Draft sector guidance
Fishing

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Open for consultation and feedback

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SICS® industry:
Meat, Dairy & Poultry (FB-MP)

T N F D — **Taskforce on Nature-related Financial Disclosures**

Contents

Draft for consultation

This sector guidance is a draft for consultation with market participants and other interested stakeholders. The Taskforce welcomes feedback provided via the TNFD website by 4 April 2025.

Feedback will be reviewed by the Taskforce and final sector guidance issued by the TNFD in June 2025.

1. Introduction

1.1. The purpose of this guidance

In September 2023, the TNFD published its recommendations for disclosure of nature-related issues and supporting implementation guidance. This document provides sector-specific additional guidance for the fishing sector, covering:

- The assessment of nature-related issues using the TNFD's LEAP approach (Section 2); and

- The disclosure of sector-specific metrics in line with the TNFD's recommended approach to metrics (Section 3).

The TNFD's Guidance on the identification and assessment of nature-related issues: The LEAP approach is designed as an iterative process – across business locations and business lines – in line with established risk management processes and corporate reporting cycles. Organisations may choose to start with a narrow scope for a LEAP assessment and gradually expand the scope of the assessment as they gain experience and insight.

The TNFD recognises that there can be significant differences across sectors for corporates applying the LEAP approach. It has published this additional guidance, with significant input from a range of knowledge partners and market participants, to help fishing sector participants apply the LEAP approach to their context. The overall structure of the LEAP approach is set out in Figure 1. This guidance follows that structure and Table 2 sets out the elements of LEAP for which this document provides additional guidance.

The Taskforce also recognises that investors and other stakeholders require quantitative information to compare performance and nature-related issues within sectors. To facilitate that sector-level analysis, this guidance also includes:

- Guidance on the application of the core global disclosure indicators and metrics to the fishing sector (Section 3.1); and

- Core and additional sector disclosure indicators and metrics (Sections 3.2 and 3.3).

Figure 2 provides an overview of the TNFD disclosure measurement architecture and where indicators and metrics are listed in the TNFD recommendations and relevant sector guidance.

Figure 1: The TNFD approach for identification and assessment of nature-related issues – LEAP

Scoping

A quick, high-level preliminary scan of internal and external data and reference sources to generate a hypothesis about the organisation's potential nature-related dependencies, impacts, risks and opportunities to define the parameters for a LEAP assessment and to ensure managers and the assessment team are aligned on goals and timelines.

Generate a working hypothesis

What are the organisation's activities where there are likely to be material nature-related dependencies, impacts, risks and opportunities?

Aligning on goals and resourcing

Given the current level of capacity, skills and data within the organisation and given organisational goals, what are the resource (financial, human and data) considerations and time allocations required and agreed for undertaking an assessment?

Locate — The interface with nature

L1 Span of the business model and value chain
What are our organisation's activities by sector and value chain? **Where** are our direct operations?

L2 Dependency and impact screening
Which of these sectors, value chains and direct operations are associated with potentially moderate and high dependencies and impacts on nature?

L3 Interface with nature
Where are the sectors, value chains and direct operations with potentially moderate and high dependencies and impacts located?
Which biomes and specific ecosystems do our direct operations, and moderate and high dependency and impact value chains and sectors, interface with?

L4 Interface with sensitive locations
Which of our organisation's activities in moderate and high dependency and impact value chains and sectors are located in ecologically sensitive locations? And **which** of our direct operations are in these sensitive locations?

Evaluate — Dependencies & impacts

E1 Identification of environmental assets, ecosystem services and impact drivers
What are the sectors, business processes or activities to be analysed? What environmental assets, ecosystem services and impact drivers are associated with these sectors, business processes, activities and assessment locations?

E2 Identification of dependencies and impacts
What are our dependencies and impacts on nature?

E3 Dependency and impact measurement
What is the scale and scope of our dependencies on nature?
What is the severity of our negative impacts on nature? What is the scale and scope of our positive impacts on nature?

E4 Impact materiality assessment
Which of our impacts are material?

Assess — Risks & opportunities

A1 Risk and opportunity identification
What are the corresponding risks and opportunities for our organisation?

A2 Adjustment of existing risk mitigation and risk and opportunity management
What existing risk mitigation and risk and opportunity management processes and elements are we already applying?
How can risk and opportunity management processes and associated elements (e.g. risk taxonomy, risk inventory, risk tolerance criteria) be adapted?

A3 Risk and opportunity measurement and prioritisation
Which risks and opportunities should be prioritised?

A4 Risk and opportunity materiality assessment
Which risks and opportunities are material and therefore should be disclosed in line with the TNFD recommended disclosures?

Prepare — To respond & report

P1 Strategy and resource allocation plans
What risk management, strategy and resource allocation decisions should be made as a result of this analysis?

P2 Target setting and performance management
How will we set targets and define and measure progress?

P3 Reporting
What will we disclose in line with the TNFD recommended disclosures?

P4 Presentation
Where and how do we present our nature-related disclosures?

Review and repeat

Engagement with Indigenous Peoples, Local Communities and affected stakeholders
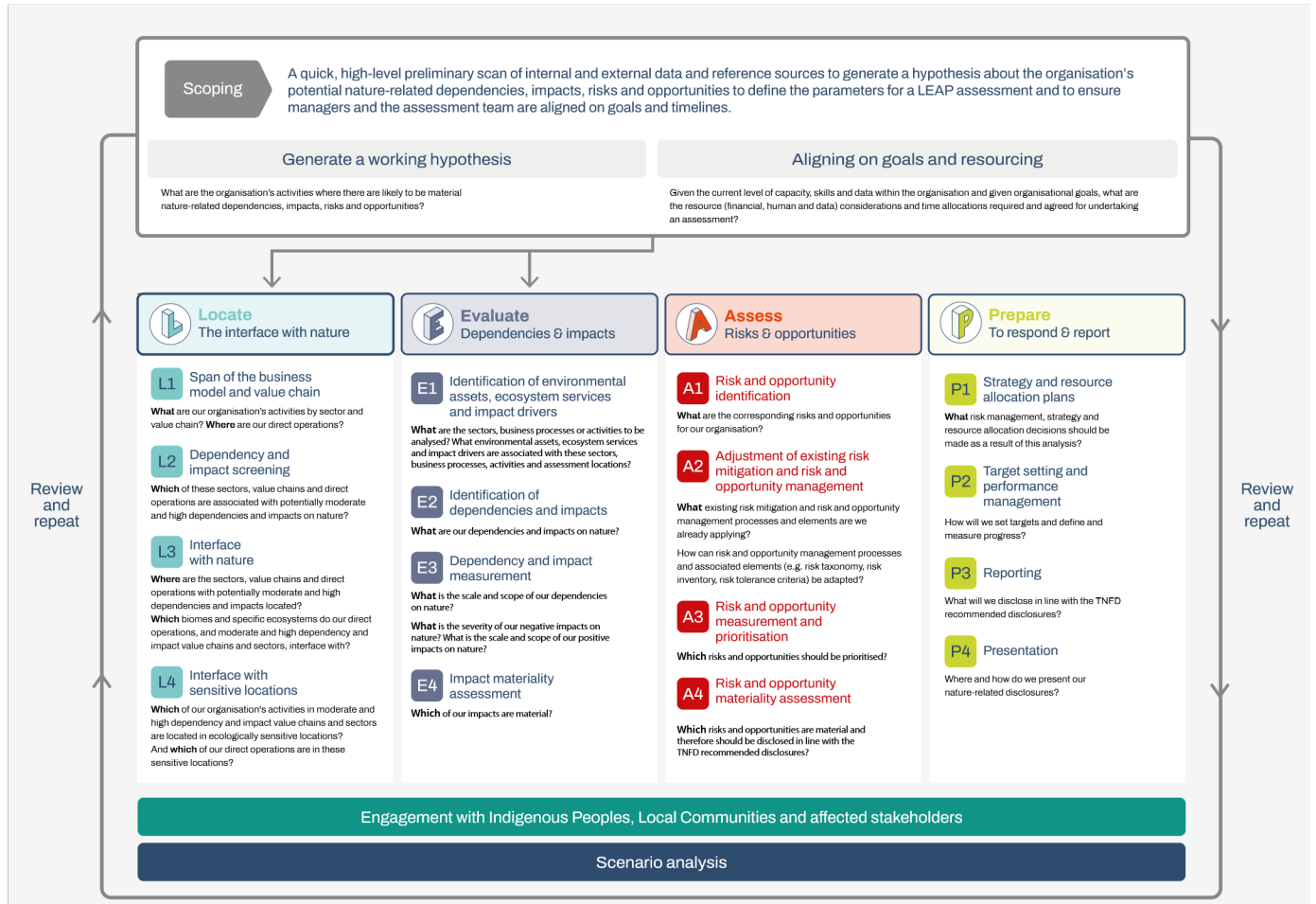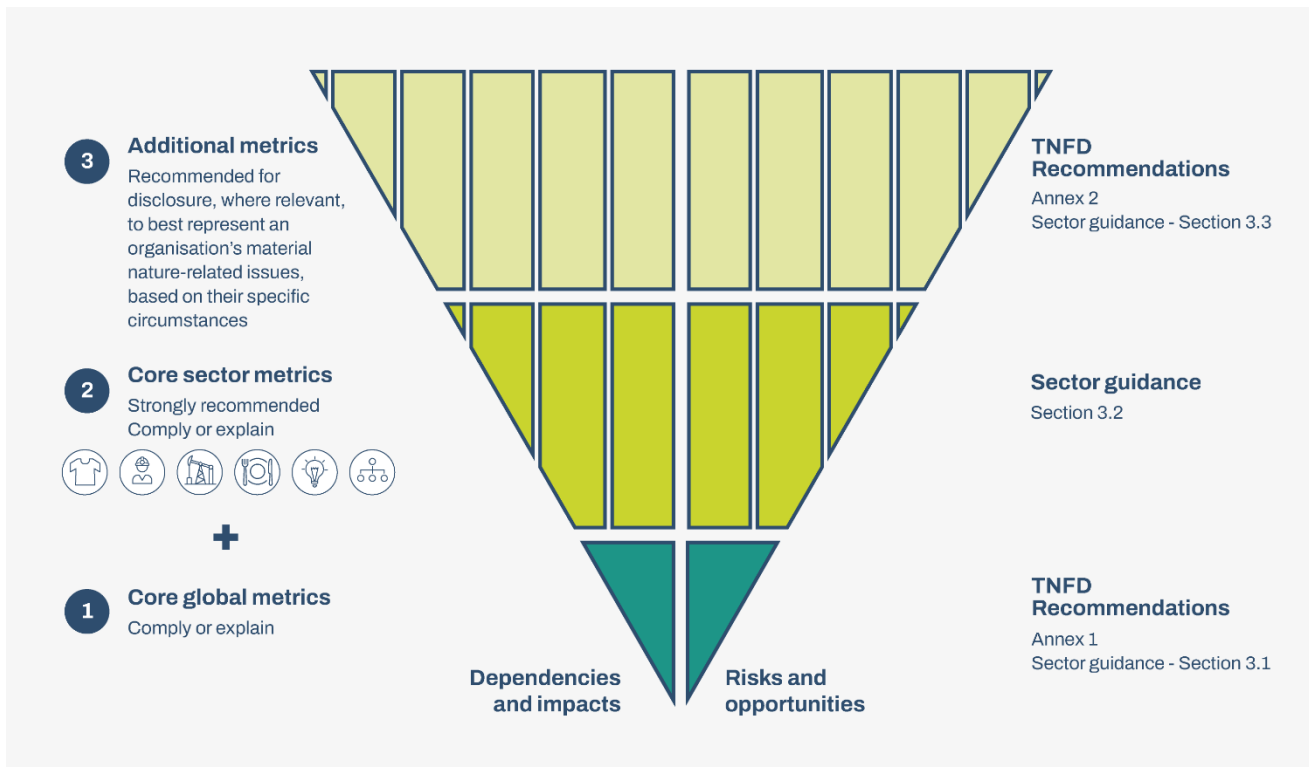
Scenario analysis

Figure 2: TNFD disclosure metrics architecture signposted to metrics lists

The guidance in Section 3 on the application of the TNFD core global metrics for this sector, as well as the core and additional sector metrics outlined, expand on the disclosure indicators and metrics outlined in Annexes 1 and 2 of the TNFD recommendations. The TNFD has incorporated and sought to build on existing industry standards and disclosure metrics wherever possible to leverage current data collection and reporting practices and minimise additional assessment and reporting costs.

1.2. Audience for this guidance

This guidance covers those organisations with business models or value chains in the fishing sector. The fishing sector is covered by the Sustainable Industry Classification System (SICS) Meat, Poultry & Dairy and Processed Foods industries. Specifically, this guidance covers the activities in Table 1. This includes food systems and the marine aquarium trade, but does not include recreational fishing. For simplicity, all organisations in these industries are referred to as 'fishing sector organisations' in this guidance.

Organisations in the fishing sector should also refer to the TNFD guidance on biomes, particularly the sections on the marine shelf realm (M1) and rivers and streams (F1).

Table 1: Business activities for the fishing sector

Activity	Description	Scope
Fishing	Capturing wild aquatic organisms, such as fish, molluscs, crustaceans and kelp, via shore-based methods or via commercial or artisanal vessels in inland coastal or offshore waters. This includes the capturing of organisms for the marine aquarium trade, as well as for food and other purposes.	In this guidance, the TNFD considers capture and primary processing to be an organisation's direct operations. Note that primary processing can occur on a vessel or at a land-based facility. Aggregation is also considered to be part of the direct operations of some fishing sector organisations and is in scope of this guidance.
Primary processing	Onboard handling of live or dead wild aquatic organisms after capture, at point of landing or at land-based facility or at point of transshipment.	
Aggregation	Aggregating caught fish, molluscs, crustaceans and kelp from multiple sources for onward sale to downstream markets, which can involve transaction by intermediary organisations or single actors.	
Storage	Keeping fishing products in a way that preserves their quality and keeps them safe from, for example, harmful bacteria.	The TNFD considers all of these activities to be downstream for the fishing sector and covers them in this guidance. For fish sold to the aquaculture sector for fish feed, organisations should look at the TNFD aquaculture sector guidance. For food packaging and food waste issues, organisations should refer to the TNFD food and agriculture sector guidance. For transport, organisations should also refer to the relevant sector guidance where available.
Transport	Using traditional or mechanised transportation to move fishing products.	
Trading	Buying and selling fishing products.	

Adapted from: GRI (2022)

This guidance is a supplement to the TNFD's Guidance on the identification and assessment of nature-related issues: the LEAP approach and should be read in conjunction with that guidance. Organisations in the fishing sectors should also refer to the TNFD biome guidance and Guidance on engagement with Indigenous Peoples, Local Communities and affected stakeholders.

Table 2: Areas of LEAP with additional guidance for the fishing sector in this guidance document

Scoping	✓							
L1	✓	E1	✓	A1	✓	P1	✓
L2	✓	E2	✓	A2	✓	P2	✓
L3	✓	E3	✓	A3	✓	P3	
L4	✓	E4		A4		P4	

1.3. Sector background

The fishing sector involves the capture or harvest of fish, invertebrates or plants from natural or modified ecosystems in ocean, coastal and freshwater habitats. It is notable as the only business sector that depends on the industrial scale capture of wildlife.

Fishing primarily occurs from boats, although shore-based operations also take place. Vessels range from large freezer trawlers and factory processing ships to smaller vessels such as canoes. For this reason, a major aspect of fishing is vessel operations, which includes fishing gear and the associated emissions, pollution, waste and plastics considerations, similar to other vessel-based industries such as maritime transportation. Fishing provides many millions of jobs and is an important source of GDP for some countries.

A large proportion of seafood from wild-capture fisheries is traded internationally and is characterised by long and complex global supply chains. Raw product may be processed either onboard the vessel or traded or transferred and then processed on land, often in a different country, before being further traded or transferred to the end market.

There are many differences between fisheries and other food production systems. The primary difference is that fish are a common resource managed for the common good – not private property. Fishing companies do not have tenure, title or property rights over the fish stocks they use or over the ocean.

The fishing sector has a dependency on healthy and functioning marine ecosystems and functioning ecosystem services to maintain fish stocks. Fish and other marine living

resources have environmental, social and cultural values as well as value as a protein and nutrient source (especially key for many vulnerable and marginal communities), and an economic value as a soft commodity.

Impacts on nature associated with fishing include those associated with:

- The extraction of fish stocks, including impacts on the health of the target stocks and the wider ecosystem;

- The health of other marine species and marine wildlife populations that may be secondary catch, part of mixed catch or bycatch, including juveniles or Endangered, Threatened or Protected (ETP) species (see Box 1 for a definition of ETP species); and

- Direct impacts of fishing gear on habitats, including on seabed (benthic) habitats, but also gear used in the water column that poses the threat of entanglement to marine life.

Effective management of fishing is needed to mitigate these impacts. At a global scale, fishing capacity far exceeds the maximum sustainable yield of stocks. An important role of management is to keep catch within sustainable levels to prevent overfishing, enable stock rebuilding and ensure that fishing does not hinder the recovery of ETP species or impact habitats. Effective management follows science advice to set catch limits, working within harvest strategies or other ecosystem-based fisheries management frameworks, and is supported by effective monitoring control and surveillance and full traceability. When working well, such an approach prevents overfishing and enables stock rebuilding, as well as ensuring the footprint of fishing does not hinder the recovery of endangered species or impact habitats.

In many jurisdictions, challenges in fishing remain, including achieving effective, science-based fisheries management; accessing data, including on habitats and non-target species; tracing supply chains; and stopping Illegal, Unreported and Unregulated (IUU) fishing activities. An additional challenge is that ocean ecosystems are more susceptible to climate change than their terrestrial counterparts, with mobile and sedentary marine populations moving quickly in response to changing water temperature. In many cases, their distribution, productivity and recruitment is changing, including recruitment failures and collapses in response to marine heatwaves. There are also remaining gaps in scientific understanding of ocean ecosystems.

Established best practice for a sustainable fishing sector includes:

- Rights- and ecosystem-based management approaches;

- Protecting important spawning and breeding grounds;

- Setting restrictions on gear used in specific areas and the seasons for fishing particular stocks;

- Transparency, including on vessel information, fishing activity and governance and management;

- Regular data collection;

- Full traceability of catches and seafood products throughout the value chain;

- Certification of catches to leading standards;

- Science-based fishing regulation;

- Effective enforcement against overfishing and IUU;

- Managing and minimising the impact of pollutants such as abandoned and lost 'ghost' fishing gear; and

- Multi-stakeholder engagement with local communities, NGOs, financial institutions, companies and local and national governments, including oversight by third-party advisory/accreditation processes.

2. Sector-specific LEAP assessment guidance

2.1. Scoping a LEAP assessment

Working hypothesis generation:

What are the organisation's business processes and activities where there are likely to be material nature-related dependencies, impacts, risks and opportunities?

Goals and resourcing alignment:

Given the current level of capacity, skills and data within the organisation and given organisational goals, what are the resource (financial, human and data) considerations and time allocations required and agreed for undertaking an assessment?

When scoping a LEAP assessment, fishing organisations are recommended to consult the Global Dialogue on Seafood Traceability (GDST) Basic Universal List of Key Data Elements (KDEs). Relevant data for scoping a LEAP assessment includes:

Fisheries data

Information on when and where fish are harvested and the fishing methods employed. Data sources include fishery management plans, stock assessments, seafood traceability initiatives, supply chain reporting and certification reports. Relevant data include:

- Scientific (Latin) and common species name;

- Food and Agriculture Organisation of the United Nations (FAO) Major Fishing Areas and Sub-areas;

- Spatial extent of fishing operations as specific/granular as possible, such as country of harvest (Exclusive Economic Zone (EEZ)), areas on the high seas managed by a Regional Fisheries Management Organisation, sub-national permit areas, and an indication of whether geographic coordinates were collected and available;

- Depth profiles (see Table 4);

- Size of fishery (industrial or small-scale);

- Volume of catch;

- Detailed gear types including subcategories (see Table 3);

- Stock status, including the stock status assessments or systems used;[1]

- Credible certifications/Fishery Improvement Projects (FIPs);

- Seasonality of fishing activities (by month);

- Rates of incidental catch;

- Type of interactions (incidental bycatch, entanglement, etc.); and

- Incidental bycatch/interaction mitigation measures.

Endangered, threatened, and protected (ETP) species status

A fishing sector organisation may also find it helpful when scoping a LEAP assessment to identify whether any ETP species are present in the fishery and the likelihood and severity of an interaction with them. Relevant data include:

- ETP status of target species and other species present in the local area;[2]

- Spatial extent of relevant ETP marine wildlife (similar scale as fishing activity, where possible);

- Seasonality of relevant ETP marine wildlife in relevant areas (monthly and/or behavioural cycles, e.g. mating, nursing, nesting, migration); and

- Threats to the species from wild capture fishing (e.g. incidental bycatch, entanglement, etc.).[3]

Habitat data

A fishing sector organisation may also find it helpful when scoping a LEAP assessment to identify relevant habitat data. These include:

- Ecosystem types according to the IUCN Global Ecosystem Typology; and

- Sensitive location data, following the criteria for sensitive locations in component L4 of this guidance.

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[1] The organisation can use any stock status assessments or systems that are relevant to the location of origin and species. This is in line with GRI Standards (2024) GRI 13: Agriculture, Aquaculture and Fishing Sectors 2022.

[2] As outlined in Box 1, as well as in the glossary in this sector guidance.

[3] This list of required datasets is consistent with the recommendations of the Science-Based Targets for Nature (SBTN) draft Oceans Hub Guidance (2024).

The Global Record of Stocks and Fisheries (GRSF) developed by the FAO and Sustainable Fisheries Partnership is a useful data source to support this.

Box 1: Endangered, Threatened and Protected (ETP) species

ETP species are defined in this guidance as:

1. Species impacted by the fishing activity that are classified as amphibians, reptiles, birds or mammals; and

2. Species impacted by the fishing activity that are classified as fish or invertebrates and are listed in any of the following:

   i. Appendix 1 of the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES);

   ii. Appendix 2 of CITES;

   iii. Appendix 1 of the Convention on the Conservation of Migratory Species of Wild Animals (CMS);

   iv. Appendix 2 of CMS;

   v. The International Union for Conservation of Nature (IUCN) Red List of Threatened Species and classified globally as 'Critically Endangered (Cr)';

   vi. The IUCN Red List of Threatened Species and classified globally as 'Endangered (En)'; and

   vii. National ETP legislation.

Source: Adapted from the MSC (2022) Fisheries Standard v.3.0.

Table 3: Types of fishing gear and species typically caught[4]

Fishing gear category	Type of fishery	Description	Species typically caught	Depth used at
Surrounding nets	Inland; marine	• A long piece of net framed by ropes that surrounds a school of fish to catch them, including purse seines, and other surrounding nets without a purse line. • Usually used on pelagic fish near the surface or in shallow water.	• Purse seines: Skipjack tuna, Atlantic mackerel, Atlantic herring • Other surrounding nets: Sardines, mackerel, squid	• Surface, midwater
Seine nets	Inland; marine	• Either cone-shaped nets with long wings and a codend, or a long piece of net without a codend, that catches fish by encircling and herding. This type of net may be set from the shore (beach seine) or from one or two boats (boat seine). • Beach seines are common in small-scale and artisanal fisheries. They are used in shallow coastal waters. • Boat seines are usually used over smooth seabed with fewer obstructions.	• Flounders	• Surface, midwater

[4] See source (He, P. et al. (2021) Classification and illustrated definition of fishing gears) for more detail and illustration of all the gears described in this table.

Fishing gear category	Type of fishery	Description	Species typically caught	Depth used at
Trawls	Marine (sometimes inland, but to a lesser extent)	• A cone-shaped body of netting usually with one codend towed behind one or two boats. They are designed to be towed across the seabed (bottom trawling) or in midwater (midwater trawls). Semi pelagic trawls can do either. • Trawls can be used by one or more boats and are very versatile. • Bottom trawls have heavy ground gears to ensure that contact with the seabed is maintained and the net is not damaged. • Midwater trawls use echo sounders and/or scanning sonars to locate schools of fish.	• Bottom trawl: Flatfish, shrimp, cod, haddock, halibut • Midwater trawl: Mackerel, herring, sprats	• Bottom (for bottom trawls), midwater (for midwater trawls)
Dredges	Inland; marine	• A dredge is a cage-like structure usually with a scraper blade or teeth on its lower edge which is pulled or towed to dig animals out of the substrate and lift them into the cage or bag. • Usually made of metal rods or chain mesh and pulled along the bottom. Dredges can be towed, used by hand or mechanised.	• Mussels, oysters, scallops, clams	• Bottom
Lift nets	Inland; marine	• A lift net is a piece of netting mounted onto a frame that is lowered into the water to allow fish to enter the area above the net and is then lifted or hauled upward to collect the fish accumulated there. • This gear ranges from being small and portable to large and assisted by a winch or equivalent device.	• Cuttlefish, Pacific saury	• Surface, midwater

Fishing gear category	Type of fishery	Description	Species typically caught	Depth used at
Falling gear	Inland; marine	• Falling gear is a net or a basket-like structure which is cast, pushed down or allowed to fall from above to catch fish underneath it. • These are usually used in shallow coastal water, but some large-scale falling nets are used in deep waters from a boat with lights used to attract fish.	• Sardines, scads, mackerel	• Surface, midwater
Gillnets and entangling nets	Inland; marine	• Gillnets and entangling nets are long rectangular walls of netting that catch fish by gilling, wedging, snagging, entangling or entrapping them in pockets. • Can be used at any depth – near the surface, midwater, near the seabed.	• Monkfish, skates, sole, squid	• Surface, midwater, bottom
Traps	Inland; marine	• Traps are stationary structures of many shapes and sizes into which fish are guided, or pushed by the current, or drawn into the gear by bait or other attractants.	• Lobster, crabs, shrimps	• Bottom

Fishing gear category	Type of fishery	Description	Species typically caught	Depth used at
Hooks and lines	Inland; marine	• Hook-and-line gears use hooks (including jigs) and lines to catch fish by the mouth with baited hooks, or penetrate their flesh (impaling, ripping or tearing) with unbaited hooks when fish pass within the hook's range of movement. Bait can include mackerel, herring and squid, or artificial lures such as rubber, plastic or feather. • Hook-and-line gear can be used at all depths, set on or near the bottom with weights, near the surface, or drifting in midwater. • Hooks and lines can be longlines or handlines, with different environmental impacts. With longlines, hooks are connected to branch lines, which are attached to a long horizontal mainline. These are usually baited and set in open water, untended, and can be from hundreds of metres to over 80km long. • Handlines are operated and/or tended to by a fisher.	• Cod, halibut, haddock, squid	• Surface, midwater, bottom
Miscellaneous gear		• Includes harpoons, hand implements, pumps, electric fishing, scoopnets, pushnets, drive-in nets, diving. Diving is most applicable to the marine aquarium trade.	• Various.	• Surface, midwater, bottom
Adapted from He, P. et al. (2021) Classification and illustrated definition of fishing gears. Notes: There is ongoing debate over the intensity and destructiveness of different gears. Organisations should refer to resources such as McCarthy, A. H. et al. (2024) Destructive fishing: An expert-driven definition and exploration of this quasi-concept. Note that, however, there are ways to mitigate the destructiveness of certain fishing gears and this should be taken into account.				

Table 4: Fishing gear depth[5]

Depth zone[6]	Depth (m) - roughly
Surface	0-200m
Midwater, made up of:	200-11,000m
Mesopelagic/midwater/twilight zone	200-1,000m
Bathypelagic/midnight zone	1,000-4,000m
Abyssal zone	3,000-6,500m
Hadalpelagic/hadal zone	6,000-11,000m
Benthic /seabed	Variable

The FAO defines deep sea fisheries as those which 'take place between depths of 200 and 1,500 meters, targeting bottom-dwelling species on continental shelves, seamounts and ocean ridges using bottom and deep mid-water trawls, and bottom-set gillnets, longlines and pots.'[7]

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[5] Note that most oceans off the continental shelves bottom out at about 4000m, and that abyssal and hadalpelagic environments are found in ocean trenches, well below the activities of most fishing vessels.

[6] NOAA (2024) Layers of the Ocean

[7] FAO (n.d.) Deep sea fisheries

Figure 3: Typical fishing industry value chain

Upstream	Direct operations	Downstream	End of life

Upstream

Feedstock and raw materials procurement

Bait

Vessel and gear manufacturing

Metals

Chemicals

Forestry products and natural substances

Fossil fuels

Aggregates

Infrastructure provision (e.g. ports, access roads, railways and other transport)

Energy supply

Water supply

Direct operations

Fishing activity

Fish

Bycatch

Shellfish

Kelp

Onboard or land-based processing, product packaging

Fish

Shellfish

Kelp

Products from discards

Fishing vessel operation

Water (cleaning, processing)

Disinfectants (sanitising)

Fuel/energy

Waste

Downstream

Retail and food service purchasing and selling to consumers, restaurants

Port/landing and product aggregation, transport and distribution

End of life

Waste management (including food, vessels and gear)

Recycling, repurposing, repairing

Final disposal

Key

Activities
Commodities

2.2. Locate the organisation's interface with nature

This section provides additional guidance to help fishing sector organisations with the Locate phase of the LEAP approach.

L1: Span of the business model and value chain

Guiding questions:

What are our organisation's activities by sector, value chain and geography?

Fishing sector value chains are complex and diverse, often involving multiple actors, ranging from small-scale operations that may only consist of one or two boats to large fisheries with thousands of fishing vessels. Primary fishers will often sell to a trading company or aggregator, which will pool and sell the product down the value chain to distributors, wholesalers, packed and processed food manufacturers and retailers. Consumers and the end of life are downstream for all the organisations in this sector. Figure 3 presents an illustrative value chain.

Where are our direct operations?

Describing the location of fishing operations is different to land-based activities. Boats can cover large areas and catch fish in many locations; ocean ecosystems are large, and made up of both the seabed and the water column above it, with different habitats and ecosystems at different depths (marine shelf, pelagic ocean waters, deep sea floors); and target fish are, to varying extents, mobile.[8] The area of disturbance from fishing will include both horizontal and vertical dimensions and will be linked to the location of the fishing gear. For example, part of the impact of certain fishing gear comes from the risk of entanglement of large marine mammals in fishing lines perpendicular to the seabed.

Traceability is key in the fishing sector and serves to ensure the sustainability of fishery resources and the legality of fishing operations, as well as facilitating transparency about value created at each stage of the value chain and how it is distributed among producers.[9] Organisations identifying the location of fishing operations in this phase of LEAP should identify the geographic catch area where the seafood capture occurred, the gear types used in each location, the total estimated depth of fishing activity[10] and the location of landing. This will give a sense of geographic supply chain origins, which can then be combined with other sustainability data collected to help understand dependencies, impacts and status.

For all gear types, in line with the Global Dialogue on Seafood Traceability (GDST) Basic Universal List of Key Data Elements (KDEs), it will be helpful for an organisation to identify whether the fishing effort took place in:

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[8] Global Ecosystem Typology: Marine Realm.

[9] GRI Standards (2024) GRI 13: Agriculture, Aquaculture and Fishing Sectors 2022.

[10] Organisations can use table 4 to calculate the estimated depths each gear is used at.

- [FAO Major Fishing Areas or Sub-areas;](#)[11]

- Exclusive economic zones (EEZ) of the country where the seafood was caught;

- Regional fishery management organisations (RFMO); and

- Sub-national permit areas where the seafood was caught (if applicable).

In addition, it will be helpful for an organisation to collect the geographic coordinates of fishing activities and/or landing, noting:

- For port landings, the port name ([United Nations Code for Trade and Transport Locations](#) UN/LOCODE); and

- For non-port landings, the Global Positioning System (GPS) coordinates where the seafood was first discharged to land and/or transhipped to another vessel.

Fishing organisations can use Vessel Monitoring System (VMS) data to gather this information and smaller vessels can use data from transponders or GPS locator data. If coordinates are not possible for smaller vessels, identifying where their fishing effort took place in any of the area types outlined above or the management area (e.g. [ICES statistical rectangles](#) for the North Atlantic) in combination with an indication of the total maximum area fished (km^2) can be an appropriate proxy. In the absence of primary data from source vessels, [Global Fishing Watch](#) data can be helpful for processing organisations when estimating the area fished.

This guidance recognises that fisheries are run on an 'access right to a public resource' rather than an ownership right system, so fisheries are government managed. Wild capture fishing entities do not have property rights over specific ocean areas and are issued with licenses or are registered to fish within particular management areas. They do not 'control' and do not 'manage' areas in the sense that terrestrial companies might. Fish are a public good managed in the public interest. Therefore, the total area fished, or total disturbed area, should be interpreted as the effort area where gear has been deployed into the water. 'Area controlled or managed' should be interpreted as the area that the organisation has an influence on, has a right to utilise, has been granted license to fish or has the right to operate in.

Organisations should identify whether they have operations in areas of the sea reserved for small-scale fisheries. Additionally, engagement can provide further insights, and organisations may find it useful to refer to the TNFD's [Guidance on engagement with Indigenous Peoples, Local Communities and affected stakeholders](#).

Further guidance and support on location is available from the:

- [Global Dialogue on Seafood Traceability Key Data Elements;](#)

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[11] Using the [FAO Major Fishing Areas](#) database.

- FAO Fisheries and Resource Monitoring System (FIRMS); and

- Ocean Biodiversity Information System (OBIS) mapper.

Organisations in the downstream value chain may also find standards such as the Marine Stewardship Council (MSC) Chain of Custody standard useful.

For the live-fish trade (e.g. ornamental fish, marine aquarium trade), it will be helpful for organisations to identify the location of the reefs in which the species were caught and the landing location where the organisms were first discharged to land, which for in-port landings, includes the port name (United Nations Code for Trade and Transport Locations UN/LOCODE), and for non-port landings, the GPS coordinates where the organisms were first discharged to land.

Table 5: Materiality ratings of ecosystem services the fishing sector typically depends on

Ecosystem service		Fishing	Processing and preserving of fish, crustaceans and molluscs
Provisioning services	Genetic material	High	N/A
	Water supply	High	High
	Other provisioning services - Animal-based energy	N/A	N/A
	Biomass provisioning	Very high	N/A
Regulating and maintenance services	Solid waste remediation	Very high	Medium
	Soil and sediment retention	Very high	Low
	Water purification	Very high	Very high
	Soil quality regulation	Medium	N/A
	Other regulating and maintenance service - Dilution by atmosphere and ecosystems	Medium	Low
	Biological control	High	Very low
	Air filtration	Low	N/A
	Flood control	Medium	Medium
	Global climate regulation	Very high	Very low
	Nursery population and habitat maintenance	Very high	N/A
	Noise attenuation	ND	N/A
	Other regulating and maintenance service - Mediation of sensory impacts (other than noise)	N/A	N/A
	Local (micro and meso) climate regulation	Medium	ND
	Pollination	N/A	N/A
	Storm mitigation	High	Medium
	Water flow regulation	High	High
	Rainfall pattern regulation	Very high	N/A
Cultural services	Recreation related services	ND	N/A
	Visual amenity services	ND	N/A
	Education, scientific and research services	Very high	N/A
	Spiritual, artistic and symbolic services	Very high	N/A

NA = Not applicable; ND = No data
Source: ENCORE Partners (Global Canopy, UNEP FI, and UNEP-WCMC) (2024). ENCORE: Exploring Natural Capital Opportunities, Risks and Exposure. Cambridge, UK: the ENCORE Partners. DOI: https://doi.org/10.34892/dz3x-y059

Table 6: Materiality ratings for impact drivers typically relevant for the fishing sector

Drivers of nature change	Impact driver	Fishing	Processing and preserving of fish, crustaceans and molluscs
Land, freshwater and ocean-use change	Area of land use	N/A	Low
	Area of freshwater use	High	N/A
	Area of seabed use	High	N/A
Climate change	Emissions of GHG	Medium	Low
Pollution/pollution removal	Emissions of non-GHG air pollutants	Medium	Low
	Disturbances (e.g. noise, light)	High	Medium
	Emissions of toxic soil and water pollutants	Medium	Medium
	Emissions of nutrient soil and water pollutants	ND	Very high
	Generation and release of solid waste	High	Medium
Resource use/replenishment	Other biotic resource extraction (e.g. fish, timber)	High	N/A
	Other abiotic resource extraction	N/A	N/A
	Volume of water use	Medium	Medium
Introduction of invasive alien species		Medium	ND

NA = Not applicable; ND = No data
Source: ENCORE Partners (Global Canopy, UNEP FI, and UNEP-WCMC) (2024). ENCORE: Exploring Natural Capital Opportunities, Risks and Exposure. Cambridge, UK: the ENCORE Partners. DOI: https://doi.org/10.34892/dz3x-y059.

L3 Interface with nature

Guiding questions:

Where are the sectors, value chains and direct operations with potentially moderate and high dependencies and impacts located?

Which biomes and specific ecosystems do our direct operations, moderate and high dependency and impact value chains and sectors, interface with?

In L3, an organisation identifies the locations of activities and commodities prioritised in L2 and identifies which biomes and specific ecosystems these interface with.

An organisation identifying catch locations should refer to the guidance in L1.

Table 7 lists marine and freshwater biomes most likely to be relevant for the fishing sector. Organisations may also find it useful to refer to the TNFD biome guidance, particularly the guidance on the marine shelf biome.

Table 47: Marine and freshwater ecosystem functional groups by biome for the fishing sector

Rivers and streams (F1)	Marine shelf (M1)	Artificial marine systems (M4)	Anthropogenic shorelines (MT3)
Lakes (F2)	Pelagic ocean waters (M2)	Shorelines (MT1)	Semi-confined transitional waters (FM1)
Artificial wetlands (F3)	Deep sea floors (M3)	Supralittoral coastal (MT2)	Brackish tidal (MFT1)
Adapted from: IUCN Global Ecosystem Typology.			

L4: Interface with sensitive locations

Guiding questions:

For our organisation's activities in moderate and high dependency and impact value chains and sectors, which of these are in ecologically sensitive locations?

Which of our direct operations are in sensitive locations?

For the ocean and freshwater realms, organisations should consult the criteria listed in Table 4 of the TNFD LEAP approach. In addition to these criteria, fishing sector organisations should consider as sensitive locations:

- Areas defined as 'more sensitive habitats' by the MSC Fisheries Standard v3.0: 'a habitat that would be unable to recover to at least 80% of its unimpacted structure and function within 20 years if fishing were to cease entirely';

- Blue carbon-rich sediments;[12]

- Ecologically or Biologically Significant Marine Areas (EBSAs) defined by:

    - Uniqueness or rarity;

    - Special importance for life history stages of species;

    - Importance for threatened endangered or declining species and/or habitats;

    - Vulnerability, fragility, sensitivity or slow recovery;

    - Biological productivity;

    - Biological diversity; and

    - Naturalness;[13]

- Important Marine Mammal Areas (IMMAs);

- Important Shark and Ray Areas (ISRA);

- Important Marine Turtle Areas (IMTAs);

- Marine Protected Areas (MPAs);

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[12] See the glossary in this guidance.
[13] CBD Ecologically or biologically significant marine areas.

- Vulnerable Marine Ecosystems (VMEs), such as seamounts, cold-water corals, hydrothermal vents and sponge fields;[14] and

- Areas of customary and traditional use: Local knowledge about biodiversity is important to consider and may in some cases be the only way of getting information about the presence of rarely observed species or habitats that would otherwise require surveys to assess. Organisations are encouraged to seek out engagement with Indigenous Peoples, Local Communities and local stakeholders.

List of datasets and tools

In addition to the tools, guidance and datasets signposted in the LEAP approach, fishing sector organisations may find it helpful to use the following indicators, tools and datasets for identifying sensitive locations:

- Ecologically or Biologically Significant Marine Areas (EBSAs) dataset;

- IMMA e-Atlas Marine Mammal Protected Areas Task Force;

- Ocean+ Habitat Datasets;

- FAO Database for Vulnerable Marine Ecosystems (VMEs);

- Mapping Ocean Wealth Explorer – in particular, the mangroves dataset;

- OSPAR List of Threatened and/or Declining Habitats;

- IMO's Particularly Sensitive Sea Areas;

- Birdlife International's List of Important Bird Areas;

- Marine Protected Areas (MPAs) – in particular, those with a no-take policy in place;

- Coastal Risk Index; and

- Convex Seascape Survey.

Assessing sensitive locations in the ocean is an area of rapidly evolving research, and fishing sector organisations should track new developments and indicators.

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[14] FAO Vulnerable marine ecosystems.

2.3. Evaluate dependencies and impacts on nature

This section provides additional guidance to help fishing sector organisations with the Evaluate phase of the LEAP approach.

E1: Identification of environmental assets, ecosystem services and impact drivers

Guiding questions:

What are the sectors, business processes or activities to be analysed?

What environmental assets, ecosystem services and impact drivers are associated with these sectors, business process, activities and assessment locations?

Guidance for components E1 and E2 is provided together under E2.

E2: Identification of dependencies and impacts

Guiding question:

What are our dependencies and impacts on nature?

Impacts

Table 8 provides illustrative examples of fishing sector-specific business processes and activities, the associated impact drivers and the environmental assets and ecosystem services that the impact drivers affect. It connects the impact pathways for the specific impact drivers identified in L2 to key fishing production systems. It can also help organisations identify further impacts associated with their particular business model.

Organisations should refer to the relevant TNFD sector guidance for upstream and downstream impacts, e.g. food and agriculture and aquaculture.

This table describes impacts over different environmental assets. An organisation will also need to consider how these impacts apply to their specific locations and areas of influence.

Table 58: Examples of impact pathways for fishing, land-based and vessel-based seafood processing and the marine aquarium trade

Business activity	Drivers of nature loss	Example environmental assets and ecosystem services affected	Description
Fishing	**Land, freshwater and ocean-use change** **Ocean ecosystem use change:** impact of use of fishing gears	*Environmental assets:* • Marine (ocean) ecosystems • Freshwater and subterranean freshwater ecosystems *Ecosystem services:* • Biomass provisioning • Biological control • Genetic material • Local (micro and miso) climate regulation • Nursery population and habitat maintenance • Other regulating and maintenance services • Cultural services	Gear such as blast/dynamite fishing, chemicals/poisons, mechanised dredges and towed dredges have been identified as four of the most potentially destructive gear types.[15] Dredging and bottom trawling disturbs benthic habitats and drags up plants and coral populations that maintain the balance of marine ecosystems by providing nursery and feeding grounds for many species.[16] Dredging and bottom trawling can disturb carbon-rich ecosystems such as seagrass, leading to the release of stored carbon.[17] These activities in turn can affect cultural services, such as educational and tourism activities. Organisations can identify the ecosystem where they are trawling or dredging and determine whether it will suffer long-term damage if it lacks an ability to maintain its ecological structure and function or recover from the impact (e.g. trawling on a highly disturbed sandy seafloor as opposed to through a coral reef). Other gear types are equally damaging in different ways. Both gillnets and longlines have been associated with high levels of bycatch of unwanted species, including sea turtles, seabirds and marine mammals.[18] Organisations can identify whether the areas where they operate overlap with key marine breeding, nursery or feeding grounds, as well as carbon-rich sediments and other carbon-rich ecosystems such as seagrass meadows, coral reefs and mangroves.

[15] McCarthy et al. (2024) Destructive fishing: An expert-driven definition and exploration of this quasi-concept.
[16] Pitcher et al. (2022) Trawl impacts on the relative status of biotic communities of seabed sedimentary habitats in 24 regions worldwide.
[17] Australian Government (2024) A guide to measuring and accounting for the benefits of restoring blue carbon ecosystems.

[18] Monterey Bay Aquarium Seafood Watch (2024) Fishing and farming methods

Business activity	Drivers of nature loss	Example environmental assets and ecosystem services affected	Description
Fishing	**Pollution/pollution removal** **Plastic pollution:** Fishing gear is often lost by accident or abandoned at sea deliberately. An estimated 29% of all fishing lines are lost each year, along with 6% of all nets. An estimated 640,000 tonnes of fishing gear enter the ocean each year, making up 10% of ocean plastic waste. Fishing gear accounts for over 85% of the refuse on the seafloor, seamounts and ocean ridges, and in the Great Pacific Gyre. [19]	*Environmental assets*: • Marine (ocean) ecosystems • Freshwater and subterranean freshwater ecosystems *Ecosystem services*: • Biomass provisioning • Biological control • Genetic material • Nursery population and habitat maintenance • Other regulating and maintenance services • Cultural services	Abandoned, lost or otherwise discarded fishing gear (ALDFG) – or 'ghost gear' – can trap, entangle, smother or kill animals. Over 300,000 small whales, dolphins and porpoises die from entanglement in fishing nets each year.[20] Ghost gear may continue to catch both commercial and non-target species for many months, years or even decades after it is lost or discarded. It is worse than other types of plastic pollution because it was specifically designed to trap and kill marine wildlife. Plastic gear's lightness, buoyancy, durability and low cost makes it ideal for fishing, but fatal to marine life. There are socioeconomic costs where ghost fishing competes against fishers for their catch. Ghost gear can damage marine habitats and biodiversity through physical damage caused by abrasion, shearing or smothering, and can change the physical and chemical composition of marine sediments, especially sensitive habitats and ETP species. Physical damage to marine habitats can impair critical feeding areas, breeding grounds (e.g. turtle and seabird nesting sites), nurseries and refuges used by a range of organisms that occupy these habitats. Lost or degraded habitats reduce the resilience of marine creatures and their ability to survive and can ultimately alter complex marine ecosystems and reduce local biodiversity. Organisations can find more information about ghost gear and how to prevent it at the Global Ghost Gear Initiative, which has a reporting app and a database.

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[19] Greenpeace (2019) Ghost gear, the abandoned fishing nets haunting our oceans.
[20] WWF Bycatch.

Business activity	Drivers of nature loss	Example environmental assets and ecosystem services affected	Description
Fishing	**Pollution/pollution removal** **Water pollutants:** Commercial fishers store the fish and shellfish they catch in chilled condition on their fishing vessels. The two most common methods of cooling seawater are by mechanical refrigeration to create refrigerated seawater (RSW) or by adding ice (or ice slurry or ice chips). Fish-hold effluent includes RSW, ice and melted ice that remains in the fish hold after the catch has been offloaded. The water that is drained as the ice melts during the fishing expedition is also fish-hold effluent, as is any fish-hold cleaning wastewaters. Fish-hold effluent is often immediately discharged overboard following offloading.[21] This includes trimmings and bycatch that are dumped overboard in bigger fisheries.	*Environmental assets:* • Marine (ocean) ecosystems • Terrestrial (land-based) and subterranean terrestrial ecosystems • Freshwater and subterranean freshwater ecosystems *Ecosystem services:* • Water supply • Water purification • Biological control • Nursery population and habitat maintenance • Genetic material • Other regulating and maintenance services • Cultural services	Fish-hold effluent and the effluent produced from the cleaning of fish holds may contain organic material resulting from the degradation of seafood and cleaning products including soaps and detergents, such as trace heavy metals and nutrients, and have an altered pH. Some nutrients are high in nitrogen and easily transform into nitrous oxide (N_2O), which is a greenhouse gas. Such effluents are often discharged by vessels into near-shore waters and have been shown to have the potential to contribute to water pollution in bays and estuaries as well as impact human health.[22] High pathogen concentrations have also been found in some fish-hold effluent and fish-hold cleaning wastewater samples.[23]

Business activity	Drivers of nature loss	Example environmental assets and ecosystem services affected	Description
Fishing	**Pollution/pollution removal** **Disturbances:** Noise pollution from fishing vessels.	*Environmental assets:* • Marine (ocean) ecosystems • Freshwater and subterranean freshwater ecosystems *Ecosystem services:* • Biomass provisioning • Biological control • Noise attenuation • Genetic material • Nursery population and habitat maintenance • Other regulating and maintenance services • Cultural services	Marine noise pollution (to which fishing vessel operations contribute) has well-documented negative effects – namely the injury (often fatal) of marine mammals, fish and invertebrates.[24] Changes in behaviour to avoid the noise include altered migration patterns and masking of sounds that marine life use to communicate.[25] This can change population distribution and abundance of marine species and affect trophic pathways within an ecosystem. Evidence has also shown that exposure to noise pollution from vessels can affect taxa like marine invertebrates down to the level of DNA integrity.[26] Some studies have shown that anthropogenic noise pollution causes a reduction of the catch rate of some commercial marine species.[27] Bottom trawling noise can propagate across oceanic geographic features. It will have more impact if it is done during the times of year and in locations where cetaceans and other species sensitive to noise pollution are migrating or breeding.[28]

[21] United States Environmental Protection Agency (2011) Fish Hold Effluent and Fish Hold Cleaning Wastewater Discharge.
[22] Albert, McLaughlin and Falatko (2014) Characterization of fish hold effluent discharged from commercial fishing vessels into harbor waters.
[23] The source of pathogens can have been contaminated by ambient background water used to clean the decks aboard these vessels.
[24] Williams, R. et al. (2015) Quiet(er) marine protected areas.
[25] Daly, E. et al. (2021) Bottom trawling noise - are fishing vessels polluting to deeper acoustic habitats?
[26] Wale, M. A. et al. (2019) From DNA to ecological performance - effects of anthropogenic noise on a reef-building mussel.
[27] Peng, C. et al. (2015) Noise in the sea and its impacts on marine organisms.
[28] Daly, E. et al. (2021) Bottom trawling noise: Are fishing vessels polluting to deeper acoustic habitats?

Business activity	Drivers of nature loss	Example environmental assets and ecosystem services affected	Description
Fishing	**Pollution/pollution removal** **Solid waste:** Between 2014 and 2020, 219,000 gross cumulative tonnes of fishing vessels were dismantled and removed from the oceans. Half of these vessels were beached – meaning deliberately laid ashore – and broken down in India or Bangladesh on tidal mudflats. This rate is expected to increase over time as the global number of vessels increased sevenfold between 1950 and 2015.[29]	*Environmental assets:* • Marine (ocean) ecosystems • Terrestrial (land-based) and subterranean terrestrial ecosystems • Freshwater and subterranean freshwater ecosystems *Ecosystem services:* • Water supply • Nursery population and habitat maintenance • Genetic material • Other regulating and maintenance services • Cultural services	Ships contain hazardous materials such as asbestos, Polychlorinated Biphenyls (PCBs), and paints and coatings that contain heavy metals and waste oils. These can have serious implications for the environment and human health if not managed properly.[30] When dumped on beaches or locally, they contaminate the sands and sediments. Currents and tides then distribute the pollutants, especially during the monsoon season. This affects marine life – near Chattogram in Bangladesh, 21 species of fish and crustacean have been wiped out by the local shipbreaking industry, which also endangered another 11 species.[31]

[29] Planet Tracker (2021) Beached, not stranded.
[30] UNEP Environmentally sound management of priority waste streams: end-of-life ships.
[31] Planet Tracker (2021) Beached, not stranded.

Business activity	Drivers of nature loss	Example environmental assets and ecosystem services affected	Description
Fishing	**Resource use/replenishment** **Other resource use:** Volume of wild-caught species, including bycatch species such as marine mammals, turtles and seabirds	*Environmental assets:* • Marine (ocean) ecosystems *Ecosystem services:* • Biomass provisioning • Biological control • Genetic material • Local (micro and miso) climate regulation • Nursery population and habitat maintenance • Other regulating and maintenance services • Cultural services	Overexploitation of fish stocks is a major problem in many fisheries worldwide. Fish stocks that are overfished are vulnerable to reduced reproduction and changing feeding patterns, increasing the risks of population decline (and stock collapse) or extinction. Organisations should be able to track whether a specific fish stock is overfished – meaning that it is not caught when at a level fluctuating around or above a level consistent with Maximum Sustainable Yield (MSY) or an appropriate proxy. In addition, bycatch – when a non-target species is caught and then discarded – negatively impacts species numbers. Bycatch species that are discarded overboard often die and cannot reproduce, impacting marine ecosystem functioning and disrupting the food web. Bycatch also affects protected species such as seabirds, cetaceans and sea turtles. Oxygen depletion occurs when a sufficient quantity of non-target catch and processing waste is discarded at sea, as decomposition processes consume oxygen and introduce anaerobic conditions.[32] This process has the double negative impact of emitting greenhouse gases, such as carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). Bycatch can also have negative economic and social impacts on fishers and their communities. For example, a fishery may close early because of high bycatch of a non-target species. Ecologically, bycatch can change the availability of prey, which affects marine ecosystems and the productivity of fisheries.[33]

[32] FAO Bycatch and discard impacts.
[33] NOAA Understanding bycatch.

Business activity	Drivers of nature loss	Example environmental assets and ecosystem services affected	Description
Fishing	**Invasive alien species introduction/removal** **Introduction of invasive alien species**: Invasive alien species can be introduced into ecosystems by imported bait, or by wastewater discharged, such as bilge and ballast water,[34] which can negatively impact local stocks through disease or competition for resources and/or prey.[35]	*Environmental assets:* • Marine (ocean) ecosystems *Ecosystem services:* • Biological control • Genetic material • Nursery population and habitat maintenance • Other regulating and maintenance services	Invasive alien species can alter the local ecosystem by squeezing out local species, altering the structure, composition and distribution of the ecosystem, with consequent impacts on ecosystem services. Invasive alien species also have the potential to negatively impact the local fishing industry, for example, by clogging up the water treatment networks or adhering to the surface and engines of the fishing vessels.[36] Invasive alien species such as *Caulerpa taxifolia* (or killer algae) can also reduce the number of fish living in a certain area[37] and lead to less productive fisheries.

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[34] IMO (2024) Ballast Water Management.

[35] Venugopal and Sadidharan (2021) Seafood industry effluents: Environmental hazards, treatment and resource recovery.

[36] GESAMP (2024) Marine Biofouling: Non-Indigenous Species and Management Across Sectors.

[37] UC Riverside Centre for Invasive Species Research (2024) Caulerpa taxifolia or Killer Algae.

Business activity	Drivers of nature loss	Example environmental assets and ecosystem services affected	Description
Vessel-based and land-based fish processing	**Pollution/pollution removal** **Water pollutants:** Discharge of wastewater from processing.	*Environmental assets:* • Marine (ocean) ecosystems • Terrestrial (land-based) and subterranean terrestrial ecosystems • Freshwater and subterranean freshwater ecosystems *Ecosystem services:* • Water supply • Biomass provisioning • Biological control • Nursery population and habitat maintenance • Genetic material • Other regulating and maintenance services	The environmental concerns associated with the disposal of fish wastes into ocean waters include reduced oxygen levels in the seawater at the ocean bottom, burial or smothering of living organisms and the introduction of disease or non-native and invasive species to the ecosystem of the sea floor. Nutrients (e.g. nitrogen and phosphorus), suspended solids, disinfectants and possible coliform bacteria from seafood industry effluents affect coastal water quality and hence human life, particularly in coastal regions. During rainy seasons, seepage of water through landfill dumps causes additional problems.

Business activity	Drivers of nature loss	Example environmental assets and ecosystem services affected	Description
Vessel-based and land-based fish processing	**Pollution/pollution removal** **Soil pollutants:** Discharge of seafood effluent from processing. It has been estimated that about 8% of seafood production is wasted annually, with about 7.3 million tonnes during the period 1992–2001.[38]	*Environmental assets:* • Terrestrial (land-based) and subterranean terrestrial ecosystems *Ecosystem services:* • Water flow regulation • Water purification • Biological control • Genetic material	Discharge of untreated seafood effluents to soil significantly enhances moisture, salinity, electrical conductivity and inorganic carbon. The effluents also have an impact on prokaryotic organisms in the soil.[39]
Vessel-based and land-based fish processing	**Resource use/replenishment** **Volume of water used**	*Environmental assets:* • Marine (ocean) ecosystems • Terrestrial (land-based) and subterranean terrestrial ecosystems • Freshwater and subterranean freshwater ecosystems • Water resources *Ecosystem services:* • Water supply	Fish processing requires large amounts of water, primarily for washing and cleaning purposes, but also as media for storage and refrigeration of fish products before and during processing. In addition, water is an important lubricant and transport medium in the various handling and processing steps of bulk fish processing.[40]

[38] Venugopal and Sadidharan (2021) Seafood industry effluents: Environmental hazards, treatment and resource recovery.
[39] Venugopal and Sadidharan (2021) Seafood industry effluents: Environmental hazards, treatment and resource recovery.
[40] IFC (2007) Environmental, Health, and Safety Guidelines for Fish Processing.

Business activity	Drivers of nature loss	Example environmental assets and ecosystem services affected	Description
Vessel-based and land-based fish processing	**Invasive alien species introduction/removal** **Introduction of invasive alien species**	*Environmental assets:* • Marine (ocean) ecosystems *Ecosystem services:* • Biological control • Genetic material • Water purification	Water spraying processes in seafood processing may result in the formation of aerosols with bacteria that can be inhaled.[41]
Marine aquarium trade	**Land, freshwater and ocean-use change** **Ocean-use change**	*Environmental assets:* • Marine (ocean) ecosystems • Subterranean marine ecosystems *Ecosystem services:* • Biomass provisioning • Genetic material • Nursery population and habitat maintenance • Cultural services	Despite being illegal in many jurisdictions, cyanide fishing and other destructive fishing methods are still used in certain locations for the marine aquarium trade. This affects both the life on the reef and the quality of the fish down the supply chain, as cyanide use impacts organisms' chances of survival from point of collection through to point of sale. Mortality rates for fish collected using cyanide have been reported as 90% between collection and retailer.[42]

[41] IFC (2007) Environmental, Health, and Safety Guidelines for Fish Processing.
[42] Davis et al (2017) Cyanide in the aquatic environment and its metabolism by fish.

Business activity	Drivers of nature loss	Example environmental assets and ecosystem services affected	Description
Marine aquarium trade	**Resource use/replenishment** **Other resource use:** Collection of wild-caught reef fish and organisms.	*Environmental assets:* • Marine (ocean) ecosystems *Ecosystem services:* • Biomass provisioning • Biological control • Nursery population and habitat maintenance • Genetic material • Other regulating and maintenance services • Cultural services	About 500 species of fish are being traded for the marine aquarium trade, 25 of which are considered extremely high risk, with certain areas and reefs being key areas of overexploitation.[43] This presents an impact to reefs that are already under stress from climate change and subject to more frequent and intense bleaching events, and could contribute to ecosystem collapse.

[43] Watson, G. et al. (2023) Can the global marine aquarium trade (MAT) be a model for sustainable coral reef fisheries?

Business activity	Drivers of nature loss	Example environmental assets and ecosystem services affected	Description
Marine aquarium trade	**Invasive alien species introduction/removal** **Introduction of invasive alien species**	*Environmental assets:* • Marine (ocean) ecosystems *Ecosystem services:* • Biomass provisioning • Biological control • Nursery population and habitat maintenance • Genetic material • Other regulating and maintenance services • Cultural services	The marine aquarium trade contributes to the introduction of invasive alien species predominantly at the customer end of the value chain, due to the accidental or intentional release of marine aquarium fish into the wild. One example is the invasive population of lionfish in the southeastern US and Caribbean, which is thought to have been started by aquarium release. Lionfish feed on small crustaceans and fish, including the larvae and young of important commercial fishery species in the region such as snappers and groupers, and have no natural predators in their invasive range.[44]

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[44] NOAA (2024) Why are lionfish a growing problem in the Atlantic Ocean?

Dependencies

Table 9 provides illustrative examples of dependencies for fishing sector organisations.

Table 69: Examples of dependency pathways for fishing, land-based and vessel-based processing and the marine aquarium trade

Business activity	Environmental asset and ecosystem services depended on	Guidance to identify dependencies
Inland freshwater fisheries	*Environmental assets:* • Freshwater ecosystems *Ecosystem services:* • Water supply • Biomass provisioning • Water flow regulation • Nursery population and habitat maintenance • Local (meso and micro) climate regulation • Genetic material	Freshwater fisheries depend on stable ecosystem conditions to maintain fish populations. Organisations will need to consider whether they are operating in areas of high water scarcity and areas that are susceptible to drought that might affect the waterway and the stocks of/access to fish. Available tools include the WWF Water Risk Filter and WRI Aqueduct. Organisations can also identify areas affected by dams and other sectors using significant water from natural waterways and consider habitat connectivity.[45]

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[45] Barbarossa, V et al (2020) Impacts of current and future large dams on the geographic range connectivity of freshwater fish worldwide, PNAS 117 (7) 3648-3655.

Business activity	Environmental asset and ecosystem services depended on	Guidance to identify dependencies
Fishing, marine aquarium trade	*Environmental assets:* • Marine (ocean) ecosystems • Subterranean marine ecosystems *Ecosystem services:* • Biomass provisioning • Water supply • Biological control • Genetic material • Local (micro and miso) climate regulation • Nursery population and habitat maintenance • Other regulating and maintenance services	Ocean fisheries and the marine aquarium trade depend on stable ecosystem conditions and collective fish stock management to maintain fish populations. Organisations can identify which stocks are being overfished that are therefore likely to see drops in productivity. An organisation can identify which regions/habitats fish and other target species indirectly or directly depend on for key life cycle stages, such as breeding and feeding, or through food web interactions such as: • Coral reefs, which occupy less than 1% of the ocean floor, but are home to more than 25% of all marine life;[46] • Coastal vegetated wetlands, including mangroves, which 13% of all marine megafauna use at different points in their lifecycles.[47] An organisation can identify regions where: • Water currents are susceptible to shift and affect distribution of key fish stocks; • Fish stocks are more likely to be forced to migrate or decline, due to various climate change-induced pressures, such as increased temperature and acidity and changes in oxygen levels; and • Potential new breeding grounds and sensitive areas resulting in such impacts due to climate change.

[46] Coral Reef Alliance: Why care about reefs?

[47] Sievers et al. (2019) The Role of Vegetated Coastal Wetlands for Marine Megafauna Conservation.

External factors

Relevant external factors relevant to fishing sector organisations include:

- **Climate change:** Changes in ocean currents and slowly warming waters can change the distribution and reproductive capacity of fish populations and change the structure of ecosystems. Ocean acidification destroys coral reefs and the shells of plankton and organisms, threatening relevant trophic webs. For inland fisheries, the effects of climate change include decreasing water supply and drought, causing rivers to dry up. Rising sea levels cause seawater to move further up inland waterways, changing the pattern of the seasons and typical weather, which can affect fish populations.[48] Climate change will affect the geographic distribution and range for some species, causing fish stocks to migrate to new areas and complicate sustainable management.

- **Eutrophication:** Eutrophication mostly affects inland freshwater and coastal fisheries. It is caused by high levels of fertiliser run-off and other pollutants into water bodies. This stimulates the growth of algae and causes algal blooms, depleting oxygen in the water, killing fish and other marine life. This can happen locally or hundreds of miles from the source along a river. Where possible, fishing sector organisations should identify other organisations, such as terrestrial farming or aquaculture farms, affecting the area in which they operate.

- **Other waste:** Waste and wastewater discharge from other industries can pollute coastal areas and negatively affect fish populations and other marine life, leading to a lower availability of fish to harvest.[49]

- **Combined or cumulative fishing pressure:** Fishing sector organisations should consider what other organisations or vessels are fishing from the same stocks, or stocks that are integral to the ecosystem their stock is a part of. Usually this can be managed through governance systems (within their exclusive economic zones) and catch quotas (in overlapping jurisdictions or the high seas). However, if a fishery is not managed in this way – or is susceptible to illegal, unreported and unregulated fishing (IUU), or the management strategy is influenced by a lack of data and robust control rules – it can make the fishing stock more likely to be overfished and at risk of collapse.

- **Other sectors:** There are many external factors from other sectors that use oceanic and freshwater locations. For example, there can be a danger of escapes from aquaculture, which can present a risk of invasive alien species to native populations. Mangrove clearance for aquaculture can destroy important breeding and nursery sites for fish. Offshore renewable energy or marine tourism can take space from important fishing grounds if proper planning has not taken place.

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[48] WWF (2023) Freshwater fish highlight escalating climate impacts on species, warns IUCN Red List.
[49] UNEP FI (2021) Turning the Tide.

E3: Dependency and impact measurement

Guiding questions:

What is the scale and scope of our dependencies on nature?

What is the severity of our negative impacts on nature? What is the scale and scope of our positive impacts on nature?

For the quantification of dependencies and impacts, organisations in the fishing sector should refer to the TNFD's relevant proposed fishing disclosure metrics in Section 3.

Suggested data sources and approaches to estimate impacts on nature include:

- **Fish stock status:** Organisations can use stock status assessments. Organisations can also look at a particular stock and fishery on the FishSource website, which scores fish stock health and the quality of the fishery's management. Organisations can also use FAO country reporting, though this is less regularly updated.

- **Mortality of non-target species:** Organisations can use the IUCN Red List of Threatened Species, the Convention on the Conservation of Migratory Species of Wild Animals (CMS), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the ICES bycatch database, as well as national legislation, to establish what endangered species are in the areas that the organisation works in. Organisations working specifically in the oceanic tuna and billfish fisheries can also utilise the Bycatch Management Information System for more information on how to scientifically measure and manage bycatch.

- **Ghost gear:** Organisations can use the Global Ghost Gear Initiative data portal as well as assessment and implementation guidelines in the Best Practice Framework for the Management of Fishing Gear to see where specific (mapped) hotspots of known ghost gear are. Organisations should identify sensitive locations (as defined in L4) in which they have/are at risk of losing gear as the impact could be more severe in areas with higher concentrations of ETP species, such as breeding, feeding and migratory areas.

- **Damage to seabed habitats:** Organisations should use the tools and datasets included in component L4 to determine where sensitive seabed locations are located to reduce the likelihood of trawling, dredging or using other types of potentially destructive fishing gear within them.

- **Illegal, unregulated and unreported fishing (IUU):** The TNFD notes that identifying IUU fishing can be very difficult. Organisations can see movements of fishing vessels using Global Fishing Watch to track whether IUU is occurring or compare source lists/vessel lists with the Combined IUU Vessel List. However, much IUU fishing occurs on legally licensed fishing vessels through misreporting of catch that is unverified.

- **Processing waste:** Organisations should measure the type and amount of pollutants in their waste and wastewater, considering the amount of organic matter, detergents, disinfectants, excess nutrients (such as nitrogen and phosphorus) and potential

pathogens being released into water sources. In line with the UNECE Water Convention, organisations can classify their pollutants by toxicity, persistence and bioaccumulation.[50]

- **Marine aquarium trade:** Organisations further up the supply chain can see which jurisdictions their imports come from using data like the Marine Aquarium Trade Data Portal (or replicate this methodology of using import data). Organisations can also consult the Global Register of Introduced and Invasive Species to identify whether species are considered to be invasive in the country where they are importing them.

E4: Impact materiality assessment

Guiding question:

Which of the identified impacts are material?

As for all components, refer to the Guidance on the identification and assessment of nature-related issues: The LEAP approach.

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[50] United Nations Economic Commission for Europe (2021) Guide to Implementing the Water Convention

2.4. Assess risks and opportunities

This section provides additional guidance to help fishing sector organisations with the Assess phase of the LEAP approach.

A1: Risk and opportunity identification

Guiding question:

What are the corresponding risks and opportunities for our organisation?

Table 10 provides a list of illustrative nature-related physical and transition risks for the fishing sector.

Table 710: Illustrative nature-related risks for the fishing sector

Risk type		Examples of risks/opportunities in the fishing sector	Magnitude indicator
Physical	Acute	Overfishing can lead to a drop in the availability of fish, which will impact the fishery's viability and a lack of supply to the downstream value chains if the stock is not recovered. An example is the Grand Banks cod collapse.	• Decrease in revenue • Decline in value of business assets due to availability of natural resources that sustain continuity • Increased insurance costs
	Chronic	Overfishing can lead to the total collapse of a fish stock as fisheries are unable to recover.	• Decrease in revenue • Decline in value of business assets due to availability of natural resources that sustain continuity
		Destruction of sensitive locations such as breeding grounds and habitats leading to a decline in the spawning ability of species and therefore fish stock health.	Decrease in revenue
		Ocean acidification and rising ocean temperatures leading to a redistribution of, or collapse in, target fish stocks.	• Decrease in revenue • Increased operating costs
		Pollution of inland freshwater bodies leading to a decline in fish stocks.	Decrease in revenue
Transition	Policy	Lack of compliance by the organisation to changes in policy driven by new international agreements, such as the Biodiversity Beyond National Jurisdiction (BBNJ) treaty, e.g. instigation of new Marine Protected Areas.	• Decrease in operating area and potential decrease in revenue • Increased reporting and legislative burden

Risk type		Examples of risks/opportunities in the fishing sector	Magnitude indicator
		Lack of compliance by the business to new national or international laws coming into force surrounding the fishing sector, for example: ● Indian Ocean Tuna Commission (IOTC) countries phasing out drifting Fish Aggregating Devices (FADs);[51] ● Updates to IUU regulations that include additional species of concern/risk; and prevent insurers profiting from IUU operations;[52] and ● Ban on bottom trawling in MPAs put in place, such as in Greece.[53]	● Decrease in allowed operating practices/operating area and potential decrease in revenue ● Decrease in access to insurance
		Lack of compliance by the business to changes in regulated fish quotas by RFMOs or national governments.	Decrease in revenue
		Lack of action if there is a change in the status of a fish stock, e.g. from endangered to critically endangered on the IUCN Red List.	Decrease in revenue
Transition	Market	Customers demanding more traceability in the supply chain.	● Increased pressure to collect data ● Decrease in revenue for organisations not committing to traceability
Transition	Technology	Substitution of wild-caught seafood with seafood grown in aquaculture systems or alternative fish proteins produced via precision fermentation (and other emerging systems).	Decrease in demand (and revenue) for wild-caught fish

[51] The Guardian (2023) Deal to curb harmful fishing devices a 'huge win' for yellowfin tuna stocks.
[52] ORRAA (2024) Insuring against illegal, unreported and unregulated (IUU) fishing - vessel viewer.
[53] Our Ocean Summit (2024) Greece's Commitments.

Risk type		Examples of risks/opportunities in the fishing sector	Magnitude indicator
Transition	Reputational	Evidence of excessive bycatch, particularly species listed as endangered or critically endangered on the IUCN Red List, or charismatic megafauna, leading to public backlash against the company.	Decrease in revenue
Transition	Liability	Evidence of IUU fishing by company-owned vessels or vessels in the company's supply chain.[54]	• Increase in regulatory action, e.g. fines • Decrease in revenue
		Evidence of lack of compliance with local, national or international laws and regulations.[55]	• Increase in regulatory action, e.g. fines • Decrease in revenue

[54] UNEP FI (2021) Turning the Tide.
[55] UNEP FI (2021) Turning the Tide.

Opportunities

Table 11 provides a list of illustrative nature-related opportunities for the fishing sector.

Table 118: Illustrative nature-related opportunities for the fishing sector

Opportunity type	Illustrative opportunity in the fishing sector	Magnitude indicator
Markets	Increasing consumer and major seafood buyer demand for seafood certified to leading standards such as the Marine Stewardship Council (MSC) Fisheries Standard.	Increase in revenue for organisations that are certified/sourcing from certified fisheries
Resource efficiency	Use of measures to avoid bycatch, such as square mesh panels (which allow smaller and juvenile fish to escape), coverless trawls, cod-end configuration, gear restrictions (especially for setting nets around whale sharks and cetaceans), medina panels and others.[56] Policy improvement and management improvements such as the recovery of depleted stocks through rebuilding plans, science-based quotas, harvest strategies and control rules.	Increase in overall health of the ecosystem, leading to better rate of sellable catch and increased revenue
Products and services	Recovering and reprocessing of fish waste into commercial by-products. Seafood processing discards including waste streams are rich in valuable ingredients and have potential applications in food, pharmaceutical and allied industries. Besides environmental protection, valorisation of fishery wastes can be a key factor in the conservation of marine resources and in cost reduction of product development.[57]	• Reduction in waste • Increase in revenue for processors selling discards

[56] MCS (2018) Wild Capture Ratings Methodology.

[57] Venugopal and Sadidharan (2021) Seafood industry effluents: Environmental hazards, treatment and resource recovery.

Opportunity type	Illustrative opportunity in the fishing sector	Magnitude indicator
Capital flow and financing	Availability of innovative financial instruments such as a Blue Recovery Bond, where investors provide capital to a fishery that supports a temporary period of reduced fishing to allow the fishery/marine ecosystem time to recover.[58]	Increase in revenue and stability of fisheries
Reputational capital	The organisation is increasingly perceived as a 'best-in-class' fishing sector organisation, leading to increased availability of capital flows, stronger brand awareness and value among consumers.	Increase in revenue and investment
Ecosystem protection, restoration and regeneration	For processing, pathogens can be destroyed during controlled anaerobic digestion (biogas) or aerobic treatment (composting).[59]	• Increased environmental health standards • Avoidance of regulatory issues
	The organisation increasingly ensures it does not target sensitive marine habitats and species to improve the ability of the ecosystem and stocks to recover.	Increased sustainability of long-term business activities and revenue
	The organisation ensures it does not incidentally or intentionally kill or injure important species, such as whales,[60] which help to buffer marine ecosystems from destabilising stresses, including climate change, by facilitating the transfer of nutrients and are important to ecosystem function on local and regional scales.	Increased viability of marine ecosystems, leading to increased sustainability of long-term business activities and revenue

[58] Planet Tracker (2023) Fishing for a Recovery.
[59] IFC (2007) Environmental, Health, and Safety Guidelines for Fish Processing.
[60] Roman, J. et al. (2014) Whales as marine ecosystem engineers.

A2: Adjustment of existing risk mitigation and risk and opportunity management

Guiding questions:

What existing risk and opportunity management processes and elements are we already applying?

How can risk and opportunity management processes and associated elements (e.g. risk taxonomy, risk inventory, risk tolerance criteria) be adapted?

Fishing sector organisations can leverage risk mitigation or opportunity management processes and mechanisms already in place, for example, by adopting robust digital traceability systems aligned to the Global Dialogue on Seafood Traceability (GDST) standards, sourcing from MSC certified fisheries and obtaining MSC Chain of Custody certification, participating in and supporting credible fishery improvement projects (FIPs), and participating in pre-competitive industry collaborations that aim to move the industry towards more responsible practices.

A comprehensive directory of credible fisheries improvement programmes – and their details – can be found on FisheryProgress, Sustainable Fisheries Partnership (SFP)'s FIP Evaluation Tool and the FIP tool on Fishsource, including a directory of consultants that may help with implementing a FIP if in scope for the organisation. In addition, organisations can find information on MSC-certified fisheries at MSC Track a Fishery and the MSC Improvement Program.

A3: Risk and opportunity measurement and prioritisation

Guiding question:

Which risks and opportunities should be prioritised?

Organisations can use scenario analysis twinned with key data tools outlined in this guidance to understand which risks and related locations to prioritise based on the TNFD's prioritisation criteria for nature-related risks and opportunities (see Table 13 in the LEAP guidance). When considering the prioritisation of risks, some examples and statistics are important to note:

- **Fish stock collapse:** Overfishing can lead to ecosystems crossing a tipping point and stocks of target (and non-target) fish collapsing. For example, the population of North Atlantic cod has not recovered since the collapse in the early 1990s. In part, this is because the ecosystem shifted from being vertebrate dominated to invertebrate dominated, which hindered the recovery of the cod population. The collapse had a huge impact on the Canadian fishing industry, and the livelihoods of fishers and fish plant workers.

- **Impact to society:** Millions of people rely on fishing as a main food source. The impacts of overfishing can negatively affect their food security.

- **Climate change:** Organisations should consider the risks and opportunities created by climate change, such as changes in ocean currents, sea level rise, changes in the distribution of fish populations, changes in the stocks' breeding, feeding and migratory areas, and changes in the structure of habitats and ecosystems. Organisations will need to consider how to address the risks and opportunities created by the impact of climate change on environmental assets and ecosystem services, such as rising ocean acidity and temperatures. For example, they can ensure they do not fish in sensitive locations or incidentally or intentionally kill or injure important species, such as whales.[61] Such species can help to buffer marine ecosystems from destabilising stresses by facilitating the transfer of nutrients and are important to ecosystem function on local and regional scales.

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[61] Roman, J. et al. (2014) Whales as Marine Ecosystem Engineers.

A4: Risk and opportunity materiality assessment

Guiding question:

Which risks and opportunities are material and therefore should be disclosed in line with the TNFD recommended disclosures?

As for all components, refer to the Guidance on the identification and assessment of nature-related issues: The LEAP approach.

2.5. Prepare to respond and report

This section provides additional guidance to help fishing sector organisations with the Prepare phase of the LEAP approach.

The Kunming-Montreal Global Biodiversity Framework (GBF) aims to 'halt and reverse biodiversity loss' by 2030, envisioning 'a world living in harmony with nature' by 2050. Achieving this implies a transition which will require significant business changes across sectors. The TNFD has published a draft guidance to help organisations develop and disclose nature transition plans. These plans provide a structured way to manage responses and contributions to this transition, starting with key priorities and expanding over time as understanding improves, such as through a LEAP assessment. The Prepare phase of LEAP provides initial guidance for addressing dependencies, impacts, risks and opportunities, laying the groundwork for a comprehensive nature transition plan.

P1: Strategy and resource allocation plans

Guiding question:

What risk management, strategy and resource allocation decisions should be made as a result of this analysis?

Table 12 maps a non-exhaustive list of actions in the fishing sector based on the TNFD's interpretation of Science Based Target Network's AR3T framework (and pending alignment with future development of SBTN's Step 4 guidance), which covers mitigation hierarchy principles when determining responses to identified nature-related issues. Financial institutions may find the list of actions proposed in Table 12 and all metrics in Section 3 helpful when setting their stewardship and engagement plans for organisations along the fishing sector value chain.
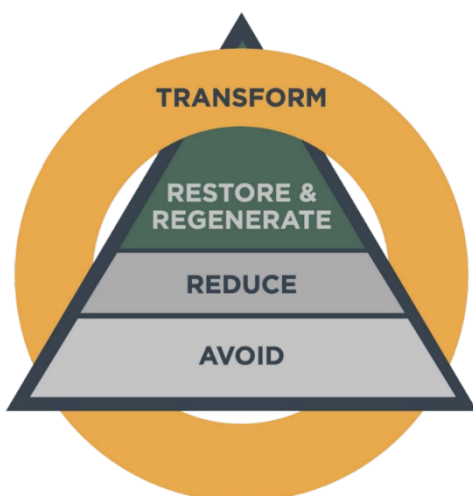
Figure 4: SBTN's AR3T framework

Table 12: Illustrative priority and transformative actions for the fishing sector mapped to the AR3T Framework

Impact driver/ dependency	Example of responses to impacts on nature and associated risks	Global frameworks alignment	SBTN action framework (AR3T)				
			Avoid	Reduce	Regenerate	Restore	Transform
Ocean-use change	Improve traceability across operations, for example for: ● **Small and large-scale fisheries:** improve traceability and report catch. Use logbook systems or other catch recording systems. ● **Processing organisations:** report metrics for material nature-related issues in an organisation's direct operations and upstream seafood purchases. ● **MAT organisations:** ensure organisms are traceable to their original catch location.	Global Dialogue on Seafood Traceability (GDST)					▓
	Create an organisational plan to reduce the impact of fishing gear on the seabed and benthic habitats, ensuring it does not adversely impact benthic species and biodiversity. This could include: ● Gear switches; ● Catch area changes; and ● Protecting and restoring damaged habitats.			▓			
	Create an organisational plan to avoid posing serious or irreversible harm to sensitive locations' structures and functions[62] through: ● Employing lower impact gear; ● Catch area changes to stop fishing in sensitive locations; and ● Protecting and restoring damaged sensitive locations.	MSC Fisheries Standard 3.0	▓				▓

[62] See component L4.

Impact driver/ dependency	Example of responses to impacts on nature and associated risks	Global frameworks alignment	SBTN action framework (AR3T)				
			Avoid	Reduce	Regenerate	Restore	Transform
	Support the implementation of ecosystem-based fisheries management principles in dialogue with the management entity for the fishery.		▨				▨
	Assess the future impact climate change will have on the ecosystems an organisation interfaces with.						▨
Pollution/pollution removal: waste - plastic pollution	Transition to gear made with recyclable or biodegradable/non-polymer/non-fossil fuel-based fishing gear and rope materials.			▨			
	Ensure that the organisation has a ghost gear/abandoned, lost, discarded fishing gear (ALDFG) management strategy, such as: ● By marking gear with port identification details and IMO ship identification number;[63] ● Retrieving gear, or if unable to retrieve it, reporting it to the relevant authority or to an organisation like the Global Ghost Gear Initiative. Organisations can report gear loss via the Global Ghost Gear app.	Global Ghost Gear Initiative	▨	▨			
Pollution: water pollution	Ensure that the organisation has a recovery and disposal plan in place to manage each category of waste defined under MARPOL.	MARPOL	▨	▨			

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[63] IMO Ship identification number scheme.

Impact driver/ dependency	Example of responses to impacts on nature and associated risks	Global frameworks alignment	SBTN action framework (AR3T)				
			Avoid	Reduce	Regenerate	Restore	Transform
Pollution removal: soil pollutants	Avoid using flags of convenience to bypass tighter decommissioning and recycling requirements.[64] Consider the decommissioning plan for the fishing fleet and how it translates into company financial provisions. Put measures in place to avoid beaching or to ensure it is undertaken in a way that minimises impacts on environmental assets and ecosystem services. List vessels on industry-specific lists, e.g. for tuna fisheries, the ProActive Vessel Register (PVR) and Vessels in Other Sustainability Initiatives (VOSI).	FAO Port State Measures	▓	▓			
Invasive alien species introduction/removal	Eliminate bilge and/or ballast water dumping, or for processing organisations, engage suppliers to eliminate bilge and/or ballast water dumping from their practices.	International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention)	▓				
	Avoid imported bait, which may be more likely to contain invasive alien species.	GBF Target 6	▓				
	Ensure the species exported or imported for the MAT are: ● Not listed as invasive on the Global Invasive Species Database; and ● Not listed as invasive in the import jurisdiction.	GBF Target 6	▓				

[64] Environmental Justice Foundation (2020) Off the Hook: How flags of convenience let illegal fishing go unpunished.

Impact driver/ dependency	Example of responses to impacts on nature and associated risks	Global frameworks alignment	SBTN action framework (AR3T)				
			Avoid	Reduce	Regenerate	Restore	Transform
Resource use: Overfishing of target fish stocks	Avoid targeting ETP species. Adopt a comprehensive strategy to minimise the mortality of ETP species as a result of the fishing activity. Put in place a review every two years of alternative measures to minimise the mortality of ETP species as a result of the fishing activity.	MSC Fisheries Standard 3.0	▓	▓			
	Focus effort only on sustainably managed stocks – that have been fluctuating around a level consistent with maximum sustainable yield (MSY) or that have been above this level over recent years; and that are above the point of recruitment impairment (PRI).[65] Put in place a strategy or plan to sustain the long-term productivity of affected species, including the use of up-to-date scientific stock assessments and analysis of how climate change will affect the fishery. If there is no stock assessment due to insufficient data, an organisation can initiate and support such work. Minimise post-harvest loss and use bait efficiently.	MSC Fisheries Standard 3.0	▓	▓	▓	▓	▓

[65] If information is not available on the stock status relative to the PRI or MSY levels, the organisation may find it helpful to use appropriate proxy indicators and reference points.

Impact driver/ dependency	Example of responses to impacts on nature and associated risks	Global frameworks alignment	SBTN action framework (AR3T)				
			Avoid	Reduce	Regenerate	Restore	Transform
	Where possible and relevant, certify fisheries under the Marine Stewardship Council (MSC) Standard or other credible standards that abide by the FAO third-party assessment arrangements;[66] or are International Social & Environmental Accreditation & Labelling (ISEAL) Alliance compliant;[67] or use the Global Sustainable Seafood Initiative (GSSI)'s Global Benchmark Tool.[68]	MSC Fisheries Standard 3.0 Global Sustainable Seafood Initiative (GSSI) Global Benchmark Tool International Social & Environmental Accreditation & labelling (ISEAL) Alliance					
	Where possible and relevant, launch credible Fishery Improvement Projects (FIPs).	Fishery Progress Sustainable Fisheries Partnership (SFP)'s FIP Evaluation Tool Improvement Projects tool on Fishsource MSC Improvement Programme MSC Track a Fishery					

[66] FAO (2023) Principles and guidelines for the assessment and use of voluntary third-party assurance programmes.

[67] ISEAL Alliance

[68] GSSI Global Benchmark Tool.

Impact driver/ dependency	Example of responses to impacts on nature and associated risks	Global frameworks alignment	SBTN action framework (AR3T)				
			Avoid	Reduce	Regenerate	Restore	Transform
	Create an organisational plan to avoid bycatch by, for example: ● Using best practice bycatch reduction mechanisms in gear (e.g. turtle exclusion devices, medina panels, bird scaring lines, line weights, hook-shielding devices, pingers, switching gear to enable scallop potting with light, mesh size and trawler doors changes); ● If using bottom set gill or entangling nets within areas at risk of cetacean bycatch, use acoustic deterrent devices ('pingers'); and ● Use appropriate mesh sizes under the national legislation of the country where the catch is made or landed to minimise bycatch of fish under Minimum Conservation Reference Size (MCRS).	Consortium for Wildlife Bycatch reduction Convention on Migratory Species (CMS) FAO (2011) International Guidelines on Bycatch Management and Reduction of Discards.	▓	▓			
	Ensure there are no incidences of IUU fishing or bycatch in company-owned vessels or source fisheries. This can be implemented by: ● Ensuring all vessels fleet have Remote Electronic Monitoring (REM) technologies on board; and ● Increasing the number of vessels with human observers.	FAO Illegal, Unreported and Unregulated (IUU) fishing EU Commission Inspections, monitoring and surveillance	▓	▓			
	If the organisation retains/lands sharks, ensuring it has an enforced fins naturally attached policy.	MSC Fisheries Standard 3.0	▓				
	Ensure vessels use publicly accessible tracking technology e.g. Automatic Identification System (AIS) or Vessel Monitoring System (VMS).						▓

Impact driver/ dependency	Example of responses to impacts on nature and associated risks	Global frameworks alignment	SBTN action framework (AR3T)				
			Avoid	Reduce	Regenerate	Restore	Transform
	Engage with innovative financing measures such as Blue Recovery Bonds.[69]						
Resource use: water use	Adopt best practices to reduce water consumption for processing and transport, particularly in areas of water scarcity.						
All – Business transformation options.	Best practice traceability involves 100% product coverage and real-time tracking of products along the value chain. Establish a traceability commitment or policy that includes a clear scope and target date for achievement. Identify how far the organisation has progressed towards meeting it and steps to improve current practice (e.g. establish a roadmap or implementation plan for improving traceability systems). In addition to establishing clear traceability commitments as outlined above, downstream actors such as processors or traders should start mapping upstream supply chains back to the source of production.	Global Dialogue on Seafood Traceability (GDST)					
Human rights and engagement with Indigenous Peoples, Local Communities and affected stakeholders for all value chain participants	Commit to providing support to smallholder producers to help them enter responsible supply chains and improve their yields and production practices.	Afi Guidance, Smallholders in Sustainable Supply Chains, Principle 3.1					
	Commit to testing for Free, Prior and Informed Consent (FPIC) of potentially affected Indigenous Peoples and Local Communities before acquiring new interests in areas and resources and before new developments or expansions.	Accountability Framework Initiative, Core Principles, Core Principle 2.2.3., p 7					

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[69] Planet Tracker (2023) Blue Recovery Bond Dashboard

Impact driver/ dependency	Example of responses to impacts on nature and associated risks	Global frameworks alignment	SBTN action framework (AR3T)				
			Avoid	Reduce	Regenerate	Restore	Transform
	Commit to respecting customary rights and refraining from acquisition or development until existing conflicts linked to customary rights to resources and territory have been resolved.	Accountability Framework Initiative, Core Principles, Core Principle 7.1, p 18					
	Commit to a zero-tolerance approach to violence and threats against a) environmental and human rights defenders, b) fisheries observers.	Accountability Framework Initiative, Core Principles, Core Principle 2.1.7, p 7 Human Rights At Sea					
	Develop an approach to verifying impacts on Indigenous Peoples, Local Communities and stakeholders on the ground, through meaningful and effective engagement.	Principle 7.1, p 18					

P2: Target setting and performance management

Guiding question:

How will we set targets and define and measure progress?

Organisations may wish to refer to the target setting methods developed by the SBTN and the summary guidance on SBTN's methods for setting science-based targets for nature, which the TNFD has co-developed. . The upcoming seafood value chain science-based targets are being developed by the SBTN Ocean Hub.[70] The characteristics of the SBTN Ocean Hub's targets align with the United Nations Environment Programme Finance Initiative's (UNEP FI) Turning the Tide report and Target Setting Manual..[71]

Illustrative examples of targets relevant to the fishing sector include:

- **Certification targets:** For example, setting a target for all fisheries the organisation operates in to be certified by the MSC or other relevant standards[72], or be in transition to certification via credible fishery improvement projects (FIPs) by a certain date.

- **Gear modification targets:** For example, setting a timeline to modify all gear with bycatch reduction mechanisms.

- **Eliminate overexploitation targets:** For example, working with the management entity and taking all measures possible to eliminate overexploitation of stocks through IUU, and supporting the use of science-based quotas, harvest strategies and harvest control rules in target fisheries, to reduce the risk of over-exploitation and help rebuild fish stocks.

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[71] The Draft SBTN Ocean Technical Guidance was released for public consultation from September 10 to November 12, 2024.

[72] Relevant standards are those which are either ISEAL-compliant, or recognised by the GSSI Benchmark Tool.

P3: Reporting

Guiding question:

What will we disclose in line with the TNFD recommended disclosures?

As for all components, refer to the Guidance on the identification and assessment of nature-related issues: The LEAP approach.

Additionally, when considering international interoperability throughout their disclosure process, organisations may find it helpful to refer to the following documents:

- TNFD – European Financial Reporting Advisory Group (EFRAG) Correspondence Mapping

- TNFD – Global Reporting Initiative (GRI) Standards Interoperability Mapping

P4: Presentation

Guiding question:

Where and how do we present our nature-related disclosures?

As for all components, refer to the Guidance on the identification and assessment of nature-related issues: The LEAP approach.

List of datasets and tools

Table 13 outlines a list of datasets and tools to support the application of the LEAP approach to the fishing sector

Table 1103: Additional tools for fishing sector organisations

Tool name	Description (relevance to sector)	LEAP phase
FAO Major Fishing Areas	Resource page on the FAO website outlining the boundaries of the major fishing areas and details on each one.	L1
EEZ Map	A map of marine exclusive economic zones showing which countries have jurisdiction over which areas of the marine environment.	L1

Tool name	Description (relevance to sector)	LEAP phase
FAO Regional Fishery Bodies Map	A map of regional fishery bodies to show which organisations have control over which fisheries.	L1
UN/LOCODE	The UN's list of codes for transport and trade locations worldwide.	L1
ICES statistical rectangles	A statistical tool that subdivides the North Atlantic Ocean into areas that fishing organisations can use for reporting location and catch data.	L1
Global Fishing Watch	A tool to monitor global fishing activity and find out where vessels could be fishing illegally in protected waters. In addition, the initiative has a vessel viewer tool.	L1, E3
GSSI Global Benchmark Tool	Underpinned by the FAO Guidelines, GSSI's Global Benchmark Tool provides formal recognition of seafood certification schemes that successfully complete a rigorous and transparent benchmark process. The tool aims to minimise the overall environmental impact of how we produce, catch and supply seafood to meet the growing global demand.	P2
GSSI Seafood Map	Developed with input from more than 100 stakeholders, Seafood MAP is a digital tool designed to track, report and enhance sustainability initiatives within the global seafood supply chain.	L1
Paris MOU White Black and Grey List	A list of vessel flags by risk, updated annually.	L1
Tokyo MOU White Black and Grey List	A list of vessel flags by risk, updated annually.	L1
Global Dialogue on Seafood Traceability Key Data Elements	Standard for global seafood traceability and its list of key data elements that organisations adhering to the standard are expected to collect.	L1, P1
Fisheries and Resources Monitoring System (FIRMS)	The FAO database of fish stocks and their status.	L1
Ocean Biodiversity Information System (OBIS)	The Ocean Biodiversity Information System mapper provides information on the distribution of marine species.	L1

Tool name	Description (relevance to sector)	LEAP phase
MSC Chain of Custody Standard	An MSC Standard that ensures an unbroken chain where certified seafood is easily identifiable, separated from non-certified products, and can be traced back to another certified business.	L1
IMO Global Integrated Shipping Information System	The International Maritime Organization's Global Integrated Shipping Information System, which includes a section on ship and company particulars, where users can search for ships by their IMO number.	L1, P1
Ecologically and Biologically Significant Areas (EBSAs) map	The Convention on Biological Diversity's database of ecologically and biologically significant marine areas.	L4
Important Marine Mammal Areas map	The Marine Mammal Protected Areas Task Force has put together this database mapping Important Marine Mammal Areas (IMMAs).	L4
Ocean+ Habitats	A database showing the global distribution of the world's marine habitats.	L4
FAO Vulnerable Marine Ecosystems database	The FAO database of vulnerable marine ecosystems.	L4
Mapping Ocean Wealth Explorer	The Mapping Ocean Wealth data viewer is a live online resource for sharing understanding of the value of marine and coastal ecosystems to people. It includes global maps, regionally-specific studies, reference data and a number of apps providing key data analytics. One of the apps demonstrates the potential role of mangroves as an especially rich source of blue carbon in contributing to and enhancing climate mitigation ambition in countries with mangrove habitats.	L4
OSPAR List of Threatened and/or Declining Habitats	A list of priority habitats and species for protection that have been identified by the parties and observers to the OSPAR Commission for the North East Atlantic.	L4
IMO Particularly Sensitive Sea Areas	A database of Particularly Sensitive Sea Areas (PSSAs), which are areas that have been identified as needing special protection through action by the IMO due to ecological, socio-economic or scientific significance.	L4
Birdlife Important Bird Areas	A map of areas that are particularly significant for birds, including seabirds.	L4

Tool name	Description (relevance to sector)	LEAP phase
The Marine Protection Atlas	A comprehensive global database of marine protection that identifies and tracks fully and highly protected marine areas.	L4
Protected Seas Navigator	A comprehensive global map of marine life protections covering EEZs and the high seas.	L4
Coastal Risk Index	The CRI is an open-source platform providing a detailed set of global flood maps, using hydrodynamic models, to understand current and future coastal flood risk and the flood reduction benefits of natural habitats. Social vulnerability data highlights where reefs and mangroves are critical to reducing risk for climate vulnerable coastal communities.	L4
Convex Seascape Survey	A project mapping the seabed for carbon-rich sediments.	L4
Turning the Tide: How to Finance A Sustainable Ocean Recovery	Guidance for financial institutions to better fund a sustainable ocean recovery, including some key metrics and guidance on the fishing sector.	E2
WWF Water Filter	Corporate and portfolio-level screening tool to help companies and investors to prioritise action on what and where it matters the most to address water risks to enhance business resilience and contribute to a sustainable future.	E2
WRI Aqueduct	Presents an atlas of global water risk.	E2
FAO Fisheries and Aquaculture Country Profiles	FAO's Fishery and Aquaculture Country Profiles provide a comprehensive overview of the sector for each country or areas/territories with an important fishery sector.	E3
FishSource	A publicly available online database of fish stocks, their management and their status compiled from scientific sources in an easily usable format.	E3
Bycatch Management Information System (BMIS)	An open resource looking at bycatch mitigation in oceanic tuna and billfish fisheries.	E3

Tool name	Description (relevance to sector)	LEAP phase
Global Ghost Gear Initiative (GGGI)	A cross-stakeholder alliance of the fishing industry, private sector, corporates, NGOs, academia and governments focused on solving the problem of lost and abandoned fishing gear worldwide, which includes a database on reported and found ghost gear.	E3
Ocean+ Data Viewer	A spatial data viewer with a comprehensive list of datasets.	E3
Combined IUU List	A site that provides the best available information on fishing and related vessels that appear on the illegal, unregulated and unreported (IUU) fishing vessel lists published by the Regional Fisheries Management Organisations (RFMOs) and other organisations.	E3
Aquarium Trade Data Portal	A database mapping the aquarium trade flows into the United States (a major importer).	E3
Global Register of Introduced & Invasive Species (GRIIS)	A database that compiles annotated and verified country-wise inventories of introduced and invasive species.	E3
MSC Fisheries Standard	A standard that is used to assess the management and sustainability of fisheries worldwide.	A1
Planet Tracker Blue Recovery Bond Assessment Tool	An interactive tool that allows users to assess whether a given fishery could benefit from a Blue Recovery Bond, where investors fund a temporary reduction in fishing in an effort to support long-term sustainability.	A1
MSC Track A Fishery	A database of all the fisheries that are certified under the Marine Stewardship Council.	A2
MSC Improvement Program	A framework for fisheries to make progress towards a level that meets the MSC Standard.	A2
Fishery Progress	A global database of fisheries improvement projects (FIPs).	A2
SFP FIP Evaluation Tool	A tool that defines and assesses fishery improvement projects (FIPs) against structure, implementation, improvements and certification.	A2

| Tool name	Description (relevance to sector)	LEAP phase
MARPOL	The International Convention for the Prevention of Pollution from Ships.	P1
FAO Port State Measures	The first binding international agreement to specifically target illegal, unreported and unregulated (IUU) fishing. Its objective is to prevent, deter and eliminate IUU fishing by preventing vessels engaged in IUU fishing from using ports and landing their catches. In this way, the PSMA reduces the incentive of such vessels to continue to operate while it also blocks fishery products derived from IUU fishing from reaching national and international markets.	P1
ProActive Vessel Register (PVR)	The ProActive Vessel Register (PVR) is one of four public vessel lists that the International Seafood Sustainability Foundation (ISSF) provides to foster transparency in tuna fishing. Fishing vessels can be registered on the PVR to show how they are following best practices that support sustainable tuna fisheries.	P1
Vessels in Other Sustainability Initiatives (VOSI)	The Vessels in Other Sustainability Initiatives (VOSI) list is a transparency tool for the public — including seafood companies that want to understand which tuna vessels have made public commitments to more sustainable fishing beyond the commitments reflected on the PVR.	P1
BirdLife International's Seabird Tracking Database	The BirdLife International Seabird Tracking Database is the largest collection of seabird tracking data in existence. It serves as a central store for seabird tracking data from around the world and aims to help further seabird conservation work and support the tracking community.	L4
SBTN Ocean Hub	The area of the Science-Based Targets Network that is developing materials on target setting for the ocean realm.	P2
Setting Sail: Target Setting in the Sustainable Blue Economy	A manual that enables institutions to set targets that align with the guidance and support the transition to a Sustainable Blue Economy, in line with the objectives of the Kunming-Montreal Global Biodiversity Framework and the Paris Agreement.	P2
Fisheries and Marine Ecosystem Model Intercomparison Project (FishMIP)	A network of 100 marine ecosystem modellers and researchers around the world, looking at the future of fish and fisheries, seafood supply, marine biodiversity and marine ecosystem functioning.	P1, P2

3. Sector-specific disclosure metrics and related guidance - Fishing

Sector-specific metrics form an important part of the TNFD's measurement architecture (see Figure 5). This reflects the diversity of business models across value chains and their interface with nature across and within sectors. Sector-specific metrics help financial institutions to compare organisations within the same sector, which often face similar nature-related issues.

This section provides the proposed TNFD sector-specific metrics for the fishing sector. It includes:

- Guidance on the application of the core global disclosure indicators and metrics to the fishing sector (Section 3.1); and

- Core and additional disclosure indicators and metrics for the fishing sector (Sections 3.2 and 3.3).

Figure 5: TNFD disclosure measurement architecture
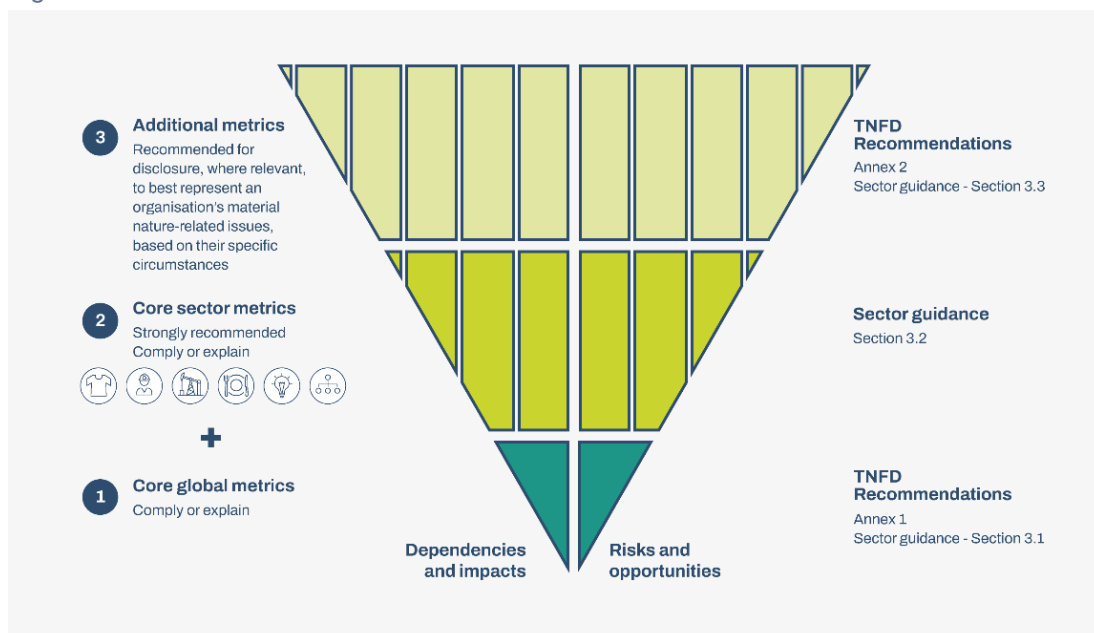
Where available, the TNFD's recommended metrics for disclosure draw from a range of existing standards and frameworks including the IFRS Sustainability Disclosure Standards, Sustainability Accounting Standards Board (SASB) Standards, GRI Standards, the CDP disclosure platform, the Kunming-Montreal Global Biodiversity Framework and other relevant UN frameworks, ESRS and others. A number of organisations, including standard-setting organisations, continue to work on identifying relevant sector-level assessment and reporting metrics. The Taskforce recommends that report preparers stay engaged with year-on-year progress on these developments and implement the latest definitions within their risk management processes and disclosures. The TNFD is working closely with standard-setting organisations and others and will periodically update this guidance on recommended sector metrics for disclosure in line with these ongoing initiatives.

Organisations in the fishing sector should refer to Annex 1 of the TNFD recommendations for further information on the core global disclosure metrics. As outlined in the TNFD recommendations, core global disclosure metrics should be reported on a comply or explain basis, with the exception of the placeholder metrics.

Where organisations are unable to report against any of the core global metrics, they should provide a short explanatory statement as to why they have not reported those metrics. An organisation should report on the core global disclosure metrics unless:

- It has not been identified as relevant and material to the organisation, e.g. not relevant to business activities or the location the organisation is operating in, or not found to be a material issue for the organisation; or

- It has been identified as relevant and material, but the organisation is unable to measure it due to limitations with methodologies, access to data or because the information is commercially sensitive. In this case, organisations should explain how they plan to address this in future reporting periods.

Companies should report on the same basis for the core sector disclosure metrics outlined in Section 3.2.

Organisations are also encouraged to draw on the TNFD additional sector disclosure indicators and metrics outlined in Section 3.3 and any other relevant metrics to represent most accurately the organisation's nature-related dependencies, impacts, risks and opportunities.

3.1. Proposed guidance on the application of the core global disclosure metrics

This section provides guidance, where relevant, on how to apply the TNFD core global disclosure metrics in the fishing sector. If no further sector specific guidance is provided, organisations should refer to the core global disclosure metrics.

As outlined above, core global and core sector disclosure metrics should be reported on a comply or explain basis following the guidance for the fishing sector where provided.

For the placeholder indicators on invasive alien species and the state of nature, the TNFD encourages organisations to consider and report against these indicators where possible, but these are not expected on a comply or explain basis. There are not yet widely accepted metrics for these indicators, but the Taskforce recognises their importance and will continue to work with knowledge partners to develop further guidance on these metrics.

Fisheries are managed by governments of fishery management bodies, so the TNFD asks organisations to, where applicable, disclose their total spatial footprints. However, organisations might find it easier to engage with fishery management bodies to get the relevant information on spatial footprint and extent of ocean use change.

The majority of metrics in Tables 14, 15 and 16 below apply to all subsectors within the fishing value chain. However, where individual metrics apply only to certain subsectors, this will be specified in the metric. Metrics relevant to land-based or vessel-based seafood processing organisations also include other actors downstream of the fishing value chain (e.g. traders).

Box 2: Guidance on disclosing location

The TNFD recommended disclosure Metrics and Targets B requires an organisation to **disclose the location** in which an impact driver occurs (such as fishing activity). In disclosing a location, an organisation should disclose, in line with Global Dialogue on Seafood Traceability (GDST) Key Data Elements:

- The EEZ/RFMO/management units;

- The FAO fishing areas or sub-areas[73] fishing activity occurred in; and

- Where possible, the geographic coordinates.

In identifying **sensitive locations** for fishing, an organisation should refer to the criteria outlined in component L4 of this guidance as well as the LEAP approach (p.57-61).

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[73] Using the FAO Major Fishing Areas database.

The TNFD recommended disclosure Metrics and Targets B state that metrics should be reported against a clear and transparent **baseline and/or reference condition** where possible. This applies to all metrics in Tables 13 to 15 below.

Three key points to note for the fishing sector:

1) Marine organisms are not static and their locations will move over time.

2) This guidance recognises that fisheries are run on an 'access right to a public resource' rather than an ownership right system, so fisheries are government managed. Wild capture fishing entities do not have property rights over specific ocean areas and are issued with licenses or are registered to fish within particular management areas. They do not 'control' and do not 'manage' areas in the sense that terrestrial companies might. Fish are a public good managed in the public interest.

3) This guidance recognises that calculating the total surface area in km^2 in which the fishing activity took place will only be relevant for gear types that are used over surface areas/polygons (e.g. trawling, seine nets), not for gear types that are used at specific points and do not cover surface areas (e.g. harpoons, pole and line - see Table 3). For gear types that are used at specific points, an organisation should only disclose the location the gear was used at as explained in this box, and not the total surface area in km^2.

Table 14: Proposed guidance on the application of the core global disclosure metrics

Metric no.	Core global indicator	Core global metric	Proposed guidance for this sector	Source
Driver of nature change: climate change				
	GHG emissions	Refer to IFRS S2 Climate-related Disclosures.	No further guidance.	TNFD
Driver of nature change: Land/freshwater/ocean-use change				
C1.0	Total spatial footprint	Total spatial footprint (km^2) (sum of) • Total surface area controlled/managed by the organisation, where the organisation has control (km^2); • Total disturbed area (km^2); and • Total rehabilitated/restored area (km2).	Land-based seafood processing organisations should use this metric as written. **Fishing; Marine aquarium trade; Vessel-based seafood processing** • Total disturbed area (km^2) refers to the effort area where gear has been deployed into the water; • Area controlled/managed (km^2) should be interpreted as the area that the organisation has an influence on, has a right to utilise, has been granted license to fish and/or has the right to operate in. In reporting this core global disclosure metric, an organisation should disclose, in aggregate, the: • Total surface area/polygons (km^2) in which fishing effort took place (e.g. where gear types such as a trawl or a seine net was deployed into the water);	TNFD

			• EEZ/RFMO/management unit/or other international commissions, as well as the FAO fishing areas or sub-areas the fishing effort occurred in;[74] • Geographic coordinates of fishing effort, where possible; and • Total estimated depth of fishing activity.[75]	
C1.1	Extent of land/freshwater/ocean use change	Extent of land/freshwater/ocean ecosystem use change (km^2) by: • Type of ecosystem[76]; and • Type of business activity.	In reporting this core global disclosure metric, an organisation should disclose the area fished (km^2), including: • Effort area (km^2) by gear type; • Whether the area is in a sensitive marine location;[77] • The corresponding EEZ/RFMO/management unit/or other international commissions as well as the FAO fishing area or sub-area/ fishing activity occurred in; • Where possible, the geographic coordinates in line with GDST KDEs; and • Ecosystem type according to the Global Ecosystem Typology.[78]	TNFD, GRI 13

[74] If gear is deployed at specific points and not over surface areas (such as a harpoon), the organisation should disclose the management unit within which the harpoon was in use, not the area (km2).

[75] Organisations can use table 4 to calculate the estimated depths each gear is used at.

[76] When disclosing on ecosystem types, refer to the International Union for Conservation of Nature Global Ecosystem Typology.

[77] Refer to component L4 in this guidance.

[78] An organisation may provide information additional to the IUCN Global Ecosystem Typology (GET) to define the type of ecosystem they refer to, such as regional or local classifications.

		Extent of land/freshwater/ocean ecosystem conserved or restored (km^2), split into: • Voluntary; and • Required by statutes or regulations.	In reporting this core global disclosure metric, an organisation should disclose the area (km^2), location[79] and estimated depth[80] of any voluntary or required projects the organisation is participating in that contribute to the conservation or restoration of marine and freshwater ecosystems. For example, fishery improvement projects (FIPs) such as the MSC Improvement programme, no-take zones and/or seasonal closures.	TNFD
		Extent of land/freshwater/ocean ecosystem that is sustainably managed (km^2) by: • Type of ecosystem[81]; and • Type of business activity.	For fishing organisations, this metric guidance is integrated into core global metric C3.1.	TNFD
Driver of nature change: pollution/pollution removal				
C2.0	Pollutants released to soil split by type	Total pollutants released to soil split by type, referring to sector specific guidance on types of pollutants (tonnes)	In reporting this core global disclosure metric, an organisation should disclose the aggregate volume discharged of untreated seafood effluents and disinfectants (m^3) to soil, by type.	TNFD
C2.1	Wastewater discharged	Volume of water discharged (m^3), split into: • Total; • Freshwater; and	In reporting this core global disclosure metric, an organisation should include the volume discharged to water bodies (m^3) of: • Wastewater and sewage; • Untreated seafood effluents and disinfectants;	TNFD

[79] See box 1.

[80] Organisations can use table 4 to calculate estimated depths.

[81] When disclosing on ecosystem types, refer to the International Union for Conservation of Nature Global Ecosystem Typology.

		• Other.[82] Including: • Concentrations of key pollutants in the wastewater discharged, by type of pollutant, referring to sector specific guidance for types of pollutants; and • Temperature of water discharged, where relevant.	• Bilge water and/or ballast water; and • Anti-fouling hub treatments used. For each category, organisations should disclose whether it is treated or untreated, and the destination of the pollutant (e.g. surface water, seawater, groundwater, treatment facility).	
C2.2	Waste generation and disposal	Weight of hazardous and non-hazardous waste generated by type (tonnes), referring to sector specific guidance for types of waste. Weight of hazardous and non-hazardous waste (tonnes) disposed of, split into: • Waste incinerated (with and without energy recovery); • Waste sent to landfill; and • Other disposal methods. Weight of hazardous and non-hazardous waste (tonnes) diverted from landfill, split into waste: • Reused; • Recycled; and • Other recovery operations.	In reporting this core global disclosure metric, an organisation should disclose the total weight (kg) of fish carcasses discarded, including and the total weight (kg) and proportion (%) that are juvenile fish. **Fishing; vessel-based seafood processing** In reporting this core global disclosure metric, an organisation should disclose the number and proportion (%) of vessels in its fleet that have been decommissioned or that will be decommissioned under their current decommissioning plan, broken down by: • Vessels recycled overseen by the organisation; and • Vessels shipped to a third-party vessel breaking service.	TNFD

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[82] Freshwater: (≤1,000 mg/L Total Dissolved Solids). Other: (>1,000 mg/L Total Dissolved Solids). Reference: GRI (2018) GRI 303-4 Water discharge.

C2.3	Plastic pollution	Plastic footprint as measured by total weight (tonnes) of plastics (polymers, durable goods and packaging) used or sold broken down into the raw material content.[83] For plastic packaging, percentage of plastics that is: • Reusable; • Compostable; • Technically recyclable; and • Recyclable in practice and at scale.	Land-based seafood processing and marine aquarium trade organisations should report this metric as is. **Fishing; Vessel-based seafood processing** In reporting this core global disclosure metric, an organisation should also report gear lost at sea: • Number of gear items lost per year, including gear type; • Number and proportion (%) of total fishing gear marked with port ID and vessel ID details (IMO vessel number or equivalent); and • Number and proportion (%) of lost gear retrieved or reported to the relevant authority or international initiative (e.g Global Ghost Gear Initiative (GGGI).	TNFD
C2.4	Non-GHG air pollutants	Non-GHG air pollutants (tonnes) by type: • Particulate matter (PM2.5 and/or PM10); • Nitrogen oxides (NO2, NO and NO3); • Volatile organic compounds (VOC or NMVOC); • Sulphur oxides (SO2, SO, SO3, SOX); and • Ammonia (NH3).	No further sector specific guidance; refer to the core global disclosure metric.	
Driver of nature change: resource use/replenishment				

[83] When disclosing on raw material content users should use: % of virgin fossil-fuel feedstock; % of post-consumer recycled feedstock; % of post-industrial recycled feedstock; % of virgin renewable feedstock.

C3.0	Water withdrawal and consumption from areas of water scarcity	Water withdrawal and consumption[84] (m³) from areas of water scarcity, including identification of water source.[85]	No further sector specific guidance; refer to the core global disclosure metric.	TNFD
C3.1	Quantity of high-risk natural commodities sourced from land/ocean/freshwater	Quantity of high-risk natural commodities[86] (tonnes) sourced from land/ocean/freshwater, split into types, including proportion of total natural commodities.	**Fishing organisations; Land-based seafood processing; Vessel-based seafood processing** In reporting this core global disclosure metric, an organisation should include: • The number of species caught, including their scientific and common names and indicating whether each species is an ETP species;[87] • The volume (tonnes) of each species caught, split by gear type and including stock health status[88] and whether it is a target species; and • The volume (kg) of bait used, and the proportion (%) from juvenile fish. **Marine aquarium trade**	TNFD, MSC Fisheries Standard 3.0

[84] Water consumption is equal to water withdrawal less water discharge. Reference: GRI (2018) GRI 303-5.

[85] Surface water; groundwater; seawater; produced water; third-party water. Reference: GRI (2018) GRI 303-3.

[86] Users should refer to the Science Based Targets Network (SBTN) High Impact Commodity List (HICL), species listed as vulnerable, endangered or critically endangered on the IUCN red list, and species listed in appendices I, II and III to CITES.

[87] See definition in Box 1.

[88] (Stock health status can be determined from stock assessments, Fishsource stock health score, or other credible tools). The organisation may use any stock status assessments or systems that are relevant to the location of origin and species. This is in line with GRI Standards (2024) GRI 13: Agriculture, Aquaculture and Fishing Sectors 2022.

			In reporting this core global disclosure metric, an organisation should disclose the above metrics, but may report the total number of fish sourced rather than the weight.	
		Quantity of high-risk natural commodities[89] (tonnes) sourced under a sustainable management plan or certification programme, including proportion of total high-risk natural commodities.	In reporting this core global disclosure metric, an organisation should disclose the proportion (%) of its total catch that has been caught from sustainably managed stocks. Sustainably managed refers to a stock that has been fluctuating around a level consistent with maximum sustainable yield (MSY) or that has been above this level over recent years; and it additionally refers to the stock being above the point of recruitment impairment (PRI).[90] If there is no stock assessment due to insufficient data, an organisation should disclose the proportion (%) of target stocks for which there is ongoing work to ensure that data is collected.	TNFD, MSC Fisheries Standard V3.0
Driver of nature change: Invasive alien species and other				
C4.0	Placeholder indicator: Measures against unintentional introduction of invasive	Proportion of high-risk activities operated under appropriate measures to prevent unintentional introduction of IAS, or low-risk designed activities.	In reporting this core global disclosure metric, an organisation should disclose the volume (tonnes) and proportion (%) of total bait used that is non-native bait. **Marine aquarium trade** Organisations should disclose the number and proportion (%)	TNFD

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[89] Users should refer to the Science Based Targets Network (SBTN) High Impact Commodity List (HICL), species listed as vulnerable, endangered or critically endangered on the IUCN red list, and species listed in appendices I, II and III to CITES.

[90] If information is not available on the stock status relative to the PRI or MSY levels, the organisation should use appropriate proxy indicators and reference points and justify their use.

	alien species (IAS)[91]		of total species exported/imported that are: ● Listed as invasive on the Global Invasive Species Database; and ● Listed as invasive in the import jurisdiction.	
State of nature				
C5.0	Placeholder indicator: Ecosystem condition	For those organisations that choose to report on state of nature metrics, the TNFD encourages them to report the following indicators, and to refer to the TNFD additional guidance on measurement of the state of nature in Annex 2 of the LEAP approach: ● Level of ecosystem condition by type of ecosystem and business activity; ● Impacts on mean species extinction risk. There are a number of different measurement options for these indicators. The TNFD does not currently specify one metric as there is no single metric that will capture all relevant dimensions of changes to the state of nature and a consensus is still developing. The TNFD will continue to work with knowledge partners to increase alignment.	No further sector specific guidance; refer to the core global disclosure metric.	

[91] Due to the measurement of levels of invasive species for organisations being a developing area, the chosen indicator focuses on whether an appropriate management response is in place for the organisation. The additional sets of metrics contain measurement of the level of invasive species within an area. The TNFD intends to do further work with experts to define 'high-risk activities' and 'low-risk designed activities'.

| | Placeholder indicator: Species extinction risk | As above. | No further sector specific guidance; refer to the core global disclosure metric. | |

3.2. Proposed core sector disclosure indicators and metrics

The proposed TNFD core sector disclosure metrics for the fishing sector are outlined below. These metrics are recommended by the TNFD to be disclosed by all report preparers in the sector on a comply or explain basis.

Table 15: Proposed core sector disclosure indicators and metrics

Metric category	Metric subcategory	Metric No.	Indicator	Proposed core sector metrics	Source
Impact driver	Pollution/pollution removal	F.C2.0	Spills	Number and total volume (m³) of oil spills and discharged fuel waste (as defined by MARPOL).	MARPOL
Impact driver	Resource use/replenishment	F.C3.1	Bycatch[92] of Endangered, Threatened and Protected (ETP) species	Number of marine mammals, turtles, seabirds and other ETP species[93] killed or injured intentionally and incidentally by the fleet. **Marine aquarium trade** Number of organisms rejected at any point and/or lost during transport.	IUCN red list; CMS Appendix 1; CITES Appendices 1 and 2; MSC Fisheries Standard V3.0
Impact driver	Resource use/replenishment	F.C3.0	Bycatch of unwanted fish species	Weight (kg), proportion of total catch (%) and if available, number of unwanted fish species (bycatch), broken down by quota and non-quota species if the fishery operates in a legislative quota system.[94]	TNFD

[92] See glossary for definition of bycatch.

[93] See TNFD Glossary and Box 1 for a definition of ETP species.

[94] As well as per annum, bycatch amounts should be reported per fishing trip where possible.

Impact driver	Resource use/replenishment	F.C3.3	Incidences of IUU fishing	Number of reported incidences of IUU fishing[95] across the fishery.	TNFD; FAO

3.3. Proposed additional sector disclosure indicators and metrics

The proposed TNFD additional sector disclosure metrics for the fishing sector are outlined below. The TNFD encourages all report preparers in the sector to draw on these and any other relevant metrics where relevant to best represent an organisation's material nature-related dependencies, impacts, risks and opportunities.

Table 16: Proposed additional sector disclosure indicators and metrics

Metric category	Metric subcategory	Metric No.	Indicator	Proposed additional sector metrics	Source
Response	Dependency, impact, risk and opportunity management: Value chain	F.A22.0	Vessels registered and using tracking technology.	Number and proportion (%) of vessels registered with international and national bodies, broken down by: • The International Maritime Organisation (IMO); • Relevant port authority; • Recognised fishing authority; and • Flag State maritime authority. Number and proportion (%) of total vessels (or the total vessels the organisation sources from) operated using publicly accessible tracking technology. An organisation should specify which technology e.g. automatic identification system (AIS) or vessel monitoring system	TNFD

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[95] See TNFD Glossary for definition of IUU fishing.

				(VMS).[96] For small vessels,[97] organisations should disclose the quantity (number) and proportion (%) of the vessels in its fleet using logbook systems or other catch recording systems.	
Response	Dependency, impact, risk and opportunity management: Changes to nature (dependency and impact): mitigation hierarchy steps	F.A23.1	Cyanide fishing engagement	**Marine aquarium trade** Number and proportion (%) of suppliers engaged on eliminating cyanide fishing from their practices.	TNFD
Response	Dependency, impact, risk and opportunity management: Changes to nature (dependency and impact): mitigation hierarchy steps	F.A23.2	Discharge of bilge and/or ballast water	**Fishing; Land-based seafood processing; Vessel-based seafood processing** Number and proportion (%) of vessels or source/supplier vessels that have measures in place to prevent discharge of bilge and/or ballast water.	TNFD
Response	Dependency, impact, risk and opportunity management: Changes to nature (dependency and impact): mitigation hierarchy steps	F.A23.3	Gear modifications	Number and proportion (%) of vessels that have gear modifications to avoid posing serious or irreversible harm to sensitive locations.[98] Weight (kg) and proportion (%) of catch caught with modified low-impact gear, broken down by gear type.	TNFD

[96] Where possible, organisations should include the names of vessels, flag states of vessels, IMO numbers of all vessels within their fleet.

[97] Small vessels are defined as being under 15 metres.

[98] See component L4 of this guidance for a definition of sensitive marine locations.

Response	Dependency, impact, risk and opportunity management: Value chain	F.A22.1	Observer coverage	Number and proportion (%) of the organisation's vessels or source/supplier vessels that have observer coverage, broken down by: • Human observers; and • Remote electronic monitoring (REM).	TNFD
Impact driver	Pollution/pollution removal	F.A2.0	Noise pollution	Vessel underwater radiated noise level measured as Source Level or Radiated Noise Level (SL or RNL) in dB re 1 µPa @ 1m at average, highest and lowest voyage speed levels.	TNFD, IMO (2023) Guidelines for the reduction of underwater noise from commercial shipping
Response	Dependency, impact, risk and opportunity management: value chain	F.A22.2	Certification	Number and proportion (%) of vessels that are certified under MSC or other credible standards that abide by the FAO third party assessment arrangements, are compliant with ISEAL, or are recognised by the GSSI Benchmark Tool.[99] **Fishing; Land-based seafood processing; Vessel-based seafood processing** Proportion (%) of certified catch entering MSC Chain of Custody, or other credible Chain of Custody standards.	MSC; FAO; GSSI; ISEAL

[99] Organisations should include the frequency of certification audits (years).

				Proportion (%) and weight (tonnes) of seafood being sold as MSC certified.	
Response	Dependency, impact, risk and opportunity management: Value chain	F.A22.3	Fisheries improvement programmes	**Fishing; Land-based seafood processing; Vessel-based seafood processing** Number and proportion (%) of fisheries the organisation utilises or sources from that are under a credible fisheries improvement programme (FIP) or improvement programmes such as the MSC Improvement Programme.	TNFD; MSC
Response	Dependency, impact, risk and opportunity management: Changes to nature (dependency and impact): mitigation hierarchy steps	F.A23.4	Biodegradable fishing gear	Weight (tonnes) and proportion (%) of gear made from recyclable or biodegradable, non-polymer and non-fossil fuel-based fishing gear and rope materials.	TNFD
Response	Dependency, impact, risk and opportunity management: Changes to nature (dependency and impact): mitigation hierarchy steps	F.A23.5	Bycatch reduction mechanism use	Number and proportion (%) of vessels using bycatch reduction mechanisms in their gear (e.g. turtle exclusion devices). Number and proportion (%) of vessels with bottom set gill or entangling nets in areas at risk of cetacean bycatch that are using acoustic deterrent devices (commonly referred to as "pingers") or other such technology to deter sensitive species or free them from nets should they become entangled.	TNFD

Response	Dependency, impact, risk and opportunity management: Value chain	F.A23.9	Consultation with Indigenous Peoples and Local Communities (IPLCs)	Number of locations of operations where Indigenous Peoples and Local Communities are present or affected by the organisation's activities and proportion (%) of those for which Indigenous Peoples and Local Communities (IPLCs) have been consulted with.	GRI 13
Response	Dependency, impact, risk and opportunity management: Value chain	F.A22.4	Traceability of aquarium fish	**Marine aquarium trade** Proportion (%) of organisms sourced that are traceable to their original location.	TNFD

4. Glossary

Sector-specific concepts and definitions are defined in this section. The TNFD glossary will be updated to include these concepts once the fishing sector guidance is finalised, based on market consultation and feedback. Readers are recommended to visit the TNFD glossary for other terms used throughout the document.

Concept	Definition(s)	Source
Artisanal fisheries	Traditional fisheries involving fishing households (as opposed to commercial companies), using a relatively small amount of capital and energy, relatively small fishing vessels (if any), making short fishing trips, close to shore, mainly for local consumption.	FAO Terminology portal.
Blue carbon	All biologically-driven carbon fluxes and storage in marine systems that are amenable to management can be considered as blue carbon.	IPCC Special report: special report on the ocean and cryosphere in a changing climate Glossary. Intergovernmental Panel on Climate Change.
Bycatch	Bycatch is fish or other marine species caught unintentionally while trying to catch another type of fish. In some cases, bycatch cannot be avoided and unwanted fish end up in the fishing net.	MSC What is bycatch and how can it be managed?
Bycatch excluder device	A device inserted in a fishing gear, usually trawl, close to the cod-end, to allow escapement, alive, of unwanted species (including medusae) or individuals (juveniles) or endangered species (e.g. seals, turtles, dolphins).	FAO Terminology portal.
Demersal	Living in close relation with the bottom of the sea/ocean and depending on it.	FAO Terminology portal.
Endangered, threatened or Protected (ETP) marine species	ETP species are defined in this guidance as: 1. Species impacted by the fishing activity that are classified as amphibians, reptiles, birds or mammals; and 2. Species impacted by the fishing activity that are classified as fish or invertebrates and are listed in any of the following:	Adapted from the MSC (2022) Fisheries Standard v.3.0

	i. Appendix 1 of the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES); ii. Appendix 2 of CITES; iii. Appendix 1 of the Convention on the Conservation of Migratory Species of Wild Animals (CMS); iv. Appendix 2 of CMS; v. The International Union for Conservation of Nature (IUCN) Red List of Threatened Species and classified globally as 'Critically Endangered (Cr)'; vi. The IUCN Red List of Threatened Species and classified globally as 'Endangered (En)'; and vii. National ETP legislation.	
Exclusive Economic Zone (EEZ)	A concept adopted at the Third United Nations Conference on the Law of the Sea (1982), whereby a coastal state assumes jurisdiction over the exploration and exploitation of marine resources in its adjacent section of the continental shelf, taken to be a band extending 200 miles from the shore. The Exclusive Economic Zone comprises an area which extends either from the coast, or in federal systems, from the seaward boundaries of the constituent states (3 to 12 nautical miles, in most cases) to 200 nautical miles (370 km) off the coast. Within this area, nations claim and exercise sovereign rights and exclusive fishery management authority over all fish and all Continental Shelf fishery resources.	IPBES Glossary
Fishery	A fishery is an area where fish are caught for commercial or recreational purposes. It can be a defined body of water or a collection of fishing activity that has been agreed upon by countries and fishers. Different fisheries often have different target species of fish or shellfish.	MSC What is a fishery?
Fishery improvement project (FIP)	A FIP brings together retailers, processors, producers and fishers to demand and leverage better management of marine resources by identifying environmental issues and implementing priority actions to address the root causes of fishery depletion.	Sustainable Fisheries Partnership Fishery improvement projects.

Fishing effort	1) The amount of fishing gear of a specific type used on the fishing grounds over a given unit of time, such as hours trawled per day, number of hooks set per day or number of hauls of a beach seine per day. 2) The overall amount of fishing (usually per unit of time) expressed in units, such as boat days on the fishing ground, number of traps, trawl hauls or gillnet length multiplied by soaking time. The effort may be nominal, reflecting the simple total of effort units exerted on a stock in a given time period. It may also be standard or effective, when corrected to take account of differences in fishing power and efficiency and ensure direct proportionality with fishing mortality. This usually relates to a specific fishery and gear. If more than one gear is considered, standardisation in relation to one of them is necessary. For biologists, a good measure of fishing effort is proportional to fishing mortality. For economists, it should be proportional to the cost of fishing.	FAO (1999) Guidelines for the routine collection of capture fishery data.
Flag of convenience	Where beneficial ownership and control of a vessel is found to be elsewhere than in the country of the flag the vessel is flying.	Environmental Justice Foundation (2020) Off the Hook: How flags of convenience let illegal fishing go unpunished.
Ghost gear	Fishing gear or parts thereof (including fish aggregating devices) that are abandoned, lost or discarded at sea. This is more formally referred to as 'Abandoned, Lost, or Discarded Fishing Gear' (ALDFG)	MSC (2021) Supporting the prevention of gear loss and ghost fishing. Fisheries Standard Review Impact Assessment Report, p.6
Illegal, unreported and unregulated (IUU) fishing	Illegal fishing refers to fishing activities: • Conducted by national or foreign vessels in waters under the jurisdiction of a state, without the permission of that state, or in contravention of its laws and regulations. • Conducted by vessels flying the flag of states that are parties to a relevant regional fisheries management organisation (RFMO) but operate in contravention of the conservation and management measures (CMMs) adopted by that organisation and by which the states are bound, or relevant provisions of the applicable international law. • In violation of national laws or international obligations, including those conducted by cooperating states to a relevant RFMO. Unreported fishing refers to fishing activities:	FAO Illegal, unreported and unregulated (IUU) fishing.

	• That have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations. • Conducted in the area of competence of a relevant RFMO that have not been reported or have been misreported, in contravention of the reporting procedures of that organisation. Unregulated fishing refers to fishing activities: • In the area of application of a relevant RFMO that are conducted by vessels without nationality, or by those flying the flag of a state not party to that organisation, or by a fishing entity, in a manner that is not consistent with or contravenes the CMMs of that organisation. • In areas or for fish stocks in relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with state responsibilities for the conservation of living marine resources under international law.	
Industrial fisheries	Industrial fisheries are defined as a category of capture fishery that generally present (some of) the following characteristics: (i) high capital equipment and expenditure, (ii) highly level of mechanisation, motorisation and onboard processing, (iii) large vessel size (> 24 m and > 50 GT), (iv) based on a business more vertically integrated, with generally global market access, (v) operating offshore on a multi-days basis.	IPBES Glossary
Marine Aquarium Trade	The marine aquarium trade supplies aquarium keepers with [live] ornamental species such as fish, corals, sea anemones, crustaceans, echinoderms and polychaetes.	Schwerdtner Manez et al. (2014) Fishing the last frontier: The introduction of the marine aquarium trade and its impact on local fishing communities in Papua New Guinea.
Marine Protected Areas (MPAs)	A protected marine intertidal or subtidal area, within territorial waters, EEZs or in the high seas, set aside by law or other effective means, together with its overlying water and associated flora, fauna, historical and cultural features. It provides degrees of preservation and protection for important marine biodiversity and resources, a particular habitat (e.g. a mangrove or a reef) or species, or sub-population (e.g. spawners or juveniles), depending on the degree of use permitted. In MPAS, activities (e.g. of scientific, educational, recreational or extractive nature, including fishing) are strictly regulated and could be prohibited.	FAO Terminology portal.
MARPOL	The International Convention for the Prevention of Pollution from Ships.	MARPOL

Maximum sustainable yield (MSY)	Maximum sustainable yield (MSY) is a theoretical concept used extensively in fisheries science and management. In fisheries, MSY is defined as the maximum catch (in numbers or mass) that can be removed from a population over an indefinite period. The concept of MSY relies on the surplus production generated by a population that is depleted below its environmental carrying capacity. Despite many concerns about MSY, MSY remains a key paradigm in fisheries management. However, MSY has evolved from a fisheries management target to a limit on fishing mortality and biomass depletion. The concepts involved in determining MSY for fisheries are similar to concepts in forest and wildlife management.	Maunder, M. N. (2008) Maximum Sustainable Yield, as cited in the SBTN Oceans Hub (2024) Draft Ocean Technical guidance – Step 3: Measure, Set and Disclose
Overfished	A stock is generally considered overfished when its ratio of biomass (B) to maximum sustainable yield (Bmsy) falls below 1 (B/Bmsy < 1).	SBTN Oceans Hub (2024) Draft Ocean Technical Guidance.
Overfishing	A stock is generally considered to be experiencing overfishing when its ratio of fishing mortality (F) to maximum sustainable yield (Fmsy) has exceeded 1 (F/Fmsy > 1).	SBTN Oceans Hub (2024) Draft Ocean Technical Guidance.
Pelagic fish	Fish that spend most of their life swimming in the water column with little contact with or dependency on the bottom.	FAO Terminology portal.
Point of recruitment impairment (PRI)	The stock level below which recruitment may be impaired.	MSC (2024) MSC-MSCI Vocabulary v1.6
Regional fisheries management organisation	An intergovernmental fisheries organisation or arrangement, as appropriate, that has the competence to establish conservation and management measures.	FAO (2016) Agreement on port state measures to prevent, deter and eliminate illegal, unreported and unregulated fishing.
Shark finning	The practice of removing any of the fins of a shark (including the tail) while at sea and discarding the remainder of the shark at sea.	MSC (2023) MSCI Vocabulary.
Stock	The living resources in the community or population from which catches are taken in a fishery. Use of the term fish stock usually implies that the particular population is more or less isolated from other stocks of the same species and hence self-sustaining. In a particular fishery, the fish stock may be one or several species of fish, but here it is also intended to include commercial invertebrates and plants.	FAO (1997) Fishery Resources Division and Fishery Policy and Planning Division. FAO Technical Guidelines for Responsible Fisheries.
Stock assessment	A fishery stock assessment is the scientific process of collecting, analysing and reporting on the	SBTN Ocean Hub

	condition of a fish (finfish or invertebrate) stock and estimating its sustainable yield. Stock assessments are the backbone of sustainable fisheries management. Stock assessment models are the mathematical and statistical techniques stock assessments use to analyse and understand the impact of fisheries and environmental factors on fish stocks. SBTN emphasises the use of stock assessments that are recognised and used by local, national or regional fisheries management authorities and organisations. Scientific studies with stock assessments that are performed independently of fisheries management authorities may also be used when the former is not available. Seafood certification and ratings reports, such as those from organisations within the Certification and Ratings Collaboration or recognised by the Global Sustainable Seafood Initiative, may also be used to find relevant stock assessment data. Using stock assessments will allow companies to determine quantitative thresholds for their targets.	
Target species	Those species that are primarily sought in a particular fishery and are the subject of directed fishing effort in a fishery. Target species may also be discarded due to landing size limits, over-quota, low quality as a result of depredation, scavenging or spoilage, or safety issues.	FAO (2021) Committee on Fisheries A third assessment of global marine fisheries discards.
Transhipment	The transfer process of fish or fish products at sea or in port, from one fishing vessel to either another fishing vessel or to a vessel used solely for the carriage of cargo, for further transport. At-sea transshipments are of special concern in fishery management since, if not properly monitored, they can complicate the collection of accurate data and the traceability of products, creating a fertile environment for illegal, unreported and unregulated fishing activities.	International Seafood Sustainability Foundation Transshipment.
Vessel	Any vessel, ship of another type or boat used for, equipped to be used for, or intended to be used for, fishing or fishing related activities.	FAO (2016) Agreement on port state measures to prevent, deter and eliminate illegal, unreported and unregulated fishing.
Vulnerable marine ecosystems (VMEs)	These are habitats that have been designated as such by a competent authority, based on the VME criteria, as defined in the International Guidelines for the Management of Deep-sea Fisheries in the High Seas. 'A marine ecosystem should be classified as vulnerable based on the characteristics that it possesses. The following	FAO (2009) VME Criteria.

list of characteristics should be used as criteria in the identification of VMEs:

- Uniqueness or rarity

- Functional significance of the habitat

- Fragility

- Life-history traits of component species that make recovery difficult

- Structural complexity. (Paragraph 42, FAO DSF Guidelines).

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