# 2021 Sector Sustainability Update







14 LIFE BELOW WATER

# LARGE PELAGICS

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### 2021 Sector Sustainability Update

### **MAIN AUTHORS**

**Pedro Veiga** (coordination) | Senior Scientist, Science Unit, M&E Division | <u>pedro.veiga@sustainablefish.org</u> **Christiane Schmidt** |SR M&E and Support Director, M&E Division | <u>christiane.schmidt@sustainablefish.org</u>

### **OTHER CONTRIBUTORS**

Patricia Amorim (<u>patricia.amorim@sustainablefish.org</u>), Alexia Morgan (<u>alexia.morgan@sustainablefish.org</u>), Ananta Murti (<u>ananta.murti@sustainablefish.org</u>), Miguel Ruano (<u>miguel.ruano@sustainablefish.org</u>), Amy Sweeting (<u>amy.sweeting@sustainablefish.org</u>)

### **RELATED CONTACTS**

Teddy Escarabay (teddy.escarabay@sustainablefish.org), Amber Von Harten (amber.vonharten@sustainablefish.org)

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### **SUMMARY**

### **Production and trade**

- Large pelagics is a relatively small T75 sector, only covering mahi-mahi (or dolphinfish) and swordfish.
- All the sector production is from wild capture, with relatively steady annual landings in the last decade of about 200,000 tonnes.
- Reported landings of mahi and swordfish are about the same in recent years (c. 100,000 tonnes per year), but the main fishing areas and top fishing countries are relatively distinct for these two species:
  - For **swordfish, most catches are from the Indian Ocean**, with Spain, Sri Lanka, and Taiwan as the main fishing countries.
  - Most mahi is reported to be captured in the Pacific Ocean, by Peru, Indonesia, Taiwan, and Ecuador.
- In terms of trade flows, these two species also have relatively different markets. Almost all the traded mahi is exported to the United States, mostly coming from Latin America. For swordfish, Europe is both the most important exporter and importer, accounting for almost two-thirds (65 percent) of the imports by value.
- There has been an increase in importance of large pelagics in the global markets. For swordfish, for example, annual global imports by value increased from USD 47,000 in 1990 to roughly USD 700,000 in 2019.

#### T75 status and challenges to sustainability

- About 31.3 percent (c. 63,000 t) of global large pelagics production is considered sustainable or improving. This is mostly coming from fisheries involved in active fishery improvement projects (FIPs).
- SFP's strategy in the sector focuses on continued support in the Eastern Pacific Ocean fisheries for coordinated regional science and management of transboundary species such as mahi and swordfish, formalization of the Peruvian fleet, bycatch mitigation, co-management, and improvements in Indonesian fisheries.
- The main sustainability issues in the sector include: lack of regional coordination on science and management for transboundary species, lack of formalization and co-management for small-scale fisheries, and ETP bycatch.

#### DISCLAIMER

This report was prepared with information available from multiple sources, accessed in late September 2021. The report is not intended to be a comprehensive review of the sector, but rather a summary of progress against the Target 75 initiative, with some selected key highlights and improvement needs for the sector. For more detailed information on seafood production, trade, or the status and attributes of particular certifications and improvement projects, the original sources should be consulted.

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Fish aggregating device and mahi-mahi © NSW DPI

### **THE TARGET 75 INITIATIVE**

Sustainable Fisheries Partnership (SFP) applies a sectoral approach to its mission of making actionable information available to the supply chain, in order to leverage market forces to achieve improvements in fisheries. Seafood sectors may be defined in terms of the shared biological characteristics of harvested species, as well as their role in defined markets.

In 2017, SFP launched the <u>Target 75 (T75) initiative</u>, as a dedicated and concrete benchmark on the way to our ultimate goal of 100-percent sustainable seafood. T75 aims to ensure that 75 percent of seafood (by volume) in <u>13 key sectors</u> is either sustainable or making regular, verifiable improvements. Together, these T75 sectors cover most of the main types of seafood consumed in North America and Europe, and a significant portion of what is consumed in Japan and Oceania.

## 1 LARGE PELAGICS SECTOR

This sector includes **mahi-mahi** (*Coryphaena hippurus*, generally reported as mahi, dolphinfish, perico, or dorado) and **swordfish** (*Xiphias gladius*). Both species are mostly traded fresh/chilled or frozen.

The United States is the major market, while European countries are also key importers of swordfish. This sector was added to the T75 initiative in 2018, whereas the other sectors were included in 2017. Swordfish was included in the large pelagics sector in 2021.

More information on the definition and scope of this and other Target 75 sectors is available <u>here</u>.



### **2** SCOPE AND OBJECTIVES

This report provides a quick summary update on progress so far for the <u>large pelagics sector</u> against the 75-percent goal, in terms of volume of production that is already considered as either sustainable or improving. The update also includes highlights on which sources of production had the most relevant changes, as well as the most recent trends in production and trade.

For the purposes of this analysis, we define a fishery as "sustainable" if it is Marine Stewardship Council (MSC) certified or green-listed in SFP's <u>Metrics</u> tool. We define a fishery as "improving" if it is certified by one of the following programs: MarinTrust, ASMI RFM, Iceland Responsible Fisheries, Fair Trade USA; if it is under full assessment in the MSC program; or if it is in a fishery improvement project (FIP) that is making good progress (i.e., with a progress rating of A, B, or C, or formed within the last 12 months but still unrated), using SFP's <u>FIP Evaluation Tool</u>.

Data on production refers to 2019 production and is from the FAO <u>FishStatJ</u> database. Status in terms of certifications and fishery, and FIPs refers to September 2021.





# **3 PRODUCTION**

Large pelagics is a relatively small T75 sector, covering only mahimahi (*Coryphaena hippurus*) and swordfish (*Xiphias gladius*), and with recent average annual production of about 200,000 tonnes (FAO 2021a). While swordfish landings have been relatively stable since the mid-1990s, mahi landings increased from the early 1980s to 2009, but have since stabilized. Currently, reported mahi and swordfish landings are approximately the same, each at about 100,000 tonnes annually (**Figure 2**). However, estimated total catches of mahi are likely much higher, given that this is a species with high levels of underreporting (Pauly et al., 2020).

Mahi and swordfish catches are relatively distinct in terms of the top producing countries and major FAO fishing areas. For mahi, nearly half (46 percent) of production comes from the southeast Pacific, namely Peru and Ecuador, with some significant production from the western central Pacific (Indonesia) and Indian oceans (Iran) (Figure 3, Appendix I). For swordfish, most production is from the Indian Ocean (23 percent of total landings), followed by the southeast Pacific (20 percent) and eastern central Pacific (10 percent). The top swordfish fishing countries are Spain (20 percent of landings), Sri Lanka (10 percent), Taiwan (9 percent) and Japan (7 percent) (Figure 4, Appendix I).

Currently, the artisanal fishing sector accounts for about 50 percent of total mahi catches, while for swordfish, most catches (*c.* 80 percent) are from the industrial sector (Pauly et al., 2020).





#### Figure 3 | The top mahi-mahi (Coryphaena hippurus) producing countries in 2019 (95 percent of production)

Source: FAO FishStatJ

2021 Sector Sustainability Update: Large Pelagics



**Figure 4** | The top swordfish (*Xiphias gladius*) producing countries in 2019 (90 percent of production)

Source: FAO FishStatJ

### **4** TRADE STATISTICS

As with most seafood sectors, there has been an increase in international trade of mahi and swordfish. The increase is more evident in swordfish, where annual global imports by value increased from USD 47,000 in 1990 to roughly USD 700,000 in 2019 (Figure 1; FAO 2021b). For mahi, reported imports are much smaller, although this might be related to deficient reporting of this species in trade statistics (Appendix II).

In terms of trade flows, mahi and swordfish also appear to have two largely distinct markets. Europe dominates the market for swordfish, both in terms of top exporters, with Spain and Portugal dominating, and importers, with the European market accounting for almost two thirds (65 percent) of the 2019 reported imports by value (FAO 2021c). Ecuador (6 percent increase in market share) and China (4 percent) have had the largest growth in swordfish exports since 2009, but still only represent 12 percent of global exports (FAO 2021b).

For mahi, the trade data from global databases is, in general, underestimated, because of deficient reporting. This is related to the fact that, as for many exporting countries, most of the traded mahi is reported in broader commodity groups such as "Fish, frozen, nei" or "Miscellaneous pelagic fish fillets, frozen, nei." Peru, the top mahi producing country, is a good example of potentially inadequate reporting of exports to the global datasets. While FAO trade statistics show Peru as the tenth top exporter (with reported 2019 exports of mahi<sup>1</sup> of only USD 1.1 million), Peruvian national statistics show 2019 mahi exports as totaling more than USD 50 million. Indonesia is another potential example of inadequate mahi trade reporting to global datasets.

In terms of mahi trade flows, the United States is by far the most important importer. According to available data, imports to the US represented between 70 and 100 percent of mahi exports (by value) for the top exporting countries (**Table 3**; **Figure 5**). Most global mahi exports are from Latin America, with Peru (per national statistics), Ecuador, Panama, and Costa Rica (per FAO data) dominating the exports (FAO 2021c). But, as noted, these figures for mahi are most likely underestimated (**Appendix II**).

| La construction la constructio | EU, EEA, UK <sup>*</sup> | United States | Japan | South Korea | Viet Nam | Singapore | Turkey | Trinidad and<br>Tobago | Indonesia | Taiwan | Canada | China | Other | Total 2019<br>exports<br>(USD<br>million) | % of<br>total<br>exports |
|--|--------------------------|---------------|-------|-------------|----------|-----------|--------|------------------------|-----------|--------|--------|-------|-------|---|--------------------------|
| Spain  | 98%                      | 0%            | 0%    | 0%          | 0%       | 1%        | 0%     | 0%                     | 0%        | 0%     | 0%     | 0%    | 1%    | 147.7                                     | 24%                      |
| Portugal   | 100%                     | 0%            | 0%    | 0%          | 0%       | 0%        | 0%     | 0%                     | 0%        | 0%     | 0%     | 0%    | 0%    | 93.7                                      | 15%                      |
| Ecuador  | 22%                      | 77%           | 0%    | 0%          | 0%       | 0%        | 0%     | 0%                     | 0%        | 0%     | 0%     | 0%    | 0%    | 50.9                                      | 8%                       |
| South Korea  | 37%                      | 0%            | 49%   | 0%          | 10%      | 3%        | 0%     | 0%                     | 0%        | 0%     | 0%     | 1%    | 0%    | 39.3                                      | 6%                       |
| Taiwan   | 1%                       | 0%            | 33%   | 46%         | 4%       | 3%        | 0%     | 5%                     | 4%        | 0%     | 0%     | 0%    | 3%    | 35.5                                      | 6%                       |
| Chile  | 93%                      | 6%            | 0%    | 0%          | 0%       | 0%        | 0%     | 0%                     | 0%        | 0%     | 0%     | 0%    | 0%    | 25.7                                      | 4%                       |
| China  | 17%                      | 0%            | 18%   | 54%         | 6%       | 3%        | 1%     | 0%                     | 1%        | 0%     | 0%     | 0%    | 1%    | 24.3                                      | 4%                       |
| Viet Nam   | 68%                      | 20%           | 4%    | 5%          | 0%       | 0%        | 0%     | 0%                     | 0%        | 0%     | 1%     | 0%    | 2%    | 18.7                                      | 3%                       |
| Indonesia  | 62%                      | 10%           | 14%   | 3%          | 0%       | 3%        | 0%     | 0%                     | 0%        | 0%     | 0%     | 0%    | 9%    | 17.9                                      | 3%                       |
| Belgium  | 100%                     | 0%            | 0%    | 0%          | 0%       | 0%        | 0%     | 0%                     | 0%        | 0%     | 0%     | 0%    | 0%    | 12.8                                      | 2%                       |
| Vanuatu  | 0%                       | 0%            | 51%   | 49%         | 0%       | 0%        | 0%     | 0%                     | 0%        | 0%     | 0%     | 0%    | 0%    | 12.8                                      | 2%                       |
| Sri Lanka  | 81%                      | 6%            | 3%    | 0%          | 5%       | 3%        | 0%     | 0%                     | 0%        | 1%     | 1%     | 0%    | 2%    | 11.6                                      | 2%                       |
| % of total imports   | 65%                      | 15%           | 8%    | 7%          | 1%       | 1%        | 0%     | 0%                     | 0%        | 0%     | 0%     | 0%    | 1%    |   |                          |
| <sup>(*)</sup> EU, <u>EEA</u> countri  | es, an                   | d UK          |       |             |          |           |        |                        |           |        |        |       |       | Source:                                   | FAO 2021                 |

Table 2Main swordfish exporters in 2019 and their top trade partners, bypercentage of each country's total exports. Source: FAO 2021c

<sup>&</sup>lt;sup>1</sup> Reported as "Dolphinfishes, fresh or chilled" or "Dolphinfishes, frozen."

| Importer<br>Exporter | United States | Dominican<br>Republic | Ecuador | Total 2019 exports<br>(USD million) | % of total<br>exports |
|----------------------|---------------|-----------------------|---------|-------------------------------------|-----------------------|
| Ecuador              | 100%          | 0%                    | 0%      | 26.3                                | 43%                   |
| Panama               | 100%          | 0%                    | 0%      | 10.9                                | 18%                   |
| Costa Rica           | 100%          | 0%                    | 0%      | 7.6                                 | 12%                   |
| Nicaragua            | 100%          | 0%                    | 0%      | 3.5                                 | 6%                    |
| Taiwan               | 100%          | 0%                    | 0%      | 2.0                                 | 3%                    |
| Fiji                 | 100%          | 0%                    | 0%      | 1.6                                 | 3%                    |
| Guatemala            | 100%          | 0%                    | 0%      | 1.6                                 | 3%                    |
| Venezuela            | 100%          | 0%                    | 0%      | 1.2                                 | 2%                    |
| El Salvador          | 100%          | 0%                    | 0%      | 1.2                                 | 2%                    |
| Peru                 | 98%           | 0%                    | 2%      | 1.1                                 | 2%                    |
| % of total imports   | 99%           | 1%                    | 0%      |                                     |                       |

### Table 3 | Main mahi exporters in 2019 and their top trade partners, by percentage of each country's total exports. Source: FAO 2021c

Note: Data is based on reported imports by partner countries, given that most exporters report mahi in broader categories such as "Fish, frozen, nei," which also include other species.

**Figure 5** | 2019 mahi reported exports (million USD) and percentage of total exports by trade partner, reported by Peruvian and Ecuadorian national statistics. Sources: SENAE (2019), PROMPERÚ (2020).





Landing mahi-mahi captured by the Peruvian small-scale fisheries fleet. © Renato Gozzer

### **5** PROGRESS AGAINST THE 75% TARGET

Currently, roughly one-third (**31.3 percent**) of global large pelagics production is considered **sustainable or improving (Figure 6**). Sustainable production (i.e., from MSC-certified fisheries) still only represents 1.5 percent of the total sector. This is coming from four MSCcertified swordfish fisheries in the North Atlantic and southwest Pacific. On the other hand, most of the improving production (62,000 tonnes, or 99 percent of the 63,000 mt) is from fisheries involved in fishery improvement projects (FIPs) making good progress, most of which are in the Eastern Pacific Ocean. Examples include the <u>Peru mahi-mahi -</u> <u>longline (WWF)</u> and <u>Ecuador mahi-mahi - longline</u> FIPs, which are estimated to contribute to at least 20 percent of the sector volume.

Compared to the same period in 2020, there was a considerable decrease (-19 percent) of sustainable/improving production in this sector. This was mostly due to (1) the change (increase) in production, compared to 2020, as a result of the sector now also including swordfish, and (2) a considerable drop in the improving (FIP) production for mahi. The drop in FIP volume was mostly related to the WWF Peru FIP. While the FIP remains rated A-C and is reporting a volume of 60,000 t, Peru-reported mahi production dropped from 47,000 t to 35,000 t. Despite the drop in sustainable or improving production compared to 2020, there are some positive highlights in the sector, with several fisheries joining a FIP (e.g., North Pacific blue shark and swordfish longline) or entering the MSC program (e.g., <u>Reunion Island Swordfish</u> Longline Fishery) in 2021 (a list of fisheries is available <u>here</u>).



# **6** CHALLENGES TO SUSTAINABILITY

Large pelagic species are migratory, spending much of their lives in both coastal and offshore waters. This pattern of migration and habitat usage means they are considered transboundary species, crossing the geographical boundaries of several countries within their ranges.

Management of a transboundary species is challenging, as it requires coordinated data collection and development of regionally agreed-upon management and harvest strategies to reach sustainability goals.

The key sustainability issues for large pelagic fisheries are unknown stock structure and stock status, driven by the lack of regional coordination on data collection (catch and bycatch), science (addressing needs and priorities), and development of appropriate management within individual countries and at the regional level, particularly in the Eastern Pacific Ocean.

Additional concerns related to large pelagic fisheries include:

• *IUU risks in the fishery, as a result of the informality in the fleets fishing for large pelagics*. Large portions of the fishery are often unlicensed and unregistered and as a result are not recognized by government, which leads to reduced effectiveness of fishery management

measures. Additionally, the informality presents a serious risk to the supply chain with the potential for illegal, unreported, and unregulated (IUU) fishing.

- A lack of co-management approaches engaging all stakeholders in the fishery. Artisanal fishers are often not formalized into organized groups and, as a result, are not engaged in the decision-making processes for developing management measures.
- Limited documentation, monitoring, and use of best practices or mitigation techniques to reduce or eliminate bycatch of endangered, threatened, or protected (ETP) species such as sharks, sea turtles, marine mammals, and sea birds.

SFP is working with the mahi industry across the supply chain to address these issues. Further information can be found on the SFP website:

https://sustainablefish.org/roundtable/global-mahi/

Learn more about SFP's T75 strategy for 2022 and prioritized large pelagic fisheries on the route to T75 <u>here</u>.

# ETP species bycatch

A persisting sustainability challenge in large pelagics fisheries

Bycatch, the unintended capture of non-target species, is the biggest single threat to the sustainability of marine fisheries. The <u>Global</u> <u>Mahi Supply Chain Roundtable</u> is working to address issues of bycatch in large pelagic fisheries through:

- Conventional stock assessments and adoption of biological reference points and harvest control rules for mahi-mahi and key bycatch species (e.g., sharks, billfish).
- Mandatory and standardized data collection and observer programs, with a minimum coverage of 20 percent in the next three years and 100 percent in the next five to ten years, in longline fishing operations, to document bycatch and discards of ETP species, including sharks, turtles, and other non-target species. Implementation of a data collection system in all artisanal fleets, which may not be able to achieve 20-percent human coverage.
- Industry-recognized adoption of changes to fishing practices to minimize the bycatch and mortality rates of ETP species, such as those outlined in the <u>Best Practices for Reducing Bycatch in</u> <u>Longline Tuna Fisheries</u> report.

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## GLOSSARY

| EEZ          | Exclusive Economic Zone  |
|--------------|--|
| FAD          | Fish Aggregating Device  |
| FAO          | Food and Agriculture Organization  |
| FIP          | Fishery Improvement Project  |
| GLOBALG.A.P. | Worldwide Standard for Good Agricultural<br>Practices                              |
| IRF          | Iceland Responsible Fisheries  |
| IUU          | Illegal, Unreported, and Unregulated (IUU) fishing                                 |
| MARINTRUST   | Global Standard for Responsible Supply of<br>Marine Ingredients (Formerly IFFO RS) |
| MBAq         | Monterey Bay Aquarium  |
| MSC          | Marine Stewardship Council   |
| MSC C        | Marine Stewardship Council Certified   |
| MSC FA       | Marine Stewardship Council Full Assessment   |
| NEI          | Not Elsewhere Included   |
| NGO          | Nongovernmental Organization   |

| SFW      | Seafood Watch   |
|----------|---|
| SIOTI    | The Sustainable Indian Ocean Tuna Initiative                |
| SR       | Supply Chain Roundtable                                     |
| TUNACONS | Tuna Conservation Group                                     |
| T75      | SFP <u>Target 75</u> initiative                             |
| UoC      | Unit of Certification (for a fishery under the MSC program) |

Appendix I | Reported 2019 wild production by country, for the two species included in the T75 large pelagics sector

| Country            | Production ('000 t) | % of total |
|--------------------|---------------------|------------|
| Peru               | 34.83               | 37%        |
| Indonesia          | 15.43               | 16%        |
| Taiwan             | 10.88               | 11%        |
| Iran               | 8.83                | 9%         |
| Ecuador            | 8.34                | 9%         |
| Pakistan           | 2.95                | 3%         |
| Côte d'Ivoire      | 1.77                | 2%         |
| France             | 1.44                | 2%         |
| Brazil             | 0.88                | 1%         |
| Panama             | 0.78                | 1%         |
| Mexico             | 0.75                | 1%         |
| Venezuela          | 0.72                | 1%         |
| United States      | 0.68                | 1%         |
| Italy              | 0.62                | 1%         |
| Tunisia            | 0.59                | 1%         |
| Sri Lanka          | 0.54                | 1%         |
| Dominican Republic | 0.46                | 0%         |
| Other              | 4.82                | 5%         |
| Total              | 95 30               |            |

#### Mahi-mahi (Coryphaena hippurus)

#### Swordfish (Xiphias gladius)

| Country       | Production ('000 t) | % of total |
|---------------|---------------------|------------|
| Spain         | 23.36               | 20%        |
| Sri Lanka     | 12.10               | 10%        |
| Taiwan        | 10.52               | 9%         |
| Japan         | 7.98                | 7%         |
| Ecuador       | 6.42                | 6%         |
| China         | 6.31                | 5%         |
| Chile         | 6.13                | 5%         |
| Portugal      | 3.36                | 3%         |
| Philippines   | 3.22                | 3%         |
| Brazil        | 2.86                | 2%         |
| Italy         | 2.48                | 2%         |
| United States | 2.41                | 2%         |
| India         | 2.31                | 2%         |
| Seychelles    | 2.14                | 2%         |
| Viet Nam      | 2.01                | 2%         |
| Indonesia     | 1.88                | 2%         |
| Morocco       | 1.83                | 2%         |
| Yemen         | 1.79                | 2%         |
| Australia     | 1.74                | 2%         |
| Costa Rica    | 1.31                | 1%         |
| Iran          | 1.12                | 1%         |
| Other         | 12.09               | 10%        |
| Total         | 115.34              |            |

Source: FAO FishStat (FAO 2021a)

Appendix II | Reported seafood trade statistics of Ecuador for commodities that may potentially include mahi

#### Ecuador's reported exports

| Rank | FAO commodity name  | Exports<br>('000<br>USD) | % of<br>reported<br>2019<br>exports |
|------|---|--------------------------|-------------------------------------|
| 8    | Fish, frozen, nei   | 60,090                   | 1.1%                                |
| 14   | Fish, fresh or chilled, nei                                   | 29,491                   | 0.5%                                |
| 35   | Miscellaneous pelagic fish,<br>fillets, fresh or chilled, nei | 4,009                    | 0.1%                                |
| 43   | Fish fillets, frozen, nei                                     | 2,590                    | 0.0%                                |
| 53   | Dolphinfishes, frozen   | 1,050                    | 0.0%                                |
| 86   | Fish fillets, fresh or chilled, nei                           | 85                       | 0.0%                                |
|      |   |                          | Source: FAO 2021b                   |

#### Other countries' reported seafood imports from Ecuador

| Rank | FAO commodity name                                 | Imports<br>('000<br>USD) | % of<br>reported<br>2019<br>exports |
|------|--|--------------------------|-------------------------------------|
| 13   | Dolphinfishes, fresh or chilled                    | 26,262                   | 0.5%                                |
| 14   | Miscellaneous pelagic fish<br>fillets, frozen, nei | 25,010                   | 0.5%                                |
| 15   | Fish, frozen, nei                                  | 24,707                   | 0.5%                                |
| 35   | Marine fish, fresh or chilled, nei                 | 6,515                    | 0.1%                                |
| 41   | Fish, fresh or chilled, nei                        | 4,180                    | 0.1%                                |
| 42   | Fish fillets, frozen, nei                          | 4,160                    | 0.1%                                |
| 53   | Marine fish fillets, frozen, nei                   | 2,825                    | 0.1%                                |
| 70   | Fish fillets, fresh or chilled, nei                | 975                      | 0.0%                                |
| 73   | Marine fish, frozen, nei                           | 825                      | 0.0%                                |
| 102  | Marine fish fillets in blocks, nei,<br>frozen      | 205                      | 0.0%                                |
| 127  | Miscellaneous pelagic fish, nei,<br>frozen         | 60                       | 0.0%                                |

Source: FAO 2021b







14 LIFE BELOW WATER

### FURTHER INFORMATION

http://www.sustainablefish.org/

For additional information, please contact us at: info@sustainablefish.org