaquita and encourage alternative gear development.

These changes allowed Seafood Watch to rate some parts of fisheries yellow in its updated assessment – and today, 10 of the 25 ratings for wild Pacific shrimp from Mexico are yellow-rated. The [Mexican Seafood Supply Chain Roundtable](#) continues to advocate for improvements and policy changes in many Mexican fisheries.

Stakeholders in the Fair Trade USA-certified [Mexico Gulf of California small-scale blue shrimp fishery](#) are focusing on improvements beyond environmental outcomes – they seek to create community benefits as well. The fishery's Fair Trade Community Development Funds are being invested in local projects such as [cleaning up the country's Altata Bay](#) and [installing air conditioning units in local schools](#). Additionally, Fair Trade-registered fishermen have allocated a portion of their community premium fund toward local surveillance programs in an effort to curb IUU fishing.

There are other important efforts in shrimp to highlight beyond Mexico:

- The Marine Stewardship Council has worked with the Dutch, Danish, and German brown shrimp fisheries since 2007, catalyzing improvements in fisheries management resulting in certification of some 650 vessels in late 2017. As part of this industry-driven improvement project, a new fisheries management plan including a harvest control rule was adopted. Vessels agreed to avoid sensitive areas and to take measures to reduce bycatch.
- In 2008, the Greenlandic seafood industry engaged in a FIP to improve its coldwater shrimp fisheries to a level where MSC certification could be obtained. The industry worked together with the [Zoological Society of London](#) to improve its understanding of the habitat impacts of the fisheries and take appropriate measures to avoid sensitive habitats. MSC certification was obtained in 2013.
- Globally, there are 20 MSC-certified shrimp fisheries, many of which have committed to significant improvements. In Suriname, a collaboration between the Heiploeg Group (one of the largest shrimp suppliers and processors in Europe), the government, scientists, and NGOs including World Wildlife Fund empowered the first tropical shrimp fishery to make improvements and receive MSC certification. Elsewhere, stakeholders in India have initiated a [comprehensive FIP](#) for shrimp fisheries following pressure from buyers.
- Since 2014, exports of Argentine red shrimp to the U.S. and globally have [surged](#) at least 80 percent. There are currently comprehensive FIPs covering the offshore and onshore segments of the fishery, and stakeholders have stated a goal of entering [MSC assessment by the end of 2019](#).
- Finally, many of the measures implemented in Mexican fisheries were first implemented in the U.S. warmwater shrimp fisheries, the majority of which are yellow-rated. There are six active FIPs for Gulf of Mexico shrimp fisheries, supported by the [Gulf of Mexico Shrimp Supply Chain Roundtable](#). Concerns remain in the skimmer trawl fleet in particular, which is red-rated outside of Florida, in large part because those fisheries are not required to use turtle excluder devices and pose a risk to threatened or endangered turtles.

There are several key challenges that the sector continues to face – bycatch, including interactions with endangered, threatened, and protected (ETP) species; habitat impacts; and IUU fishing. Despite some fisheries' bycatch monitoring improvements, requirements for bycatch reduction devices, and local efforts like the Mexican government's reinstated on-vessel observer program, bycatch continues to be a concern across the sector's trawl fisheries. IUU fishing has been an issue in Mexican artisanal shrimp fisheries, and while the increased monitoring and enforcement has helped, it's critical to continue progress and ensure federal regulations are met.

There are a few takeaways to note from the progress in this sector:

- Fisheries (like the Mexico Gulf of California small-scale blue shrimp fishery, Suriname seabob, and Greenland coldwater prawns) can deliver environmental improvements and community benefits that improve livelihoods at the same time.
- Certification and ratings programs helped create the incentives for improvement. The leverage a yellow rating or Fair Trade USA certification provides, combined with buyer requirements for participation in FIPs, helps drive improvements.
- Industry stakeholders are especially effective at creating incentives for government action.

FARMED SHRIMP: ADDRESSING IMPROVEMENTS AT SCALE

While there are notable signs of progress in the wild shrimp sector, farmed shrimp remains a key area of improvement. Only 2 percent of farmed shrimp is ASC-certified, and just 10 percent of global farmed shrimp is yellow- or green-rated by Seafood Watch.

The sector faces a number of significant challenges. One is how to drive industry improvements and management at scale – working at the farm level addresses site-generated impacts but does not address impacts from uncertified farms and others sharing the watershed. Sustainability challenges – like wider water quality impacts, disease management, protection of vulnerable or critical habitats, and management of cumulative environmental impacts of farms in the same region (potentially through carrying capacity-based limits) – all require a supportive enabling policy environment and collaborative initiatives by producers to drive improvements at scale. The nature of the market can also be challenging, given diffused supply chain structures that serve hundreds of thousands of small-scale producers, meaning that it is difficult to coordinate buyers to incentivize improved supplier performance.

While there are challenges in the farmed shrimp sector, there are also encouraging improvement efforts. Sustainable Fisheries Partnership launched FishSource Aquaculture in 2018 as the first tool offering public assessments of aquaculture management and governance based on zonal management and the FAO Ecosystem Approach to Aquaculture and focused at the provincial scale. There is also strong collaboration between Sustainable Fisheries Partnership, [The Sustainable Trade Initiative](#), [Conservation International](#), [Longline Environment](#), and others to promote landscape-level improvement projects and coordinated disease management strategies in Thailand and Indonesia.

Work by the Certification & Ratings Collaboration has helped identify efficiencies within the various standard programs. For example, the Aquaculture Stewardship Council and Fair Trade USA are coordinating efforts such as engagement with small farmers and improvement work in Indonesia. The Aquaculture Stewardship Council, Sustainable Fisheries Partnership, and Seafood Watch are coordinating to identify synergies between their respective program requirements and strengthen information exchange in order to scale improvement work and policy advocacy.

There are several examples of noteworthy industry efforts:

- Sustainable Fisheries Partnership leads the [Asia Farmed Shrimp Supply Chain Roundtable](#), which includes participants [Beaver Street Fisheries](#), [Rubicon Resources](#), [Seafresh Group](#), [Thai Union](#), [The Fishin' Co.](#), [High Liner Foods](#), and [Lyons Seafood Co.](#) that are actively engaged in the improvement efforts highlighted above.
- Through the Sustainable Shrimp Partnership, producers in Ecuador are collaborating to improve practices by achieving ASC certification, eliminating antibiotic use, and improving effluent water quality as a way to better differentiate themselves in markets like the U.S.
- The Monterey Bay Aquarium Seafood Watch program is working with the Southeast Asia Steering Committee convened by the [U.S. Agency for International Development \(USAID\)](#) to find a regionally appropriate model to engage shrimp farmers

in environmental and social improvements. That collaboration resulted in the Asian Seafood Improvement Collaborative (ASIC) – a regional collaboration between private sector stakeholders from Indonesia, Myanmar, the Philippines, Thailand, and Vietnam to tackle industry-wide challenges.

- Minh Phu Seafood Corporation, Seafood Watch, SGS, and ASIC announced a commitment to bring 20,000 small-scale shrimp farms in the Mekong Delta of Vietnam to a level equivalent to Seafood Watch’s green rating by 2025.

Government is engaging as well. The Indonesian government has started to implement best practices, such as those outlined in [Best Practices for Aquaculture Management](#), with assistance from Sustainable Fisheries Partnership and Conservation International. [The Vietnamese Directorate of Fisheries \(D-Fish\) and the Aquaculture Stewardship Council have also collaborated](#) on benchmarking standards to help farmers transition toward ASC certification and help the government further develop its aquaculture standard.

There are several takeaways to note from work in this sector:

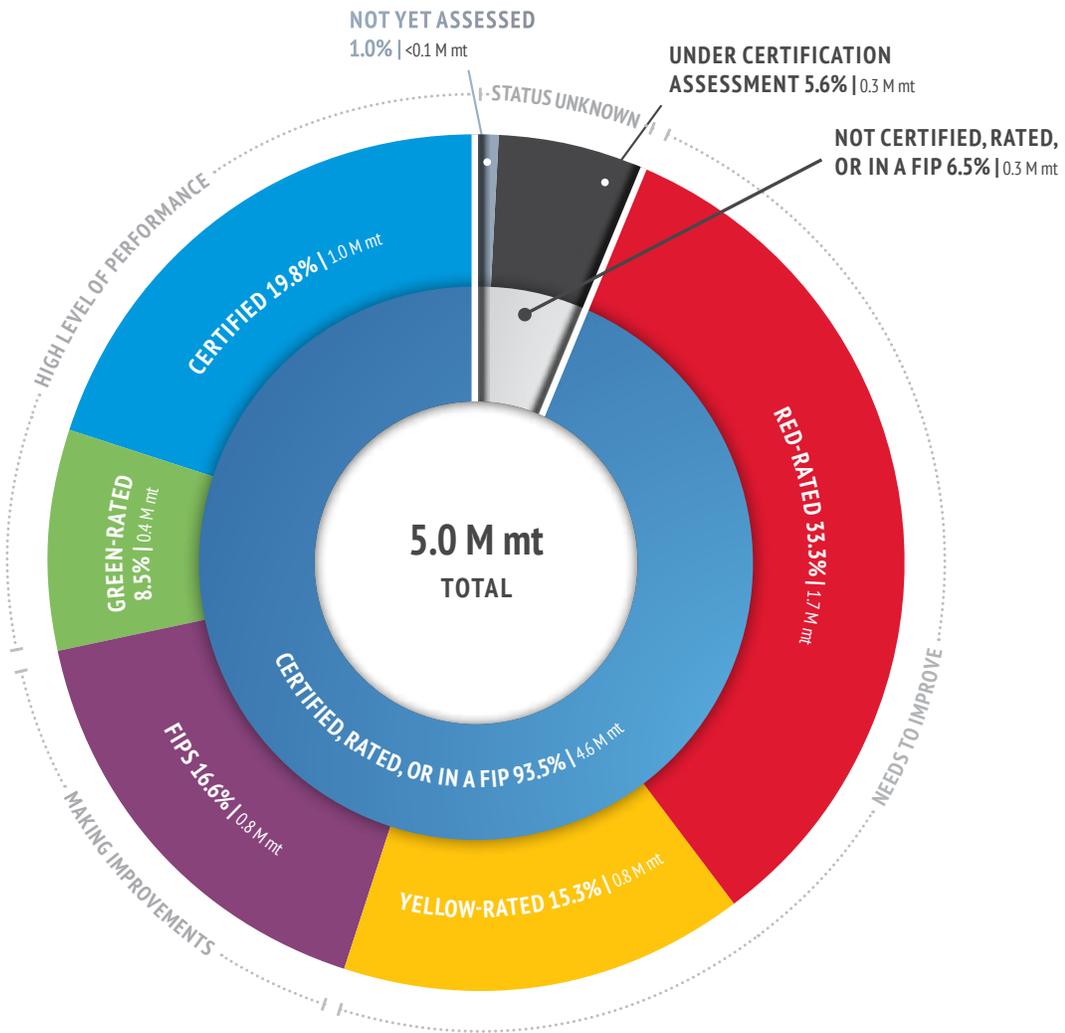
- There is a long way to go, and we must focus both on driving improvements at the farm level as well as addressing major challenges at the landscape level. Increasing incentives through certification or ratings at all levels ensures those producers and countries following best practices are recognized through the supply chain.
- Suppliers and producers must work precompetitively to address management issues at a landscape level. Farms that are operating in shared water bodies must coordinate to address issues like disease and water quality, as well as broader environmental challenges like deforestation and erosion. This will help stabilize supply and, in turn, provide reassurance across fragmented supply chains and ensure small-scale producers can compete by mitigating the impact of shared risks like disease outbreak or poor water quality. Approaches like AIPs can help farms address issues at this landscape level to provide a pipeline of sustainable product. NGOs can play a key role in demonstrating the value of a landscape approach and encouraging buyers to incorporate landscape-level requirements and AIPs into procurement policies and strategies.
- While markets promoting sustainability commitments have a key role to play in driving aquaculture sustainability, it’s important to also make the case for improvements directly to producers and producer countries; particularly as much domestic farmed production is consumed locally.



TUNA

We define the tuna sector as comprised of the following species of tuna: skipjack, albacore, yellowfin, bigeye, and bluefin (Southern, Atlantic, and Pacific). The analysis does not isolate fresh and frozen from shelf-stable tuna.

WILD AND FARMED TUNA



CURRENT STATUS

Twenty-eight percent of tuna production is certified or green-rated, indicating a high level of performance. Certified production is 55 percent skipjack and 44 percent yellowfin; while green-rated production is 71 percent skipjack and 25 percent yellowfin.

Seventeen percent of tuna production is making improvements and currently engaged in a public FIP.

Forty-nine percent of tuna production is yellow- or red-rated, indicating that improvements are needed. Fifteen percent is rated yellow; yellow-rated production is 61 percent skipjack and 38 percent yellowfin. Thirty-three percent is rated red; red-rated production is 55 percent skipjack, 23 percent yellowfin, and 14 percent bigeye.

Six percent of tuna production remains status unknown, and is either unassessed or not yet engaged in improvements by members of the Collaboration. Of that, almost 6 percent is undergoing assessment for certification by the Marine Stewardship Council.

Takeaways

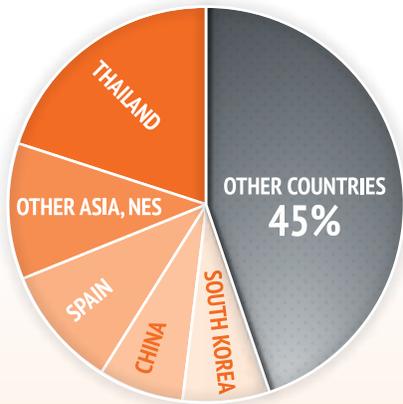
As a Collaboration, we are working to improve the sustainability of the 33 percent of tuna production that remains rated red. Strong industry engagement and collaborative efforts, including successful improvement projects, offer promise for future gains. Challenges for future efforts include improving management at the national and international levels, ending IUU fishing, reducing bycatch, and addressing social issues like forced labor and poor working conditions.



TUNA TRADE

The countries that lead imports and exports of seafood in the tuna sector are best-positioned to shape the sector's overall sustainability. This data allows us to understand which products make up the majority of the exports and imports; however, the data do not provide a comprehensive overview of the sector's global trade. An important example is Thailand – as its role as both the world's largest tuna exporter and second-largest tuna importer suggest, Thailand is a processing hub, exporting tuna originating in other countries. The same caveat applies to the Philippines, another tuna-processing hub. Trade data do not distinguish farmed from wild production sources. Available trade data was at a more aggregated level than that defined within our production sector, and so it includes additional tuna species.

TOP 5 EXPORTERS



THAILAND 20% OF GLOBAL EXPORTS | 0.6 M mt

Ninety-five percent of Thailand's tuna exports was prepared or preserved skipjack and Atlantic bonito tunas, 2 percent frozen yellowfin tunas, and 1 percent fresh or chilled yellowfin tunas. Thailand remained the top canner/processor of tuna, although markets in the Middle East (Egypt, Libya, and Saudi Arabia) were reported to have softened due to lower demand.



OTHER ASIA, NES³ 11% OF GLOBAL EXPORTS | 0.3 M mt

Forty-eight percent of tuna exports from other Asian countries was frozen skipjack or stripe-bellied bonito tunas, 19 percent frozen yellowfin tunas, 16 percent frozen albacore or longfin tunas, and 12 percent frozen bigeye tunas.



SPAIN 10% OF GLOBAL EXPORTS | 0.3 M mt

Spain's tuna exports were 35 percent frozen skipjack or stripe-bellied bonito tunas, 31 percent prepared or preserved skipjack and Atlantic bonito tunas, 21 percent frozen yellowfin tunas, and 6 percent frozen bigeye tunas.



CHINA 7% OF GLOBAL EXPORTS | 0.2 M mt

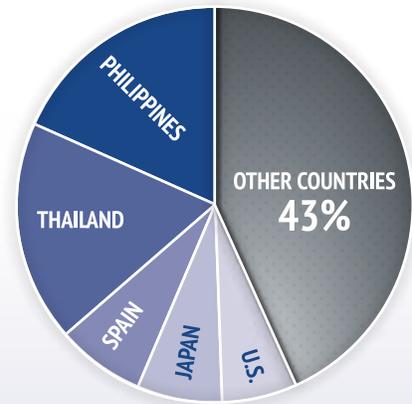
China's tuna exports include 40 percent prepared or preserved skipjack and Atlantic bonito tunas, 30 percent frozen skipjack or stripe-bellied bonito tunas, 14 percent frozen yellowfin tunas, and 7 percent frozen bigeye tunas.



SOUTH KOREA 7% OF GLOBAL EXPORTS | 0.2 M mt

Sixty-seven percent of tuna exported from South Korea was frozen skipjack or stripe-bellied bonito tunas, followed by 20 percent frozen yellowfin tunas; 9 percent frozen skipjack or stripe-bellied bonito tuna fillets; and 2 percent frozen bigeye tunas.

TOP 5 IMPORTERS



PHILIPPINES 19% OF GLOBAL IMPORTS | 0.8 M mt

Ninety-five percent of tuna imported by the Philippines was prepared or preserved skipjack and Atlantic bonito tunas, and 4 percent was frozen yellowfin tunas.



THAILAND 18% OF GLOBAL IMPORTS | 0.8 M mt

Sixty-eight percent of Thailand's tuna imports was prepared or preserved skipjack and Atlantic bonito tunas, 16 percent frozen yellowfin tunas, and 5 percent frozen albacore or longfin tunas.



SPAIN 7% OF GLOBAL IMPORTS | 0.3 M mt

Spain's tuna imports included 34 percent frozen yellowfin tunas, 31 percent prepared or preserved skipjack and Atlantic bonito tunas, and 19 percent frozen skipjack or stripe-bellied bonito tunas.



JAPAN 7% OF GLOBAL IMPORTS | 0.3 M mt

Japan's tuna exports were evenly distributed across product types, with 23 percent frozen bigeye tunas, 20 percent prepared or preserved skipjack and Atlantic bonito tunas, 18 percent frozen yellowfin tunas, and 14 percent frozen skipjack or stripe-bellied bonito tuna fillets.



UNITED STATES 6% OF GLOBAL IMPORTS | 0.2 M mt

Seventy-six percent of tuna imports included prepared or preserved skipjack and Atlantic bonito tunas, followed by 12 percent frozen skipjack or stripe-bellied bonito tuna fillets, and 7 percent fresh or chilled yellowfin tunas. Within the U.S. market, Thailand was a key supplier of lower-value tuna in brine.

^{3[1]} FAO Globefish report indicates that Indonesia (68,500t) and Philippines (64,000t) were among the top six exporters of canned/processed tuna in 2016.

FRESH AND FROZEN TUNA: DYNAMIC SECTOR REQUIRES COLLABORATIVE APPROACHES

The global tuna sector encompasses many species and therefore many products. One area where more progress is needed is in the fresh and frozen tuna sector, which includes a substantial proportion of production important to markets currently demanding sustainability.

Fifteen percent of fresh and frozen tuna worldwide is now sustainable or improving. That includes 16 green- and yellow-rated fisheries by Seafood Watch, six MSC-certified fisheries, and two Fair Trade USA-certified fisheries. NGOs have played a critical role in making progress in the sector, supported by industry which helped implement improvements. Examples of ongoing efforts include:

- Sustainable Fisheries Partnership's [Global Fresh and Frozen Tuna Supply Chain Roundtable](#) has seen strong participation from U.S. and EU importers, including more than 37 industry leaders.
- The [International Seafood Sustainability Foundation \(ISSF\)](#) aims to implement best practices, reduce bycatch, and promote ecosystem health to help tuna fisheries worldwide achieve MSC certification and has [had success in driving improvements](#) around shelf-stable tuna in addition to its work on fresh and frozen tuna.
- Launched in 2017, the NGO Tuna Forum is working to align the community's strategies to improve tuna fisheries globally and is currently focused on engaging Regional Fisheries Management Organizations (RFMOs) and leveraging markets to improve sector management.
- The industry-led [Seafood Task Force](#) focuses on supply chain oversight to address issues like IUU, traceability, and other challenges in Thailand.
- In 2017, the [Tuna 2020 Traceability Declaration](#) – which includes shelf-stable and fresh and frozen tuna – was endorsed by leaders of the world's biggest retailers, tuna processors, marketers, traders, and harvesters, with the support of civil society organizations and governments.

In addition, there are several tuna FIPs that have delivered progress, many of which are industry-led. [Anova Seafood's Cook Islands yellowfin tuna FIP](#) – now MSC-certified – is one example. These FIPs are performing well, and gear improvements are reducing bycatch. These FIPs offer an opportunity to amplify progress as models for replication in other fisheries or for national-level expansion.

Finally, there are encouraging commitments to improve at the national and fishery level. At the first U.N. Ocean Conference, Fiji committed to have 75 percent of all longline tuna vessels MSC-certified. [Fiji albacore and yellowfin tuna](#) was the first surface tuna longline fishery to achieve MSC certification, having made considerable improvements including increased observer coverage and the reduction of shark bycatch.

While there are signs of progress, the sector faces critical challenges. Continued progress requires effective management at the national and international levels. Some tuna fleets operate on the high seas, making management difficult – and RFMOs have been slow to adopt comprehensive precautionary harvest strategies. These fisheries need effective RFMOs to help inform regulatory decisions by adopting comprehensive and precautionary harvest strategies, helping to ensure effective long-term stock management; monitoring and managing the use of fish aggregating devices (FADs); addressing issues around bycatch; and implementing effective observer coverage. At the same time, flag states must effectively assert authority over flagged vessels.

One notable example of success in this area is the landmark decision made by the Indian Ocean Tuna Commission in 2016 – after years of collaborative work with NGOs, retailers, scientists, and member states – to adopt the first ever precautionary harvest control rule (HCR) for skipjack tuna, enabling the [Maldives pole and line skipjack tuna fishery](#) to maintain its MSC certification. And cultivating additional demand in sustainability-minded markets like the U.S. and EU remains important. Demand for sustainable or MSC- or Fair Trade USA-certified product helps drive progress in the sector. But continued progress also requires cultivating increased demand for sustainable product in other key countries – especially in Japan, which imports 20 percent of this product and therefore has leverage on producing countries.

Finally, awareness of social issues such as forced labor and poor working conditions on vessels and in processing plants has become more recognized in the industry, but consumer demand in some markets for socially responsible sourced tuna is lacking.

There are several takeaways from the progress we've seen with tuna, but there are also outstanding challenges that will require engagement across all tuna sectors including fresh and frozen and shelf-stable tuna. These include:

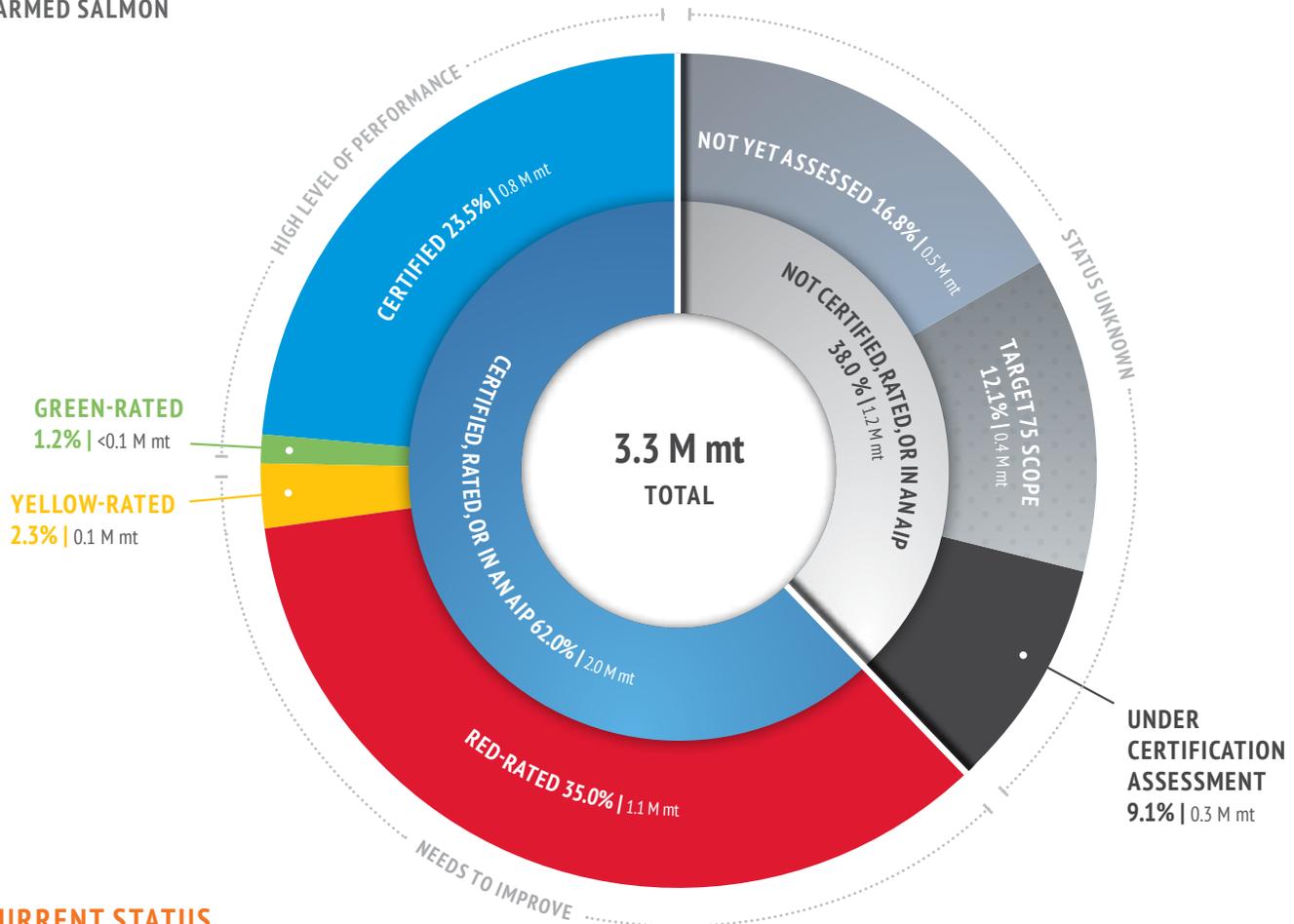
- Both FIPs and certification have played a key role in driving improvements in this sector, but we need to work both at the fishery level and landscape level to drive innovation. We must also work with public and private stakeholders to address broader management issues at the national and international levels. National-level improvement projects can help drive policy change that can improve management in countries like Indonesia and Sri Lanka and address ongoing challenges like bycatch.
- Industry demand can effectively drive change down the supply chain, but continued impact requires coordination and cultivating increased demand in major consumer countries beyond the U.S. and EU, like Japan.
- RFMO engagement is paramount to improvement management in the sector. Efforts like the NGO Tuna Forum have outlined the [necessary improvements for tuna fisheries](#) – but NGOs and market actors must continue to engage RFMOs to ensure measures are taken to adopt harvest control rules and strategies and adopt measures to effectively maintain and recover stock health.



FARMED SALMON

This sector focuses only on farmed salmon, including all salmon species along with Arctic char, sea trout, and rainbow trout.

FARMED SALMON



CURRENT STATUS

Approximately 25 percent of farmed salmon production is certified or green-rated, indicating a high level of performance. Almost 90 percent of certified production is Atlantic salmon from Norway and Chile; while green-rated production is comprised of rainbow trout from the U.S., chinook salmon from New Zealand, and Arctic char from Iceland and Canada.

Thirty-seven percent of farmed salmon production is yellow- or red-rated, indicating that improvements are needed. Two percent is rated yellow; yellow-rated farmed salmon production is comprised predominantly of Atlantic salmon from the Faroe Islands and rainbow trout from Chile. Thirty-five percent is rated red; more than three-fourths of red-rated production is Atlantic salmon from Norway and Chile.

Thirty-eight percent of farmed salmon production remains status unknown, and is either unassessed or not yet engaged in improvements by members of the Collaboration. Of that, 9 percent is undergoing assessment for certification by the Aquaculture Stewardship Council. An additional 12 percent is within the scope of Sustainable Fisheries Partnership's Target 75 Initiative – the majority of this is rainbow trout followed by coho salmon.

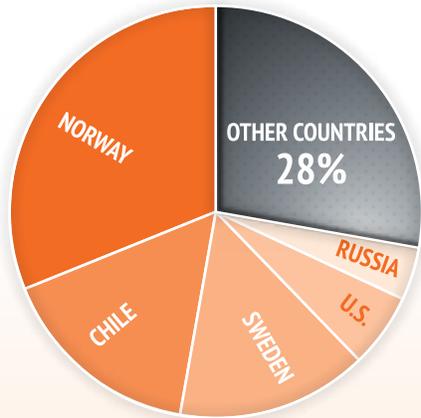
Takeaways

As a Collaboration, we are working to improve the sustainability of the 35 percent of farmed salmon production that remains rated red. We are also working to engage suppliers in improving the performance of unrated and uncertified fisheries within the Sustainable Fisheries Partnership's Target 75 scope, which account for 12 percent of production worldwide. Strong regulatory frameworks, landscape-level management, and improved data collection and reporting offer promise for future gains. Challenges for future efforts include sourcing sustainable feed ingredients, preventing escapes, and addressing disease and water quality management systems.

SALMON TRADE

The countries that lead imports and exports of seafood in the salmon sector are best-positioned to shape the sector's overall sustainability. This data allows us to understand which products make up the majority of the exports and imports; however, the data do not provide a comprehensive overview of the sector's global trade. Salmon trade data do allow distinction between most species. Trade for salmon allow limited distinction between farmed and wild production sources.

TOP 5 EXPORTERS



NORWAY 31% OF GLOBAL EXPORTS | 1.0 M mt

Of Norway's total salmon exports, 80 percent was fresh or chilled whole Atlantic salmon fish; 8 percent fresh or chilled fillets of Pacific salmon (which could result from importing to process and re-exporting) or Atlantic salmon; with the remaining comprised of frozen trout (4 percent), frozen fillets (4 percent), and frozen whole fish (3 percent).



CHILE 16% OF GLOBAL EXPORTS | 0.5 M mt

Of Chile's total salmon exports, 19 percent was frozen whole Atlantic salmon; 19 percent fresh or chilled Pacific and Atlantic salmon fillets; 18 percent fresh or chilled whole Atlantic salmon; 16 percent frozen Pacific salmon fillets; and 14 percent frozen salmon fillets of Pacific and Atlantic salmon.



SWEDEN 15% OF GLOBAL EXPORTS | 0.5 M mt

Sweden's salmon exports were 91 percent fresh or chilled whole Atlantic salmon and 5 percent fresh or chilled Pacific and Atlantic salmon fillets.



UNITED STATES 6% OF GLOBAL EXPORTS | 0.2 M mt

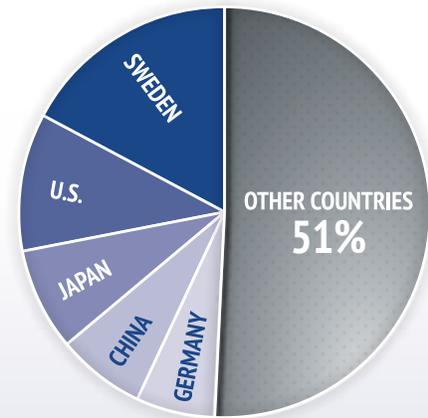
The U.S.' salmon exports were 40 percent frozen Pacific salmon other than sockeye salmon; 19 percent frozen Pacific sockeye salmon (red salmon); and 19 percent prepared or preserved salmon.



RUSSIA 4% OF GLOBAL EXPORTS | 0.1 M mt

Russia's salmon exports were 76 percent frozen Pacific salmon other than sockeye salmon and 22 percent frozen Pacific sockeye salmon (red salmon).

TOP 5 IMPORTERS



SWEDEN 17% OF GLOBAL IMPORTS | 0.5 M mt

Sweden's salmon imports were 88 percent fresh or chilled whole Atlantic salmon; 6 percent fresh or chilled Pacific and Atlantic salmon fillets; and 4 percent frozen Pacific salmon other than sockeye salmon. Sweden was a top importer and re-exporter of salmon and salmon products in 2016.



UNITED STATES 11% OF GLOBAL IMPORTS | 0.4 M mt

The U.S.' salmon imports were 39 percent fresh or chilled Pacific and Atlantic salmon fillets; 31 percent fresh or chilled whole Atlantic salmon; and 30 percent frozen Pacific and Atlantic salmon fillets. The U.S. imported a high volume of fresh salmon from Chile, Canada, and Norway. Similarly, frozen and mostly processed salmon was imported from China, while other frozen farmed salmon was imported from Chile and Norway.



JAPAN 8% OF GLOBAL IMPORTS | 0.3 M mt

Japan's salmon imports were 37 percent frozen Pacific salmon; 14 percent frozen Pacific sockeye salmon (red salmon); 13 percent frozen trout; 9 percent frozen trout fillets; and 8 percent fresh or chilled whole Atlantic salmon. Japan's highest imports of farmed salmon were from Chile and Norway, but it also imported wild salmon from Russia.



CHINA 7% OF GLOBAL IMPORTS | 0.2 M mt

Seventy percent of China's salmon imports was frozen Pacific salmon; 15 percent fresh or chilled whole Atlantic salmon; 6 percent frozen whole Atlantic salmon; and 5 percent frozen trout.



GERMANY 6% OF GLOBAL IMPORTS | 0.2 M mt

Germany's salmon imports consisted of 29 percent fresh or chilled whole Atlantic salmon; 23 percent smoked Pacific, Atlantic salmon; 17 percent frozen Pacific and Atlantic salmon fillets; and 7 percent fresh or chilled salmon Pacific and Atlantic salmon fillets.

FARMED SALMON: SECTOR-WIDE COLLABORATION AND REGULATION DRIVE QUICK GROWTH

Since the first salmon farm was certified in 2012, there has been an uptick in the availability of responsibly farmed product. There are now 260 ASC-certified farms, and almost 24 percent of farmed salmon is ASC-certified. Improvements in farmed salmon production have allowed Seafood Watch to upgrade some red ratings to yellow, including product from British Columbia and New England. There are also several farm operations that have achieved a green rating.

Many factors are driving this increase in responsible production. Key factors are the strong regulatory frameworks and voluntary codes of good practice in salmon-farming countries. These have supported the salmon industry to become a leader in aquaculture practices, including the implementation of landscape-level management. For example, Chile established Aquaculture Management Areas, managed by the [National Fisheries and Aquaculture Service](#), which require license holders to coordinate management efforts. Additionally, governments award a limited number of farming leases, and some of these require companies to demonstrate they are responsible actors.

Industry-NGO collaborations are also playing a key role in driving improvements around farmed salmon. There are several collaborations to note:

- The [Global Salmon Initiative \(GSI\)](#), which accounts for about 50 percent of the farmed salmon industry, focuses on precompetitively addressing industry-wide challenges. All members of GSI have made a time-bound commitment to be ASC-certified by 2020 and are working to address key issues including improving coordinated disease management, shifting to sustainable sources for feed ingredients, and increasing transparency in the industry. Additionally, GSI has committed to share best practices from the salmon industry to other industries – such as shrimp – and could share landscape-level management approaches that are helping drive improvements at scale.
- In March 2019, the Chilean salmon industry association, SalmonChile, [announced a collaboration](#) with the government (Sernapesca) and Seafood Watch to reduce chemical use by 50 percent and achieve a yellow rating by 2025. Participating companies cover more than 80 percent of total Chilean production. Meeting such a commitment anticipates adoption of a landscape-level, coordinated management approach.
- The Seafood Business for Ocean Stewardship, which includes eight of the largest seafood companies globally, identified [several goals](#) around improving sustainability – one specifically to drive growth in aquaculture by improving preventive health management and reducing the use of antibiotics.
- Years of joint efforts led to the development and launch of the Aquaculture Stewardship Council's salmon standard in 2012; and after the Aquaculture Stewardship Council updated its standard in 2017, Seafood Watch now recognizes all ASC-certified salmon as a procurement option when making recommendations to business and consumer audiences.

While there's been a lot of progress around improving farmed salmon, there are still some major challenges the sector is working to address. These include sourcing sustainable feed ingredients from both marine and terrestrial environments, preventing escapes that may compromise wild stock health, and addressing the need for robust disease and water quality management systems.

While some challenges can be addressed by farmers individually, many require broader interventions to improve national policy or catalyze sector-wide approaches to implement best practices at scale – which are necessary to drive lasting improvements and progress toward sustainability. This will require assessment of multiple aquaculture operations and reviews of the effectiveness of policies and enforcement at a landscape level.

There are several takeaways from the progress thus far in farmed salmon:

- Despite challenges, farmed salmon has many best practices that can serve as useful models for other aquaculture sectors. Strong and enforced regulatory frameworks are essential to promote responsible aquaculture – and are more successful when supported by complementary voluntary industry codes.
- Key information about disease management, parasites, marine mammal and sea bird mortalities, production caps, and harvest is increasingly being collected and publicly reported either voluntarily (e.g., via GSI, individual companies, and the Aquaculture Stewardship Council) or through government regulation. Not only is this critical to effective adaptive management, but the public transparency it provides also reduces negative perceptions about the industry.

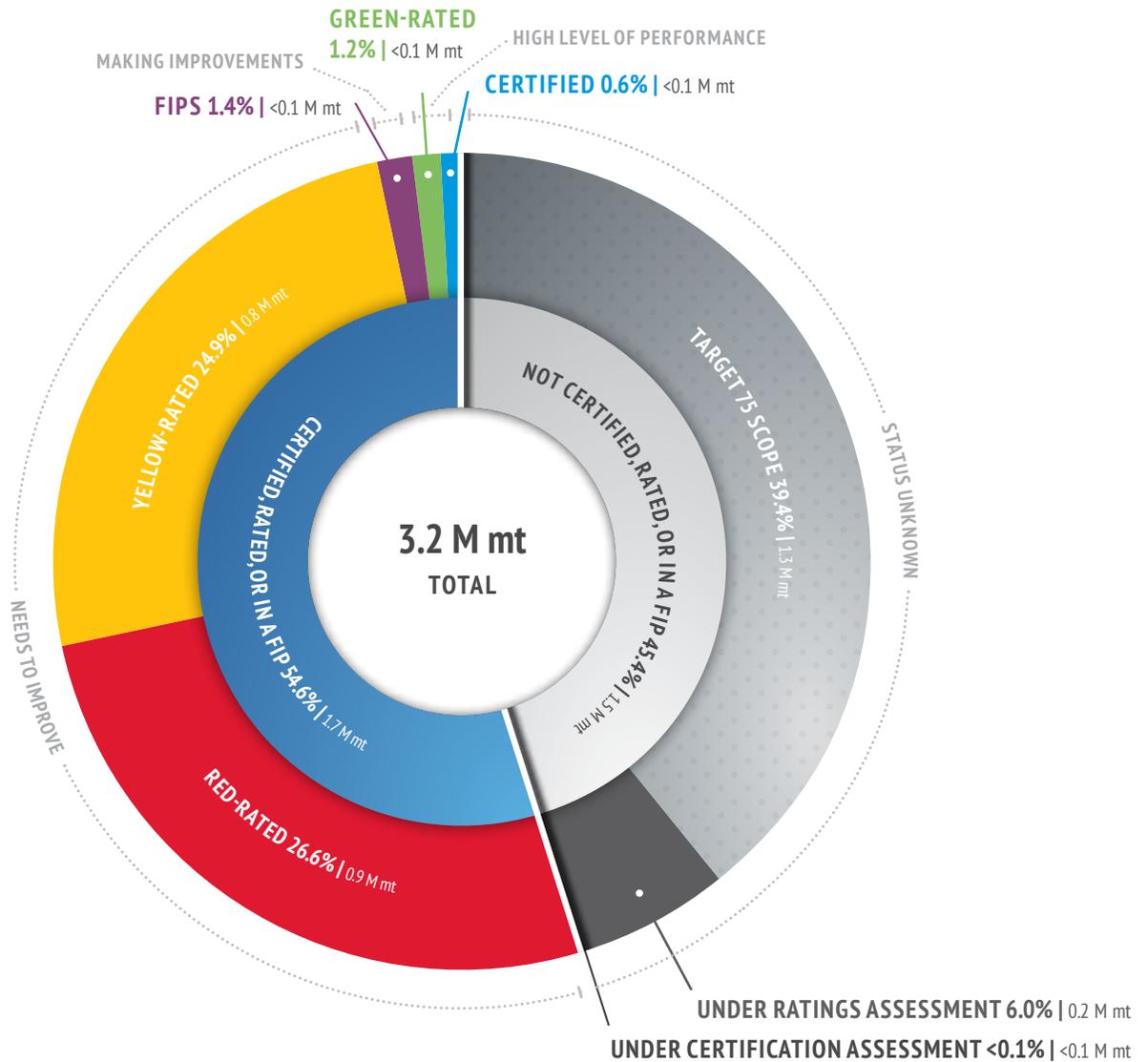
- Governments can incentivize environmental and social responsibility by setting lease conditions that require innovation and commitments by companies to improve existing practices. Certification and ratings programs can further support progress by recognizing these improved practices within their standards.
- Industry can collectively help address challenges no individual company could manage alone. The salmon sector has several examples: most salmon farming countries require mandatory reporting of infectious diseases and coordinated treatment responses; farms in Chile must comply with regulatory coordination of area-based sea lice treatments; and in Scotland and Norway, sea lice management and treatment are promoted through designated management areas.
- While working with individual operations will continue to be critical to help drive improvements in industry practice, future work is also needed to address challenges through collective action at scale.



SQUID AND OCTOPUS

The squid and octopus sector includes all wild squid and octopus species.

WILD SQUID AND OCTOPUS



CURRENT STATUS

Approximately 2 percent of squid and octopus production is certified or green-rated, indicating a high level of performance. Certified production is dominated by longfin squid from the U.S.; while green-rated production is mostly Japanese flying squid from Japan.

Just 1 percent of squid and octopus production is making improvements and currently engaged in a public FIP; FIP production is largely mitre squid from China and squid from New Zealand.

Fifty-two percent of squid and octopus production is yellow- or red-rated, indicating that improvements are needed. Twenty-five percent is rated yellow; yellow-rated production is largely jumbo flying squid from Chile, China, and Japan. Twenty-seven

percent is rated red; red-rated production includes squid species from China, followed by common squids from Indonesia and common octopus from Mexico.

Forty-five percent of squid and octopus production remains status unknown, and is either unassessed or not yet engaged in improvements by members of the Collaboration. Of that, 6 percent is undergoing assessment for ratings by Seafood Watch or undergoing assessment for certification by the Marine Stewardship Council. An additional 39 percent is within the scope of Sustainable Fisheries Partnership's Target 75 Initiative.

Takeaways

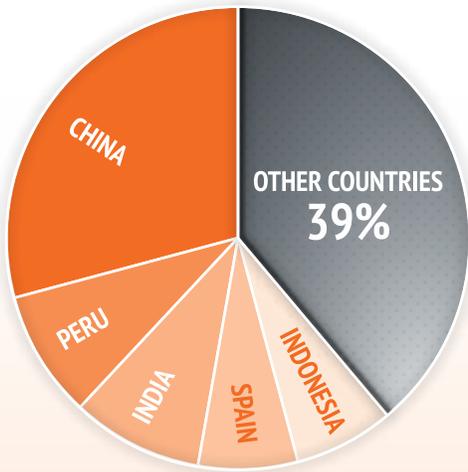
As a Collaboration, we are working to improve the sustainability of the nearly 27 percent of squid and octopus production that remains rated red. We are also working to engage suppliers in improving the performance of unrated and uncertified fisheries within the Sustainable Fisheries Partnership's Target 75 scope, which account for 39 percent of production worldwide. Improved stock assessment techniques, stronger regulatory frameworks, and industry collaboratives offer promise for future gains. Challenges for future efforts include data deficiencies, the scale of squid and octopus fisheries, and management weaknesses.



SQUID AND OCTOPUS TRADE

The countries that lead imports and exports of seafood in the squid and octopus sector are best-positioned to shape the sector's overall sustainability. This data allows us to understand which products make up the majority of the exports and imports; however, the data do not provide a comprehensive overview of the sector's global trade. Trade data do not distinguish farmed from wild production sources. Available trade data was at a more aggregated level than that defined within our production sector, and so also includes cuttlefish.

TOP 5 EXPORTERS



CHINA 29% OF GLOBAL EXPORTS | 0.5 M mt

Sixty-nine percent of China's exports for this sector was a variety of squid and cuttlefish product types, and 16 percent was prepared or preserved squid and cuttlefish.



PERU 9% OF GLOBAL EXPORTS | 0.2 M mt

Seventy-three percent of Peru's exports for this sector was a variety of squid and cuttlefish product types, and 24 percent was prepared or preserved squid and cuttlefish.



INDIA 9% OF GLOBAL EXPORTS | 0.2 M mt

Seventy percent of India's exports for this sector was a variety of squid and cuttlefish product types, 23 percent was squid and cuttlefish, and 6.5 percent was octopus.



SPAIN 7% OF GLOBAL EXPORTS | 0.1 M mt

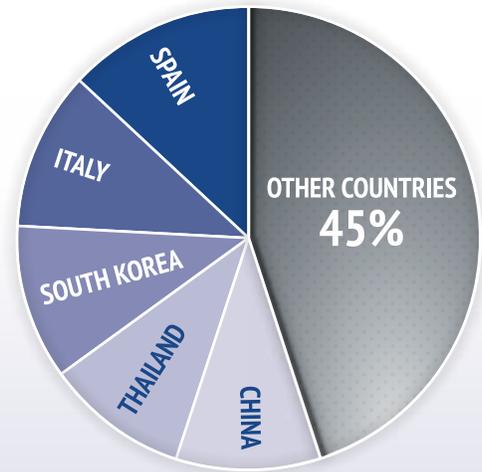
Forty-eight percent of Spain's exports for this sector was a variety of squid and cuttlefish product types, 25 percent was octopus, and 14 percent was prepared or preserved squid and cuttlefish.



INDONESIA 7% OF GLOBAL EXPORTS | 0.1 M mt

Eighty-seven percent of Indonesia's exports for this sector was of a variety of squid and cuttlefish product types, and 11 percent was octopus.

TOP 5 IMPORTERS



SPAIN 13% OF GLOBAL IMPORTS | 0.2 M mt

Sixty-six percent of Spain's imports for this sector was a variety of squid and cuttlefish product types, and 27 percent was octopus.



ITALY 11% OF GLOBAL IMPORTS | 0.2 M mt

Fifty-five percent of Italy's imports for this sector was a variety of squid and cuttlefish product types, and 33 percent was octopus.



SOUTH KOREA 11% OF GLOBAL IMPORTS | 0.2 M mt

Forty-three percent of South Korea's imports for this sector was octopus, 33 percent a variety of squid and cuttlefish product types, and 15 percent prepared or preserved squid and cuttlefish.



THAILAND 10% OF GLOBAL IMPORTS | 0.1 M mt

Eighty-six percent of Thailand's imports for this sector was of a variety of squid and cuttlefish product types, and 10 percent squid and cuttlefish.



CHINA 10% OF GLOBAL IMPORTS | 0.1 M mt

Ninety-three percent of China's imports for this sector was a variety of squid and cuttlefish product types, 5 percent prepared or preserved squid and cuttlefish, and 2 percent octopus.

SQUID AND OCTOPUS: PRIORITIZING MANAGEMENT AND DATA

Improving the sustainability of any fishery begins with understanding where you are starting from. With squid and octopus, that is easier said than done. Assessing the sustainability of fisheries for these species is a major challenge – they have short life spans and are vulnerable to a wide range of environmental factors, so the stock fluctuates widely. This makes stock assessments difficult and, as a result, limits the effectiveness of assessing fishing’s impact on stock levels.

These fisheries face other data challenges. Many squid fisheries are data-deficient and require improved catch data collection, as well as management measures such as seasonal closures and minimum size to protect spawning stock. A lack of transparency around source fisheries is another challenge, particularly with Asian squid fisheries, as mixing of species and sources throughout product processing and trade challenges the effectiveness of market-based programs.

And finally, management of relevant fisheries is complicated due to extremes in the fisheries’ scale. Some fisheries are very large, covering several countries’ territorial waters and high seas regions. Others have many small-scale producers – for example, Morocco alone has about 4,000 octopus fishing boats.

Despite the range of challenges, there are signs of progress. Seafood Watch has rated several squid and octopus fisheries green – including fisheries in Japan and the U.S. There are also fisheries around the world that are serving as models for improvement:

- The [East China Sea and Yellow Sea Japanese flying squid FIP](#), currently in the launch phase, aims to address issues affecting fishing in the East China Sea and Yellow Sea. These waters are fished by vessels from Japan, China, and Korea, so the FIP will engage stakeholders from all three countries to address data collection and stock management needs.
- The [Peruvian jumbo flying squid FIP](#) is working with stakeholders in Chile, Ecuador, and Mexico to push the RFMO for observer programs, better science, fleet monitoring, and stock management.
- The [Chinese common squid FIP](#), run by China Blue Sustainability Institute, has focused on identifying and protecting spawning grounds and implementing minimum size limit. Noting its progress, the Chinese government is considering the project as a pilot for informing national fisheries management reform across domestic Chinese fisheries.
- As of 2018, the [U.S. Northeastern longfin inshore squid fishery](#) and the [Western Asturias Octopus Traps Fishery of Artisanal Cofradias](#) have achieved MSC certification, the first of each species to do so. In addition, the U.S. fishery is currently extending its scope to include shortfin illex squid. The Western Asturias Octopus Traps Fishery used the Marine Stewardship Council’s risk-based framework to overcome some challenges around assessment including limited data availability and uncertainty in stock assessments due to the short life span of octopus.
- Sustainable Fisheries Partnership’s Global Squid Supply Chain Roundtable and Global Octopus Supply Chain Roundtable, each launched less than three years ago, boast a combined 36 participants supporting at least 10 FIPs including those mentioned above.

These fisheries can serve as models for effective collaboration to address transnational challenges affecting fisheries in multiple Exclusive Economic Zones (EEZs) as well as international waters. They also show that progress is possible when stakeholders from different countries coordinate to implement improvements.

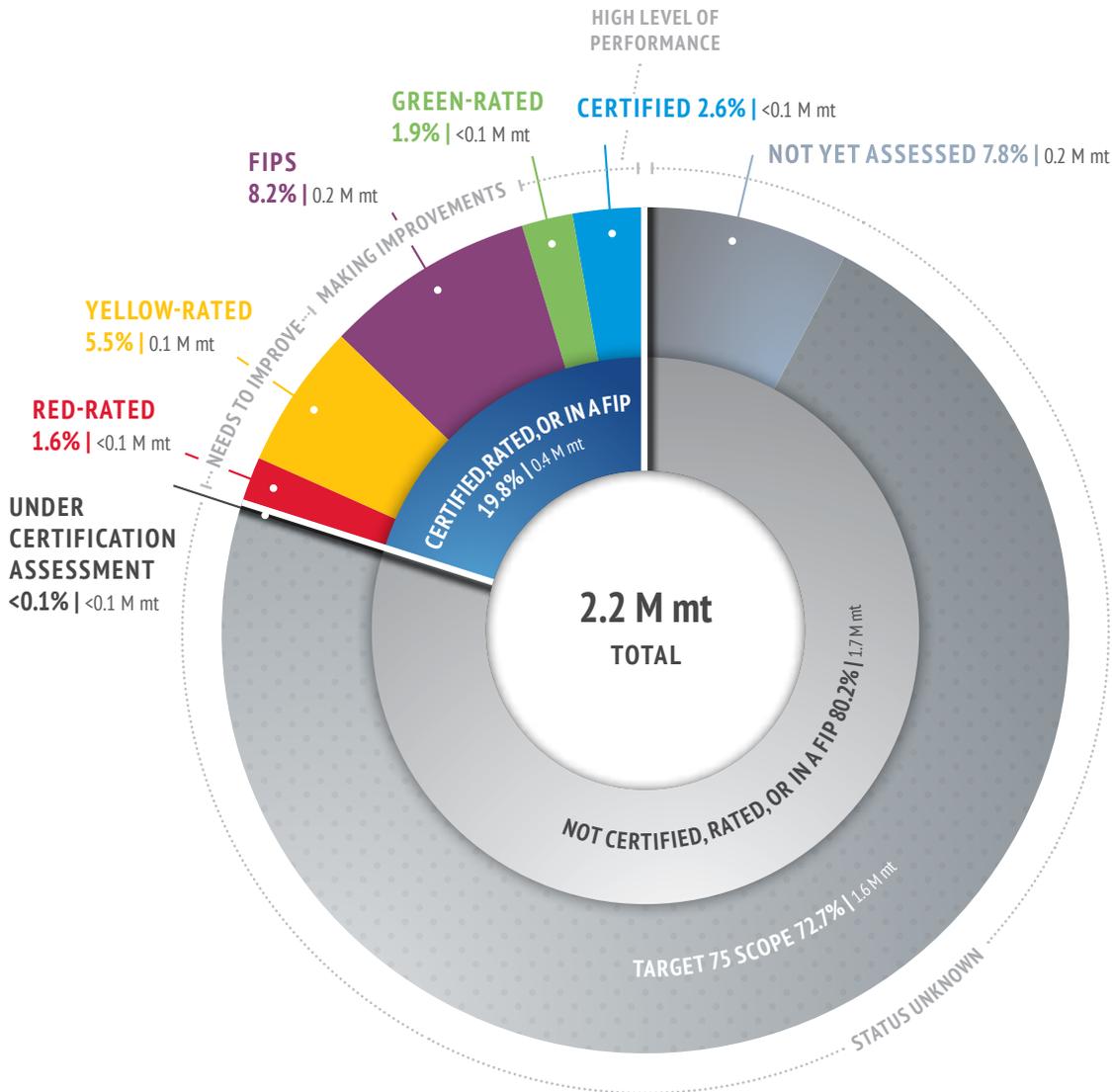
Given the range of challenges facing these species, there are many priorities for improving the sustainability of squid and octopus. Takeaways include:

- Improving stock assessment techniques for species with short life spans will help ensure accurate data and effective management.
- Government has an important role to play – innovating on national-level management and collaborating to address transnational concerns. In particular, effective management of fisheries for squid on the high seas is essential. For example, management of the South Pacific jumbo squid fishery is still in its infancy, and there is no coordinated management of the Argentine shortfin squid fishery.
- Changing industry practice is key. In Asian markets such as China and Japan, different approaches – such as making the case for continued access to the resource and assured supply – can help businesses see the value in sustainability improvements. However, a single company can’t drive change alone – we need supply chain roundtables engaging companies together and FIP implementers on the ground working with companies.

WILD CRAB

The crab sector includes all wild sources of blue swimming crab and related crab species, red swimming crab, crab from tropical and temperate waters, and crab from coldwater regions.

WILD CRAB



CURRENT STATUS

Approximately 5 percent of wild crab production is certified or green-rated, indicating a high level of performance. Nearly 87 percent of the certified production is queen crabs from Canada; while green-rated production is dominated by coldwater crabs.

Eight percent of wild crab production is making improvements and currently engaged in a public FIP; FIP production is mostly tanner crabs from Russia and blue swimming crabs from the Philippines, Thailand, and Vietnam.

Seven percent of wild crab production is yellow- or red-rated, indicating that improvements are needed. Almost 6 percent is rated yellow; yellow-rated production includes marine crabs from Mexico, dungeness crabs from the U.S., and blue crabs from the U.S. and Mexico. Two percent is rated red; red-rated production includes portunus crabs from China and blue swimming crabs from China and Indonesia.

Eighty percent of wild crab production remains status unknown, and is either unassessed or not yet engaged in improvements by members of the Collaboration. Of that, less than 1 percent is undergoing assessment for certification by the Marine Stewardship Council. An additional 72 percent is within the scope of Sustainable Fisheries Partnership's Target 75 Initiative – about half of that is gazami crabs and marine crabs.

Takeaways

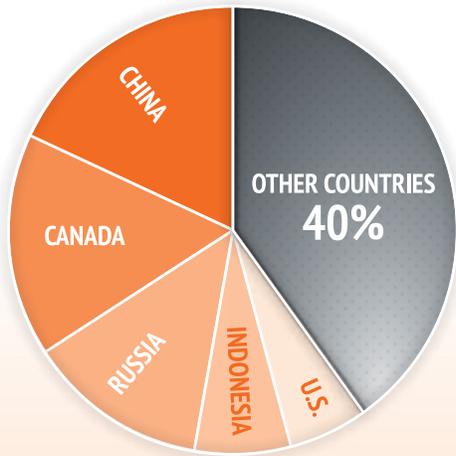
As a Collaboration, we are working to improve the sustainability of the 2 percent of wild crab production that remains rated red. We are also working to engage suppliers in improving the performance of unrated and uncertified fisheries within the Sustainable Fisheries Partnership's Target 75 scope, which account for 72 percent of production worldwide. A handful of improvement projects and other industry-NGO efforts focused on addressing needs like data collection and traceability offer promise for future gains. Challenges for future efforts include insufficient management and bycatch.



CRAB TRADE

The countries that lead imports and exports of seafood in the crab sector are best-positioned to shape the sector's overall sustainability. This data allows us to understand which products make up the majority of the exports and imports; however, the data do not provide a comprehensive overview of the sector's global trade. Trade data do not distinguish farmed from wild production sources.

TOP 5 EXPORTERS



CHINA 18% OF GLOBAL EXPORTS | 0.07 M mt

China's crab exports were 48 percent frozen crab products and 43 percent prepared or preserved crab. China had the highest level of exports in 2016, with main markets in South Korea, Taiwan, and the U.S.



CANADA 16% OF GLOBAL EXPORTS | 0.07 M mt

Eighty-seven percent of crab exported by Canada was frozen crab products. Canada exported a large volume of crab to the U.S.



RUSSIA 13% OF GLOBAL EXPORTS | 0.05 M mt

Of crab exported by Russia, 72 percent was frozen crab products and 27 percent not-frozen product types. Russia had key markets for coldwater crab in South Korea, the Netherlands, and China.



INDONESIA 7% OF GLOBAL EXPORTS | 0.03 M mt

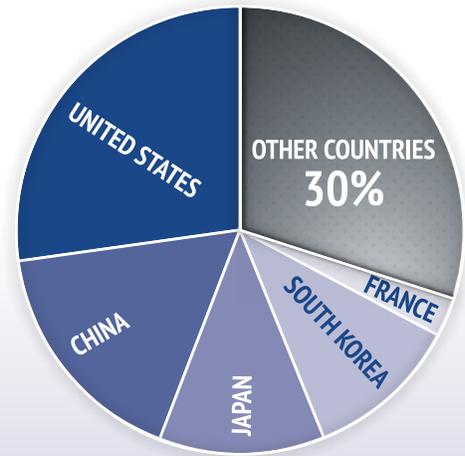
Indonesia's crab exports were 59 percent prepared or preserved crab and 30 percent not-frozen crab product types.



UNITED STATES 6% OF GLOBAL EXPORTS | 0.02 M mt

Fifty-two percent of crab exported by the U.S. was frozen crab products and 40 percent not-frozen crab products.

TOP 5 IMPORTERS



UNITED STATES 27% OF GLOBAL IMPORTS | 0.11 M mt

Sixty-seven percent of U.S. crab imports was frozen crab products followed by 31 percent prepared or preserved crab. The U.S. continued to dominate the highest import of crab during 2016, with large volumes of snow crab from Canada and Russia and warmwater crab from Indonesia.



CHINA 17% OF GLOBAL IMPORTS | 0.07 M mt

Sixty percent of China's crab imports was not-frozen crab products and 38 percent frozen crab products.



JAPAN 12% OF GLOBAL IMPORTS | 0.05 M mt

Japan's crab imports consisted of 70 percent frozen crab products and 26 percent prepared or preserved crab.



SOUTH KOREA 11% OF GLOBAL IMPORTS | 0.04 M mt

Seventy-seven percent of South Korea's crab imports was frozen crab products and 31 percent not-frozen crab products.



FRANCE 3% OF GLOBAL IMPORTS | 0.01 M mt

France's crab imports include 52 percent not-frozen crab products, 28 percent frozen crab products, and 21 percent prepared or preserved crab.

SWIMMING CRAB: INDUSTRY AND NGOS COLLABORATE TO ADDRESS MANAGEMENT AND BYCATCH ISSUES

The more diverse a problem, the harder it can be to address – that's one of the challenges facing the crab sector. There are more than 60 species of crab, and their habitats range from warm water in places like Indonesia and the southern U.S., to cold water off the coast of Canada.

The crab sector faces notable challenges. Only about 5 percent of the sector is either certified or green-rated, and yellow-rated options account for less than 6 percent of global production. The majority of the sector is either rated red or unrated. And while some crab fisheries are more sustainable, swimming crab – found in warm-water locations – continues to face sustainability risks.

There are two major obstacles for fisheries targeting swimming crab. First, insufficient management – including a lack of nationwide stock assessments, enforcement, and monitoring – in countries like China and Indonesia puts the long-term health of the species in jeopardy. In particular, continued harvesting of young crab poses long-term risks to the species. And second, bycatch of other species from crab fishing practices is a significant sustainability threat, particularly among bottom trawl and gillnet fisheries. Current data collection and analysis is insufficient to ensure the fisheries are not having impacts on species like turtles, seabirds, and mammals.

While these challenges are significant, there are signs of progress to note. In the Gulf of Mexico, a [blue crab fishery operating in Louisiana state waters](#) became the first swimming crab fishery to achieve MSC certification in 2012 (and be recertified in 2018). In 2016, the [Australian Peel-Harvey blue swimmer crab fishery](#) became the first in the world to achieve a combined recreational and commercial MSC certification.

Improvement efforts are underway in other fisheries, including seven swimming crab FIPs worldwide. One example is the [Indonesia blue swimming crab FIP](#) which includes Sustainable Fisheries Partnership and the [NFI Crab Council](#) among other NGO and industry participants. In early 2019, Seafood Watch yellow-rated two Sri Lankan crab fisheries after successful improvement projects.

Industry and NGOs are working together to drive improvement. Key initiatives include:

- In 2018, Thai Union Group PCL, Chicken of the Sea® brand, and Monterey Bay Aquarium launched SeaChange® IGNITE to focus on improvements in Southeast Asia and other key regions. Focused initially on blue swimming crab and farmed shrimp, the collaboration aims to address key challenges such as data collection, market development, livelihoods, and verified sustainability improvements.
- [APRI](#) (the Indonesian Blue Swimming Crab Processors Association) and Sustainable Fisheries Partnership are developing and implementing control documents to assure traceability and legality of the crab products in the Indonesian supply chain. These groups are engaging the Indonesian government to incorporate the control document traceability data into the export process.
- The NFI Crab Council serves the function of a supply chain roundtable for the swimming crab fisheries in Southeast Asia. It sponsors comprehensive swimming crab sustainability projects throughout the region. These industry players are able to incentivize government actors and provide funding to smaller artisanal fisheries to implement improvements like gear changes. [PACPI](#) (Philippine Association of Crab Processors Inc.), for example, has begun to swap gillnet and entangling nets with traps with the aim of reducing bycatch.

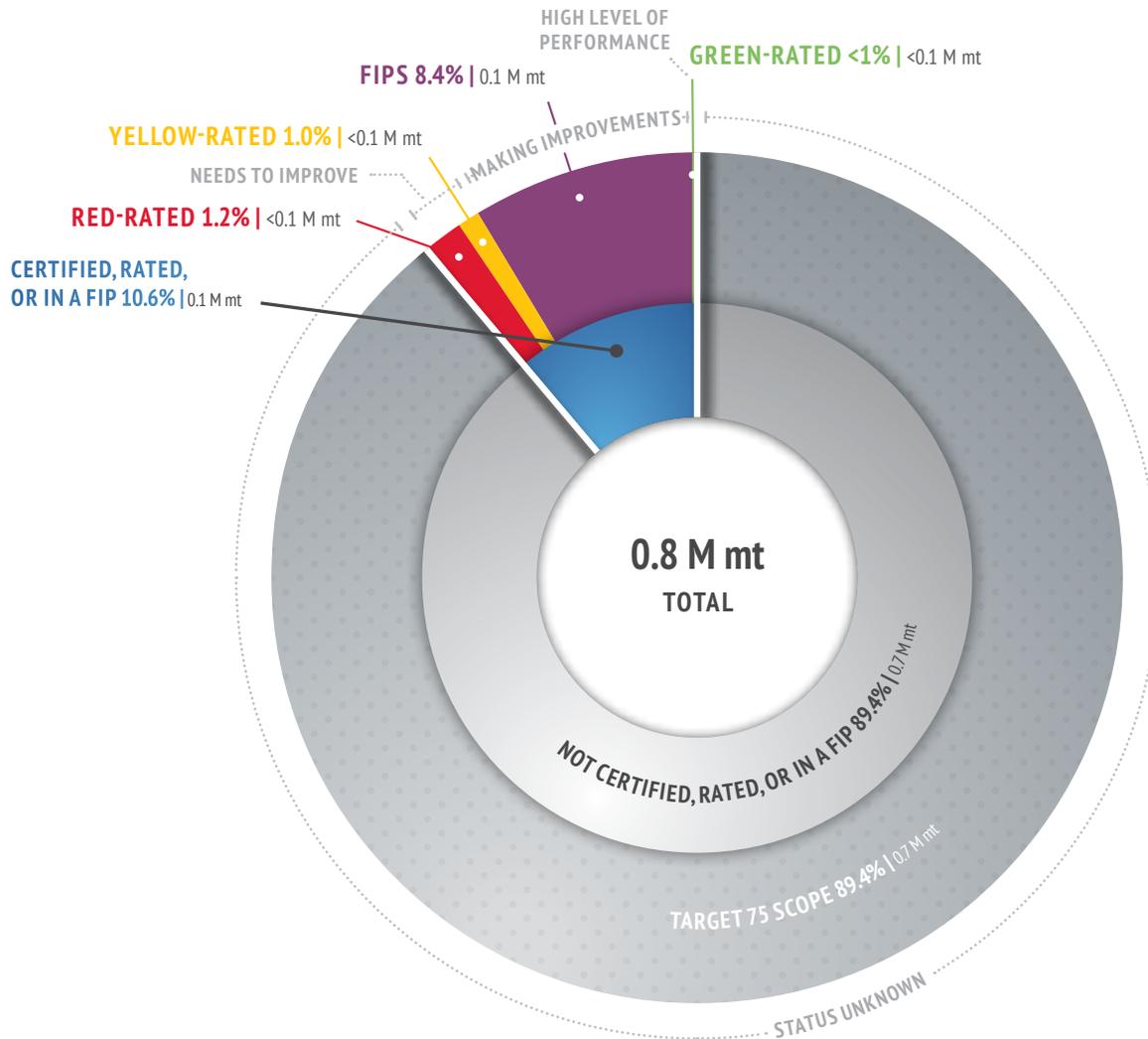
There are several takeaways to note from work in this sector:

- Many initiatives have made time-bound commitments to specific improvements. It is critical that buyers maintain market expectations to ensure that improvement initiatives deliver on those commitments. For example, the [Indonesia blue swimming crab FIP](#) has a targeted completion date in 2022, along with other projects that aim to achieve their objectives in the next few years. Buyers and NGOs must continue to engage these projects to successfully meet these completion dates.
- NGOs, which are supporting industry efforts by providing forums for precompetitive convenings and launching and supporting improvement projects in the region, are well-positioned to add needed pressure.
- Swimming crab FIPs require training and expertise to address issues such as rebuilding stock and monitoring to ensure regulatory compliance.
- Industry and NGOs must address the challenge of management fragmentation. Management systems, often developed at a national level, are not being implemented effectively at a local or regional level. Improved co-management, especially on issues like data collection which can identify issues and monitor improvement, can help protect the current stock status and mitigate overfishing.

WILD SNAPPER AND GROUPEL

The snapper and grouper sector includes wild snapper (Lutjanidae family) and grouper (Serranidae family) species.

WILD SNAPPER AND GROUPEL



CURRENT STATUS

Less than 1 percent of wild snapper and grouper production is green-rated, indicating a high level of performance. Green-rated production includes mutton snapper and miscellaneous other snapper species from the U.S.

Eight percent of wild snapper and grouper production is making improvements and currently engaged in a public FIP; FIP production groupers from Indonesia and Mexico, snappers from Indonesia, and Southern red snapper from Brazil.

Two percent of wild snapper and grouper production is yellow- or red-rated, indicating that improvements are needed. One percent is rated yellow; yellow-rated production is comprised of seven species of snapper and grouper from the U.S. and one from Honduras. One percent is rated red; red-rated production is dominated by snapper species from Brazil.

Eighty-nine percent of wild snapper and grouper production remains status unknown, and is either unassessed or not yet engaged in improvements by members of the Collaboration. This production is within the scope of Sustainable Fisheries Partnership's Target 75 Initiative – the majority is from China, Indonesia, Mexico, India, and Malaysia.

Takeaways

As a Collaboration, we are working to improve the sustainability of the 1 percent of wild snapper and grouper production that remains rated red. We are also working to engage suppliers in improving the performance of unrated and uncertified fisheries within the Sustainable Fisheries Partnership's Target 75 scope, which account for 89 percent of production worldwide. Improvement efforts focused on data collection, stock assessment, fishery management, and traceability offer promise for future gains. Challenges for future efforts include insufficient management, data collection, and building demand for sustainable product.

WILD SNAPPER AND GROUPEL TRADE

Current trade data do not isolate snapper and grouper species, so this report is unable to produce sector-specific trade information.

SNAPPER AND GROUPEL: ADDRESSING DATA AND MANAGEMENT CHALLENGES

There are several challenges that are limiting progress to the sustainability of the snapper and grouper sector. One is a lack of market leverage – the majority of production is in countries such as China, Brazil, Indonesia, Malaysia, and the Philippines, where industry currently has limited engagement in improvement efforts. Most of the product appears to be consumed domestically in these regions (though poor specificity in production and trade data make this a challenge to quantify accurately), so there's a lack of consumer demand from more mature markets like the U.S. and EU to drive engagement.

The sector also faces ongoing management issues. Relevant fisheries are mostly artisanal and many vessels are not registered. Even when national licensing or other management programs are in place, it is difficult to enforce them. Data collection is another challenge – there is a lack of species-specific data, as public stock status data don't track at the species level and many vessels are not reporting catch data.

Since a lot of the product remains in domestic markets, a priority is helping governments recognize the socioeconomic benefits of sustainable governance. Analyzing the local supply chains can illuminate challenges and identify opportunities for improvements that benefit local producers.

Both NGOs and industry play key roles in addressing and overcoming challenges. Suppliers are engaging in improvement efforts – the Indonesian Snapper and Grouper Supply Chain Roundtable and Mexican Seafood Supply Chain Roundtable are two existing forums that bring suppliers together. In Indonesia, The Nature Conservancy partnered with 300 fishing vessels to get data for stock assessments for a seascape that includes three time zones, resulting in data on fishing practices and stock status of more than 50 species of snappers and groupers. And, 10 Indonesian and international fishing companies decided to avoid purchasing juvenile snappers and groupers, thereby contributing to the sustainability of the fishery. There are also successful collaborations among producers – Indonesian producers are working with Sustainable Fisheries Partnership to establish an industry association and launch a national-scale FIP.

Thanks to these efforts and others, there are signs of progress. Several improvement efforts are underway or in development for Mexican snapper and grouper in both the Pacific and the Gulf of Mexico. [COBI](#) is in the process of launching a Gulf of Mexico red snapper FIP. Early in 2018, [Pronatura Noroeste](#) and [FEDECOOP](#) launched the [Mexico North Pacific barred sand bass FIP](#) in the central Baja California Peninsula. Other projects are in the scoping phase, including a multispecies sustainable fisheries project led by Ecologists Without Borders, including yellowtail, snapper, and grouper small-boat fisheries operating in the Santa Rosalía region of the Gulf of California; and a [Mexico Gulf of California grouper, snapper, triggerfish and yellowtail FIP](#) led cooperatively by three Mexican NGOs: Niparaja, Pronatura Noroeste, and SmartFish.

Going forward, there are several takeaways to note to continue to drive improvements in the sector:

- Countries need to invest in basic national management, including ensuring fleets are licensed, gathering stock data, and implementing observer programs. NGOs can partner with governments to develop effective management systems.
- It is critical to build demand for sustainable product in countries like China and Taiwan, which are major production and consumption markets.
- More of the supply chain must participate in existing improvement methods, including supply chain roundtables, FIPs, and other conservation efforts.

APPENDIX: DATA AND METHODOLOGY

STATUS OF GLOBAL SEAFOOD

Seafood production charts were generated using global production data for farmed and capture fisheries (for 2016) from FAO publicly available statistics. Seafood production refers to the defined species groupings as recognized by FAO in the State of World Fisheries and Aquaculture Reports.

Proportions of seafood attributed to certification, ratings, improvements, in assessment, and priorities were based on analyses conducted by individual programs. Data attributed to these analyses were isolated from total global production; additional analyses aligned common efforts across the programs to recognize comparable efforts and reduce overlaps across datasets. Certified, rated, FIP, and under assessment volumes were removed from the T75 scope where we identified common fisheries across the datasets. Additional overlaps between FIP, rated, and under assessment volumes were further isolated. Priority volumes were assigned to certified fisheries, fisheries under assessment for certification, and FIPs. Data from the various programs do not represent the same year of data, but the most current available from each program within a few years' span (2014-2018).

GROWING GLOBAL DEMAND FOR SUSTAINABLE SEAFOOD

Global demand for sustainable seafood tracks the global distribution of certified, consumer-facing products, chain of custody clients, business commitments and supply chain roundtables. Relevant data was provided by the individual programs. These data represent a current snapshot of activity as provided in 2018.

FISHERY IMPROVEMENT PRIORITIES

Fishery improvement priorities tracks global distribution of active improvement projects against defined priorities of the Sustainable Fisheries Partnership Target 75 Initiative by major fishing area. These data represent a current snapshot of activity as provided in August 2018.

SOCIAL RESPONSIBILITY IN FISHERIES AND AQUACULTURE

Livelihoods dependent on fisheries and aquaculture by gender and region are compiled annually by the FAO in the State of World Fisheries and Aquaculture reports. The data is from 2016, the most recent year available.

Data sources:

- Fisheries and aquaculture software. FishStatJ- software for fishery statistical time series. In: FAO Fisheries and Aquaculture Department [online]. Rome. Updated 21 July 2016.
- FAO. 2018. The State of World Fisheries and Aquaculture 2018 - Meeting the sustainable development goals. Rome. License: CC BY-NC-SA 3.0 IGO.
- Data on Target 75 priorities, fishery improvement projects, and business commitments and supply chain roundtables provided by Sustainable Fisheries Partnership.
- Data on certified fisheries, fisheries in assessment, certified products and chain of custody clients provided by the Marine Stewardship Council, Aquaculture Stewardship Council and Fair Trade USA.
- Data on rated fisheries, fisheries under ratings assessment, business commitments and supply chain roundtables provided by Monterey Bay Aquarium Seafood Watch Program.

SEAFOOD SECTOR DATA

Seafood sectors were based on the definitions developed by the Sustainable Fisheries Partnership for its Target 75 analyses, and were expanded on in some cases to ensure inclusion of certified and rated species that fall outside of the defined Target 75 sectors. For the purposes of this report and analyses, we provide our expanded sector definitions and identify the [FAO International Standard Statistical Classification of Aquatic Animals and Plants](#) (ISSCAP) divisions that the species are grouped within:

- **Whitefish:** This sector included both classic whitefish along with other whitefish, for both farmed and wild production. Classic whitefish included species such as flatfishes, pollock, cods, hakes and haddocks, seabasses and breams, and other marine groundfish that are almost entirely wild caught. Other whitefish, largely comprising the farmed proportion of the production, included tilapia (i.e., *Oreochromis spp.* and *Tilapia spp.*), pangasius (*Pangasius spp.*) and other catfishes. Whitefish species captured in this sector are identified within ISSCAP divisions 12 (tilapia), 13 (pangasius and catfish), 31 (flatfish: flounders, halibuts, soles), 32 (cods, hakes haddocks - with the exception of blue whiting and Norway pout, which are within the small pelagics sector of this report), 33 (breams and seabasses), and 34 (other demersal fish).
- **Small Pelagics:** This sector was defined with the goal to capture those species caught for reduction fisheries and related small pelagic species. These included the Sustainable Fisheries Partnership Target 75 species defined for the 'reduction fisheries sector', which were Atlantic/Pacific reduction fisheries generally used for fishmeal and oil in aquaculture feed; Southeast Asia reduction fisheries (including Southeast Asia multispecies trawl fisheries); and directed small pelagic fisheries. This sector also captured other small pelagics that would be recognized under the various programs, such as herrings, sardines, and anchovies. Collectively, the sector included all species of menhaden, anchovies, sardines, sprats, and herrings from ISSCAP division 35; menhaden, smelts, silversides, Atlantic/Pacific mackerels, and saurys from ISSCAP division 37; krill (*Euphausiidae*) from ISSCAP division 46; and blue whiting and Norway pout from ISSCAP division 32.
- **Shrimp:** The shrimp sector included all farmed and wild warmwater shrimp and prawns and both small and larger wild coldwater shrimp. Small warmwater shrimp included species such as seabob. Small coldwater shrimp were predominantly wild and often referred to as "salad shrimp," or smaller than 100 shrimp per pound in body size. Larger coldwater shrimp included species such as Argentine red shrimp and spot prawns. With the exception of paste shrimp, this sector included all farmed and wild shrimp and prawn species from ISSCAP divisions 41 and 45.
- **Tuna:** The tuna sector was comprised of all farmed and wild species of tuna: skipjack, albacore, yellowfin, bigeye, and bluefin (Southern, Atlantic, and Pacific). The analysis did not isolate fresh and frozen from shelf-stable tuna. The Target 75 sectors for fresh frozen and shelf-stable tuna did not include any species of bluefin, and those sectors are distinguished by gear and production countries determining which market the species end up in; we expanded this data to capture all tuna species. Tuna species in this sector were identified within ISSCAP division 36.
- **Farmed Salmon:** This sector focused only on farmed salmon, including all salmon species (Atlantic salmon, *Salmo salar*; Chinook salmon, *Oncorhynchus tshawytscha*; Chum salmon, *Oncorhynchus keta*; Coho salmon, *Oncorhynchus kisutch*; Pink salmon, *Oncorhynchus gorbuscha*; Sockeye salmon, *Oncorhynchus nerka*; and Masu salmon, *Oncorhynchus masou*), along with sources of salmon-like species that can substitute salmon in the market. These included Arctic char (*Salvelinus alpinus*), sea trout (*Salmo trutta*), rainbow trout (*Oncorhynchus mykiss*), and trouts nei (*Salmo spp.*). All species within this sector were identified within ISSCAP division 23.
- **Squid and Octopus:** This sector included all wild species of squid (families: *Gonattidae*, *Loliginidae*, *Ommastrephidae*, *Onychoteuthidae*) and octopus (family: *Octopodidae*) within ISSCAP division 57.
- **Wild Crab:** This sector included all wild sources of blue swimming crab (*Portunus pelagicus*) and related crab species (i.e., blue crab, *Callinectes sapidus*; Central American swimming crab species, *Callinectes spp.*; red swimming crab, *Portunus haanii*); crab from tropical and temperate waters, and crab from coldwater regions. Crab species were identified within ISSCAP divisions 42 and 44.
- **Wild Snapper and Grouper:** This sector included wild snapper (family: *Lutjanidae*) and grouper (family: *Serranidae*) species. Most snapper and grouper species are coastal demersal fish, generally associated with hard-bottom habitats (rocky or reef areas) and considered highly valuable for U.S., European, and some Asian markets. Snapper and grouper species of this sector were identified within ISSCAP division 33.

Seafood sector production charts were generated using global production data for farmed and capture fisheries (for 2016) from FAO publicly available statistics. Global tuna productions were extracted from various sources and relevant RFMOs to reflect best available volumes by ocean region.⁴ Proportions of seafood attributed to certification, ratings, improvements, in assessment, and priorities were based on analyses conducted by individual programs. Data attributed to these analyses were isolated from total global production; additional analyses aligned common efforts across the programs by species and country to recognize comparable efforts and reduce overlaps across datasets. Certified, rated, FIP, and under assessment volumes were

⁴ Commission for the Conservation of Southern Bluefin Tuna (CCSBT), International Commission for the Conservation of Atlantic Tunas (ICCAT), Western and Central Pacific Fisheries Commission (WCPFC), International Seafood Sustainability Foundation (ISSF), FAO, National Marine Fisheries Service (NMFS).

removed from the Target 75 scope where we identified common fisheries across the datasets. Additional overlaps between FIP, rated, and under assessment volumes were further isolated. Priority volumes were assigned to certified fisheries, fisheries under assessment for certification, and FIPs. Data from the various programs do not represent the same year of data, but the most current available from each program within a few years' span (2014-2018). These alignments allowed us to isolate proportions attributable to the programs and the dominant compositions of those program volumes. These data represent a current snapshot of activity as provided in 2018.

SECTOR TRADE DATA

Top importing and exporting countries were isolated for seafood sectors using publicly available data (based on 2016, for consistency with production analyses) for farmed and wild fisheries. Data were extracted from an online database⁵ by isolating fish commodities and product types of interest as identified by the Harmonized System (HS) classification. This system provided a series of four-, six-, or eight-digit tariff codes to identify specific product types in increasing level of detail (e.g., the six-digit code – 030521 – refers to “fish; fresh or chilled, cod”). For the purpose of this analysis, we relied on the six-digit codes to provide the sufficient resolution to determine top-trading countries; eight-digit HS codes are generally only available at the national level. There are currently no defined commodities and product types for snapper and grouper species within the HS classification system for trade⁶, and therefore these analyses were unable to isolate imports and exports for that sector.

The analyses relied on trade data provided from the U.N. Comtrade Database⁷. Using a range of individual HS codes, data were extracted to form the primary sources for import and export of whitefish (wild and farmed), small pelagics (human consumption only, including krill), shrimp (coldwater and warmwater), tuna (fresh, frozen, and shelf stable), salmon (wild and farmed), octopus and squid (including cuttlefish), and crab (coldwater and warmwater). Trade data did not distinguish between farmed and wild products.

There are some specific considerations that were given to the individual sectors, as follows:

- Whitefish: Volumes included both fresh and frozen commodities for a range of species groups across both classic whitefish and other whitefish (e.g., tilapia, Nile perch, and pangasius spp.).
- Small Pelagics: Volumes of input and export included fresh or chilled whole fish; frozen whole fish; frozen fillets; and dried and salted fish for herring, sardine, and anchovy. Data were available on small pelagic fish caught for human consumption and did not isolate reduction fisheries for fishmeal and fish oil products.
- Salmon: Volumes included farmed and wild (combined) salmon and trout.
- Shrimp: Volumes included both farmed and wild shrimp and prawns from tropical and coldwater regions.
- Tuna: Trade data was available for frozen, fresh, or chilled and processed (prepared or preserved) tuna. HS codes were not directly available for canned/processed tuna. The Philippines is known to have significant canning/processing facilities, but due to HS tariff code limitations, data presented showed import of large volumes of fresh and frozen tuna but not associated export volumes of canned/processed tuna. The U.N. Comtrade Database included a broad regional category of “other Asia nes,” which included several Asian countries. To better understand these summary statistics, we relied on information from the FAO GLOBEFISH Highlights April 2018 issue⁸ (for canned/processed tuna) to provide additional detail on the top importing countries.
- Crab: Volumes included both tropical species (e.g., blue swimming crab) and temperate species (e.g., snow crab).

⁵For the purposes of this analysis the U.N. International Trade Statistics Database was selected: <https://comtrade.un.org/>.

⁶Cawthorne, D-M and Mariani, S. (2017). Global trade statistics lack granularity to inform traceability and management of diverse and high-value fishes. *Scientific Reports* 7, Article number: 12852 (2017). [Accessed online 24.04.2019] <https://www.nature.com/articles/s41598-017-12301-x>.

⁷A note regarding the use of Comtrade data: This source provided a high level of detail for each commodity type under different HS codes, but unlike resource trade earth data, it did not enable a matrix of associated export and import countries. We elected to rely on a dataset that allows the higher resolution for alignment with our seafood sectors, to the extent possible, and thereby lost the ability to track trade at a gross scale.

⁸<http://www.fao.org/3/BU674EN/bu674en.pdf>