

SEAFUTURE 2025

FAO unique identifiers for fish stocks and fisheries

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Blue Transformation

Advancing aquatic food systems for prosperity and well-being

Blue Transformation outlines a vision to expand aquatic food systems and increase their contribution in support of global food security.



➤ Sustainable Aquaculture

Promote the sustainable intensification and expansion of aquaculture to respond to the growing demand for aquatic foods

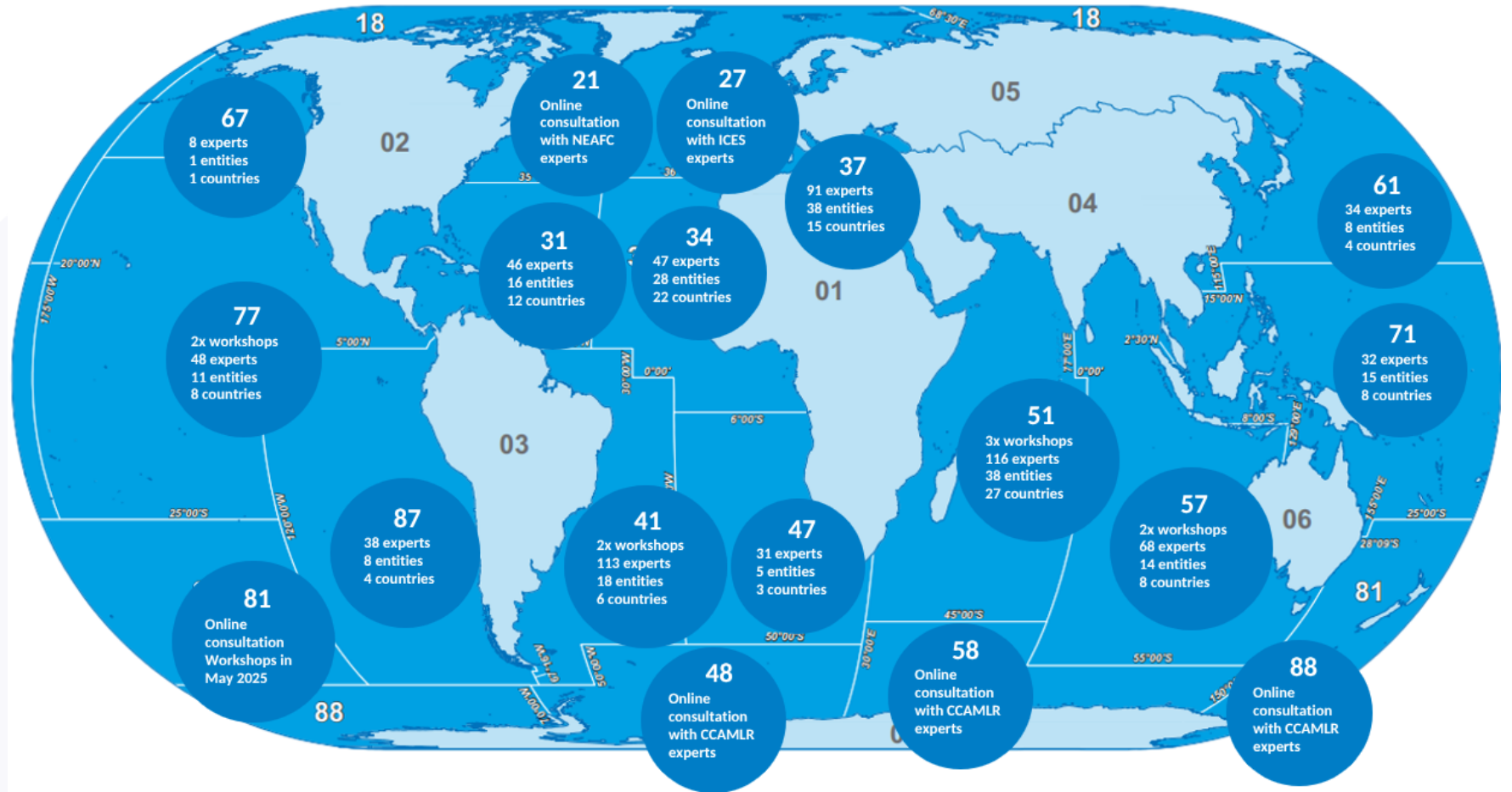
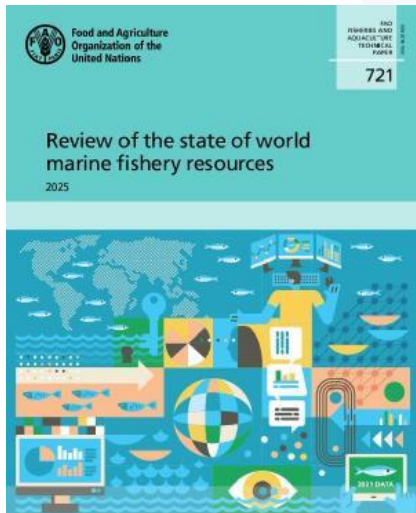
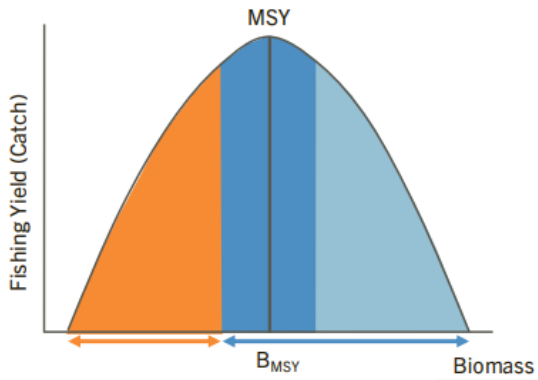
➤ Sustainable Fisheries

Sustainably managing all fisheries to deliver healthy fish stocks, restored ecosystem, equitable livelihoods for all

➤ Value Chains

Upgrading aquatic value chains for aquatic ecosystems that: benefit societies, boost economies, protect the environment

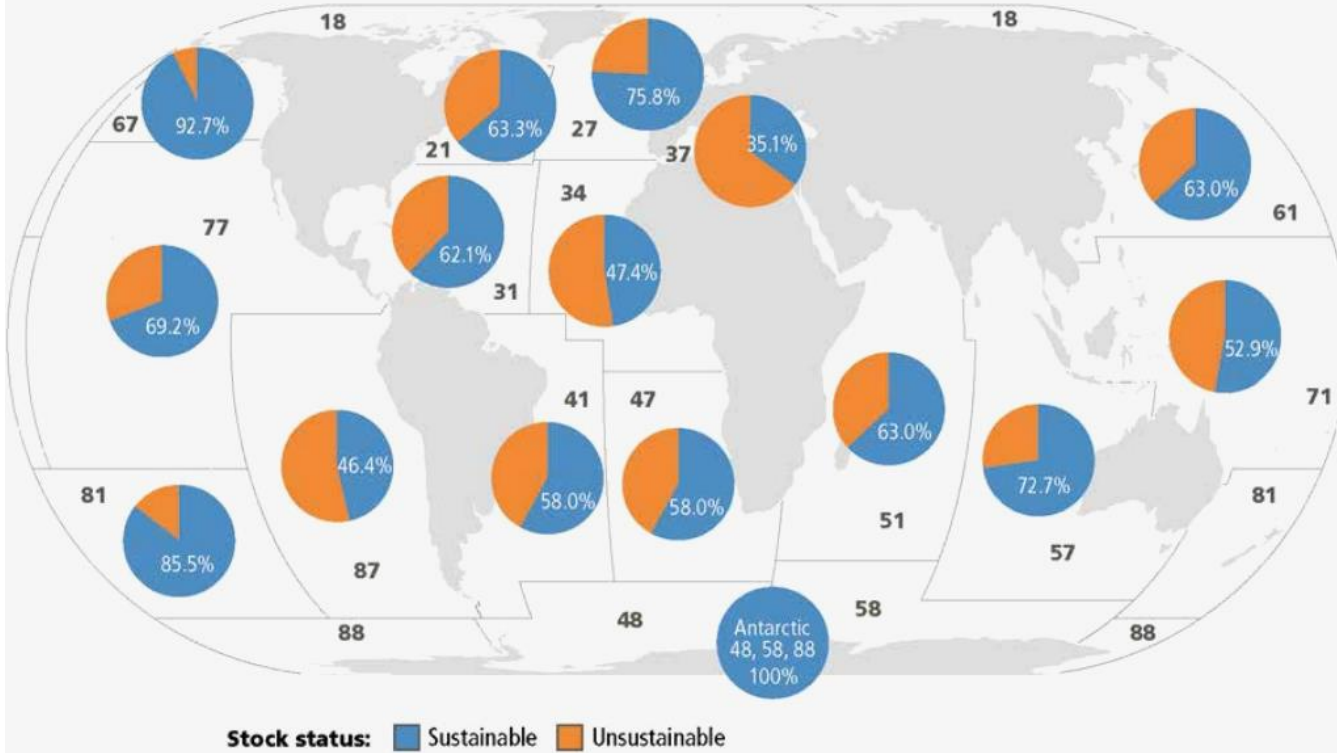
- Underfished ($B > 1.2 B_{MSY}$)
- Maximally Sustainably Fished ($1.2 B_{MSY} < B > 0.8 B_{MSY}$)
- Overfished ($B < 0.8 B_{MSY}$)



Dr Rishi Sharma coordinated
 15 workshops + 4 consultations
 670 experts | 200 entities | 92 countries

Updated methodology for the new FAO Status of Stocks Index – 2570 Fish Stocks assessed (ref year 2021)

PERCENTAGES OF BIOLOGICALLY SUSTAINABLE AND UNSUSTAINABLE FISHERY STOCKS IN 2021, BY FAO MAJOR FISHING AREA

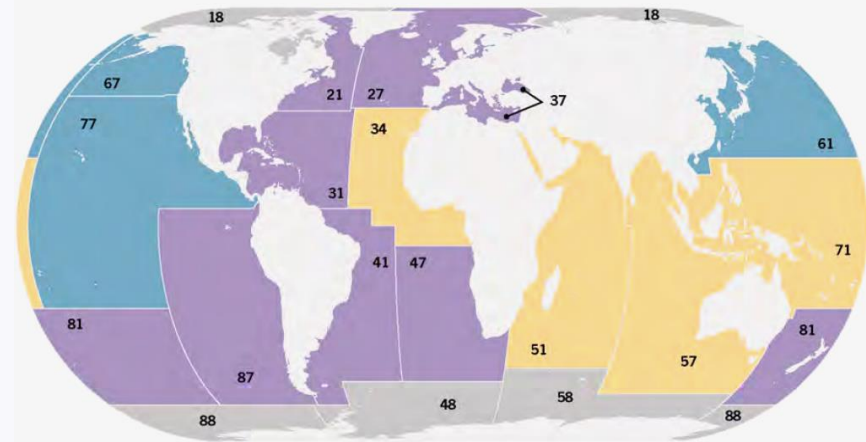


Notes: (1) The percentages represent the proportion of sustainable stocks. Notwithstanding the widespread consultation and the efforts to standardize the methodology, there are still differences in the quality and coverage of information across regions, as well as in some of the assumptions made. Caution should therefore be exercised when attempting to compare stock status across regions using this methodology. (2) Highly migratory sharks and tunas, as well as Area 67 Pacific salmon stocks, are excluded in this representation. (3) Refer to the disclaimer on page ii for the names and boundaries used in this map.

Source: FAO estimates.

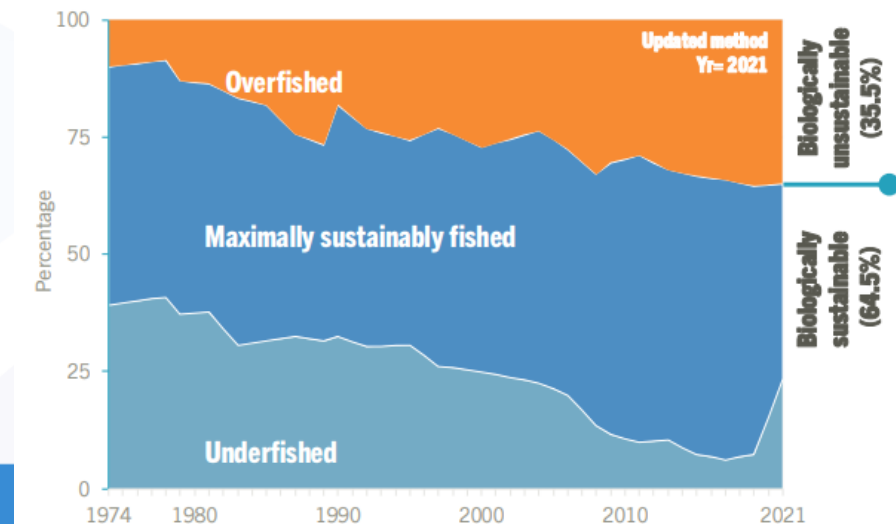
LANDING TRENDS FOR FAO MAJOR FISHING AREAS, 1950–2021

- Areas with a continuously increasing trend in landings since 1950 (Areas 34, 51, 57, 71)
- Areas with landings oscillating around a stable value since 1990 (Areas 61, 67, 77)
- Areas with an overall declining trend in landings following historical peaks (Areas 21, 27, 31, 37, 41, 47, 81, 87)



Notes: (1) Aquatic animals, excluding aquatic mammals, crocodiles, alligators, caimans, aquatic products (corals, pearls, shells and sponges) and algae. (2) Refer to the disclaimer on page ii for the names and boundaries used in this map.

Source: FAO estimates and FAO. 2024. FishStat: Global capture production 1950–2022. [Accessed on 15 November 2024]. In: FishStatJ. Available at: www.fao.org/fishery/en/statistics/software/fishstatj. Licence: CC-BY-4.0.



A global repository with unique identifiers for stocks and fisheries



GRSF enables collation, standardization and harmonization across multiple data providers to facilitate and promote monitoring of all world stocks and fisheries status and trends.



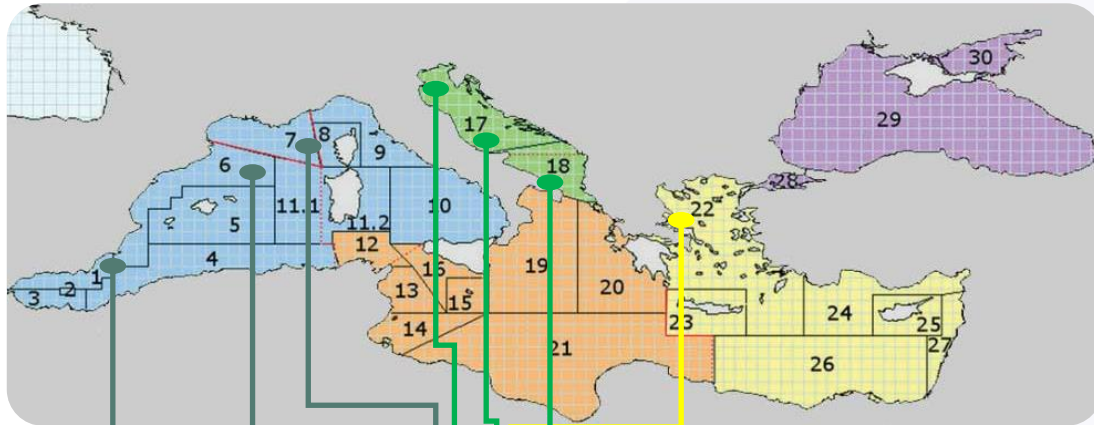
Four major database sources contribute to GRSF under the FAO governance:

- **FAO Fisheries and Resources Monitoring System (FIRMS)** <https://firms.fao.org>
- **RAM Legacy Stock Assessment Database** <https://www.ramlegacy.org>, owned by **University of Washington**
- **FishSource** www.fishsource.org, owned by **Sustainable Fisheries Partnership**
- **SDG14.4.1 Questionnaire for which FAO is custodian agency**
www.fao.org/sustainable-development-goals-data-portal/data/indicators/1441-fish-stocks-sustainability/en

FAO SDG 14.4.1 Questionnaire

GRSF was born as an initiative funded by the European Union Horizon 2020 BlueBRIDGE project (2016-2018) using advanced IT solutions implemented by renowned IT research partners (CNR-ISTI, FORTH).

Universally Unique Identifiers (UUIDs) applied to Stocks and Fisheries a new innovative global standard



- Anchovy - Adriatic Sea
- Anchovy - Aegean Sea
- Anchovy - Gulf of Lion
- Anchovy - Northern Adriatic Sea
- Anchovy - Northern Alboran
- Anchovy - Northern Spain
- Anchovy - Southern Adriatic Sea

- ID ASFIS:ANE + GSA:17-18 **UUID** [6e44250b-fd04-337e-91d7-f7b6840bb862](#)
- ID ASFIS:ANE + GSA:22 **UUID** [63d689ec-ef49-3b22-a37a-bb49d00e1638](#)
- ID ASFIS:ANE + GSA:7 **UUID** [a965318a-4b29-3b6f-b9a6-4ed6a676c779](#)
- ID ASFIS:ANE + GSA:17 **UUID** [72a47857-eb5a-324f-8f69-78b622bc55e7](#)
- ID ASFIS:ANE + GSA:1 **UUID** [834d0773-23ed-3d34-bbde-253a3ef5eaa6](#)
- ID ASFIS:ANE + GSA:6 **UUID** [e5de7186-6b88-325e-8cd1-68d933943cb4](#)
- ID ASFIS:ANE + GSA:18 **UUID** [4c437c98-d37c-37a5-99d9-d5e4cd82360e](#)

Stock name

Human readable
Semantic code

Machine readable code



QR code

STANDARD CODING SYSTEM FOR:

- Stocks <Species> + <Assessment Area(s)>
- Fisheries <Species> + <Fishing area(s)/Management area(s)> + <Management Authority(ies)> + <Gear type> + <Flag State>

EXAMPLE OF SEMANTIC IDENTIFIER, AND OF ITS FULL LABEL

asfis:COD + fao:21.3.M + authority:INT:NAFO + isscfg:03.12 + iso3:LTU
Godus morhua - Atlantic, Northwest/21.3.M - Northwest Atlantic Fisheries Organization (NAFO) - NAFO area of competence - Single boat bottom otter trawls - Lithuania

Species: *Godus morhua*
 Species code: COD
 Fishing Area: FAO 21.3.M
 Management Authority: Northwest Atlantic Fisheries Organization (NAFO)
 Jurisdiction: NAFO area of competence
 Fishing Gear: Single boat bottom otter trawls
 Fishing Gear code: 03.12
 Flag State: Lithuania
 Flag State Code: LTU
 ID: asfis:COD + fao:21.3.M + authority:INT:NAFO + isscfg:03.12 + iso3:LTU
 UUID: <http://.../099f403e-709e-3139-9f5d-133d0b1a3f1d>

Source FAO, SOFIA, 2018

GRSF UUID example QRCode



UUID's: A de-facto standard for information collation and sharing

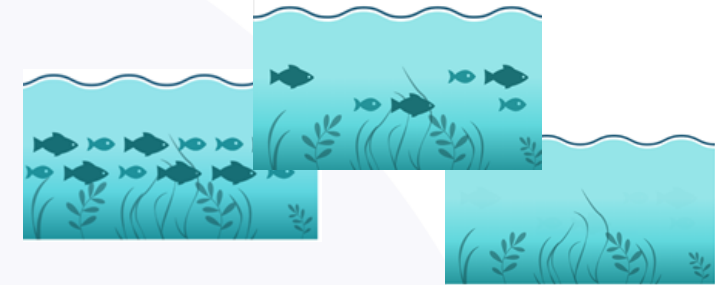
GRSF has two technical objectives in support of two policy goals

1. Register a comprehensive **list** of distinct **stocks** and **fisheries** as part of a global repository
2. Federate knowledge on **status/trends** of stocks and fisheries across various sources

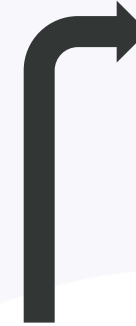
--> key services to:

I. Science stakeholders involved in **“regional/global state of stocks indicators”**

II. Public and private actors involved in ecolabelling, traceability and sustainable fisheries



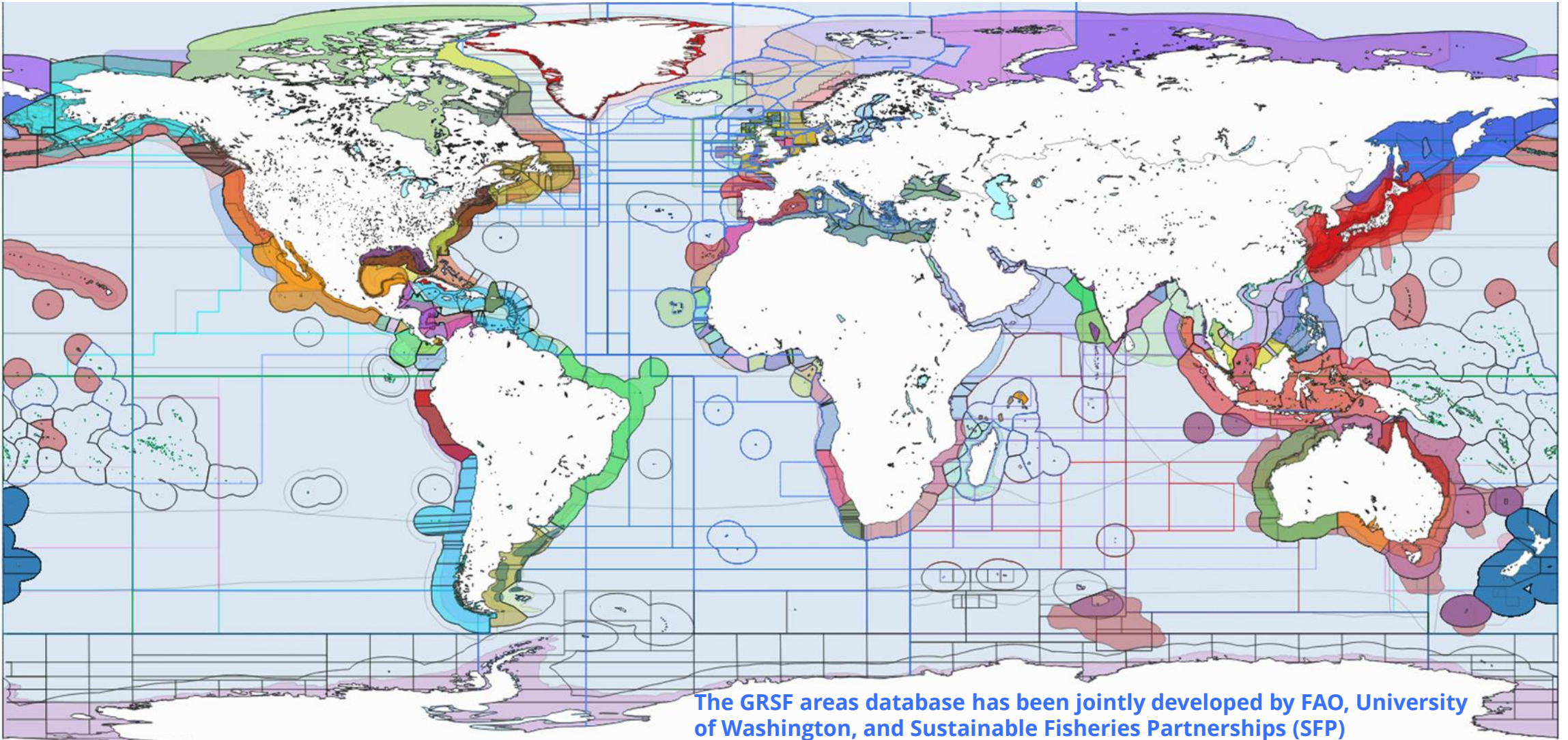
Status of Stock



Traceability along value chain



- A comprehensive inventory of geographic areas delineated by national and international entities for the purposes of stock assessment, fisheries management, statistical reporting and related activities.





The GRSF areas database has been jointly developed by FAO, University of Washington, and Sustainable Fisheries Partnerships (SFP)

Take away messages

In a growing data-dependent world, with communities seeking for **the best scientific evidence to apply effective management measures**

- the **GRSF**, a new platform backed with a new standard, is the digital answer providing key **services** in support of the **state of fishery stocks indicators** and to add further transparency to the seafood value chain.
- The key innovation of the GRSF is by assigning **unique identifiers** for stock and fishery identification, which enables a worldwide view of our collaborative knowledge on assessed stocks and supporting indicators.
- **Facilitates** reporting of higher quality and reduces **data management** issues.
- **Enables interoperability** among distributed databases, thus offering ways to aggregate information from diverse sources about a stock or a fishery.
- Intend to serve the **needs** of regional fisheries bodies and their member countries, national government agencies dealing with **stocks and fisheries reporting**, researchers analysing the state of global fishery resources, the fish food industry (from suppliers to retailers), and Nongovernmental organizations promoting sustainable fisheries.

Additional reading...

 Food and Agriculture Organization of the United Nations	 FIRMS FSC14/2025/Inf.7
FIRMS Steering Committee Meeting	
Fourteenth Session	
Copenhagen, Denmark, 30 June, 1 and 4 July 2025	
The GRSF standard	
Author: FIRMS Secretariat	

The GRSF standard
 This document prepared for the FIRMS FSC14 session is an updated version of the GRSF standard initially shared at the FIRMS FSC13 meeting (June 2023).

[The GRSF standard \(FIRMS, FSC14 meeting doc. June 2025\)](#)



[FIRMS brochure](#)

Global Record of Stocks and Fisheries (GRSF)

GRSF is the newest tool for a critical expansion of FIRMS information towards a world coverage. GRSF enables collation, standardization and harmonization across multiple data providers to facilitate and promote monitoring of all world stocks and fisheries status and trends. Four major database sources contribute to GRSF under the FIRMS governance:

- Fisheries and Resources Monitoring System (FIRMS): <http://firms.fao.org>
- Assessment Database: <http://ramlegacy.org>, owned by University of
- www.fishsource.com, owned by Sustainable Fisheries Partnership
- Inafore for which FAO is custodian agency

History of a transparent inventory of stocks and fisheries records, GRSF provides worldwide coverage of over 2 000 fish stock records:

- Process under a shared harmonized standard, unique identifiers are created for stocks and fisheries, and these are published through the GRSF Catalogue
- Identifiers consist of a machine readable universally unique identifier (UUID) and a human-readable semantic identifier with codes and labels.

GRSF is intended for regional fisheries management organizations (RFMOs), inter-country agencies dealing with fisheries reporting, and the state of global fisheries and fish food industry (processors, retailers), and Non-Governmental Organizations (NGOs) promoting sustainable fisheries.

GRSF is an initiative of the European Union Horizon Europe project using data generated and implemented by partners (CNRS, IFREMER, etc.).

Universally Unique Identifier (UUID)

A web-resolvable digital identifier for any data exchange protocols

Unique identifiers for fish stocks

Traceability

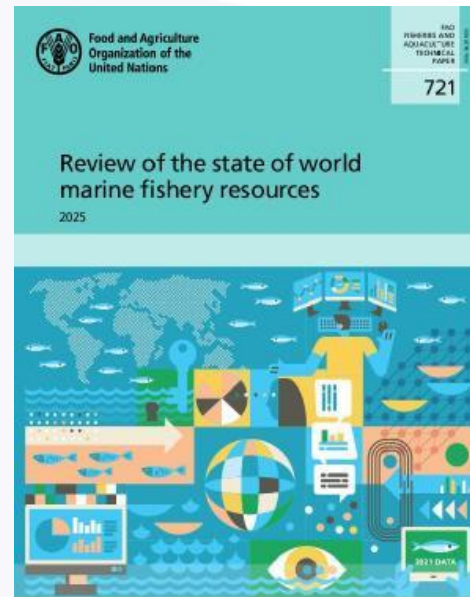
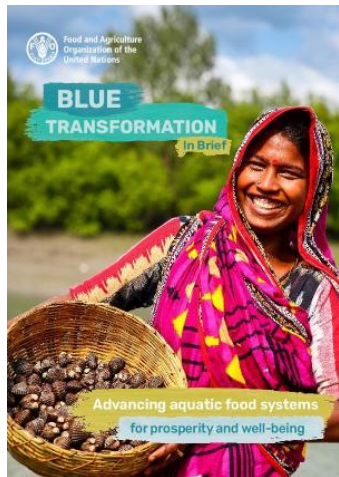
Browse the Stocks and Fisheries knowledge base

- **FAO Fisheries and Resources Monitoring System (FIRMS)** <https://firms.fao.org/>
- **GRSF Catalogue** <https://i-marine.d4science.org/web/grsf/data-catalogue>
- **GRSF Map Viewer** <https://i-marine.d4science.org/web/grsf/map-viewer>

Additional reading...

Blue Transformation

<https://www.fao.org/fishery/en/bluetransformation>



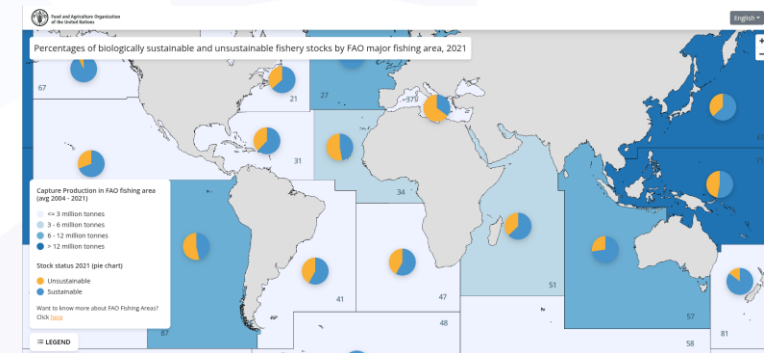
Review of the state of world marine fishery resources – 2025

<https://openknowledge.fao.org/items/8bf1f881-9208-4c59-86e2-9ada635960dd>



Global Fisheries Capture Production – interactive map

<https://www.fao.org/interactive/2025/global-fisheries-capture-production/en/>



Thank you Merci
Благодарю ¡Muchas gracias!
謝謝 شكرا

Acknowledgement

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- ***Luca Frosini (CNR)***