Data needs for Blue Growth; Policy issues and information needs for sustainable fisheries

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July 6th, Auditorium St Exupery
☑ 2030 Agenda; Sustainable Development Goals
  ☑ FAO flagship publication SOFIA
  ☑ Firms Partnership & GRSF
  ☑ Common oceans; ABNJ
  ☑ Global Fishing Watch
  ☑ Regional Database
  ☑ Stock assessment & e-training
  ☑ Climate change impact on fisheries and aquaculture
  ☑ Spatial planning; Copernicus data and the detection of aquaculture farming systems
  ☑ FAO’s Global Data Framework for Blue Growth
Sustainable fisheries and aquaculture
FAO dissemination of materials

- FAO Key publication: SOFIA
- But also FIGIS, FAOstat, FishstatJ
  - Characterize fisheries
  - Disseminate factsheets
  - Answers policy questions
  - Monitoring of performance
- New development
  - SDG 14.4.1 online monitoring
  - SDG 14.4.1 training

www.fao.org/fisheries/statistics
Sustainable fisheries data needs
Stock monitoring and assessment; dissemination

- Monitoring sustainability performance
- FIRMS; Fisheries & Resources Monitoring System
  - More than a system; a team
  - Provides governance model
- Stocks and fisheries Map Viewer
- Fisheries Fact sheets
- Global record of stocks and Fisheries
Global Record of Stocks and Fisheries
2018 release of catalog

- Harmonize existing fishing indicators
- Unique Identifiers for global stocks
  - Collaboration of main data providers (FAO, RAM, SFP)
  - Serves many different purposes (SDG14.4.1, Traceability)
- Includes geographic identifiers
- Public data services
  - Built on a semantic knowledge base (can be queried)
  - Metadata driven and time aware
  - CKAN catalog publishes the results
Common oceans – our shared responsibility

Improving fisheries management and safeguarding biodiversity across the areas beyond national jurisdiction
Estimating intensity and global distribution of fishing capacity, fishing activities. (Global Fishing Watch)* SDG 14

Other FAO / GEE projects:
- Collect Earth (augmented visual interpretation of RS data for land monitoring) – SDG 2 and 15
- Water Productivity (regional mapping of performance of water use in agriculture) SDG 2 and 6
- SEPAL System for Earth observations, data Processing & analysis for Land monitoring-SDG 2, 6 and 15
- Desert Locust Mapper (locust presence monitoring and risk mapping tool) - SDG 12
- Estimation of GHG emissions from fires - SDG 13
- Rift Valley Fever risk mapping tool - SDG 2, 3
- Post-Harvest Loss Indication Tool (PHLINT)* - SDG 12
FAO Tuna Atlas allows to harmonize and standardize fisheries capture date
- From major fisheries bodies
- Harmonize spatial / temporal / species / gear / “flag” dimensions
- Harmonized data are shared in public OGC and CKAN repositories
The Metadata driven approach results in data and infra interoperability;
- Map viewers; GeoNetwork based
- Data analysis by assessment teams; reproducible stock reports
- Cross domain analysis; generate fisheries data in NetCDF format
SDG14.4.1 is about proportion of fish stocks within biologically sustainable levels;

FAO support the capacity development towards understanding his complex indicator

Use the infrastructure R, Rshiny and Docker approach
- July 2018: 628-page report
- The impacts of climate change on fisheries and aquaculture
- 200+ authors, peer-reviewed
- Disaggregated impacts
- Adaptation options
Species distribution based on generated timeseries of forecasted environmental values

- NOAA and NASA for climate indicators
- AquaMaps for other (environmental)

To create a harmonized and uniform experimental data space

- Example: Sea surface temperature forecast
- We modeled forecasts of species invasions
- We are working to forecast stock distribution
Common problems due to the lack of spatial planning and management

- Production issues
- Risk financing
- Fish disease
- Social
- Environment
- Post harvest
- Lack of resilience

Detection of Aquafarms for inventories
A semi-automated workflow

- Based on free optical imagery
  - Detect cages algorithm
  - Edit cage attributes
  - Publish data to a geoserver
- Maps now available include
  - Greece (Months to prepare)
  - Malta (Hours to prepare)
- Easy to reproduce
Based on Sentinel and Landsat imagery
- Analysis of shrimp / fish ponds
- Analysis of images from EO data catalog
- Unique S1 and S2 and Landsat composite
- Quick scan of Land-use classification
- Output to a standard SDI (Geoserver)
- Accessible by GIS Software
- Available for WPS processes; e.g. to
  - Merge with other layers
  - Compute suitability
# FAO’s Global Data Framework for Blue Growth

## Copernicus collaboration options

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- **FVF**: Global vessel Registry
- **International standards**: CWP, sdmx
- **Statistics**: Fishstat, Vulnerable marine ecosystems
- **Comprehensive knowledge bases**: NASO MAPS, FIRMS
- **Tools, Collaborative data infrastructure**: FIGIS, Marine, BlueBRIDGE
- **Capacity building**: Global Strategy, ASFA, ARTFISH