



BlueBRIDGE



Global Record of Stocks and Fisheries (GRSF)

BlueBRIDGE TCOM Meeting 5
14th June 2017, FORTH, Crete

CWP Intersessional Aquaculture and Fishery Subject Groups Meetings
Denmark, Copenhagen, 19 - 22 June 2017

FIRMS Steering Committee Meeting - 10th Session
Denmark, Copenhagen, 21 - 24 June 2017



About the GRSF

GRSF timeline and documentation

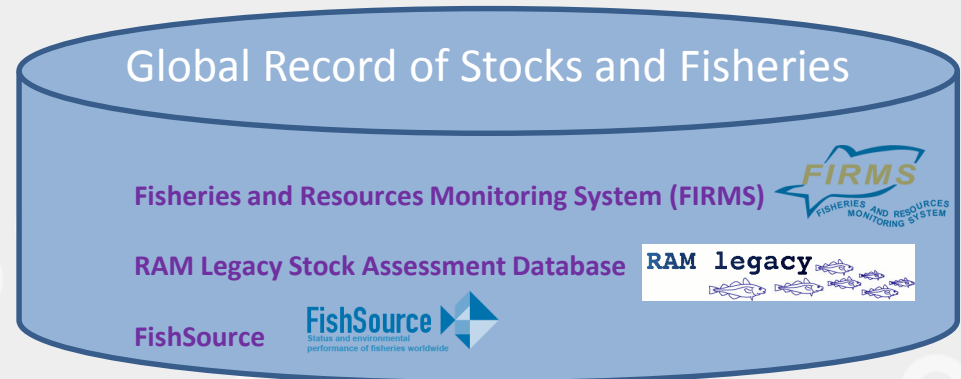
Main achievements, so far

What's next



What is the Global Record of Stocks and Fisheries (GRSF)?

- The GRSF aims at providing an innovative environment supporting the collaborative production and maintenance of a **comprehensive and transparent inventory of stocks and fisheries records** that will boost regional and global stocks and fisheries status and trend monitoring as well as responsible consumer practices.
- Fisheries and Resource Monitoring System (FIRMS), the RAM Legacy Stock Assessment Database and FishSource (program of the Sustainable Fisheries Partnership) are the three database sources.
- By collating these sources, the reporting coverage of any of these single entities is increased.
- The GRSF database collects information on biological and fishing activity aspects, respectively identified as “stocks” and “fisheries”.







Potential audiences

-  RFBs and their member states
-  Seafood industry (from suppliers to retailers)
-  National agencies of governments dealing with stocks and fisheries reporting
-  Researchers and Officers working on global analyses on state of fishery resources
-  NGOs promoting sustainable fisheries
-  General public

Business cases, offering key **services** to:

-  Stakeholders involved in global/regional/national **state of stocks indicators**
-  Public and private actors involved in **eco-labelling, traceability and sustainable fisheries**















Why is the GRSF so unique?

-  First of all, a global record of stocks and fisheries **does not yet exist**.
-  The current effort aims at creating a **critical mass** of information with widespread coverage and this should position it as key instrument of global fish stocks status monitoring and traceability.
-  BlueBRIDGE's approach provides a **collaborative environment** will allows data providers (beyond the initial three database sources) to contribute to GRSF incrementally by exposing their data with minimum effort.
-  Users get **access** to a huge amount of quality data collected in a cost-effective way with distributed effort among **authoritative sources**.
-  Special attention is given to **provenance and ownership metadata** to make the GRSF a valuable source of information for the seafood industry.









Timeline

-  Sept. 2015 - BlueBRIDGE kick off meeting
-  Jan. 2016 - 1st Project Technical Committee (TCom)
-  March 2016 - EAB TWG1 on GRSF
-  May 2016, 2nd TCom
-  June 2016 - 3rd Tcom
-  August 2016 - Compilation of requirements for the business cases
-  Oct. 2016 - 4th TCom
-  Dec. 2016 - Release of the GRSF prototype
-  Mar. 2017 - EAB TWG2 on GRSF
-  June 2017 - 5th Tcom
-  August 2017 – Test with users from the industry sector and seafood retailers
-  Sep. 2017 – March 2018, 6th & 7th TCom and EAB meeting





Essential documentation

-  GRSF Requirements https://support.d4science.org/projects/stocksandfisherieskb/wiki/GRSF_database_overview (GRSF Wiki, login required)
-  TWG1 Report ftp://ftp.fao.org/FI/DOCUMENT/FIGIS_FIRMS/TWG5/FIRMS-TWG5-Report.pdf
-  TWG2 Report http://www.fao.org/fi/static-media/MeetingDocuments/BlueBRIDGE/EAB-TWG2-GRSF/EAB-TWG2-GRSF_REPORT.pdf
-  Meetings minutes (~ 40 conf. calls) <https://support.d4science.org/projects/stocksandfisherieskb/wiki/GRSF#Meetings>







Achievements for the GRSF community

-  Data harvest workflow from database sources
-  Data validation workflow
-  Standards for the fields of the GRSF records
-  A proposed global standard for Unique Identifiers of stocks and fisheries
-  Prototype
-  Compilation of principles for governance and sustainability

Technical achievements

-  Integration of multiple data sources
-  MatWare integration to build the GRSF Knowledge base
-  GRSF Catalogue
-  VRE for admin users


Standards for the fields of the GRSF records

-  Based on global standards
-  “Local” standards can be adopted if they are maintained
-  Each standard has a data structure:
Classification system - Code - Labels
e.g. “ASFIS - ALV - Alopias vulpinus”
-  Local codes (not approved in the registry) will be treated only as a text string and qualified as “unknown”
-  Mapping to standards is the way to handle source data when not compliant with the GRSF standards
-  FAO Master Data Management initiative and the CWP global Standard for Data Structure Definition (SDSD) could support the GRSF needs



The main technical challenge in the set-up of a Global Record of Stocks and Fisheries is the harmonization of the different existing standards (international, regional and national) from different data sources with the aim to build unique identifiers for stocks and fisheries.

Unique identifiers for Stocks and Fisheries

GRSF Universally Unique Identifier

-  a machine readable code for unique identification of GRSF records

GRSF Semantic Identifier

-  an human readable code and label for the GRSF records metadata
-  a GRSF “**Short Title**” with specific naming convention describes the stocks and fisheries

 Unique identifiers for Stocks and Fisheries

 **Universally Unique Identifier**

- to respond to whatever global IT standard

Example

<http://data.d4science.org/uri-resolver/catalogue/GRSF/product/f21113e9-0794-37aa-b7fe-bf49101361f3>

- The resolver can be customized
- UUIDs persist in case of changes of the semantic identifiers (i.e. updates of a record)

Unique identifiers for Stocks and Fisheries Semantic Identifier

Stocks: <Species> + <Assessment Area(s)>




Fisheries: <Species> + <Fishing Area(s)> + <Jurisdiction area(s)> + <Management Entity(ies)> + <Geartype> + <Flag State>

Example

ASFIS:COD + FAO:21.3.M + RFB_COMP:NAFO + GRSF-Org:INT:NAFO + ISSCFG:OTB + ISO3:LTU

Gadus morhua - Atlantic, Northwest / 21.3.M - NAFO area of competence - Northwest Atlantic Fisheries Organization

(NAFO) - Bottom otter trawls – Lithuania

-  Validation of unique stocks or fisheries are against the above fields
-  Fishery records identified from a fishing activity view point (1 species, 1 gear, 1 flag state)
-  There could be issues in case of geospatial codes not adequate to identify the proper assessment/fishing areas

Unique identifiers for Stocks and Fisheries



Species: ***Gadus morhua***

Species code: **COD**

Fishing Area: **FAO 21.3.M**

Fishing Gear: **Bottom otter trawls**

Fishing Gear code: **OTB**

Flag State: **Lithuania**

Flag State Code: **LTU**

Management Authority: **Northwest Atlantic Fisheries Organization (NAFO)**

Jurisdiction: **NAFO area of competence**

UUID: http://data.d4science.org/uri-resolver/catalogue/GRSF_Admin/product/f21113e9-0794-37aa-b7fe-bf49101361f3



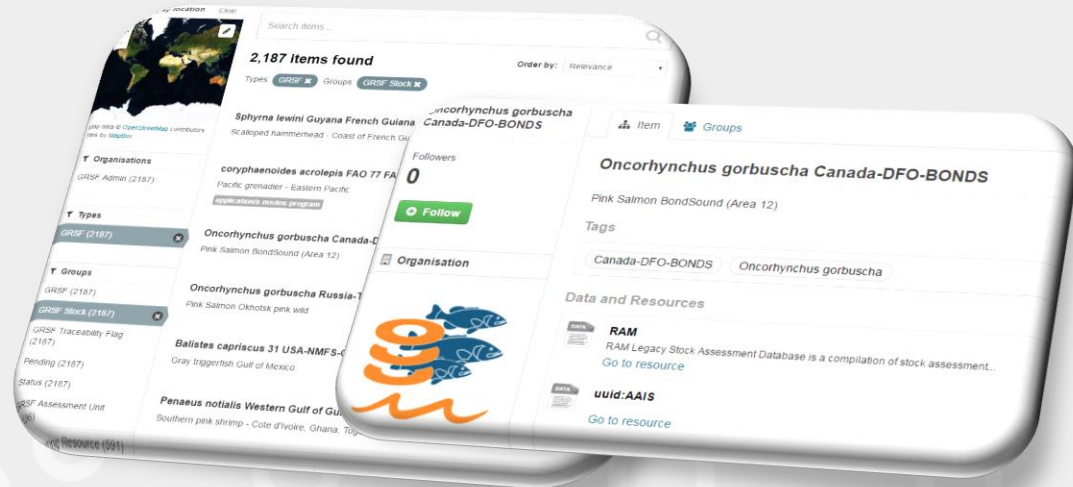
Many stakeholders from industry, NGOs, technology companies, etc. believe the success of technology companies to develop seafood traceability solutions to meet the future global demand is based on standardized fishery identifiers.

Supporting services to stakeholders involved in global/regional/national **state of stocks indicators**

- ☒ Beyond identity elements, the GRSF records will contain data and references to:
 - ☒ Catch/Landing data
 - ☒ Assessment Methods
 - ☒ State and Trend of Stock (a qualitative description)
 - ☒ S&T indicators - quantitative and/or qualitative values for fishing pressure (exploitation rate/fishing mortality) and abundance (abundance/total biomass/ssb level)
 - ☒ Exploitation state (FAO standard terms)
 - ☒ Scientific advice
 - ☒ Others including biomass, fishing mortality, MSY, CPUE series, and biological parameters
- ☒ The GRSF also enables linkages and navigation across proxy stocks and fisheries

The GRSF Prototype

- Based on iMarine Data Catalogue, open source CKAN software
- 2 VREs (Virtual Research Environment)
 - the “GRSF” VRE for the public users with approved records
 - the “GRSF Admin” VRE for authorized users to manage and validate the GRSF records
- The GRSF Knowledge Base is built with MatWare (FORTH semantic web technology using ontologies)



- ☑️ Compilation of principles for **governance** and sustainability
 - ☑️ content governance
 - ☑️ system governance (storage, data preservation)
 - ☑️ sustainability business model





- ☑️ A **GRSF secretariat** may take the role for the validation of records (with the help of experts)
- ☑️ A **GRSF board**, constituted by representatives of the Partners, for taking major decisions on standards and procedures
- ☑️ On legal aspects, FAO could be the legal entity of the GRSF as **custodian** of the GRSF data
- ☑️ iMarine **MoU** with FAO can support the system governance
- ☑️ One or more **service provider** company will also be involved for the marketing of services to the seafood industry

- ☑️ Compilation of principles for governance and **sustainability**
- ☑️ What business model or models can be built around GRSF services?
 - ☑️ Services directed at the **seafood industry** and service companies (e.g., traceability/technology).
 - ☑️ Validation of a stock/fishery existence providing references (best scientific evidence) and a unique UUID.
 - ☑️ There is evidence that business models can be built around these services and marketed to generate income to support at least part of the GRSF and its key components.
 - ☑️ Services for the **State of stocks community**
 - ☑️ **Downloads** of state of stocks indicators (e.g. <https://goo.gl/lqSfE3>)









The main organizational challenge is to transform this initiative into an operational business, building on a mix of public and private partnership. We are creating new services building on publicly available data: maintaining such services with the required quality will need to be remunerated by the market demand for those services.



What's next?

-  By the end of the project (Feb. 2018), three rounds of data harvest to progressively implement GRSF TWG2 recommendations and updated requirements
-  Test unique identifiers mechanism with SFP-FishSource team in collaboration with selected users from the industry sector and seafood retailers
-  Design a GRSF business model and draft data access and sharing policies
-  Validate GRSF record with the support of experts


Questions to FSC10

-  Role of FIRMS, and FIRMS partners, in the Governance
-  Maintenance and development of standards
 -  FIRMS could provide technical advisory committee
-  Maintenance of content
 -  Sources of info commit to maintain the data flow
 -  Quality control in the validation and publishing of unique records, and in mappings maintenance
-  FAO and technical partners (e.g. RAM, SFP) to support core master data, ontologies
-  The above roles should also be thought of in context of SDG14.4.1

Opinion of FSC10

-  On the governance model

-  On other user groups who will find value in having access to the unique ID codes

-  Should these other users also be charged for this access (some but not all)

-  How should they be charged (e.g. annual fees)

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Merci

Thank You

Благодарю

¡Muchas Gracias!

