COLEAD

MARKET PROFILE

Market profile

Fisheries in Tanzania

Funded by
the European Union

Subject of the study:	Market Profile: Fisheries in Tanzania
Date :	June 2022

This publication has been developed by the Market Insights Department of COLEAD as part of the Value Chain Analysis for Development (VCA4D) project, a tool funded by the European Commission (EC) / INTPA and implemented in partnership with Agrinatura.

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I. ABSTRACT

This market profile was produced as part of the collaboration between COLEAD and Value Chain Analysis for Development (VCA4D). As a partnership between Agrinatura and the European Commission, VCA4D carries out agri-based value chain analyses in European Union (EU) partner countries. The methodology for these analyses can be found here. The objective of VCA4D's work is to assess the extent to which value chains contribute to inclusive economic growth and are socially and environmentally sustainable. This market profile evaluates the Tanzanian fisheries industry, at the local, regional and international levels.

II. SCOPE OF THE STUDY

This market profile considers fisheries and aquaculture products from sea and coastal waters that are produced, imported and exported by Tanzania. Marine fisheries and marine aquaculture products' data have been singled out where possible. This was sometimes challenging, as inland fishing provides the vast majority of the catch in Tanzania and the granularity of the data did not always allow a full separation based on the origin of the products.

The table below lists the different chapters analysed for this profile according to the Harmonized Commodity Description and Coding System (HS) and the EU's Combined Nomenclature (CN). The complete list of detailed HS/CN codes used for this study can be found in the Appendix.

Table 1: Harmonized Commodity Description and Coding System chapters used for the scope of this profile. Chapter 12 includes plant products such as seaweed.

HS chapter	Chapter name
Section I	**Live animals**
03	Live fish
05	Products of animal origin, not elsewhere specified or included
Section II	**Vegetable products**
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants; straw and fodder
Section III	**Animal or vegetable fats and oil and their cleavage products**
15	Animal or vegetable fats and oil and their cleavage products; prepared edible fats; animal or vegetable waxes
Section IV	**Prepared foodstuffs; beverages, spirits and vinegar**
16	Preparation of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates

III. SUPPLY

1. Presentation

Tanzania is an East African country that has great potential for inland and marine fisheries due to its vast marine and inland water resources. Fishing in Tanzania is an important source of income and nutrition. A quarter of the Tanzanian population (out of an estimated total population of 60 million people in 2020) depends on coastal resources or inland lakes for their livelihoods.[1] The total annual fish consumption is 7.6 kg/person on average.[2] In 2019, the sector directly employed nearly 202,000 people as fishers and supported more than 4 million people engaged in the fisheries value chain (processing, trade, fish transport, net making and boat building). The Tanzanian fisheries sector plays an important role in social development and contributes to the country's economy. Its contribution to the national GDP was estimated at 1.7% in 2020 (out of a total contribution of 26.9% by agriculture).[3]

In Tanzania, the fisheries sector can be divided into three main parts: inland fishing, marine fishing (including artisanal fishing and industrial fishing) and aquaculture. The dominant type of fishing is inland fishing, which contributes at least 85% of the national production volume. Marine fisheries contribute 10–15% of the national fish production volume while marine aquaculture (e.g. algae production) is negligible when compared with the total national production.[1]

Fisheries policy in Tanzania revolves around the country's central policy of poverty reduction. The goal is to regulate, promote, conserve, develop and up-hold sustainable exploitation and utilisation of fish and other aquatic living resources. It focuses on provision of food, employment and income to fishers, and export revenue. Fisheries institutions and sector stakeholders in Tanzania are the Department of Fisheries under the Ministry of Livestock Development and Fisheries, local governments/district councils, village governments (environmental committees), and others, including the Tanzania Fisheries Research Institute, Tanzania Fishing Corporation, Tanzania Fish Processors Association, the Fisheries Education and Training Agency, Mbegani Fisheries Development Centre, Nyegezi Freshwater Fisheries Institute, Beach Management Units, World Wide Fund for Nature (WWF), International Union for Conservation of Nature (IUCN) and many more.

Marine fisheries

Tanzania has a territorial sea of about 64,000 km², coastal waters of 1,400 km² and an Exclusive Economic Zone (EEZ) extending to 370.4 km (200 nautical miles) from the shoreline and covering an area of 223,000 km² (Figure 1). Waters used for marine fishing also include those of the main islands (Zanzibar, Pemba and Mafia) and the offshore waters. Fishing activity is generally concentrated near the coast and around the islands.

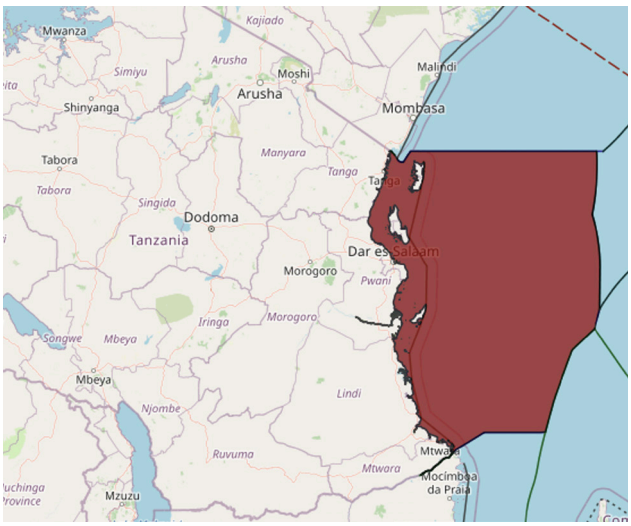

Figure 1: Exclusive Economic Zone (EEZ) boundaries of Tanzania. Source: Flanders Marine Institute.

The exact number of marine fish species in Tanzania is not known, but has been estimated at more than 1,000, half of which may be utilised as food or for commercial

1 The United Republic of Tanzania Ministry of Livestock and Fisheries (2019) Livestock and Fisheries Commodity Value Chain Briefs.
2 Ministry of Livestock and Fisheries (2020) The annual fisheries statistics report (January – December) 2020.
3 The United Republic of Tanzania (2021) National Sample Census of Agriculture 2019/20. National Report.

purposes. Fish resources include the small and large pelagic species (species on the high seas, considered to be moderately or fully exploited), demersal fishes (considered to be fully or over-exploited), coral reef fish and the lagoon and intertidal species. Below is a non-exhaustive list of example species per resource type.

- Small pelagic species: capelin, hilsa, sprats, herring, Indian mackerel, sardines, sardinellas, anchovy
- Large pelagic species: bill fish, king and Spanish mackerel, bonito, yellowfin tuna, skipjack tuna, barracuda, common dolphinfish, wolf herring
- Demersal species: various species of shark, ray, skate, sole, catfish, bream, shrimp
- Coral reef fish: emperors, snappers, sweetlips, parrotfish, surgeonfish, rabbitfish, groupers, goatfish
- Lagoon and intertidal pond species: ariid catfish, octopus, squid, a variety of bivalves

The lobster industry is also important in Tanzania, particularly for supplying tourist hotels and restaurants. Common species are *Panulirus longipes, P. versicolor, P. homarus, P. penicillatus* and *P. ornatus*.

The marine industrial sub-sector operates both in territorial waters and beyond, in the EEZ. In the EEZ, the most common species include great pelagic sharks and tropical tuna species such as *Thunnus albacares* (yellowfin tuna), *Katsuwonus pelamis* (skipjack tuna/ bonito) and *Thunnus obesus* (bigeye tuna).

Challenges for Tanzania's marine fisheries include unlicensed foreign industrial vessels fishing in its EEZ, illegal trans-shipment of fish at sea, fishing vessels involved in identity fraud, misreporting or underreporting of catch, discarding of by-catch, fishing with unauthorised fishing gear, and fishing vessels involved in transnational organised crime, such as human, drug or weapons trafficking.

Tanzania has a limited capacity to exploit tuna fisheries resources in its EEZ. The country therefore licenses Distant Water Fishing Nations fleets to harvest its tuna resources and other highly migratory species.

According to the Tanzanian National Fisheries Policy of 2015, other areas with scope for development include: effective management

and sustainability of fisheries resources; investment in deep-sea fishing; research development and extension services; development of sustainable aquaculture; adequate investment in fisheries and aquaculture infrastructure and facilities for processing and marketing of fish and fishery products; capacity to manage the fisheries resources; reliable and adequate information on fisheries and aquaculture; access to finance and credit facilities; access to fisheries and aquaculture inputs; effective participation in regional and international obligations; and mainstreaming of cross-cutting issues including gender, HIV/AIDS, climate change and environment.

Marine aquaculture versus marine fishing

Marine aquaculture, also called mariculture, is the cultivation or breeding of aquatic species and plants in the marine environment. In Tanzania, marine aquaculture is a sector with great potential that is still largely untapped. The practice is present, although at a very small scale, from the most remote area north of Tanga to the most distant area south of Mtwara, and around the island of Zanzibar, where the fixed elevation cultivation method and the raft method are used. Mariculture in Tanzania includes the cultivation of algae, sea cucumbers and shrimp. It also incorporates new emerging species in the sector, such as chanos, mullet, crab, oysters and pearls (present around the coastal areas of Zanzibar). The sector is dominated by seaweed farming (algae cultivation), which is mainly practiced by women.

Marine or deep-sea fishing concerns the capture of aquatic species in the marine environment. In Tanzania this takes place along the coasts, in the deep waters of the Indian Ocean and around the islands of Zanzibar and Pemba. Marine fishing is carried out using small boats (dugout canoes or small sailing boats), trawlers, metal boats and seiners. Most catch products are designated for export, especially shrimp.

Mariculture and sea fishing, although carried out in the same environment, differ in practice. Sea fishing is based on the fishing of certain species earmarked for commercial purposes, is relatively developed in the country and brings significant added value to the country's economy, while the mariculture sector is still developing, as the cultivation of marine species is rare in Tanzania.

Methodological note

Capture data presented in this report are sourced from the Food and Agriculture Organization of the United Nations (FAO) FishStatJ database. The data represent the reported catches by Tanzania and Zanzibar. However, it should be noted that there is still a lot of informality in the Tanzanian fisheries sector, which is mainly artisanal, resulting in an estimated 30% of catches not being officially reported.[4] The presented volumes should therefore be considered as indicative rather than exact data. The same holds for import and export data, which do not include informal transboundary trade.

4 White, R., Page, E. and Noël, S.L. (2020) Tanzania: Updated catch reconstruction for 2011 – 2018, p. 77-80. In: Derrick, B., Khalfallah, M., Relano, V., Zeller, D. and Pauly, D. (eds). Updating to 2018 the 1950-2010 Marine Catch Reconstructions of the Sea Around Us: Part I – Africa, Antarctica, Europe and the North Atlantic. Fisheries Centre Research Report 28(5).

2. Main global marine fish producers

In 2019, China, as in previous years, was the global leader in terms of captured volumes of marine fish. The top five, representing about 41% of the total marine capture volumes in 2019, is completed by Indonesia, Peru, the USA and Russia (Figure 2). In terms of marine capture volumes, Tanzania (including Zanzibar) is globally ranked 70, after Yemen and before Latvia, with 121,200 tonnes of marine fish captured in 2019.

The five main marine fish species captured globally in 2019 were Peruvian anchovy, Alaska pollock, skipjack tuna, yellowfin tuna and Atlantic herring. Together, these species represent 17.6% of all marine capture fish volume in 2019. The five main types of marine products captured by Tanzania (including Zanzibar) in 2019 were, according to the FAO FishStatJ data: sardinellas; sharks, rays, skates and similar; emperor fish; octopuses and similar; and Indian mackerel.

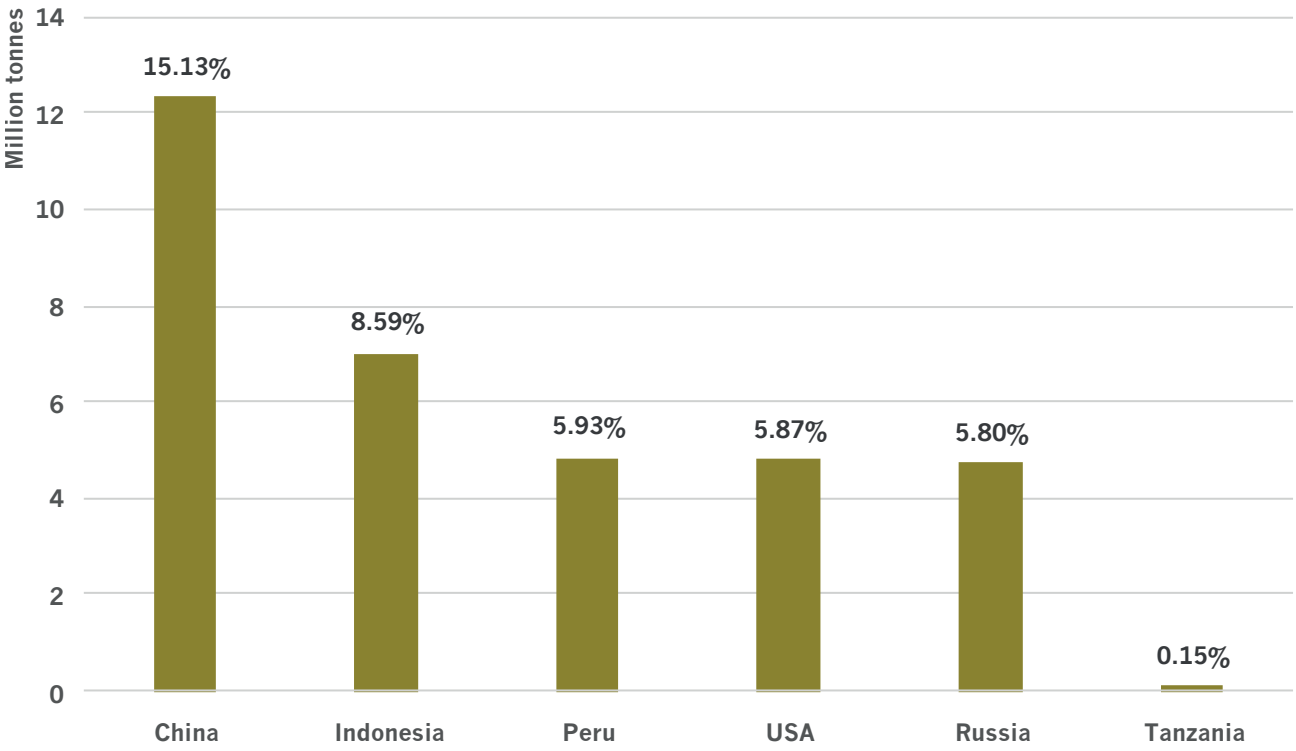

Figure 2: Global top five countries in terms of marine fish catch volume in 2019 and Tanzania (including Zanzibar) (rank 70). Data labels represent the countries' volume share of the total global marine fish catch in 2019 (81.5 million tonnes), China is exclusive of Hong Kong and Taiwan. Source: COLEAD based on FishStatJ.

3. Main global fish exporters

Historically, China has led the global rankings in terms of total annual export volumes of fish and other aquatic animals and plant products (from marine and inland resources). Based on the 2021 FAO FishStatJ data, China (excluding Hong Kong and Taiwan) exported 10% of the global volume in 2019. Norway, Russia, Viet Nam, Peru and the USA complete the top five (Figure 3). When cumulative export volumes are considered over the period between 2002 and 2019, Tanzania (including Zanzibar) ranks 65 among the global fish exporters. Here, no separation could be made between freshwater and marine products.

4. Fish production trends in Tanzania and Zanzibar

The main commodities of fisheries produced in Tanzania come from both freshwater and continental marine captures. Overall production remained constant between 2002 and 2018, with a slight increase in 2019.

When considering only sea fishes and sea products, the main captured volume in Tanzania (excluding Zanzibar) consisted of sardinella species. However, sardinella captures have declined from around 14,000 tonnes captured in 2009 to around 7,700 tonnes in 2019.

The production of the 10 main Tanzanian (excluding Zanzibar) sea products in 2019 is shown in Figure 4.

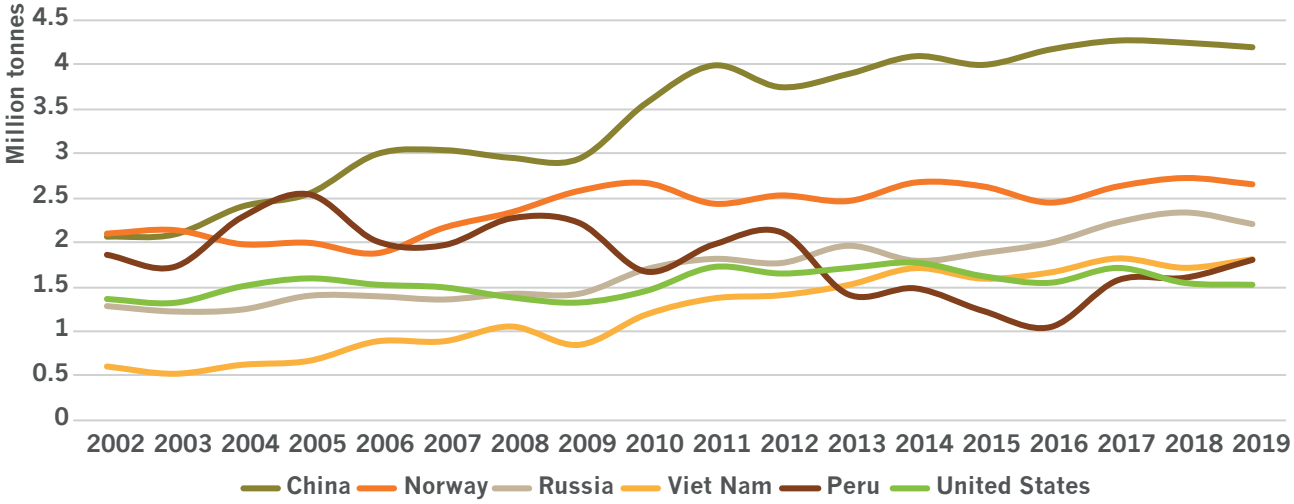

Figure 3: Top five global fish and other aquatic animals and plant products exporters in terms of volumes between 2002 and 2019. Source: COLEAD based on FishStatJ

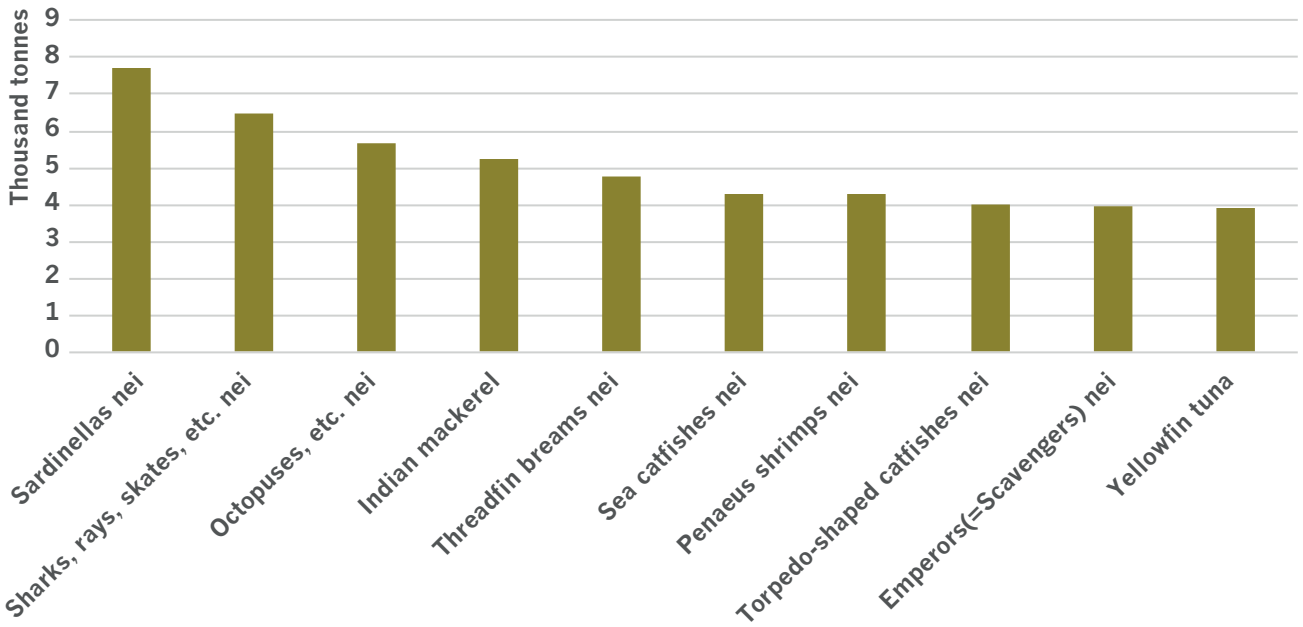

Figure 4: Main produce / captures in Tanzania (excluding Zanzibar) for sea fishes and sea products in 2019 in volume (thousand tonnes, nei: not elsewhere identified). Source: COLEAD based on FAOSTAT.

Barracuda and amberjack fish showed the biggest growth in capture between 2002 and 2019, with more than 3,000 tonnes of each type captured in 2019. The capture of other species groups also grew significantly between 2002 and 2019: threadfin bream (+697%), octopus (+610%), grouper (+568%), sea catfish (+436%), sharks, rays and skates (+330%), Indo-Pacific sailfish (+292%), yellowfin tuna (+287%), Spanish mackerel (+119%) and Penaeus shrimp (+114%). However, the capture of other important marine fish and products declined between 2002 and 2019; for example, seaweed declined by 28% and sardinella by 45%.

Figure 5 shows the top 10 captured marine fish species in Zanzibar in 2019. Significant increases in captures between 2002 and 2019 were observed for tropical spiny lobster (to 1,920 tonnes in 2019, +6300%), mullet (to 1,540 tonnes in 2019, +1521%), grouper (2,020 tonnes in 2019, + 653%), snapper, jobfish (2,695 tonnes in 2019, +294%), goatfish, red mullet (2,695 tonnes, +281%) and barracuda (1,700 tonnes in 2019, +152%). The only decreases were seen in other marine fishes (2,000 tonnes in 2019, -20%) and clupeoids (2,190 tonnes, -42%).

Concerning processed aquaculture and fisheries products from sea captures, Tanzania mainly produces frozen octopus, frozen shrimps and prawns, frozen crabs and frozen lobsters. Frozen octopus showed a growth of +83% between 2002 and 2019, while production declined in the other three categories.

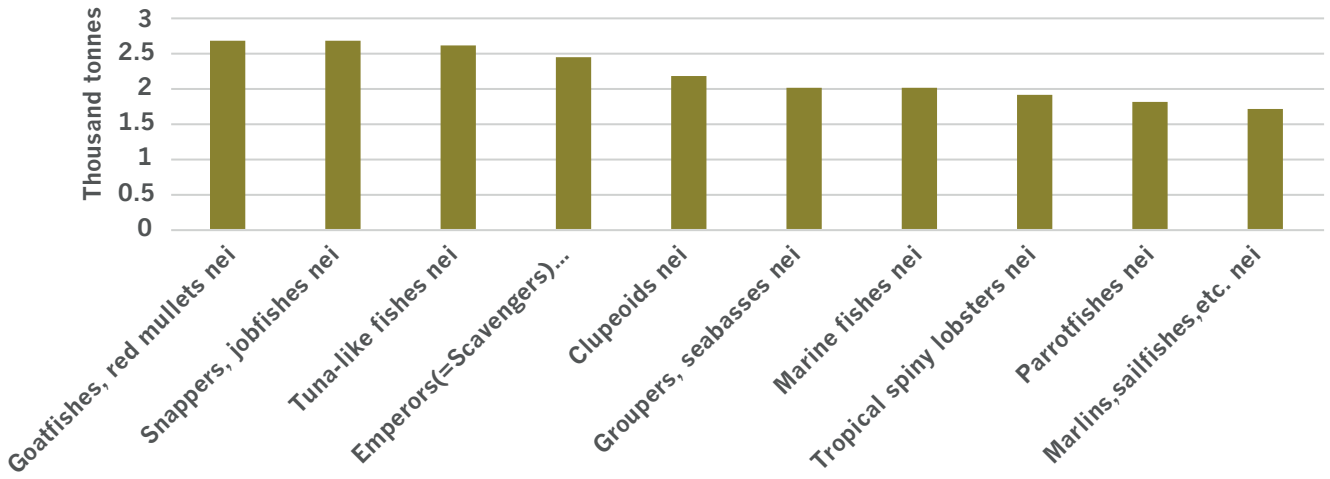

Figure 5: Main produce/captures in Zanzibar for sea fishes and sea products in 2019 in volume (thousand tonnes, nei: not elsewhere identified). Source: COLEAD based on FAOSTAT.

There is no processed aquaculture production recorded for Zanzibar.

5. Actors in the (marine) fisheries and aquaculture sector in Tanzania

Government organisations responsible for fisheries in Tanzania are the Departments of Fisheries under the Ministry of Livestock Development and Fisheries. At regional and local level, local governments/district councils, wards and village governments are involved. The Deep-Sea Fishing Authority is a governmental institution formed in 2010 under the Deep-Sea Fishing Authority Act No. 17 of 2007 (Amendment) and Deep-Sea Fishing Authority Regulations of 2009. The Authority was essentially established to ensure that deep-sea fishing activities are managed by single government entity both for Tanzania mainland and Zanzibar.

Other government actors include the training and research institutes, such as the Fisheries Research Institute, the Mbegani Fisheries Development Centre and Nyegezi Freshwater Fisheries Institute merged in the Fisheries Education and Training Agency, and Beach Management Units.

Most private sector actors engaged in coastal fisheries in Tanzania are local fishermen with small and unregistered boats; information on their numbers is scarce. Associations such as the Tanzania Fish Processors Association represent larger private marine companies such as Alpha Krust Ltd., Bahari Food Ltd. and Tanpesca – Dar and Sea Products Ltd. (Alpha Krust Ltd. and Tanpesca are held by the same international seafood supplier, Sea Food Alpha Group). There are also two large corporations: the Tanzania Fishing Corporation and the Zanzibar Fishing Corporation. Further examples of larger producers, processors and associations linked to sea fisheries and sea products are listed in the table below.

Actors linked to	Briefing of the actors
Lobster and crab	Two producers/processers of lobsters and crabs, mainly frozen lobster and frozen crabs, in Tanzania, are Kasanda Enterprises Limited and the A/A Trading Company Limited.
Octopus	Octopus fishery in the Western Indian Ocean supports livelihoods in many coastal communities. Despite its importance in Tanzania, little is known about the status of the octopus fishery in shallow waters. The fishery is mainly accessed by free divers (80%) and foot fishers (20%) both using spear guns or iron sticks during fishing. There are no predominant producers.
Seashells	The main processor of seashells recorded for Tanzania is Aqeel Traders Ltd.
Seaweed	Incomes for hundreds of seaweed farmers should be improved and globally important coastal ecosystems will be restored with a new and innovative partnership in Tanzania between The Nature Conservancy and Cargill. The programme will be supported by a local partner, C-Weed Corporation, and conducted in collaboration with the Government of Zanzibar.[5] One seaweed producer/processor is Nyamwese Group Limited.
Processors and frozen fish	Tanzania Fish Processors Ltd. is in Mwanza in Tanzania and is part of the seafood product preparation and packaging industry. An important processor and producer of frozen fish in Tanzania is Abajuko Seafood https://abajukoseafoodltd.co.tz/ Other large processors are the above-mentioned members of Tanzania Fish Processors Association active in the marine fisheries.

5 Dar es Salaam (2020) The Nature Conservancy Aims to Conserve Marine Environments While Boosting Local Incomes in Tanzania. https://www.nature.org/en-us/newsroom/seaweed-farming-tanzania/

IV. DEMAND

1. Consumption

Fish and fish products are recognised not only as some of the healthiest foods on the planet, but also as among the least impactful on the natural environment. For these reasons, they are vital for national, regional and global food security and nutrition strategies, and have a big role to play in transforming food systems and eliminating hunger and malnutrition. In 2017, for example, fish accounted for about 17% of total animal protein, and 7% of all proteins, consumed globally. As per capita intake, fish provided 3.3 billion people with almost 20% of their average per capita intake of animal protein.

In Tanzania (including Zanzibar) the total estimated food supply by marine fish and fisheries products[6] increased steadily from 56,600 tonnes in 2002 to 78,000 thousand tonnes in 2017 (Figure 6). However, combined with population growth figures, this translates to a decreasing per capita availability, from 1.6 kg per year in 2002 to 1.4 kg in 2017 (Figure 7).

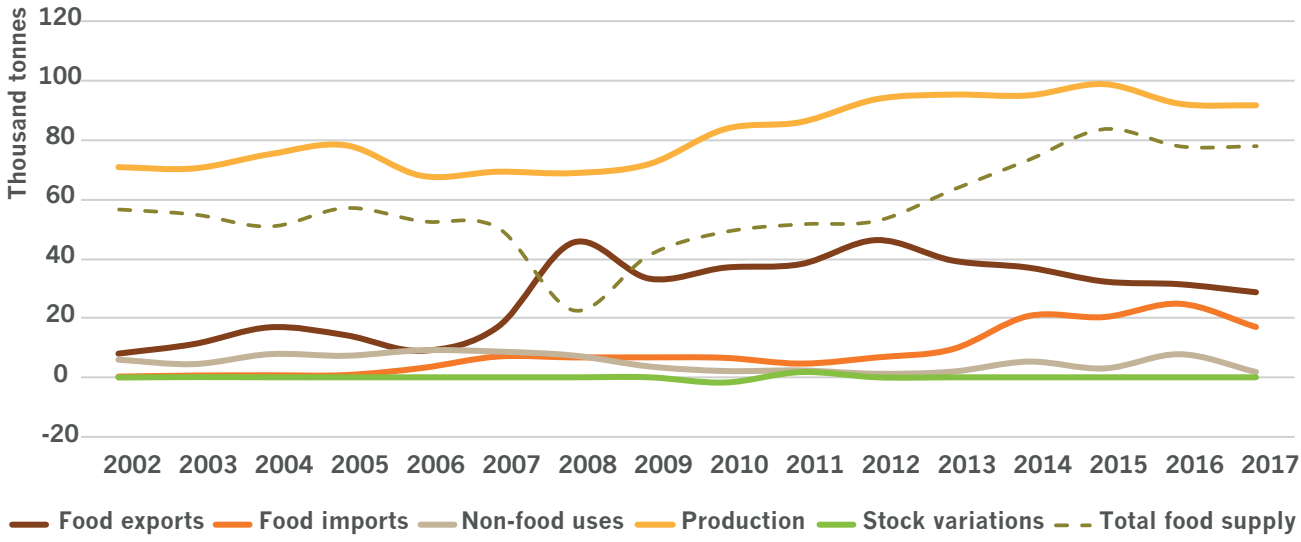

Figure 6: Food balance trend for fish and fisheries products in Tanzania between 2002 and 2017. Freshwater and diadromous fish are not included. Total food supply = Production + Imports + Stock Variations - Exports - Non-food uses. Source: COLEAD based on FishStatJ.

6 Including FAOSTAT groups: aquatic animals not elsewhere identified, cephalopods, crustaceans, demersal fish, marine fish not elsewhere identified, molluscs (excluding cephalopods), pelagic fish; and excluding FAOSTAT group: freshwater and diadromous fish.

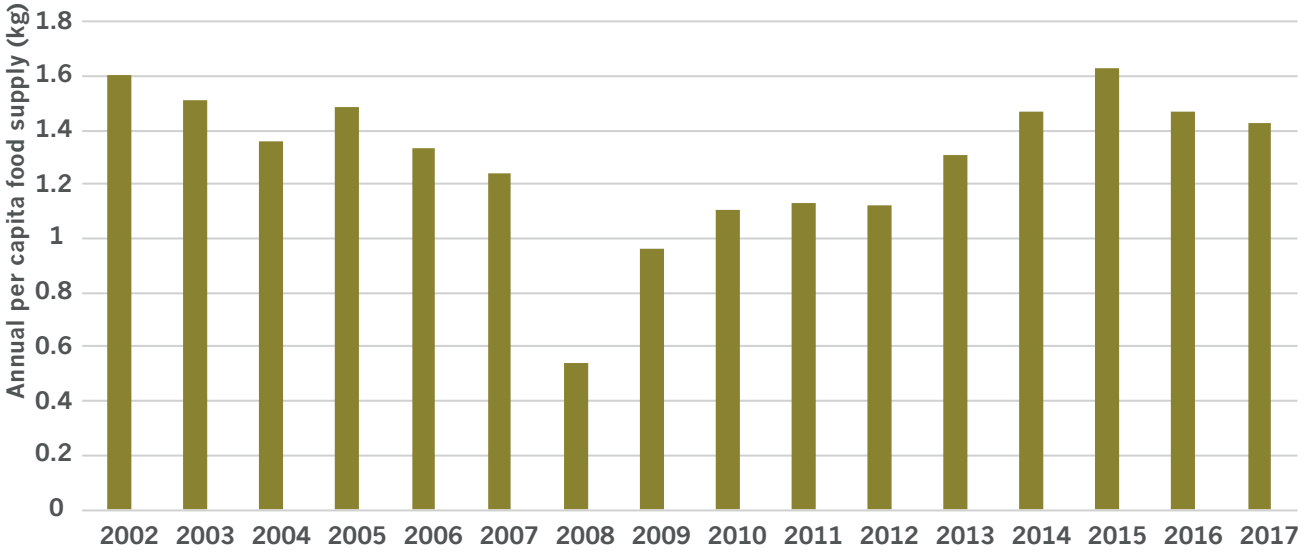

Figure 7: Annual per capita fish supply in Tanzania between 2002 and 2017. Freshwater and diadromous fish are not included. Source: COLEAD based on FishStatJ.

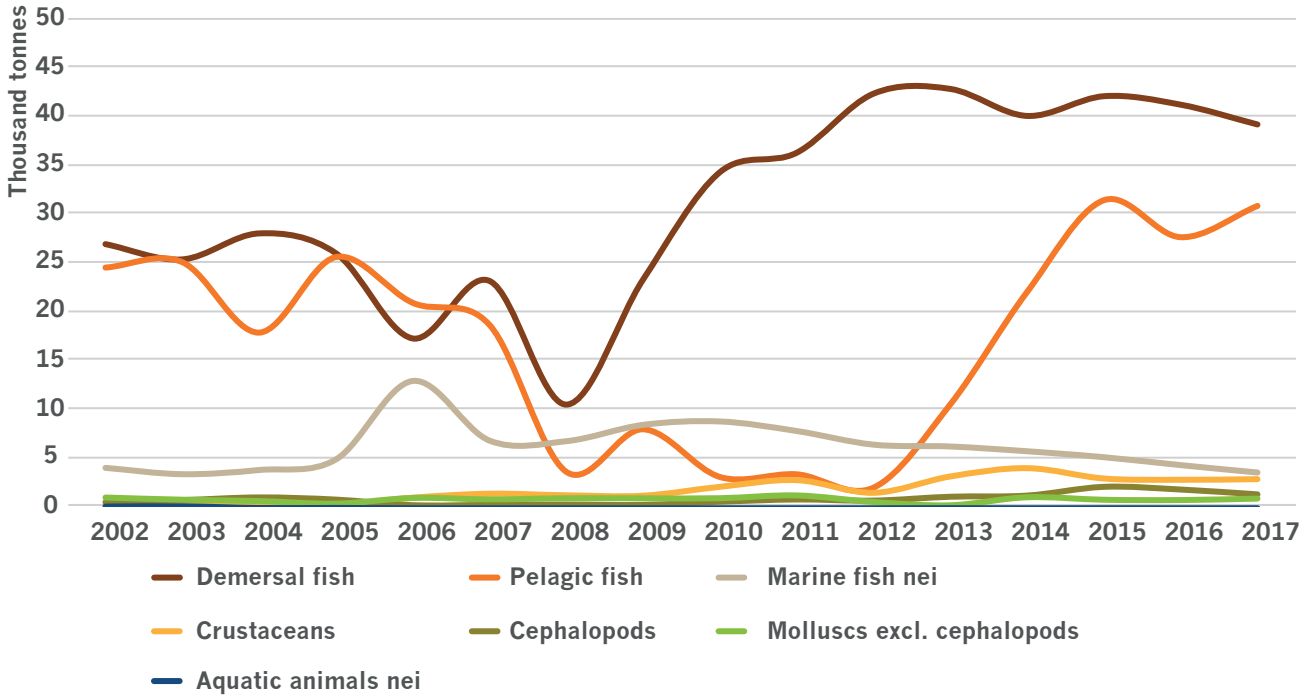

Figure 8: Food balance trend for the different fish and fisheries product groups in Tanzania between 2002 and 2017. Freshwater and diadromous fish are not included. Food balance = Production + Imports + Stock Variations - Exports - Non-food uses. Source: COLEAD based on FishStatJ.

The drop in fish supply in 2008 was mainly caused by the strong increase in market demand and exports of pelagic fish (and particularly dried salted or unsalted pelagic fish) during that year (see Figure 11). Around the same time, the interest in small marine pelagic fish locally called marine dagaa or uono (small pelagic fish of the family Engraulidae, e.g. Commerson's anchovy) grew strongly due to the inadequate supply of the much-preferred dagaa from Lake Victoria to satisfy the local and international (mainly Democratic Republic of the Congo but also Uganda and Kenya) markets.[7]

7 Mwaipopo, R. and Mahongo, S.B. (2020) Adaptive capacity of small pelagic fishing communities in coastal Tanga (Tanzania) to changes in climate-related phenomena. In: Western Indian Ocean Journal of Marine

The main contributors to the total national food supply are demersal and pelagic fish species, representing 50% and 39% respectively of the total fisheries food supply in 2017 (excluding freshwater and diadromous fish). Other marine fish represented 4% of the total fisheries food supply; crustaceans, cephalopods, molluscs and other aquatic animals together represented the remaining 7%. Their respective contribution trends are shown in Figure 8.

2. Import trends and markets

Globally, the top five fish importers in 2019 were China, the USA, Japan, Thailand and Spain (Figure 9). Import volumes by Asian countries have grown significantly over the last 18 years; Chinese imports grew by 152%, Thai imports by 98% and Viet Nam (ranked 21st) by 1,206% from 2002. European imports stayed relatively stable while USA fish imports increased steadily (+36% between 2002 and 2019).

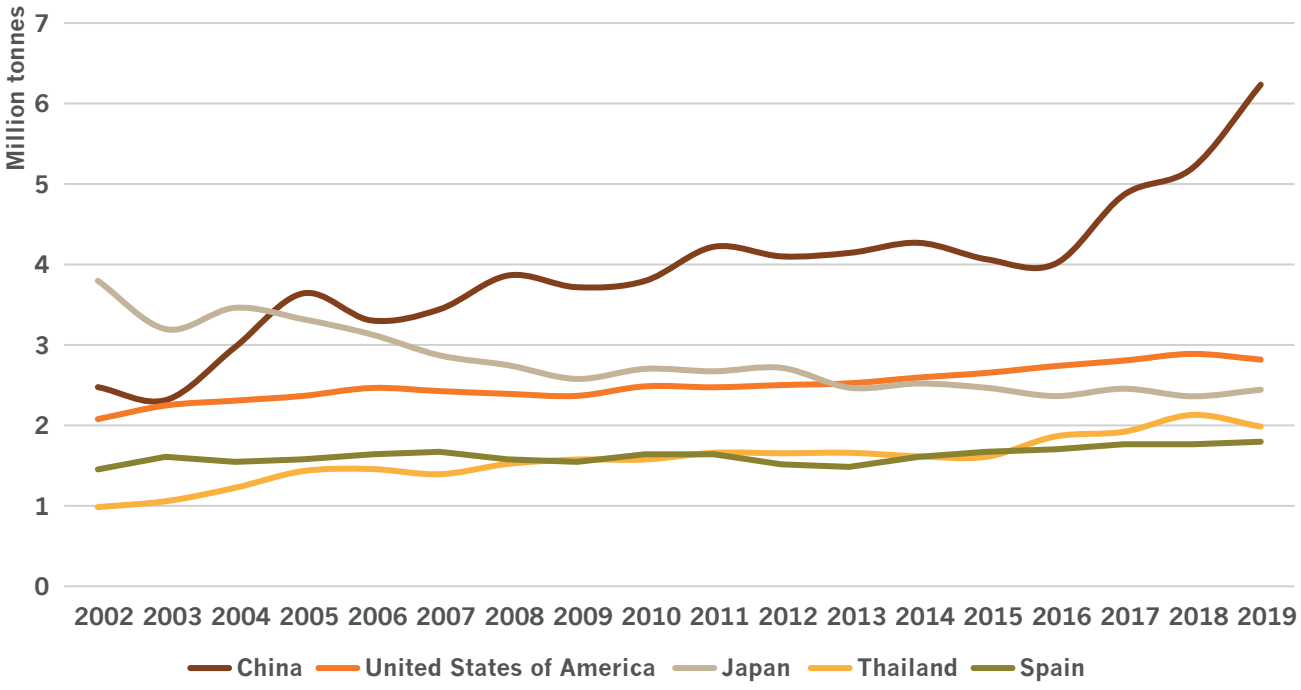

Figure 9. Total fish and fishery products import volume trends (sweet water and marine) for the global top five main importers in terms of volume between 2002 and 2019. Source: COLEAD based on FishStatJ.

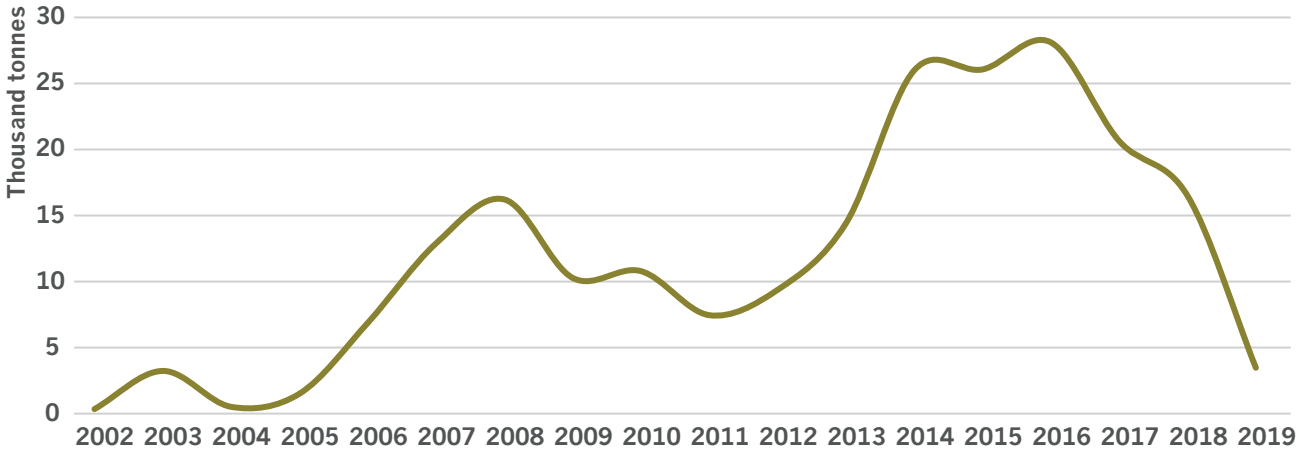

Figure 10: Long-term volume trend for total fish-based products' imports by Tanzania.
Source: COLEAD based on CEPII BACI.

3. Fish imports by Tanzania

When considering long term fish imports (both freshwater and marine fish, Figure 10), the trend shows that Tanzanian fish and fish-based product imports increased until 2016, with a cumulative annual growth rate of 36%. However, after 2016, imports decreased significantly, from 28,000 tonnes in 2016 to 3,500 tonnes in 2019. The overall trend is mainly driven by mackerel imports, which followed a similar pattern. The imports of prepared sardines, tuna and other frozen fish products have grown more steadily over time and together represent the remaining 30% of fish product imports in 2019.

Based on the FAO FishStatJ data, Tanzania imported 3,500 tonnes of fish and fish-based products in 2019, both from inland waters and marine origins. More than half of this (1,900 tonnes) was frozen fish (without further species information). One-fifth (696 tonnes) was frozen mackerel (11% without detail on the species and 9% jack and horse mackerel). The top five most imported fish types also includes other undefined frozen fish fillets (148 tonnes) and preserved tuna (134 tonnes). All other fish-based commodities were imported in amounts less than 100 tonnes in 2019.

Imports originated mainly from China (mackerel and other frozen fish and skipjack tuna, 66% of the imported volume in 2019), South Korea (mainly frozen mackerel, 10%), United Arab Emirates (mainly tuna, 5%), Peru (frozen mackerel, 5%) and Chile (frozen mackerel, 3%).

4. Marine fish exports from Tanzania

Methodological note: It is important to note that, based on the available data, it is not possible to separate all marine fish export products from freshwater products, especially for categories that contain grouped product data such as "dried fish", "fish meat", "fish heads" and "fishmeal". For most of the other products however, species information was available, which allowed differentiation between marine and freshwater species.

Exports to the world

The main Tanzanian reported marine export product, in terms of cumulative volume, is seaweed (10,800 tonnes in 2019). Seaweed exports have been largely stable and high since 2002. Dried fish exports peaked in 2008 (at 13,600 tonnes) and decreased to a stable export volume of around 4,000 tonnes from 2016 to 2019. Frozen fish exports began in 2011, peaking in 2015 at 16,000 tonnes, and seem to have stabilised around 8,000 tonnes between 2017 and 2019 (although it is hard to predict a trend based on these 3 years alone). Finally, exports of smoked, dried, salted or preserved in brine fish heads, tail or maws began in 2014 and increased to 10,000 tonnes exports by 2019.

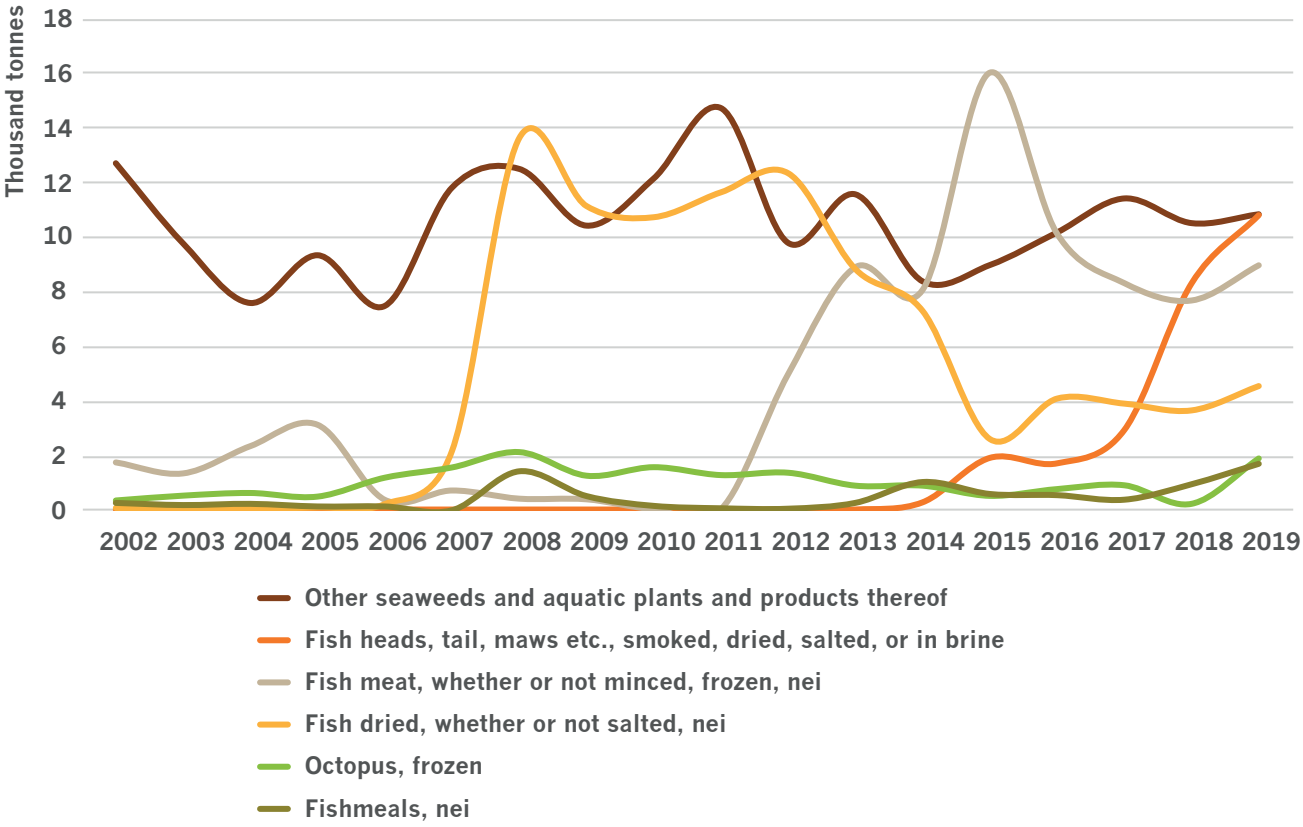

Figure 11: Six main exported sea products and sea fishes from Tanzania to the rest of the world in terms of volume, 2002–2019. nei: not elsewhere identified. Source: COLEAD based on FishStatJ.

In the top 20 of products by export volume, exports of certain products significantly increased between 2002 and 2019: frozen octopus (+445%, 1,800 tonnes in 2019), fishmeal (+512%, 1,700 tonnes in 2019) and smoked fish (close to zero exports in 2002 to 930 tonnes in 2019). Other commodities were exported in the beginning of the same period, but are no longer exported, or only in very small volumes: fresh pilchards (Sardinops spp.) and fresh sardinellas, frozen shrimps and prawns and frozen crustaceans.

In terms of value, frozen fish meat and smoked, dried, salted or in brine fish heads, tail or maws take the lead, following the same trend as their export volumes (a peak in 2015 with US$96.2 million for frozen fish meat and a steady growth of exports for the others since 2014, to US$54 million in 2019). Frozen octopus also offers good value compared to volume, as it takes third place according to total exports by value (US$7.7 million in 2019). Seaweed, which is the main export product by volume, falls into in fourth place in the value ranking, with around US$7 million of exports in 2019.

In 2019, the main destination markets for seaweed exports (Figure 12) were Denmark (37% of the exports, 4,000 tonnes), United States (31%, 3,300 tonnes), France (23%, 2,400 tonnes) and Spain (8%, 900 tonnes).

In 2019, the main importer of dried fish from Tanzania was Rwanda (73% of the exports), a destination that has increased in importance since 2009, followed by Burundi and Malawi. The final destination market of the dried fish imported by Rwanda and Burundi is usually the Democratic Republic of the Congo, which is most easily reached over land through Rwanda or Burundi. It is however plausible that the dried fish exported to Rwanda mainly consists of dagaa, captured in Lake Victoria and not of marine origin. Based on qualitative information from local sources, marine dagaa exports to Democratic Republic of the Congo are more likely to occur through Zambia via the border town of Tunduma. No quantitative evidence could be found for the latter and no separation between marine or sweet water dried fish could be made from the available data.

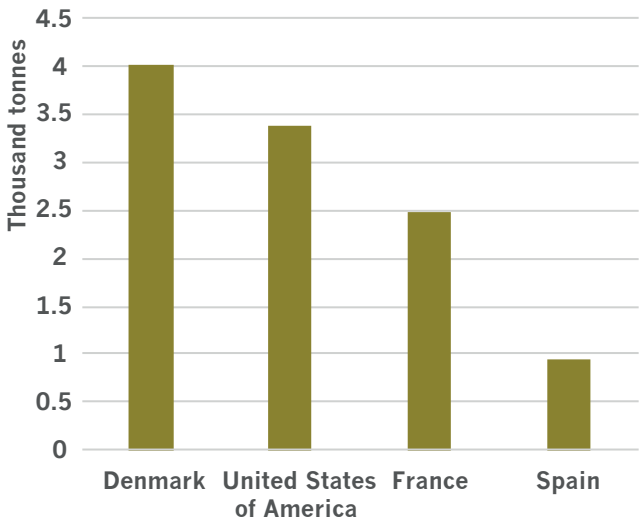

Figure 12: Main destinations for seaweed from Tanzania in 2019 in volume. Source: COLEAD based on FishStatJ.

The main destination country for frozen fish meat was Kenya (around 68%), followed by Rwanda and the United Arab Emirates. Smoked, dried, salted or in brine fish heads, tail or maws, on the other hand, were exported mainly to Asia. The most common destination was China (39%), followed by Democratic Republic of the Congo (33%) and Viet Nam (26%). Finally, frozen octopus found its main market in Portugal (84% of the exports in 2019) followed by Belgium, Turkey and France.

Overall, the leading partner of Tanzania for sea products and fishes is Rwanda, acting partly as a transit country for exports to the Congolese market, which is the main destination for dried fish. However, this result should be considered with caution as part of the reported trade volume may not be of marine origin. The second most prominent partner is Denmark, almost exclusively for seaweed.

Exports to the EU27

A focus on the exports to the EU will confirm what has been observed based on the global exports.

The main product exported to the EU by volume was seaweed (about 9,000 tonnes in 2020[8]). Frozen octopus, with only 500 tonnes in 2020, and frozen shrimps and prawns, 110 tonnes in 2020, complete the top exported products.

Even though (as explained earlier), when the value is taken into account, the rankings change, seaweed, with a lower price, remains at the top in terms of value, which shows how significant its volume is compared with other products. Frozen octopus, frozen shrimps and prawns and frozen lobsters are important exports in terms of value (Figure 13).

The main markets in the EU27 are Denmark (seaweed), France (seaweed and frozen shrimps and prawns), Spain (seaweed) and Portugal (frozen octopus). Due to the high price of octopus, Portugal is the leading partner by value, while Denmark and France are the main partners in terms of volume (Figure 14).

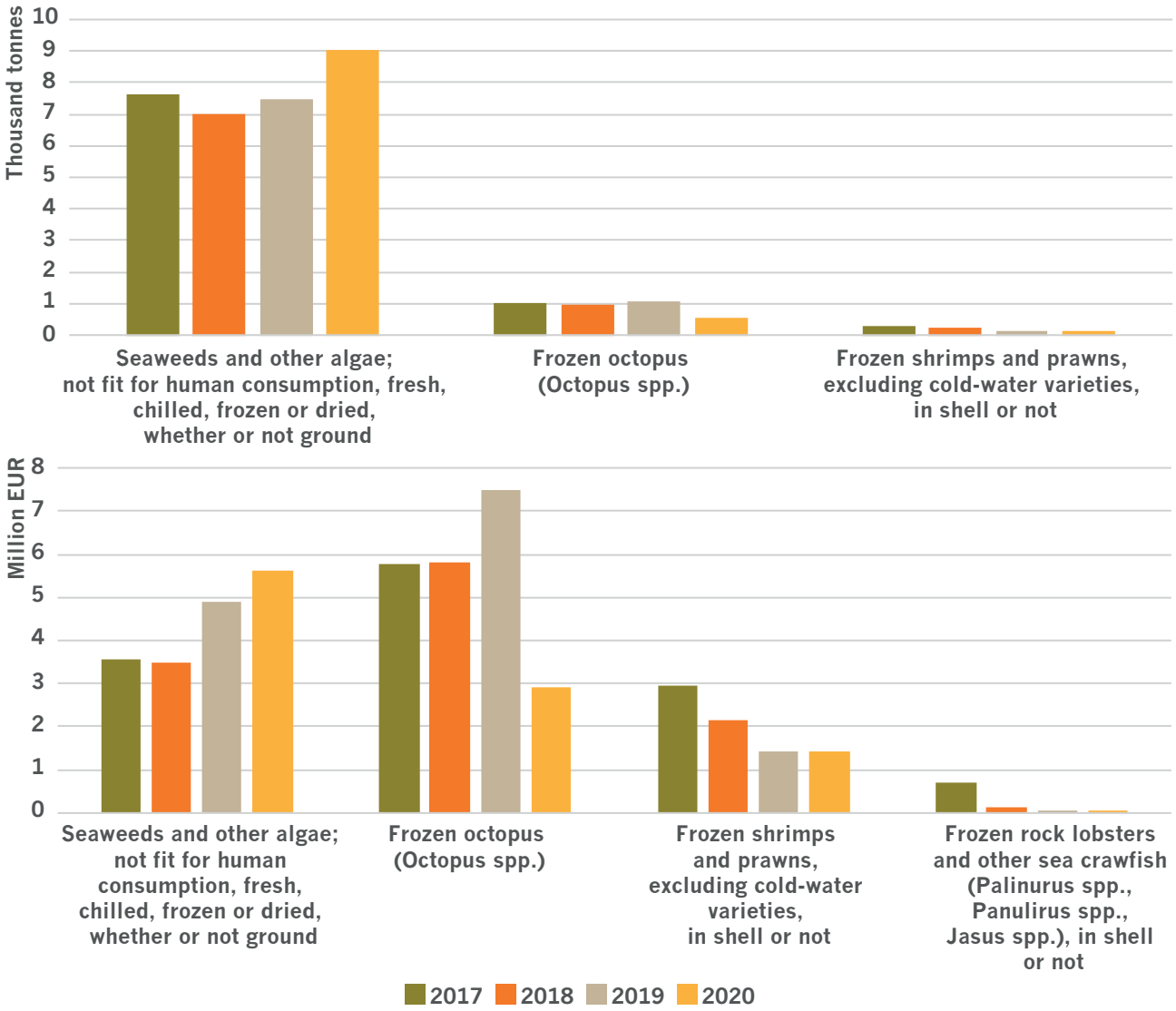

Figure 13: Main exports to EU27 from Tanzania for sea fishes and sea products, 2017–2020, by volume (top) and value (bottom). Source: COLEAD based on Eurostat.

8 For Europe, the data used comes from Eurostat and data are therefore available until 2020.

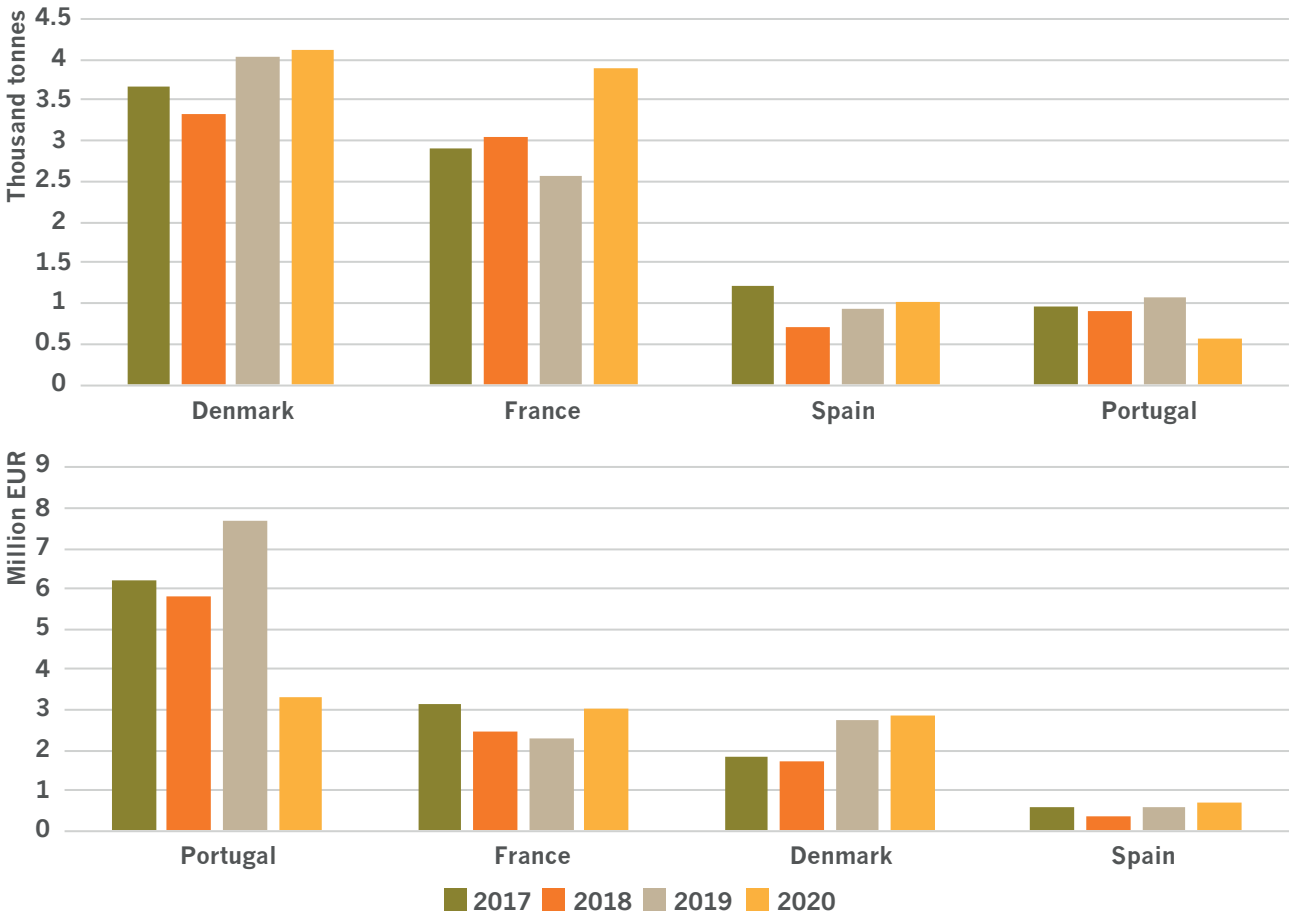

Figure 14: Main destination in the EU27 of exports of sea fishes and sea products from Tanzania, 2017–2020, in volume (top) and value (bottom). Source: COLEAD based on Eurostat.

V. MARKETS

1. Assessment of the market prices on the European market

Methodological note: In this section, the graphs show the evolution of prices for products originating from Tanzania. They are an average of the prices of Tanzanian products in the European Union as a whole. Prices referring to the Rungis market are specific to this market and to the cost of living in France and include origins other than Tanzania. Prices are not corrected for inflation.

Seaweed

European import prices (CIF)[9] of Tanzanian seaweeds have been trending upwards for the past 9 years. Prices peaked in 2015 and 2019. In 2020, the import price of Tanzanian seaweed was around €0.60/kg (Figure 15).

Frozen octopus

European import prices for Tanzanian frozen octopus have been rising in recent years. Indeed, apart from a significant drop in 2013 and 2014 (a period in which the octopus production in Portugal, being one of the key destination markets, was higher than average), prices have risen slightly and continuously until reaching their highest level in 2019 (almost €6.9/kg CIF). However, prices fell in 2020 and are now around €5.45/kg (Figure 16). This year coincides with a significant drop in European demand (probably due to the COVID-19 pandemic). The downward octopus production trend in the long term (2008–2018) for the main European octopus producers (Italy, Spain and Portugal) could result in less competition and again steadily increasing prices for Tanzanian octopus on the EU market in the future.

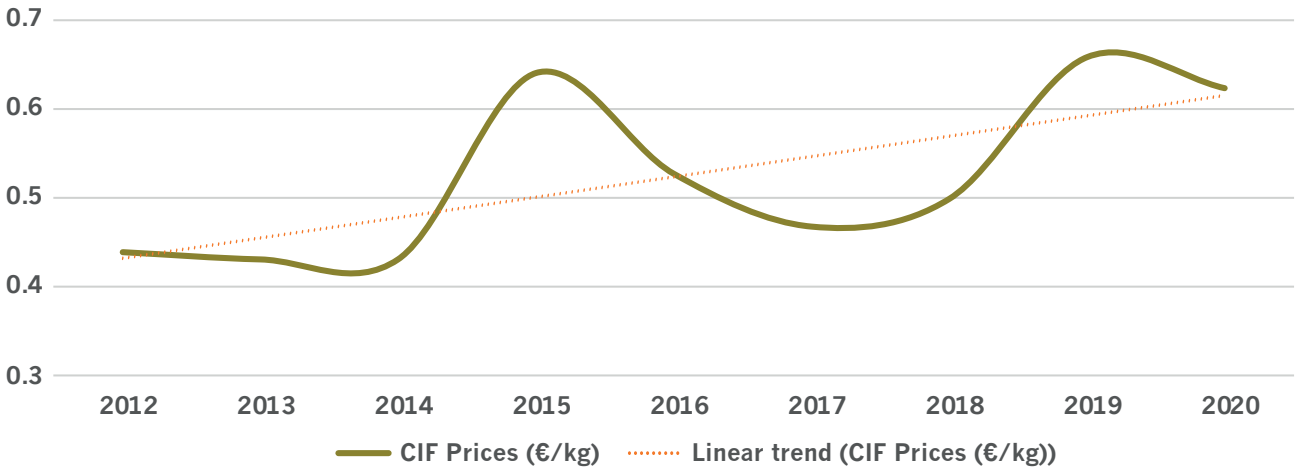

Figure 15: Average CIF price for Tanzanian seaweeds imported in the EU27, 2012–2020.
Source: COLEAD based on Eurostat.

9 Cost, Insurance and Freight.

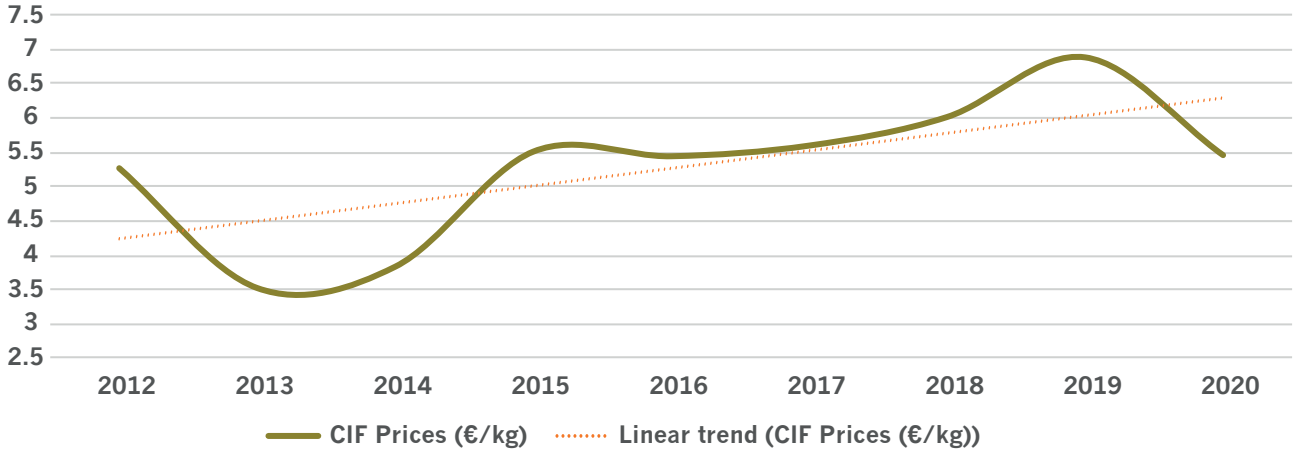

Figure 16: Average CIF price for Tanzanian frozen octopus imported in the EU27, 2012–2020.
Source: COLEAD based on Eurostat.

At the Rungis International Market in France, frozen octopus from imports sells for an average price of €11/kg throughout the year. "European" octopus is sold more cheaply than imported octopus.

At the retail level, frozen octopus is available at varying prices depending on the degree of processing of the product (washed, cut, cooked). The Continente shop chain in Portugal, which is one of the sellers of Tanzanian frozen octopus in Europe, offers frozen octopus at €12–14/kg, with prices rising to €17/kg for tentacles only and up to €45/kg for cooked and frozen tentacles (reference year 2021).

Frozen shrimps and prawns

The European import price for Tanzanian shrimps has been rising in recent years, although it experienced a period of decline between 2015 and 2018. In 2020, the price for 1 kg of shrimps was around €12.8 CIF (Figure 17).

At the Rungis International Market in France, cooked prawns are sold for between €15.5 and €16.5/kg, and 18.5€/kg when peeled. The price can go up to €26/kg for organic shrimp of a similar origin (Madagascar).

Retail prices for these products vary greatly depending on the degree of preparation of the shrimps ('plain', peeled, cooked). Cooked, unshelled shrimps from imports are sold for €12.5/kg at Carrefour in France, one of the main destinations for shrimps from Tanzania. The price doubles to €27.5/kg when peeled (reference year 2021).

Frozen rock lobsters and other sea crawfish

The European import price for Tanzanian crawfish and lobsters trended upwards between 2012 and 2019, even though current prices are lower than between 2015 and 2017, when they were as high as €18/kg CIF. In 2020, the average import price was estimated at €16.8/kg (Figure 18).

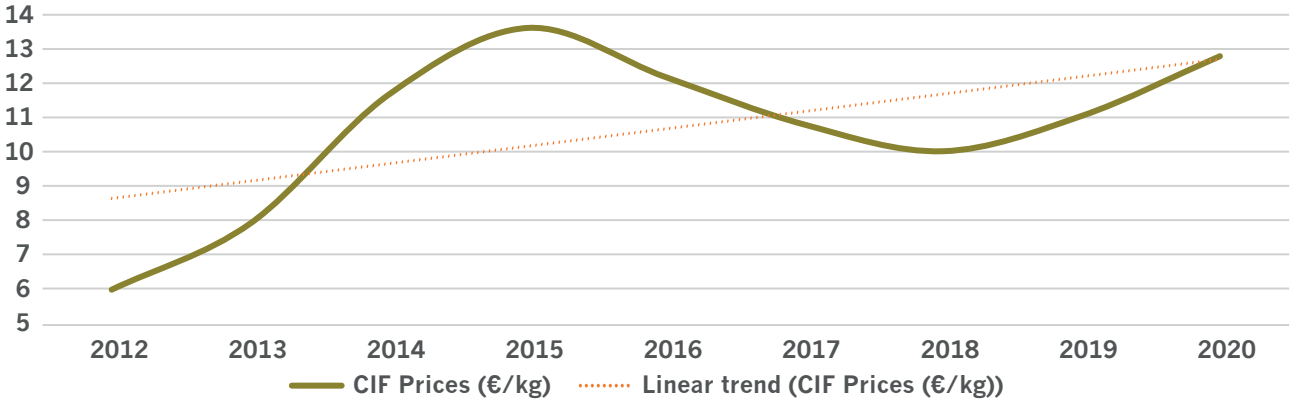

Figure 17: Average CIF price for Tanzanian frozen shrimps and prawns imported in the EU27, 2012–2020.
Source: COLEAD based on Eurostat.

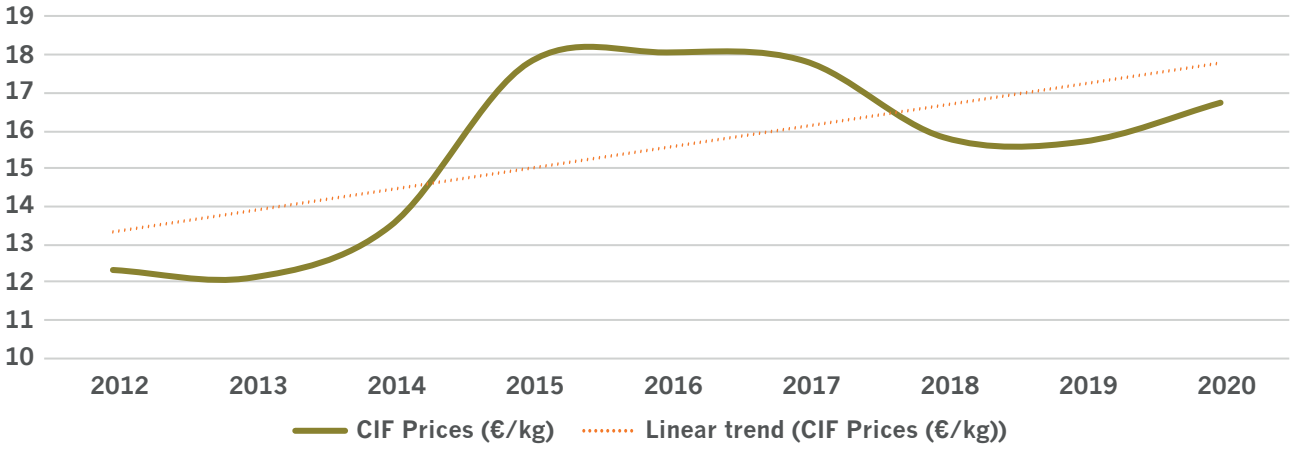

Figure 18: Average CIF price for Tanzanian frozen rock lobsters and other sea crawfish in the EU27, 2012–2020. Source: COLEAD based on Eurostat.

At the Rungis International Market in France, imported frozen lobster is sold for between €33 and €38/kg. It is interesting to note that the prices charged for lobsters of French origin are much higher (up to €72/kg).

For frozen and imported langoustine, the prices charged vary around €20/kg.

At the retail level, frozen lobster sells at high prices. The Continente chain in Portugal, for example, sells frozen lobster from the Indian Ocean at around €35/kg.

2. Market access

Access to the international market/EU market

The regulations to export fish or seafood to Europe are[10]:

- The country of origin must be accredited by the European authorities, meet European food safety requirements and pose no threat to European consumers.
- The maximum residue levels for fish and seafood must not be exceeded. They depend on the species and the source. Regulations: Regulation (EC) No 470/2009 (pharmacologically active substances), Regulation (EC) No 396/2005 (pesticides) and Regulation (EC) No 1881/2006 (environmental contaminants).
- Labelling regulations
- Prove the legal sources of the fish and seafood

In addition to these mandatory requirements to access the EU market, buyers may request additional certifications: such as the British Retail Consortium or the International Featured Standards for food safety; Social Accountability International SA8000 Standards and the Business Social Compliance Initiative for social compliance; and MSC, ASC or GLOBALG.A.P for sustainability.

The Marine Stewardship Council (MSC) is the fisheries standard used to assess whether a fishery is well-managed and sustainable. Open to all fisheries that catch organisms in the wild, it includes most fish and shellfish. Organisations are certified by independent bodies. The three core principles are:

- Sustainable fish stocks
- Minimising environmental impact
- Effective fisheries management.

The certification process can be found here: https://www.msc.org/for-business/fisheries/fishery-certification-guide. Based on the FAO code of conduct for responsible fisheries, this certification confirms that the fishery is well-managed and sustainable and meets the world's most recognised benchmark for sustainability. Consumers, especially in Europe, are very sensitive to the MSC's values and this kind of label is therefore an important marketing argument.

10 CBI (2021) What requirements must fish and seafood comply with to be allowed on the European market? https://www.cbi.eu/market-information/fish-seafood/what-requirements-should-your-product-comply

Becoming MSC certified is an ambition of several larger Tanzania players, but monitoring what is happening at sea, together with the lack of financing in the sector, means that the assessment for getting certified is currently a seemingly insurmountable difficulty.[11] Based on information from local sources, however, it seems that some actors (e.g. in the octopus value chain) are close to obtaining the MSC certification.

The Aquaculture Stewardship Council (ASC) certification is the major certification related to fish farming. Briefly, this certification aims to guarantee:

- the protection of the environment
- the protection of biodiversity
- the protection of water resources
- good working conditions and payroll.

It covers a total of 12 species which can be raised in aquaculture, including shrimp, tropical marine finfish and seaweed (in collaboration with the MSC standards). In the words of the organisation, *"ASC certification helps aquaculturists to position the brand as a leading player in a competitive marketplace. The ASC logo sends a message to consumers about the environmental and social integrity of the product on which it is affixed and gives the product added value over other aquaculture seafood products."* In Tanzania, only one producer, a shrimp producer, is ASC certified, according to the ASC website. Given the volume of shrimp exported from Tanzania, this number is small, but this producer was certified in July 2021 and demonstrates that achieving ASC certification is possible and might be an opportunity for other national producers.

The MSC and ASC certifications could be a good opportunity for Tanzanian producers and exporters to widen their market opportunities while increasing the sustainability of their activities, even if it is not mandatory to access the international market and it is still very challenging for the country to become certified.

11 Zhao, L. (2018) Tracking the trade of octopus across East Africa and onto the Global Market – Challenges to Marine Stewardship Council Certification Ambitions.

GLOBALG.A.P has also developed standards for the aquaculture activity, and it is possible to become certified if a company implement and complies with the standard requirements, where the compliance includes:

- legal compliance
- food safety
- workers' occupational health and safety
- GLOBALG.A.P risk assessment on social practice
- animal welfare
- environmental and ecological care.

This applies to diverse fishes, crustaceans and molluscs and covers the entire production chain. The label is the GGN (GLOBALG.A.P number) label. Again, this label is an important marketing argument at the export level. Some importers place a lot of importance on it, which reflects the desire of the consumer to consume food consciously.

Interception records for Tanzanian fish exports

Only a few records of interceptions have been found for Tanzanian fish and fisheries or aquaculture-related products. No interceptions were found for the trade with the EU in the TRACES and RASFF databases. Four export lots of Tanzanian sardines to the USA were rejected in 2019 due to labelling issues. Another five lots of non-specified fish were rejected in 2017 by the USA because they were considered unfit for human consumption. Information on interceptions by the USA was retrieved from FishStatJ.

3. Value chain for fisheries

In the context of fisheries and aquaculture, the value chain refers to *"all activities and services - from input supply to production (capture fisheries and fish farming), processing, wholesale and finally retail"*. Each species, from each boat or fish farm, will have a specific value chain depending on the production method, product qualities (including size),

marketing channels and 'middlemen' involved. Some fish will be sold fresh, directly within the local community, while other products may be traded, stored, processed and shipped to consumers on the other side of the world.

The flow of fishery and aquaculture products depends on many factors, ranging from local consumer preferences to the competitiveness and capacity of a given fishing area to fish or produce[12], handle, process, distribute and market its products. The route that each fish takes to market will in turn influence the added value generated by the fish and determine which actor in the chain will retain the greatest proportion of this value.

High-value Tanzanian marine aquaculture species, including prawns and mud crabs, are sold directly in domestic touristic hotels or are exported to developed country markets. Seaweed, on the other hand, is mainly exported and only a small part is used locally to produce shampoos, detergents, and fresheners.

As mentioned above, value chains are very different for each product as they depend on many factors. The flow chart below shows a simplified path, as an example, from ocean to plate and the major agents in the value chain (Figure 19).

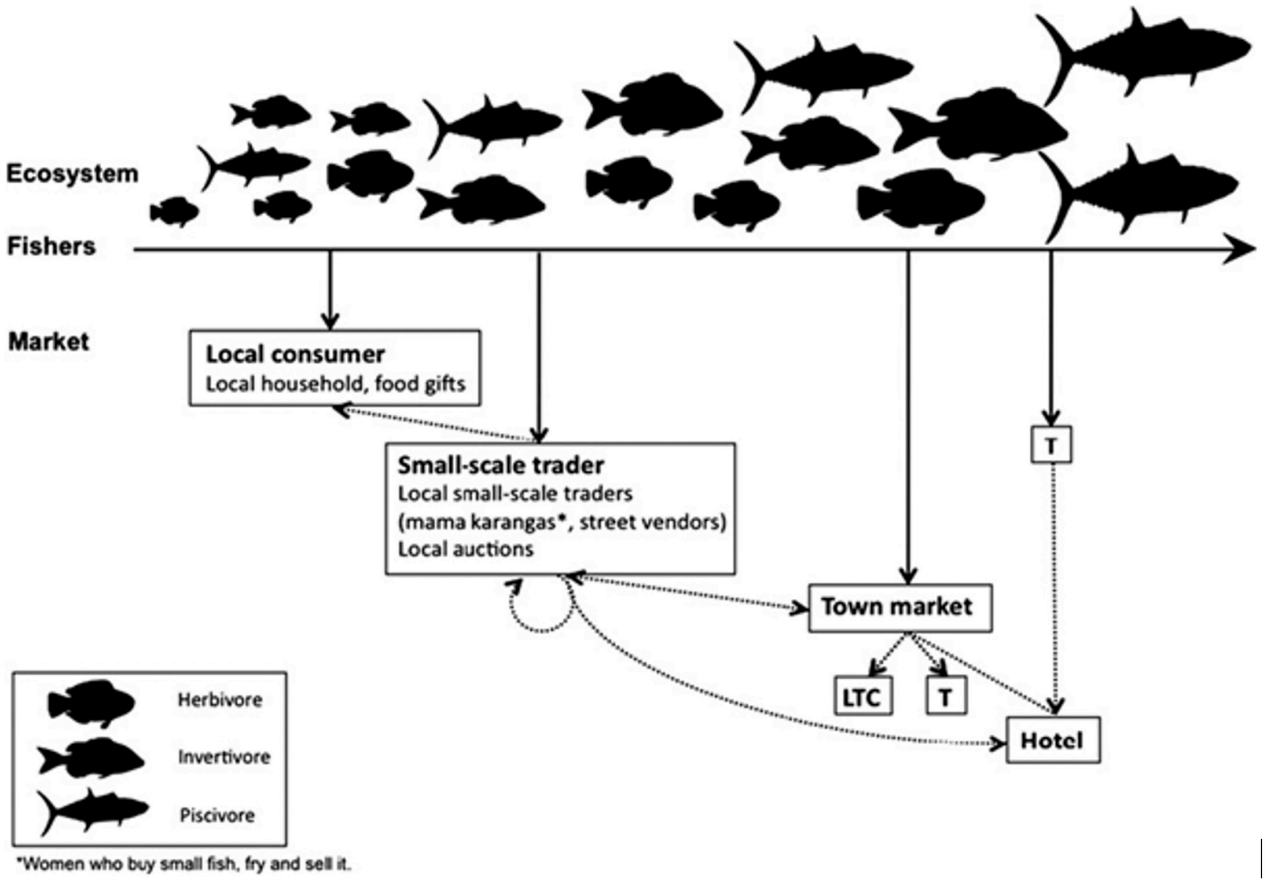

Figure 19: Illustration of the pathways of transfer of fish of different functional groups and sizes from ocean to plate showing the major agents involved in the reef fish trade in Zanzibar and the categorisation of these agents. Bold arrows indicate how fish is sold by fishers and dotted arrows indicate how the fish is then sold by various agents (identified by fishers to be involved in the trade). T=trader, LTC= local town consumer.
Source: Thyresson et al. Marine policy 38 (2013).

12 Veronesi Burch, M. and Maes, S. (2017) Stimuler les entreprises le long de la chaîne de valeur de la pêche, guide 12, Fisheries Areas Network.

The main constraints faced by different actors in the fisheries value chains in Tanzania relate to high costs of inputs, lack of reliable and adequate information on fisheries and aquaculture, and lack of knowledge on fish farming and catching, resulting in low profitability and slow growth.[13] For marine fisheries, we can also observe a lack of appropriate infrastructures for fish storage and handling as the result of inadequate investment in fisheries and aquaculture infrastructure and facilities for processing and marketing of fish and fishery products. Value chain actors depend on self-financing even though they have low capital as they have no access to finance and credit facilities, while post-harvest losses caused by poor handling and processing techniques, as well as the impacts of climate change and poor fishing methods, are threatening the future of fishing. Illegal, unreported and unregulated fishing is a further cause of declining yields.

As an example, Tanzania is one of the few countries in the world where blast fishing is still carried out.[14] Explosives are seemingly easily accessible from the mining and construction industries. A low rate of enforcement and prosecutions is aggravated by corruption, bribery and intimidation of officials. Illicit trade in fish and seafood products is also still an issue and poses economic and social risks.[15] Another persistent problem is the use of small mesh size nets, removing or killing immature fish and other species of no commercial value.

The Tanzanian marketplace is characterised by a large number of trading agents and on-the- spot transaction types, local consumers play an important role in market dynamics, and are frequently involved in contracts through predetermined arrangements. Females are active throughout the value chain although their involvement varies much depending on the specific value chain and the specific activity. A positive example is the seaweed farming on Zanzibar which is a main source of work and income for the many women involved.

The effects of COVID-19 along the fish value chain

Despite the natural abundance of the coastal zone of Tanzania, most of its inhabitants still live in poverty. Fishing and seaweed farming are the main sources of livelihoods; but overfishing, together with the use of unsustainable practices, is leading to declining catches. This poverty, together with risks of extreme climate events and other longer-term impacts of climate change, make fishery dependent communities vulnerable in general. Practical issues such as lacking hygiene and sanitation awareness and facilities among the communities, and low capacity at many landing sites and fish markets to control the spread of viruses likely aggravated the impact of the spread of COVID-19 on the fishery sector. However, no research or data are yet available on this topic.

13 Chenyambuga, S.W. (2016) Assessment of Value Chain of Farmed Nile Tilapia *(Oreochromis niloticus)* in Coastal and Lake Zones of Tanzania.

14 Vidal, J. (2018) "Off Tanzania, in One of the World's Richest Seas, Why Is the Catch Getting Smaller?" The Guardian.

15 Sumaila, U.R., Zeller, D., Hood, L., et al. (2020) Illicit trade in marine fish catch and its effects on ecosystems and people worldwide. Sci. Adv. 6.

VI. APPENDIX: FULL LIST OF HS/CN CODES USED IN THIS STUDY

Note: The codes were retrieved using international trade data and trade data with Europe (Eurostat). When 8 digit codes are available, it means that there are exportations for that commodity from Tanzania to Europe. When 8 digits are not available, it means that there is international trade, but no trade with Europe.

Table 2: Full list of HS/CN codes used for the scope of the study containing only sea water fishes and products when possible to separate.

8 digits	6 digits	HS commodity name
03011090	030110	Fish; live, ornamental
03011900	030119	Fish; live, ornamental, other than freshwater
03019918	030199	Fish; live, n.e.c. in heading 0301
	030212	Fish; Pacific salmon (oncorhynchus nerka/gorbuscha/keta/tschawytscha/kisutch/masou/rhodurus), Atlantic salmon (salmo salar), Danube salmon (hucho hucho), fresh or chilled (excluding fillets, livers, roes and other fish meat of heading no. 0304)
	030219	Fish; fresh or chilled, salmonidae, n.e.c. in item no. 0302.1, excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0302.91 to 0302.99
	030221	Fish; fresh or chilled, halibut (Reinhardtius hippoglossoides, Hippoglossus, Hippoglossus stenolepis), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0302.91 to 0302.99
	030222	Fish; fresh or chilled, plaice (Pleuronectes platessa), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0302.91 to 0302.99
	030223	Fish; fresh or chilled, sole (Solea spp.), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0302.91 to 0302.99
	030229	Fish; fresh or chilled, flat fish, n.e.c. in item no. 0302.2, excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0302.91 to 0302.99
	030231	Fish; fresh or chilled, albacore or longfinned tunas (Thunnus alalunga), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0302.91 to 0302.99
	030232	Fish; fresh or chilled, yellowfin tunas (Thunnus albacares), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0302.91 to 0302.99
	030233	Fish; fresh or chilled, skipjack or stripe-bellied bonito, excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0302.91 to 0302.99
	030234	Fish; fresh or chilled, bigeye tunas (Thunnus obesus), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0302.91 to 0302.99
	030235	Fish; fresh or chilled, Atlantic and Pacific bluefin tunas (Thunnus thynnus, Thunnus orientalis), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0302.91 to 0302.99
	030236	Fish; fresh or chilled, southern bluefin tunas (Thunnus maccoyii), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0302.91 to 0302.99
	030239	Fish; fresh or chilled, tuna, n.e.c. in item no. 0302.3, excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0302.91 to 0302.99
	030240	Fish; herrings (clupea harengus, clupea pallasii), fresh or chilled (excluding fillets, livers, roes and other fish meat of heading no. 0304)
03024310	030243	Fish; fresh or chilled, sardines (Sardina pilchardus, Sardinops spp.), sardinella (Sardinella spp.), brisling or sprats (Sprattus sprattus), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0302.91 to 0302.99
03024990	030249	Fish; fresh or chilled, n.e.c. in item no. 0302.4, excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0302.91 to 0302.99
	030250	Fish; cod (gadus morhua, gadus ogac, gadus macrocephalus), fresh or chilled (excluding fillets, livers, roes and other fish meat of heading no. 0304)
03025411	030254	Fish; fresh or chilled, hake (Merluccius spp., Urophycis spp.), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0302.91 to 0302.99
	030261	Fish; sardines (sardina pilchardus, sardinops spp.), sardinella (sardinella spp.), brisling or sprats (sprattus sprattus), fresh or chilled (excluding fillets, livers, roes and other fish meat of heading no. 0304)

	030262	Fish; haddock (melanogrammus aeglefinus), fresh or chilled (excluding fillets, livers, roes and other fish meat of heading no. 0304)
	030263	Fish; coalfish (pollachius virens), fresh or chilled (excluding fillets, livers, roes and other fish meat of heading no. 0304)
	030264	Fish; mackerel (scomber scombrus, scomber australasicus, scomber japonicus), fresh of chilled (excluding fillets, livers, roes and other fish meat of heading no. 0304)
	030265	Fish; dogfish and other sharks, fresh or chilled (excluding fillets, livers, roes and other fish meat of heading no. 0304)
03026918	030269	Fish; n.e.c. in heading no. 0302, fresh or chilled (excluding fillets, livers, roes and other fish meat of heading no. 0304)
03026933	030269	Fish; n.e.c. in heading no. 0302, fresh or chilled (excluding fillets, livers, roes and other fish meat of heading no. 0304)
	030270	Fish; livers and roes, fresh or chilled
	030311	Fish; frozen, Pacific salmon, sockeye salmon (red salmon) (Oncorhynchus nerka), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0303.91 to 0303.99
03031900	030319	Fish; frozen, salmonidae, n.e.c. in item no. 0303.1, excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0303.91 to 0303.99
	030322	Fish; Atlantic salmon (salmo salar) and Danube salmon (hucho hucho), frozen (excluding fillets, livers, roes and other fish meat of heading no. 0304)
	030332	Fish; frozen, plaice (Pleuronectes platessa), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0303.91 to 0303.99
	030333	Fish; frozen, sole (Solea spp.), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0303.91 to 0303.99
	030339	Fish; frozen, flat fish, n.e.c. in item no. 0303.3, excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0303.91 to 0303.99
	030341	Fish; frozen, albacore or longfinned tunas (Thunnus alalunga), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0303.91 to 0303.99
	030342	Fish; frozen, yellowfin tunas (Thunnus albacares), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0303.91 to 0303.99
	030343	Fish; frozen, skipjack or stripe-bellied bonito, excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0303.91 to 0303.99
	030344	Fish; frozen, bigeye tunas (Thunnus obesus), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0303.91 to 0303.99
	030345	Fish; frozen, Atlantic and Pacific bluefin tunas (Thunnus thynnus, Thunnus orientalis), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0303.91 to 0303.99
	030349	Fish; frozen, tuna, n.e.c. in item no. 0303.4, excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0303.91 to 0303.99
	030350	Fish: herrings (clupea harengus, clupea pallasii), frozen (excluding fillets, livers, roes and other fish meat of heading no. 0304)
03035100	030351	Fish; frozen, herrings (Clupea harengus, Clupea pallasii), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0303.91 to 0303.99
03035330	030353	Fish; frozen, sardines (Sardina pilchardus, Sardinops spp.), sardinella (Sardinella spp.), brisling or sprats (Sprattus sprattus), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0303.91 to 0303.99
03035390	030353	Fish; frozen, sardines (Sardina pilchardus, Sardinops spp.), sardinella (Sardinella spp.), brisling or sprats (Sprattus sprattus), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0303.91 to 0303.99
03035490	030354	Fish; frozen, mackerel (Scomber scombrus, Scomber australasicus, Scomber japonicus), excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0303.91 to 0303.99
03035910	030359	Fish; frozen, n.e.c. in item no. 0303.5, excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0303.91 to 0303.99
	030360	Fish: cod (gadus morhua, gadus ogac, gadus macrocephalus), frozen (excluding fillets, livers, roes and other fish meat of heading no. 0304)
	030371	Fish; sardines (sardina pilchardus, sardinops spp.), sardinella (sardinella spp.), brisling or sprats (sprattus sprattus), frozen (excluding fillets, livers, roes and other fish meat of heading no. 0304)

	030372	Fish; haddock (melanogrammus aeglefinus), frozen (excluding fillets, livers, roes and other fish meat of heading no. 0304)
	030373	Fish; coalfish (pollachius virens), frozen (excluding fillets, livers, roes and other fish meat of heading no. 0304)
	030374	Fish; mackerel (scomber scombrus, scomber australasicus, scomber japonicus), frozen (excluding fillets, livers, roes and other fish meat of heading no. 0304)
	030375	Fish; dogfish and other sharks, frozen (excluding fillets, livers, roes and other fish meat of heading no. 0304)
	030377	Fish; sea bass (dicentrarchus labrax, dicentrarchus punctatus), frozen, (excluding fillets, livers, roes and other fish meat of heading no. 0304)
	030378	Fish; hake (merluccius spp., urophycis spp.), frozen (excluding fillets, livers, roes and other fish meat of heading no. 0304)
03037919	030379	Fish; frozen, n.e.c. in heading no. 0303 (excluding fillets, livers, roes and other fish meat of heading no. 0304)
03037998	030379	Fish; frozen, n.e.c. in heading no. 0303 (excluding fillets, livers, roes and other fish meat of heading no. 0304)
	030380	Fish; livers and roes, frozen
03038990	030389	Fish; frozen, n.e.c. in heading 0303, excluding fillets, fish meat of 0304, and edible fish offal of subheadings 0303.91 to 0303.99
	030410	Fish: fillets and other fish meat, fresh or chilled (whether or not minced)
03041290	030412	Fish; toothfish (Dissostichus spp.), fillets and other fish meat (whether or not minced), fresh or chilled
03041901	030419	Fish; fillets and other fish meat (whether or not minced), fresh or chilled, other than swordfish (Xiphias gladius) and toothfish (Dissostichus spp.)
03041918	030419	Fish; fillets and other fish meat (whether or not minced), fresh or chilled, other than swordfish (Xiphias gladius) and toothfish (Dissostichus spp.)
03041939	030419	Fish; fillets and other fish meat (whether or not minced), fresh or chilled, other than swordfish (Xiphias gladius) and toothfish (Dissostichus spp.)
03041999	030419	Fish; fillets and other fish meat (whether or not minced), fresh or chilled, other than swordfish (Xiphias gladius) and toothfish (Dissostichus spp.)
	030420	Fish: fillets, frozen
03042901	030429	Fish; fillets, frozen, other than swordfish (Xiphias gladius) and toothfish (Dissostichus spp.)
03042905	030429	Fish; fillets, frozen, other than swordfish (Xiphias gladius) and toothfish (Dissostichus spp.)
03042918	030429	Fish; fillets, frozen, other than swordfish (Xiphias gladius) and toothfish (Dissostichus spp.)
03042999	030429	Fish; fillets, frozen, other than swordfish (Xiphias gladius) and toothfish (Dissostichus spp.)
03045100	030451	Fish meat, excluding fillets, whether or not minced; fresh or chilled, tilapias, catfish, carp, eels, Nile perch, and snakeheads
03046900	030469	Fish fillets; frozen, carp (Cyprinus/Carassius/Ctenopharyngodon idellus/Hypophthalmichthys/Cirrhinus/Mylopharyngodon piceus/Catla catla/Labeo/Osteochilus hasselti/Leptobarbus hoeveni/Megalobrama), eels (Anguilla) and snakeheads (Channa)
03048990	030489	Fish fillets; frozen, of fish n.e.c. in heading 0304.8
	030490	Fish: fish meat n.e.s. in heading no. 0304 (whether or not minced), fresh, chilled or frozen
03049590	030495	Fish meat, excluding fillets, whether or not minced; frozen, of the families Bregmacerotidae, Euclichthyidae, Gadidae, Macrouridae, Melanonidae, Merlucciidae, Moridae and Muraenolepididae, other than Alaska Pollack (Theragra chalcogramma)
03051000	030510	Fish; flours, meals and pellets, fit for human consumption
03052000	030520	Fish; livers, roes and milt of fish, dried, smoked, salted or in brine
	030530	Fish; fillets, dried, salted or in brine, but not smoked
03053990	030539	Fish fillets; dried, salted or in brine, but not smoked, n.e.c. in item no. 0305.3
03054100	030541	Fish; smoked, whether or not cooked before or during smoking, salmon, Pacific (Oncorhynchus nerka, gorbuscha, keta, tschawytscha, kisutch, masou, rhodurus), Atlantic (Salmo salar) and Danube (Hucho hucho), includes fillets, but excludes edible fish offal
03054200	030542	Fish; smoked, whether or not cooked before or during smoking, herrings (Clupea harengus, Clupea pallasii), includes fillets, but excludes edible fish offal

	030549	Fish; smoked, whether or not cooked before or during smoking, n.e.c. in item no. 0305.4, includes fillets, but excludes edible fish offal
03055110	030551	Fish; dried, whether or not salted but not smoked, other than edible fish offal, cod (Gadus morhua, Gadus ogac, Gadus macrocephalus)
03055190	030551	Fish; dried, whether or not salted but not smoked, other than edible fish offal, cod (Gadus morhua, Gadus ogac, Gadus macrocephalus)
03055200	030552	Fish; dried, whether or not salted but not smoked, tilapias, catfish, carp, eels, Nile perch, and snakeheads
03055390	030553	Fish; dried, whether or not salted but not smoked, fish of the families Bregmacerotidae, Euclichthyidae, Gadidae, Macrouridae, Melanonidae, Merlucciidae, Moridae and Muraenolepididae, other than cod
03055490	030554	Dried herrings, anchovies, sardines, sardinella, brisling or sprats, mackerel (incl Indian, jack, or horse), seerfishes, jacks, crevalles, cobia, silver pomfrets, Pacific saury, scads, capelin, swordfish, Kawakawa, bonitos, marlins, sailfishes, spearfish
03055985	030559	Fish; dried, whether or not salted but not smoked, other than edible fish offal, n.e.c. in item no. 0305.5
	030561	Fish; salted or in brine, not dried or smoked, other than edible fish offal, herrings (Clupea harengas, Clupea pallasii)
	030562	Fish; salted or in brine, not dried or smoked, other than edible fish offal, cod (Gadus morhua, Gadus ogac, Gadus macrocephalus)
	030563	Fish; salted or in brine, not dried or smoked, other than edible fish offal, anchovies (Engrails spp.)
	030569	Fish; salted or in brine, not dried or smoked, other than edible fish offal, n.e.c. in item no. 0305.6
03057100	030571	Fish; edible offal, shark fins
03057200	030572	Fish; edible offal, fish heads, tails and maws
03057900	030579	Fish; edible offal, other than shark fins, fish heads, tails and maws
03061190	030611	Crustaceans; frozen, rock lobsters and other sea crawfish (Palinurus spp., Panulirus spp., Jasus spp.), in shell or not, smoked, cooked or not before or during smoking; in shell, cooked by steaming or by boiling in water
03061210	030612	Crustaceans; frozen, lobsters (Homarus spp.), in shell or not, smoked, cooked or not before or during smoking; in shell, cooked by steaming or by boiling in water
03061290	030612	Crustaceans; frozen, lobsters (Homarus spp.), in shell or not, smoked, cooked or not before or during smoking; in shell, cooked by steaming or by boiling in water
03061310	030613	Crustaceans; shrimps and prawns, frozen (whether in shell or not, whether or not cooked by steaming or by boiling in water)
03061350	030613	Crustaceans; shrimps and prawns, frozen (whether in shell or not, whether or not cooked by steaming or by boiling in water)
03061380	030613	Crustaceans; shrimps and prawns, frozen (whether in shell or not, whether or not cooked by steaming or by boiling in water)
03061490	030614	Crustaceans; frozen, crabs, in shell or not, smoked, cooked or not before or during smoking; in shell, cooked by steaming or by boiling in water
03061792	030617	Crustaceans; frozen, shrimps and prawns, excluding cold-water varieties, in shell or not, smoked, cooked or not before or during smoking; in shell, cooked by steaming or by boiling in water
03061799	030617	Crustaceans; frozen, shrimps and prawns, excluding cold-water varieties, in shell or not, smoked, cooked or not before or during smoking; in shell, cooked by steaming or by boiling in water
03061990	030619	Crustaceans; frozen, n.e.c. in item no. 0306.1, in shell or not, smoked, cooked or not before or during smoking; in shell, cooked by steaming or by boiling in water; including edible flours, meals, and pellets of crustaceans
	030621	Crustaceans; rock lobster and other sea crawfish (palinurus spp., panulirus spp., jasus spp.), not frozen, (whether in shell or not, whether or not cooked by steaming or by boiling in water)
	030622	Crustaceans; lobsters (homarus spp.), not frozen, (whether in shell or not, whether or not cooked by steaming or by boiling in water)
03062390	030623	Crustaceans; shrimps and prawns, not frozen, (whether in shell or not, whether or not cooked by steaming or by boiling in water)
03062480	030624	Crustaceans; crabs, not frozen, (whether in shell or not, whether or not cooked by steaming or by boiling in water)
03062990	030629	Crustaceans; not frozen, n.e.c. in heading no. 0306, (whether in shell or not, whether or not cooked by steaming or by boiling in water)

03069990	030699	Crustaceans; smoked, whole, cooked or not, n.e.c. in item no. 0306.9, in shell or not, including edible flours, meals, and pellets of crustaceans
	030710	Molluscs; oysters, live, fresh, chilled, frozen, dried, salted or in brine (whether in shell or not)
	030721	Molluscs; scallops, whether in shell or not, including queen scallops, of the genera Pecten, Chlamys or Placopecten, live, fresh or chilled
03072990	030729	Molluscs; scallops, whether in shell or not, including queen scallops of the genera Pecten, Chlamys or Placopecten, dried, salted, in brine, or smoked, cooked or not before or during the smoking process
	030731	Molluscs; mussels (Mytilus spp., Perna spp.), whether in shell or not, live, fresh or chilled
03073910	030739	Molluscs; mussels (Mytilus spp., Perna spp.), whether in shell or not, dried, salted, in brine, or smoked, cooked or not before or during the smoking process
03073990	030739	Molluscs; mussels (Mytilus spp., Perna spp.), whether in shell or not, dried, salted, in brine, or smoked, cooked or not before or during the smoking process
	030741	Molluscs; cuttle fish and squid, live, fresh or chilled (whether in shell or not)
03074329	030743	Molluscs; cuttle fish and squid, whether in shell or not, includes flours, meals, and pellets of molluscs, fit for human consumption, frozen
03074338	030743	Molluscs; cuttle fish and squid, whether in shell or not, includes flours, meals, and pellets of molluscs, fit for human consumption, frozen
03074391	030743	Molluscs; cuttle fish and squid, whether in shell or not, includes flours, meals, and pellets of molluscs, fit for human consumption, frozen
03074399	030743	Molluscs; cuttle fish and squid, whether in shell or not, includes flours, meals, and pellets of molluscs, fit for human consumption, frozen
03074911	030749	Molluscs; cuttle fish and squid, whether in shell or not, includes flours, meals, and pellets of molluscs, fit for human consumption, dried, salted, in brine, or smoked, cooked or not before or during the smoking process
03074918	030749	Molluscs; cuttle fish and squid, whether in shell or not, includes flours, meals, and pellets of molluscs, fit for human consumption, dried, salted, in brine, or smoked, cooked or not before or during the smoking process
03074938	030749	Molluscs; cuttle fish and squid, whether in shell or not, includes flours, meals, and pellets of molluscs, fit for human consumption, dried, salted, in brine, or smoked, cooked or not before or during the smoking process
03074940	030749	Molluscs; cuttle fish and squid, whether in shell or not, includes flours, meals, and pellets of molluscs, fit for human consumption, dried, salted, in brine, or smoked, cooked or not before or during the smoking process
03074959	030749	Molluscs; cuttle fish and squid, whether in shell or not, includes flours, meals, and pellets of molluscs, fit for human consumption, dried, salted, in brine, or smoked, cooked or not before or during the smoking process
03074971	030749	Molluscs; cuttle fish and squid, whether in shell or not, includes flours, meals, and pellets of molluscs, fit for human consumption, dried, salted, in brine, or smoked, cooked or not before or during the smoking process
03074980	030749	Molluscs; cuttle fish and squid, whether in shell or not, includes flours, meals, and pellets of molluscs, fit for human consumption, dried, salted, in brine, or smoked, cooked or not before or during the smoking process
03074992	030749	Molluscs; cuttle fish and squid, whether in shell or not, includes flours, meals, and pellets of molluscs, fit for human consumption, dried, salted, in brine, or smoked, cooked or not before or during the smoking process
03075100	030751	Molluscs; octopus (Octopus spp.), live, fresh or chilled
03075200	030752	Molluscs; octopus (Octopus spp.), frozen
03075910	030759	Molluscs; octopus (Octopus spp.), dried, salted, in brine, or smoked, cooked or not before or during the smoking process
	030791	Molluscs; n.e.c. in heading 0307, whether in shell or not, includes flours, meals, and pellets of molluscs, fit for human consumption, live or fresh, chilled
03079917	030799	Molluscs; n.e.c. in heading 0307, whether in shell or not, includes flours, meals, and pellets of molluscs, fit for human consumption, dried, salted, in brine, or smoked, cooked or not before or during the smoking process
03079918	030799	Molluscs; n.e.c. in heading 0307, whether in shell or not, includes flours, meals, and pellets of molluscs, fit for human consumption, dried, salted, in brine, or smoked, cooked or not before or during the smoking process
	050800	Animal products; coral and similar materials, shells of molluscs, crustaceans, echinoderms, cuttle-bone, unworked or simply prepared but not cut to shape, powder and waste thereof
	050900	Animal products: natural sponges of animal origin
05119190	051191	Animal products; of fish or crustaceans, molluscs or other aquatic invertebrates; dead animals of chapter 03, unfit for human consumption

05119900	051199	Animal products; n.e.c. in chapter 5
	121220	Seaweeds and other algae; of a kind used primarily for human consumption, fresh, chilled, frozen or dried, whether or not ground
12122100	121221	Seaweeds and other algae; fit for human consumption, fresh, chilled, frozen or dried, whether or not ground
12122900	121229	Seaweeds and other algae; not fit for human consumption, fresh, chilled, frozen or dried, whether or not ground
	150410	Oils of fish; fish-liver oils and their fractions, whether or not refined, but not chemically modified
	150420	Fats and oils and their fractions; of fish, (excluding liver-oils)
	150430	Fats and oils and their fractions; of marine mammals
	160300	Extracts and juices; of meat, fish or crustaceans, molluscs or other aquatic invertebrates
	160411	Fish preparations; salmon, prepared or preserved, whole or in pieces (but not minced)
	160412	Fish preparations; herrings, prepared or preserved, whole or in pieces (but not minced)
16041311	160413	Fish preparations; sardines, sardinella and brisling or sprats, prepared or preserved, whole or in pieces (but not minced)
16041319	160413	Fish preparations; sardines, sardinella and brisling or sprats, prepared or preserved, whole or in pieces (but not minced)
16041390	160413	Fish preparations; sardines, sardinella and brisling or sprats, prepared or preserved, whole or in pieces (but not minced)
	160414	Fish preparations; tunas, skipjack and Atlantic bonito (sarda spp.), prepared or preserved, whole or in pieces (but not minced)
16041511	160415	Fish preparations; mackerel, prepared or preserved, whole or in pieces (but not minced)
	160416	Fish preparations; anchovies, prepared or preserved, whole or in pieces (but not minced)
	160419	Fish preparations; fish prepared or preserved, whole or in pieces (but not minced), n.e.c. in heading no. 1604
16042090	160420	Fish preparations; fish minced or in forms n.e.c. in heading no. 1604, prepared or preserved
	160430	Fish preparations; caviar and caviar substitutes
	160510	Crustacean preparations; crab, prepared or preserved
	160520	Crustacean preparations; shrimps and prawns, prepared or preserved
	160530	Crustacean preparations; lobster, prepared or preserved
	160540	Crustacean preparations; other than crab, shrimps, prawns, and lobsters, prepared or preserved
16056100	160561	Aquatic invertebrates; sea cucumbers, prepared or preserved
	160590	Molluscs and other aquatic invertebrates; prepared or preserved (excluding crustaceans)

COLEAD

GROWING PEOPLE

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